



Ark of Inquiry: Inquiry Activities for Youth over Europe

Deliverable D7.2

Report of dissemination and exploitation activities 1

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List of Acronyms

ASP	Associated School Programme, UNESCO
DoW	Description of Work
EARLI	European Association for Research on Learning and Instruction
EERA	European Educational Research Association
EC	European Commission
ECSITE	European Network of Science Centres and Museums
ENIS	Network of European Innovative Schools
ESERA	European Science Education Research Association
EU	European Union
GDCP	<i>Gesellschaft für Didaktik der Chemie und Physik</i> (Association of Chemistry and Physics Education)
IBSE	Inquiry-Based Science Education
ICASE	International Council of Associations for Science Education
IMST	<i>Innovationen Machen Schulen Top</i> (Innovation makes the best schools)
ISATT	International Study Association on Teachers and Teaching
KWTG	Knowledge Science and Technology Gelderland
ReSciTEG	Research Group on Science Education and Technology, University of Cyprus
RRI	Responsible Research and Innovation
SCN	Science Centre Network
STEM	Science, Technology, Engineering, and Mathematics
WP	Work Package

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Summary

This report describes the planned dissemination and exploitation activities in the Ark of Inquiry project. An update on progress is provided against Year 1 (March 2014 – February 2015) for the promotion and circulation of the shared key messages and objectives of the project and for advertising the Ark of Inquiry platform to the key stakeholders of the project (pupils, teachers, teacher educators, scientists, staff of universities, museums and science centres, and research institutions).

First, the introduction of the report lays the groundwork around which the principles for dissemination and exploitation are organized, including the targets for dissemination. The document then discusses the various internal and (primarily) external dissemination and exploitation activities undertaken by the project partners, followed by a short analysis of the results so far and a few words looking towards the future. A few “in-house” recommendations for accelerating progress towards the stated objectives follow each section.

The document concludes with an analysis of progress towards reaching the target audiences and a discussion on sustainability and risks associated with dissemination. Finally, an overview of the strengths and weaknesses of the Year 1 dissemination and exploitation activities is presented.

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1. Introduction

The project *Ark of Inquiry: Inquiry Awards for Youth over Europe* aims to build a scientifically literate and responsible society through inquiry-based science education (IBSE). From March 2014 through February 2018, this will be accomplished by raising young people's awareness of Responsible Research and Innovation (RRI) by providing them with a pool of engaging inquiry-based activities in the Science, Technology, Engineering and Mathematics (STEM) domain.

The project will undertake activities across Europe to identify and share best practices in IBSE, connecting interested learners and supporters (teachers, science and teacher education students, and staff of universities, science centres and museums) with activities that can be easily replicated in their own contexts and environments. It aims to engage at least 23,000 pupils (with an emphasis on female pupils), 1,100 teachers, 100 science and teacher education students and 50 university researchers in its overall activities.

Work Package 7 (WP7) of the Ark of Inquiry project relates to Dissemination. The objective of Deliverable 7.2 is to report on and provide a short analysis of those dissemination and exploitation activities that have taken place during Year 1 of the project. It augments the information provided in Deliverable 7.1 (which reports on the public website and dissemination materials created about Ark of Inquiry) and provides additional information on how those tools and activities are used to help reach the identified target groups in the Description of Work (DoW).

Dissemination and exploitation activities of the Ark of Inquiry project have been divided into internal and external dissemination. The main aim of the **internal dissemination** is to coordinate an effective information flow between all individual partners and institutions participating in the project, contributing and providing support to the communications goals, priorities and strategies set for the project. Internal dissemination activities may include, but will not be limited to, the development/use of internal communication tools and templates, the facilitation of regular and ad-hoc meetings for the purposes of sharing information, and the undertaking of regular reports to the donor in order to advance the completion of project deliverables.

The main aim of the **external dissemination** is to support the Ark of Inquiry project through the expression and promotion of commonly shared key messages and objectives of the project and ensure regular information flow to key stakeholders and the general public at national and European levels. External dissemination activities may include, but are not limited to, participation and organization of national and international workshops and conferences, science contests and fairs, open information days, workshops, science contests for teachers and learners, thematic meetings with external experts, presentations in conferences and publications in peer reviewed and general public journals.

The dissemination of information surrounding the Ark of Inquiry project will take place over three distinct yet interrelated phases:

1. Development phase: general promotion of the project itself and its objectives;
2. Piloting phase: expansion of the testing ground into new arenas; and
3. Implementation phase: the marketing or “selling” of the results, tools and techniques used in the Ark of Inquiry project for greater outreach of the project deliverables.

Throughout the lifetime of the project and according to the varying phases of dissemination, the target audiences and types of tools and activities undertaken will evolve, as illustrated in Table 1 below.

Table 1: Phases of Dissemination and Exploitation Activities

	Phase 1: Development	Phase 2: Piloting	Phase 3: Implementation
Nature of activities	Development of tools, selection of Ark of Inquiry activities and identification of target audiences	Testing of Ark of Inquiry activities in support community and assessment	Extension of testing ground and public dissemination
Primary types of tools	<u>Internal</u> : templates, Google Drive, web-page, mailing lists, etc. <u>External</u> : events/ conferences, networks	<u>Internal</u> : templates, reports <u>External</u> : organization of trainings and workshops	<u>Internal</u> : reports <u>External</u> : conferences, partnerships
Main target audiences	<u>Internal</u> : all project partners <u>External</u> : teachers, scientists, pupils, museum educators	<u>Internal</u> : WPs <u>External</u> : teachers, teacher educators, staff of universities, science centres and museums, pupils	<u>Internal</u> : all project partners <u>External</u> : teachers, teacher educators, pupils, research institutions, science and education networks, the media, policy-makers
Relevant work packages	WPs 1, 2, 3, 7, 8	WPs 1, 2, 3, 4, 5, 6, 7, 8	WPs 2, 3, 4, 5, 6, 7, 8
Timeline	Months 1–18	Months 19–24	Months 25–48

The project currently being in the Development phase, this report largely focuses on the preparation processes undertaken to launch the dissemination activities in the Piloting phase. However, some activities have already taken place and the following section discusses in detail those undertaken during Year 1 of the Ark of Inquiry project.

2. Year 1 Dissemination and Exploitation Activities

This section of the report provides a description and analysis of the various dissemination and exploitation activities planned and undertaken during Year 1 of the Ark of Inquiry project (March 2014 – February 2015). This includes the dissemination plan, various dissemination materials produced, the web platform, events, networks, and publications. Other types of dissemination and exploitation activities may be added and discussed in future versions of this annual report. A short presentation will also be made on the forthcoming communication strategy with the media and an analysis of the results of the completed activities will then be discussed. Lastly, a few words will be shared about the sustainability of the project and the next steps for years 2–4 (March 2015 – February 2017).

2.1 Internal Dissemination and Exploitation Activities

As stated earlier, the main aim of internal dissemination activities is to coordinate an effective information flow between all individual partners and institutions participating in the project, contributing and providing support to the communications goals, priorities and strategies set for the project.

In Year 1 of the project, WP7 was tasked to develop a **detailed dissemination plan** describing the relevant activities that the consortium will undertake. Initial drafts of this internal document were provided by UNESCO and UT, with a final consolidated draft being further refined by UNESCO with the inputs of all members of WP7. Distributed amongst the partners and fully available in the relevant folder in the Google Drive, it is an evolving document and is to be updated regularly.

The dissemination plan sets forth the main internal and external dissemination and exploitation activities planned under the Ark of Inquiry project, presented as part of a three-phase approach: Development, Piloting, and Implementation. All internal dissemination activities will take place during all three phases of the project; external activities will vary between the different phases, depending on the nature and target audience.

In close cooperation with the partners of WP3 (which focuses on developing a Support Community for the Ark of Inquiry project), the dissemination plan foresees for WP7 partners to elaborate during the Development Phase of the project a **set of commonly shared key messages**, tailored by target group, that would be the focus of external dissemination activities. While not yet presently defined, according to the DoW, the key messages should include:

- messages for increasing stakeholders' awareness about the project,
- messages for inclusion of different networks of schools and teachers to the users' community of Ark of Inquiry,
- messages to the research communities related to science education and inquiry learning, and
- messages for taking follow-up decisions towards adopting and/or changing national and international policy documents to apply the principles of RRI in the fields of IBSE.

The elaboration of the key messages is foreseen to take place during the June 2015 consortium meeting. Dissemination materials will serve to reinforce these key messages to the greatest extent possible. At the mid-term review of the project, during the Piloting Phase, the key messages should be revisited to assess their effectiveness according to the new targets and tools used, and be tweaked if/as needed.

Important internal dissemination activities identified in the dissemination plan include the use and development of various tools and mechanisms to ensure a constant and simple information flow between consortium partners. This includes the use of Google Drive for the sharing of project documentation and collective editing, as well as *Skype* and other existing online communication tools for the hosting of online conference calls and meetings.

Three new templates¹ were designed for the collecting and monitoring of progress regarding external dissemination and exploitation activities and are currently in use for the gathering of information for this report. Transformed into online forms for partners' use using *Google Forms*, these forms allow consortium partners to announce upcoming confirmed participation in events and networks and forthcoming publications, as well as report on past events and networking opportunities undertaken within the scope of this project. A fourth form is envisaged to be created in the first quarter of Year 2 for the collection of "success stories" that can be featured in the project's newsletter or on its website. This report also serves as a template that will then be updated for Deliverables 7.3, 7.4, and 7.5.

Other internal dissemination activities discussed in the dissemination plan include the calling of regular meetings at both consortium and work package levels and the project's reporting requirements, the latter of which the European Commission serves as the target audience. A detailed work plan, including a breakdown of the person-months per partner, is also included as an appendix to the dissemination plan.

Recommendations and Next Steps: Key messages for dissemination should be defined by target group (planned for next consortium meeting in June 2015) to guide dissemination and exploitation activities. Internal dissemination tools (such as the dissemination plan and templates) should be reviewed and updated to increase their functionality. A 4th form to collect "success stories" should be followed up on in the first trimester of Year 2.

¹ The three templates are part of the dissemination plan, which is attached as Appendix 1 to this report.

2.2 External Dissemination and Exploitation Activities

As previously noted, the main aim of the external dissemination and exploitation activities is to support the Ark of Inquiry project through the expression and promotion of commonly shared key messages and objectives of the project and ensure regular information flow to key stakeholders and the general public at national and European levels. While the project aims to engage a targeted number of individuals in its activities as noted in the Introduction to this report, the specific **target audiences for external dissemination** have been identified in the DoW as listed below; these target audiences for dissemination and exploitation activities will of course vary by activity and by phase of the project:

- teachers and teacher educators,
- scientists (including STEM researchers),
- science centres and museums,
- policy-makers, and
- media and the public at large.

While not a specific target audience for dissemination, as they should ideally be reached through the teachers and teacher educators, it was decided by the partners to **also include pupils** in the list of audiences.

No specific targets and goals have been set in terms of planned outreach for each target audience, but it was agreed to regularly monitor how many of each audience the project is reaching through its dissemination activities and to discuss again the issue of setting targets at the next consortium meeting in 2015.

Recommendations and Next Steps: Discuss at the next consortium meeting possible benchmarks, if needed, for the above target audiences.

2.2.1 Dissemination and Presentation Materials

Under the leadership of the University of Tartu, a series of dissemination and presentation materials have been developed in English for use by the consortium partners in order to have a unified appearance and “brand” when promoting or discussing the Ark of Inquiry project. This includes the creation of a project logo, which is featured on all dissemination and presentation materials and illustrated in Figure 1 on the following page.

Dissemination materials created for the Ark of Inquiry project so far include:

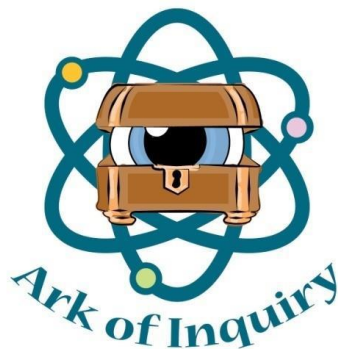


Figure 1. Ark of Inquiry logo

- business card,
- flyer,
- poster,
- newsletter,
- roll-up banner, and
- reflectors.

Figures showing the above-mentioned dissemination materials are shared below.



Figure 2. Business Card



Figure 3. Flyer

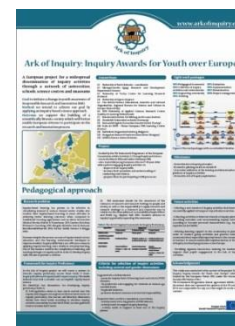


Figure 4. Poster



Figure 5. Newsletter



Figure 6. Roll-up banner



Figure 7. Reflectors

Multimedia materials are also envisioned to be produced during the Development Phase of the project. Templates for external documents (such as required reports) and presentations have also been made available with style guidelines provided.

During Year 1, all the above-mentioned dissemination and presentation materials have been made available online in the Google Drive shared by all consortium partners for their use and eventual translation as necessary into local languages. For instance, as illustrated in Figures 2–8, the flyer has been translated into Dutch, Estonian, and Turkish; the roll-up banners are currently available in Dutch, Finnish, French, German, Greek, Hungarian and Turkish.

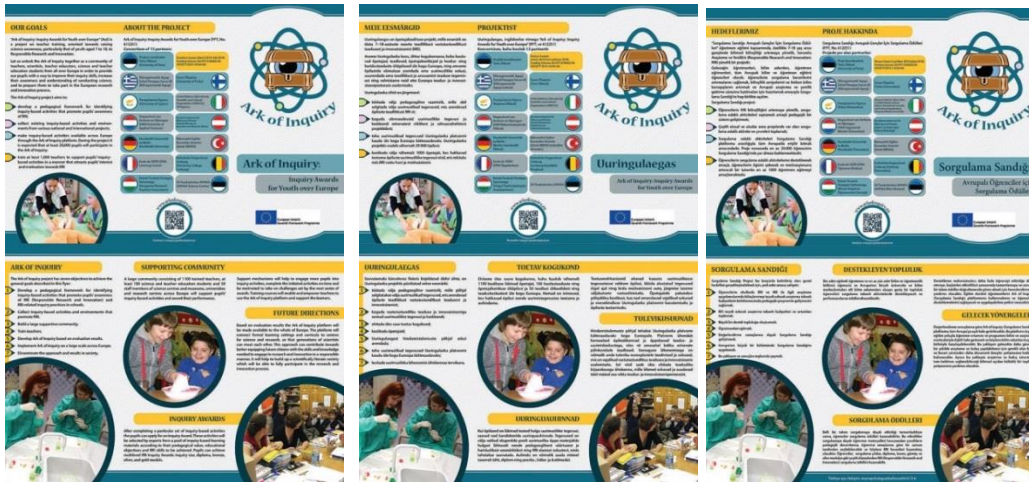


Figure 8. Flyer in various languages (in English, Estonian and Turkish)

Over 1,000 copies of the flyer in Dutch, English, German and Turkish have been printed and distributed by some partners to the target audiences, mostly to teachers and university researchers. Further, some partners have produced their own additional dissemination materials on the project, targeting local communities. In Austria, for example, a short fact sheet (see Figure 9 below) and a flyer in German were produced at the beginning of the project.

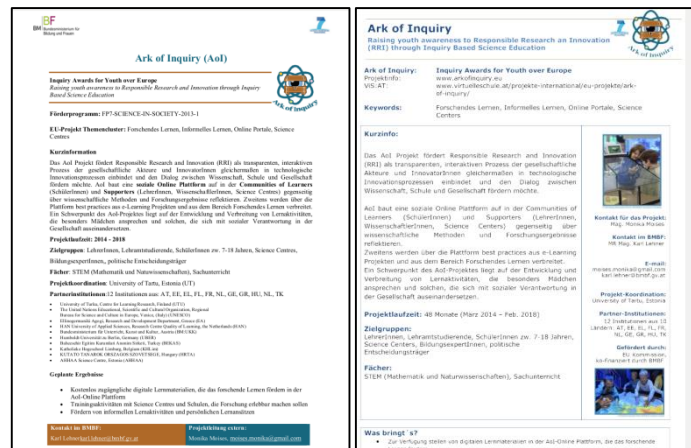


Figure 9. Local community specific dissemination materials in Austria

More detailed information on the development and specific guidelines for use of the logo, dissemination and presentation materials can be found in Deliverable 7.1.

Recommendations and Next Steps: Dissemination materials should continue to be translated into local languages by the partners and statistics gathered on to whom and how many (approximately) they are being distributed to in order to determine how to improve their effectiveness as a dissemination tool.

2.2.2 Public Website and Online Presence

Complementing the printed presence assured by the dissemination materials above is the online presence through the official Ark of Inquiry website, <https://www.arkofinquiry.eu>, which went live for the public on 14 March 2014.

Designed and managed by the University of Tartu, the website is considered as the main tool for effective external communication and rapid dissemination of information about the project's objectives, partners, publications and events, related documents and dissemination materials. Drupal, an open source content management platform, is used to manage the website through the OpenScholar system. It will also be the gateway to the Ark of Inquiry platform, where carefully selected IBSE activities will be made widely available for sharing across Europe. A snapshot of the home page is presented in Figure 10 below.

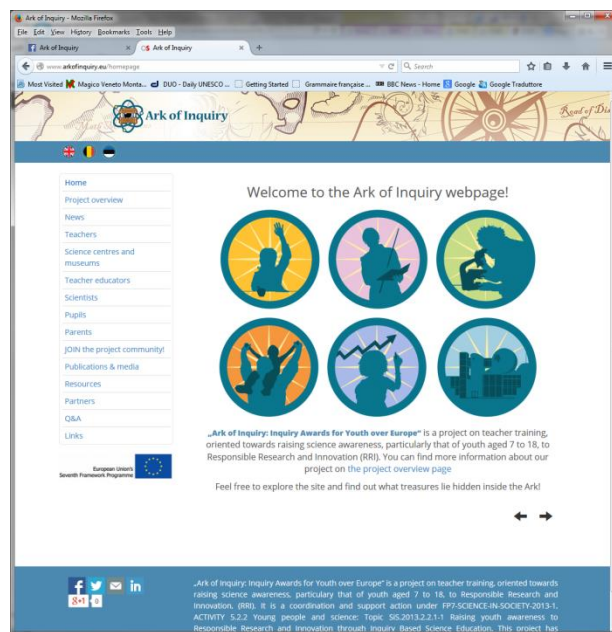


Figure 10. Ark of Inquiry website (<http://www.arkofinquiry.eu/homepage>)

The website is divided into 2 distinct parts: general information on the project and specific information for target groups. General information is provided in the project overview, news, publications and media, resources, and information about consortium members. Target-specific subpages have been created for each of the key stakeholder groups: pupils, teachers, teacher educators, scientists, and staff of science centres and museums. One for parents is also included and the area for policy-makers is still under construction. These pages are accessible both through the main menu on the left side of the screen as well as on the home page, which contains illustrations symbolising the six key stakeholder groups and leads to the corresponding pages. A full discussion of the website's organizational structure is available in Deliverable 7.1.

Partners are also promoting the official Ark of Inquiry website through their own institutional websites, either as a translation of part or all of the website or by promoting it with a hyperlink. A full translation of the website into Estonian language (<http://www.arkofinquiry.eu/avaleht?lang=et>) has been made available. As of the writing of this report, the following table shows the status of how the partner institutions have promoted the Ark of Inquiry project on their websites:

Table 2. Status of Ark of Inquiry promotion on consortium partners' websites²

Partner	Language	Status
UT	Estonian	<u>Project description</u> included on Centre for Educational Technology workgroup website, with the English version of the description soon to follow
EA	English	<u>Project description</u> included on website
UTU	English, Finnish	Dedicated project pages in both <u>English</u> and <u>Finnish</u> on the website of the Faculty of Education
UCY	Greek	To be promoted on the website of the Research in Science and Technology Education Group (ReSciTEG), under construction
UNESCO	English	Featured promotion of Ark of Inquiry project on <u>Venice Office homepage</u> ; dedicated project page under construction
HAN	Dutch	<u>Dedicated project page</u> on the website of the Research Centre for Quality Learning
BMBF	German	<u>Dedicated project page</u> on the website of the Virtual School (Virtuelle Schule Österreich); several sub-pages, including an overview of local and national events are under preparation.
UBER	English	<u>Dedicated project page</u> on the website of the Chemistry research group
BEKAS	Turkish	<u>Dedicated website</u> to the project
EADN	French	<u>Dedicated project pages</u> on website
KHLim	Dutch	<u>Dedicated project page</u> linked to Ark of Inquiry website
HRTA	Hungarian	<u>Website</u> and translation under construction
AHHAA	Estonian	New website is under construction and will be available from March 2015. Website will include short description of the project activities and links to the project website.

It is envisioned that all partners who have the possibility will have promotion of the Ark of Inquiry project on their websites by the start of Year 2, so that statistics on those page views may also be tabulated to augment the overall picture of online promotion of the project.

In addition to the official Ark of Inquiry website, noting well the current trends among youth and within the educational field, the project is in process of developing a solid social media presence through the use of tools such as Facebook, Twitter and LinkedIn, to name a few. Facebook pages are already accessible in both English and Estonian languages at <https://www.facebook.com/ArkofInquiry> and www.facebook.com/uuringulaegas . 29 and 14

² Website addresses for the above partners' websites are available in Appendix 2 of this report

people have “liked” the two pages, respectively, as at 15 February 2015. Twitter (<https://twitter.com/ArkofInquiry>) and LinkedIn (<https://www.linkedin.com/groups/Ark-Inquiry-Inquiry-Awards-Youth-6921276>) accounts have also been set up for the project.



Figure 11: *Ark of Inquiry Facebook page at <https://www.facebook.com/ArkofInquiry>*

Further discussions are required to see how to best mobilize the project’s target audiences through Facebook and other social media outlets, such as through Twitter with popular hashtags like #scienceisfun and #girlsinscience, with less popularized ones such as #IBSE, #STEM, and #SciEd. Creation of the hashtag #ArkofInquiry could also be considered.

Google Analytics is used to monitor website activity. As illustrated in the figure on the following page, during the first 11.5 months of operation (1 March 2014 – 15 February 2015), the website registered 3,208 sessions viewed by 1,604 users. Over 22,600 pages were viewed during those sessions, resulting in an average of 7.07 page views during each session. Each session lasted an average of 7:02 minutes, and half of all sessions were made by repeat users, even though repeat users represent only 23 of the 1,604 total users (1.4%). Considering that the repeat users most likely correspond to the Ark of Inquiry project partners, the new users statistics are a bit different, with each session lasting about 3:06 minutes with an average of 4.47 page views per session. Visitation of the website peaked at around 130 sessions per day in January 2015, with lows of less than 100 sessions per day during April–July 2014. It will be interesting to see in future years if the number of first-time/new users of the website increases or remains at this rate.

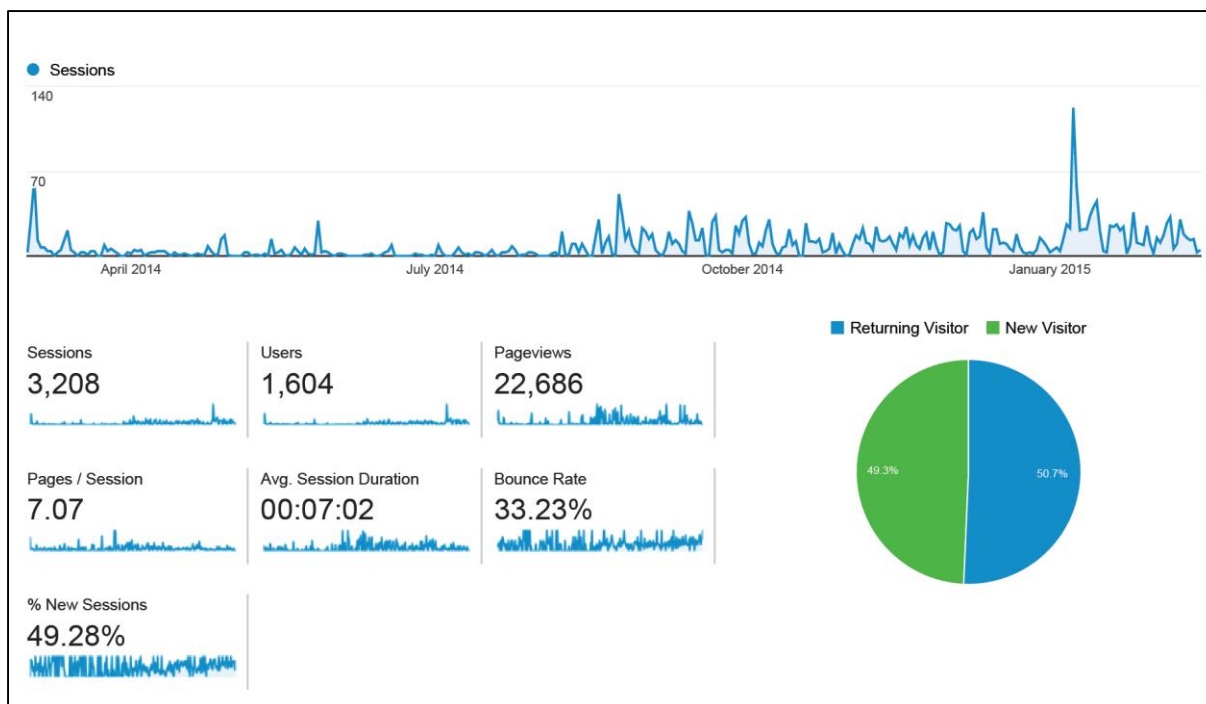


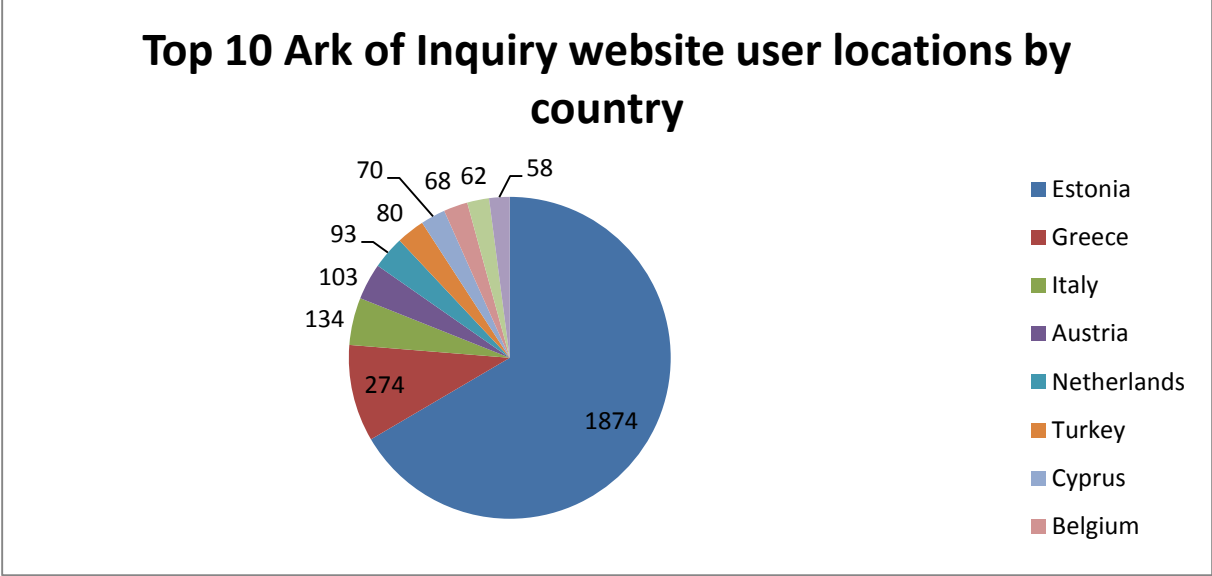
Figure 12. Snapshot from Google Analytics report, “Audience Overview”, accessed 16 February 2015

During the first year online, the most visited page within the Ark of Inquiry website was the home page, with over 30% of the total 22,686 page views. The webpages set up for each of the target audiences were the next most visited, representing over 10% of the total page views as represented in Table 3 below. Of those target audiences pages, the most visited were those of Scientists, Teachers, and Pupils. The project overview and related webpages were the third most visited on the website, representing around 9% of the total page views. The remaining 50% of the page views can be attributed to the other sections and sub-pages of the website.

Table 3. Page views and percentage per target audience webpage

Target Audiences' pages	Page views	Percent of total page views (%)
Teachers	505	2.22
Science centres and museums	261	1.15
Teacher educators	331	1.46
Scientists	632	2.79
Pupils	452	1.99
Parents	145	0.64
TOTAL	2,326	10.25 %

Chart 1. Top 10 Ark of Inquiry website user locations by country



As illustrated in Chart 1 above, the data received from Google Analytics indicates that of the 63 countries from which users were based, over 58% of all 3,208 sessions were made by users located in Estonia, which is logical as the University of Tartu is responsible for website creation and maintenance, and Estonian is the only language for which a full translation of the website is currently available. The rest of the top ten countries where users are located represent the host countries of the other project partners and, in total, account for 87.8% of all sessions made during the examined period. The website was visited by people from nearly all European countries; Belarus, Luxembourg, Slovakia and Slovenia stand out as having zero sessions registered from these locations. Although not the target audience and difficult to ascertain how relevant these numbers are relative to the goals of the project, sessions were also made from quite a number of countries outside of Europe, such as Brazil, Canada, China, India, Japan, Saudi Arabia and the USA, to name but a few.

The statistics also show that of the 3,208 sessions, 1,407 (44%) were conducted from an English-language device, while 949 (30%) were made from a device set to Estonian. Greek, Italian and German round out the other primary languages used (2–4% each). As noted previously, the high number of Estonian-language users can be attributed to the fact that it is the only language in which a full translation of the website exists; as the user session number continues to grow, it could be interesting to note if there are any other languages that are often used for consideration in translation of dissemination materials.

Lastly, nearly 91% of visits were made from a desktop computer, with the remaining 9% having been made from devices such as a tablet or mobile phone (split 50/50). Forty percent of the non-desktop users accessed the website via an Apple product (iPad or iPhone), with the large majority of the remaining visitors using an Android-based device. Such information could be of interest if, for example, the consortium partners decide to create mobile applications for teachers or pupils to use in pursuit of the project objectives.

Recommendations and Next Steps: Partners will continue to make a linkage between their home websites and that of the Ark of Inquiry; usage will be monitored via Google Analytics if a full translation in another language would be advantageous to the project objectives. Those partners who do not yet cross-promote the Ark of Inquiry website are encouraged to do so. A discussion about how to mobilize target audiences via other social media outlets, as well as the creation of an #ArkofInquiry hashtag should be further explored.

2.2.3 Events

The Ark of Inquiry community encourages participation in a variety of scientific and popular events to disseminate the ideas and outcomes of the project. These include regularly scheduled events within the European Community (i.e. SCIENTIX, EARLI, EERA, ESERA conferences) as well as innovative and emerging opportunities for sharing information. In the final year of the project, an international conference will be organized especially for disseminating the outcomes of the current project to a wide audience of the high-level representatives of all stakeholders responsible for STEM education, IBSE and RRI in Europe.

In Year 1, consortium partners participated in 16 events in which the Ark of Inquiry project was promoted or discussed. The type of participation in these events varied from just delivering a generic or introductory speech on the Ark of Inquiry project to detailed presentations, leading discussions/roundtables, leading a training or workshop, or participating in a science fair. As this typology lends itself to overlapping, as evidenced when trying to analyse the data provided, a revision of the template to be used as a basis for the Google Form is recommended. For further details on the events undertaken during Year 1 of the Ark of Inquiry project, kindly refer to Table 4 on the following page.

As the project is still in its Development Phase of dissemination, half of the activities (8 out of 16) were for a general or dedicated presentation of the Ark of Inquiry project and its objectives to various segments of the project's target audiences. One exception to this was the "Meet the Scientist" event organized by BMBF in Austria, which provided an interactive opportunity for pupils to engage with nanotechnology experiments following IBSE principles.

Table 4. Events in which Ark of Inquiry participated in Year 1

Type of dissemination activity at event	Number of events	Contributing partners	Description of target audience reached
Gave a generic/ introductory speech on Ark of Inquiry	3	UNESCO, UT	Est. 400 scientists, teachers, policy-makers; active biology teachers
Delivered detailed presentation	5	BEKAS, UBER, UT	55 Teachers (45 female), 60 scientists (40 female), 15 staff from science centres and museums (10 female), 30 policy-makers; est. 750 researchers, teachers, policy-makers (plus 500 + more at a conference in Malaysia)
Led a training/workshop	4	BMBF, HAN, UCY	64 science and teacher education students (2 female); 10 teachers and 5 pupils (aged 12–16); 4 teacher educators and 4 scientists
Led a discussion/ roundtable	2	HAN, UT	15 teachers and teacher educators; 15 science and teacher education students (10 female)
Participated in science fair	2	UCY	64 science and teacher education students (2 female)* and 64 pupils (grade 6, gender n/a); 100 scientists involved in EC projects
Totals	16		

* Same 64 science and teacher education students who participated in trainings

Another exception was an activity undertaken by the University of Cyprus, which followed a group of 64 science and teacher education students (62 men, 2 women) who were trained according to the Ark of Inquiry preliminary teacher training materials over a period of two months (Oct.–Nov. 2014), and culminated in a science fair in which each teacher partnered with a pupil (grade 6), and together they presented IBSE principles at the science fair to their teachers and parents.



Photo 1. A panoramic view of the science fair organized by the ReSciTEG group at a primary school in Cyprus. © University of Cyprus

Consortium partners also have already planned to deliver detailed presentations during at least five major European conferences in Year 2 and even one in Year 3 of the project, with other events for dissemination being regularly monitored and shared with the WP7 partners. One special event that the project intends to participate in is **UNESCO's World Science Forum (WSF)**, held 4–7 November 2015 in Budapest, Hungary. The main theme of this 7th edition of the Forum will be "The Enabling Power of Science", reflecting on the way how science opens new paths for the improvement of human life, business innovation and policy-making. During the WSF, there will be a plenary session on "Science Engagement: Communication with Society" as well as a parallel session specifically for parliamentarians. The WSF offers the project a unique opportunity to engage scientists, politicians, decision-makers and representatives of civil society from around the world in a fruitful dialogue on burning issues affecting the scientific world and society simultaneously, such as IBSE, RRI and other key messages that the Ark of Inquiry project is seeking to disseminate. As the 8th edition of the WSF will be held in Jordan, this is a one-time opportunity for the project to be present not just as a networking opportunity but to take advantage of the presence of this leading event in global science policy on the European continent.

Recommendations and Next Steps: A revision of the template used to collect information on participation in events should be reconsidered/re-evaluated to provide clearer information, particularly on who is being reached at these events. Steps should be taken by Ark of Inquiry partners to seek out additional opportunities for dissemination at events and plan carefully and well in advance the most useful interventions at the World Science Forum.

2.2.4 Networks

One of the key and critical methods for dissemination and exploitation activities is through the many existing networks in science and education in Europe. Collaboration with European-wide initiatives for improving the culture of science education is a key dissemination activity as foreseen in the DoW, working with key players such as Scientix, European Schoolnet or The Globe Program. A snapshot of the networking opportunities in which the consortium partners have participated in Year 1 is provided in Table 5 on the following page.

Table 5. Networking opportunities in which Ark of Inquiry participated in Year 1

Contributing partners	Description of target audience reached
BMBF	70 members of the general community at Knowledge-space event
EA	50 teachers at the Go-Lab summer school
HAN	20 members of the KWTG network, a regional Science & Technology network
HAN	Special interest group of 10 primary school teachers on Science & Technology

In addition to the above-mentioned professional networks that have already reached scientists, teachers, teacher educators, and science and teacher education students, there are other networks identified that present a great opportunity to reach these and other target groups. Some of such networks already identified to engage with at the national level include the Network of European Innovative Schools (ENIS) in Austria and Berlin’s iMint Academy. BEKAS has a strong collaboration with the International Council of Associations for Science Education (ICASE). Using ICASE networks, BEKAS will try to reach international scientists, teacher educators, science and teacher education students, and networks of schools; it will also access the strong 100-school network within Turkey. At the international level, networks such as UNESCO’s Associated School Programme (ASP) will be extremely useful for reaching these key target audiences.



Photo 2: Science Centre Network event with the wife of the Austrian President (Margit Fischer) present ©BMBF

While geared more towards the general public and, in particular, under-privileged communities, the “Knowledge space” activity of BMBF has been a prime example of an inquiry-based learning activity through the construction of an interactive science centre. It also provided an opportunity to network and collaborate with the strong 150-member Science Centre Network (SCN), through which information on the Ark of Inquiry project was disseminated.

This activity was also awarded the 2014 “SozialMarie” prize for social innovation (see also: <http://www.sozialmarie.org>).

Common mailing lists to reach each network are to be created and shared amongst the consortium partners to increase outreach. The mailing lists will be saved on the Google Drive and serve as a distribution channel for the project newsletter and press releases, for example.

Partners are also already looking ahead to future networking opportunities, such as the next meetings of teacher networks and future conferences of the European network of science centres and museums (ECSITE), which will serve as an ideal opportunity to help get active and interested teachers to sign up to become part of the Ark of Inquiry community.

Recommendations and Next Steps: The need for better coordination and organization of networking opportunities is apparent from the low number of opportunities reported by the partners. Mailing lists need to be created and finalized for use.

2.2.5 Publications

Publications, from scientific journals to media coverage, are essential for ensuring that the project findings and results are documented for posterity. To this end, the project intends to publish in at least ten journals referred to by the Thomson Reuters Web of Science (formerly Thompson ISI Web of Knowledge) database; additional publications, such as conference proceedings and articles in national scientific journals, are also planned and anticipated to be published during the third phase of dissemination, Implementation.

23 publications were issued by the partners of the Ark of Inquiry project in Year 1 as illustrated in the table below.

Table 6. *Publications issued on the Ark of Inquiry project in Year 1*

Type of publication	Number issued	Language(s)	Contributing partners
Scientific publication (journals, conference proceedings, etc.)	3	English	UT, HAN, UCY, UTU, EA, BEKAS
Media coverage	4	French, Turkish	BEKAS, EADN
Press release	3	English	UT
Social media	13	English	UT
Total	23		

As the target audiences for all of the issued publications are quite broad (pupils, teachers, student teachers, teacher educators, parents, scientists, policy-makers, journalists, museums and science centres, etc.), pretty much all of the publications issued so far relate primarily to the promotion and raising awareness of the existence of the Ark of Inquiry project. The singular scientific publication issued was part of the proceedings of a conference for another IBSE EC-funded project, PROFILES, where the Ark of Inquiry project was invited to present itself; the two items of media coverage in Turkish-language newspapers announce the project and share the outcomes of the first meeting; the press releases and social media posts largely serve to disseminate information on the events at which the Ark of Inquiry project was formally presented. Dissemination of this type of information is consistent with a project that is still in its Development Phase of dissemination; it still needs to build up its critical mass of public awareness vis-à-vis its target audiences. Greater diversification in the types of publication and of information presented is expected in Year 2 of the project.

In Year 2, partners will continue to regularly publish press releases and social media posts on participation in events.

Recommendations and Next Steps: Coverage of the various target audiences via publication seems so far to be limited to the general public and professionals (scientists, researchers, teacher educators, etc.). Efforts could be made to try to better target teachers and pupils with publications. A discussion on how dissemination to the various target groups could be accounted for needs to take place.

2.2.6 Communication Strategy with the Media

As originally specified in the DoW, an advisor from the University of Tartu's Faculty of Social Sciences and Education, Department of Journalism, should be involved in the project work in order to design communication plans (including those that involve the media) strategically based on research and best practices. However, as every partner institution is already seeking the support of their communication offices where applicable, it was decided by the consortium not to invest in a full-fledged communication strategy. Rather, a set of guidelines, for both style and structure for media advisories, press releases, and interview, will be developed.

To this end, a draft set of guidelines, including a draft template for a press release, has been developed by UT and will be finalized at the beginning of Year 2 of the project.

Recommendations and Next Steps: Move ahead in Year 2 with the development and finalization for use of a communication strategy with the media and any associated tasks.

2.3 Analysis of Year 1 Dissemination and Exploitation Activities

As stated in the introduction of this report, one of the measurable targets of the Ark of Inquiry project is to engage at least 23,000 pupils (with an emphasis on female pupils), 1,100 teachers, 100 science and teacher education students, and 50 university researchers. However, the dissemination target audiences differ slightly: Teachers and teacher educators, Scientists (including STEM researchers), Science centres and museums, Policy-makers, and the media and public at large. Therefore, the consortium has decided it would be of interest to track not only the dissemination target audiences but also the pupils and the science and teacher education students.

Hence, to help track progress towards these targets, partners are habitually asked to report on “who” they are reaching when undertaking various dissemination and exploitation activities. Including also the number of page views on the webpages created for each of the target groups as an approximate indication of interest, the results as reported by both Google Analytics and the consortium are presented in Table 7 below. (NB: N/A indicates no data or not enough data to infer a number is available.)

Table 7. Year 1 progress towards reaching target audiences

Type of activity	Pupils	Teachers & Teacher educators	Science & teacher education students	Science centres & museums	Scientists (STEM researchers)	Policy-makers	Media & General Public	Total
Dissemination Materials	0	80	0	0	N/A	0	0	80
Website	452	586	250	261	632	N/A	145	2,326
Events	69	72	79	15	164	30	N/A	429
Networks	0	60	0	0	20	0	70	150
Publications	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Totals	521	798	329	276	816	30	215	2,985

It should be stressed that all of the numbers in the above table are indicative only and should only be interpreted as illustrating the relative weight of which target groups are being reached through dissemination and exploitation activities undertaken by the consortium partners. So far, numbers only seem to be available for the website page views, event attendees and some for networking opportunities and dissemination materials. Difficulties in tabulating dissemination are of course numerous in each of these categories – for instance, unless dissemination materials are handed out or mailed directly there is no way to quantify

how they are being used. For the website, the number of hits on each target group's area is being used as an indicator of the level of general interest, but it does not necessarily mean that it was a member of that same audience that clicked on the link; the total number of page views on these pages only represents 10% of the overall page views, after all. Publications, particularly those online, could be used by any number of individuals. Thus, the partners need to think more clearly as to what methods could be used to infer, at a minimum, the level of outreach to each target audience.

It should be noted that the above figures, however low, exclude any outreach from large events where participation is mixed and difficult to tabulate. If these large events are included, as well as other categories of the target audiences, this would amount to at least an additional 1,000 individuals reached during Year 1 of the Ark of Inquiry project. Therefore, the **total number of individuals reached through dissemination and exploitation activities during Year 1 of the Ark of Inquiry project** (not counting for any overlap, such as someone who receives a flyer and then goes to the website), **approaches 4,000**.

The DoW also asks the consortium partners to pay particular attention to avoiding any gender gap in project activities, and this includes the dissemination of information as well. While partners are asked to report on the gender dimension in their activities, this is not always easy: at an event, it could be rather easy to get a list of participants; but for broader groups such as publications or the media, unless there is a face-to-face encounter, there is no way to tabulate this information. However, from the information that has been submitted, it appears so far that the instances where there are more men or women present at an event balance each other out. Therefore, it is plausible to assume that this trend will continue.

2.4 Sustainability and risk analysis of dissemination and exploitation activities

Programme sustainability is a key component of any successful project. Thinking ahead “now” for what will happen “then”, at the end of the project in the future, will greatly improve the chances of successful project closure and transition of ownership to the desired stakeholder groups. In the case of the Ark of Inquiry project, these stakeholder groups would likely be the main target groups: teachers and teacher educators, policy makers and curricula developers.

The risks associated with dissemination and sustainability are well-known for grant-funded projects such as this one: once the regular project funding ceases, the website eventually shuts down, knowledge databases go dormant and communities and networks that were established during the lifetime of the project lose contact with one another without the push of the project managers to keep it going. The impact of this on dissemination and exploitation activities is that the flow and exchange of information will stop reaching the target audiences, too.

Therefore, consortium partners have already begun to discuss how to best integrate the planned activities and results of the Ark of Inquiry project into those of external partners in order to render the project results sustainable. Initial proposals for working with teacher training institutions and with integrating inquiry-based standards into the national curricula of the countries have already been proposed. Yet, there remains much to be done to ensure that the issue of sustainability is not glossed over in this project and tackled too late, and project partners have agreed to delve into this issue much deeper at the next consortium meeting planned to take place in June 2015.

Recommendations and Next Steps: Project partners will continue discussions in Year 2 on how to sustain the dissemination of information about the Ark of Inquiry project after it will close.

3. Conclusion

Concerning dissemination and exploitation of information, the first 12–18 months of the Ark of Inquiry project are firmly rooted in the Development Phase of dissemination activities. Thus, much time and effort has been spent on developing the tools and methodologies to be used both internally and externally to reach the aforementioned project goals.

The dissemination plan provides a solid framework with which the project partners can reference the various activities that should be accomplished, and which will be a useful tool that the WP7 leader can use in monitoring and documenting the types of dissemination activities that the partners have committed to undertake. The dissemination materials and public website developed present a great start with which the partners can move ahead in promoting and disseminating information about the project and its objectives. Both the dissemination plan and the website are living documents that will evolve over the lifetime of the project; the dissemination materials will likely be revisited and updated as needed, too.

Great work has been done in preparing and launching the Ark of Inquiry website. Partners are submitting information for the creation of news articles, and most have made an effort to cross-promote the Ark of Inquiry website on their own web platforms. The entry into various social media outlets (i.e. FaceBook, Twitter, LinkedIn) holds a lot of promise for reaching pupils and science and teacher education students; other social media outlets should be considered as well for increasing the outreach to these and other target audiences, delivering the key messages, once developed.

Engagement of the project partners in dissemination activities, be it events, networking opportunities or publications, is gradual, but this is to be expected since it is only the first year of the project. Only 10 of the 13 consortium partners reported any dissemination and exploitation activities outside of the online web presence. Events tended to be participation in mostly conferences and trainings. Networking opportunities need to be better coordinated and exploited and discussions should be held on how to better understand which target audiences are being reached through the publications issued. The communication guidelines and press release template, once finalized, will hopefully help streamline project communication with the media.

Appendix 1: Dissemination Plan

The Dissemination Plan can be found in Google Drive at <http://bit.ly/185tDrs>

Appendix 2: List of partner website addresses where Ark of Inquiry is promoted

Beneficiary short name	Web address where the Ark of Inquiry project is currently promoted on the partner website	Language(s)
UT	http://haridustehnologia.ut.ee/	Estonian, English
EA	http://www.ea.gr/ea/main.asp?id=602&proID=20100108133311&lag=en	English
UTU	http://www.utu.fi/en/units/edu/research/highlights/flagshipresearchprojects/Ark-of-Inquiry/Pages/home.aspx	English, Finnish
UCY	Under construction	Greek
UNESCO	http://www.unesco.org/new/en/venice/home/	English
HAN	http://www.han.nl/onderzoek/werkveld/projecten/ark-of-inquiry/	Dutch
BMBF	http://virtuelleschule.bmbf.gv.at/projekte-international/eu-projekte-aktuell/ark-of-inquiry	German
UBER	http://www.tiemann-education.de/forschung/ark-of-inquiry/	English
BEKAS	http://www.bekas-aoi.org/	Turkish
EADN	http://www.ecole-adn.fr/?page_id=991	French
KHLim	http://www.vakdidactiek.be/ark_of_inquiry	Dutch
HRTA	http://www.kuttanar.hu/	Hungarian
AHHAA	Under construction	Estonian