#### **Discovery Days Deliverable**

## **D20: D6.1 Discovery Days Final Report**

**Project** SAS6-CT-2006-044547 **Editing:** 

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#### **Short Description:**

This deliverable describes the implementation of the final Discovery Day events, following the report of the first two events, in Lisbon and Mechelen, which was submitted in D5.1 Discovery Days. The events are described country by country, with the methodology, participants, technology presented of each described in detail. It details the effort and impact of communication strategy, the two-pronged focus of which centred around the project website and the channels accessed through the Video News Releases. It looks at the dissemination that was carried out both on a European scale and on a local scale and the evaluation that took place. The impact of the project is then discussed.

List of Recipients:			

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Annex A Poster for Finnish event

Annex B Publicity for Finnish event

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Annex D Finnish evaluation form 2

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## 1. Executive Summary

This deliverable describes the implementation of the final Discovery Day events, following the report of the first two events, in Lisbon and Mechelen, which was submitted in D5.1 Discovery Days. The events are described country by country, with the methodology, participants, technology presented of each described in detail. It details the effort and impact of communication strategy, the two-pronged focus of which centred around the project website and the channels accessed through the Video News Releases. It looks at the dissemination that was carried out both on a European scale and on a local scale and the evaluation that took place. The impact of the project is then discussed.

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### 2. Implementation of Austrian events

The Discovery Days in Austria were successful in making the public and schools aware of new technologies used in science and industry of our today's world. This was done by game-like and experimental scenarios packed in edutainment games. The project team planned and implemented three Discovery Day Events in Graz, Eisenstadt und Linz. Visitors from Schools, Politics as well as Experts and Professionals were lead through the numerous exhibitions in guided tours, conferences, promotional material was distributed and video documentation is freely available online: <a href="http://www.virtuelleschule.at/discovery\_day">http://www.virtuelleschule.at/discovery\_day</a>.

#### 2.1 Achievements and Results of Project towards Objectives

The project aim of raising awareness for science and new technologies in schools and teaching were achieved.

Main results and achievements:

- Austrian Discovery Day Events in
  - o Graz (24.-27.5.2007), Discover IT, Touch the information
  - o Eisenstadt (5.10.2007), International Conference "eLearning Conference"
  - o Linz (4.12.2007), Expert Meeting, Networking
- Guided Tours for Schools and Visitors
- Promotional Material for distribution: Discovery Days DiscoverIT "creativity cards, notes, banners, folders, etc.
- Project Description Booklet for each event
- Video documentation freely available online
  - o <a href="http://www.youtube.com/view\_play\_list?p=340A7AF3C699A417">http://www.youtube.com/view\_play\_list?p=340A7AF3C699A417</a>
  - o <a href="http://www.virtuelleschule.at/discovery-day">http://www.virtuelleschule.at/discovery-day</a>

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#### 2.2 Graz event "Discover IT", 24-27 May 2007











The event took place in the Media Lab of the Kunsthaus Graz (http://www.kunsthausgraz.at) under the presence of First Lady Margit Fischer.

Presenter:	Alexander Nischelwitzer and about 20 students of University of Applied Sciences in Graz		
Institution:	Fachhochschule Joanneum Graz und Media Lab im Kunsthaus Graz		
Title:	Ausstellung zum "be-greifen" (touch the information)		
Abstract:	Projects like Time Shift, Ready to Row, Tempora Dinumerans, Laserharp, Visual Drum Session, Magic Book, Sound of Drawing, a realm, SMS to BIX, Age SIM und Manual Product Control; visitors could take part in the activities		
Outcome:	Videos, pictures, descriptions of the exponats Video:  mms://archiv.schule.at/vis/film_elearning_conference_2007/eLnE07_Nischelw_Interfaces.wmv_		
Kind of Event:	Exhibition Fair		
Participants:	students, school-pupils, habitants, teachers; it was open for all		



Students from the Information Management degree programme at FH JOANNEUM Graz developed creative and interactive multi-media projects for the "discover IT" exhibition.

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The exhibits, all from the field of digital media technologies, were on display at the Kunsthaus Graz from 24th to 27th May. Austria's First Lady, Margit Fischer, was given the opportunity to view the exhibits during a special tour of the exhibition.

Students from the Information Management degree programme led visitors to the "discover IT" exhibition through a virtual world, from a visual drum session with sound cubes, a laser harp without strings through to a magic book which allowed readers to scroll through virtual human organs. True to the motto "touch, explore, discover and be at one with the exhibits", visitors were also able to row through the human body, draw music themselves and build music with wooden blocks. Visitors were also able to project a love letter, sent by SMS, onto the Kunsthaus Graz's BIX wall, the city's largest electronic display.

Margit Fischer, wife of Austrian President Heinz Fischer, was given a special guided tour of the exhibition by project supervisor Alexander Nischelwitzer and the students. Other guests included representatives from the Austrian Federal Ministry of Education, Arts and Culture.

#### 2.2.1 Main activities and tools produced of Graz event

- Exhibition in the Kunsthaus Graz (4 Days)
- Special Guided Tour Friday with the Science Center Network with First Lady Margit Fischer at the discover IT exhibition
- Guided Tours for Schools and Visitors: Friday, Saturday and Sunday
- Special Opening Event
- Pre-opening with Testing of Discovery Days material Wednesday
- Printed Material
- Discovery Days DiscoverIT "creativity cards"
- Discovery Days DiscoverIT "creativity blöcke"
- Discovery Days DiscoverIT "creativity hefte"
- Discovery Days DiscoverIT Banners
- Discovery Days DiscoverIT Event Info Folder
- Project Description Booklet
- Video Website on YouTube
   Playlist of 10 Videos: <a href="http://www.youtube.com/view\_play\_list?p=340A7AF3C699A417">http://www.youtube.com/view\_play\_list?p=340A7AF3C699A417</a>

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Video on YouTube: DiscoverIT @ Discovery Days / Bix Wall Installation



#### Online Information @ FH JOANNEUM

English: http://www.fh-

joanneum.at/aw/home/Studienangebot/Information Engineering/ima/News Events/news/~bgbl/Margit Fischer bei %2527discover IT%2527 /?lan=en

German: <u>http://www.fh-</u>

joanneum.at/aw/home/Studienangebot/Information Engineering/ima/News Events/news/~bgbl/Margit Fischer bei %2527discover\_ \_IT%2527 /?lan=de

Virtuelle Schule BMUKK: http://www.virtuelleschule.at/discovery-day

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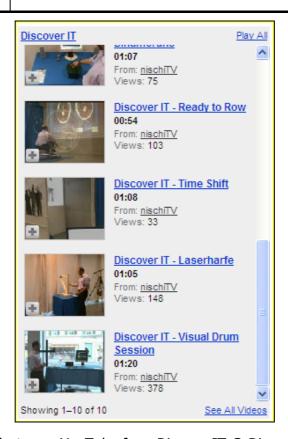


First Lady Margit Fischer, Alexander Nischelwitzer, Barbara Streicher, Elisabeth Zistler, etc.



Example Video: Visual Drum Session

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Video Selector on YouTube from DiscoverIT @ Discovery Days

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#### 2.2.2 Timetable and Milestones

Start of Project: March 2007

Agreement with Kunsthaus Graz: April 2007

Selection of installations: April 2007

Test installation @ FH JOANNEUM: end of April 2007

• Design and layout of printed material: first two weeks of May

Building up: 19-22 May 2007

Pretesting: 23 May 2007

Opening: 24 May 2007 (with around 200 invited visitors)

25 May 2007 special guided tour with first lady Margit Fischer

Exhibition: 24-27 May 2007

Finish: 27-28 May 2007





Opening – Project introduction and opening speech – touch explore and discover

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#### selected pictures:









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#### 2.2.3 Selected public relations material







Report Author and project leader of Discover IT: Alexander Nischelwitzer

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#### 2.3 Eisenstadt event: "eLearning Conference" 5. October 2007









During the eLearning conference several EU projects were presented together with the Discovery Days activities.

One main target was the possibility of networking with other EU Projects like CALIBRATE, MELT, P2V, EdReNe, COLLAGE, InLoT, INTERREG projects, etc.

Discovery Days and COLLAGE had a main part; two Discovery projects were presented:

#### 2.3.1 Discovery Days Presentation 1

Presenter:	Hannes Kaufmann		
Institution:	Technical University Vienna / Technische Universität Wien		
Title:	School and Research; exercise: Virtual Reality and Augmented Reality		
Abstract:	Dynamical programme: 3D-Programm "Contruct3D"; Geography  The 3D program "Construct 3D" makes a dynamical change of the basic points of a virtual object visible, it re-calculates during the design process and draws the object in real time. Two users can work at the same time who can move around the virtual objects during the design process. This enables		
	completely new ways of understanding design through learning by experiment, It also strengthens your social intelligence for working in teams.		
Outcome:	Videos, pictures, 10 learning objects  Video: mms://archiv.schule.at/vis/film_elearning_conference_2007/eLnE07_Kaufmann.wmv  Learning objects: http://www.ims.tuwien.ac.at/research/c3d_content/		
Kind of	Presentation and Exhibition		

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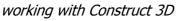
Event:	
Participants:	about 150 experts from 10 countries; policy-makers, stakeholders, teachers, educational servers, etc.;





Virtual Reality / Augmented Reality Exhibition, eLearning Conference, Eisenstadt









### 2.3.2 Discovery Days Presentation 2

Presenter:	Alexander Nischelwitzer	
Institution:	University of Applied Sciences Graz	
Title:	Exhibition: touch the information	
Abstract:	Projects as Time Shift, Ready to Row, Tempora Dinumerans, Laserharfe, Visual Drum Session, Magic Book, Sound of Drawing, a realm, SMS to BIX,	

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	Age SIM und Manual Product Control luden Visitors where invited to "touch the information"
Outcome:	Videos, pictures, 12 students-projects
Kind of Event:	Presentation and Exhibition
Participants:	about 150 experts from 10 countries; policy-makers, teachers, educational servers, etc.;







Visitors at the exhibition during the eLearning Conference, Eisenstadt

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#### 2.3.3 Selected public relations material



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## 2.4 Linz event: "Science Communication — Science & School, project oriented activities and perspectives" 4. December 2007









The main focus of the event in Linz in the ARS Electronica Center was creating awareness for the challenges in innovation and state-of-the-art science teaching. Margit Fischer, the First Lady of Austria took part in the conference and spoke about the importance of science education.

#### Discovery Days and COLLAGE had a main part:

Presenter:	Nicoletta Blacher
Institution:	ARS Electronica Center, Linz Science Center Netzwerk
Title:	Science Communication — Science & School, projectoriented activities and perspectives
Abstract:	Main focus of this event was creating awareness for the challenges in innovation and state-of-the-art science teaching and at the same time finding ways to support the excellent cooperation between research institutions, schools, museums and other educational and cultural institutions. It also addressed individual initiatives that aim to motivate and create curiosity for science and technologies by actively integrating all actors.
	Exemplary network activities:
	- Future now: Innovatives Lernen und Forschen (BM:WF)
	- Powerful Learning Environments – Wissen macht Spass (ARS Electronica Center, Linz, Futurelab)
	- Forschung macht Schule (BM:VIT)

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	- Science Center Netzwerk	
	- IMST – Innovation in Mathematics, Science and Technology Teaching; IMST zur Steigerung der Attraktivität des MNI-Unterrichts in Österreich	
	- Sparkling Science (BMWF)	
	- Der Wissenschaftsfonds: "Wahlfach: Wissenschaft" – das neue Schulprojekt des FWF	
	- COLLAGE – Collaborative and Mobile Learning Platform Using Game-like Enhancements	
	- InLoT – In the Lab of Tomorrow	
	- ORGANIC.EDUNET — A Multilingual Federation of Learning Repositories with Quality Content for the Awarness and Education of European Youth about Organic Agricutulture and Agroecology	
	- COSMOS – An Advanced Scientific Repository for Science Teaching and Learning	
	- COSMOS – An Advanced Scientific Repository for Science Teaching and Learning	
Outcome:	Videos-Live streaming of all presentations (in German), pictures Live streaming: <a href="http://www.schule.at/index.php?url=news&amp;news_id=4629">http://www.schule.at/index.php?url=news&amp;news_id=4629</a>	
	Radiospot (Linz): Interview with Margit Fischer, Reinhold Hawle, etc. <a href="http://www.virtuelleschule.at/discovery-day/dokumentation_linz/ROOE_04-12-2007.MP3">http://www.virtuelleschule.at/discovery-day/dokumentation_linz/ROOE_04-12-2007.MP3</a>	
Kind of Event:	Presentation and Exhibition	
Participants:	About 70 participants; experts from science and culture, Margit Fischer, the First Lady of Austria held a welcome speech and presented activities of her Science Center Netzwerk	

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Experts meeting in Linz, 4. December 2007

#### 2.5 Results of the Austrian events

- Broad attention for science and science education in schools and in the media, numerous visitors at all events.
- Broad dissemination of information, educational scenarios and game-based learning to the target group and the public.

All documents, videos, pictures are available at the **Discovery Days Austria Website** <a href="http://www.virtuelleschule.at/discovery-day">http://www.virtuelleschule.at/discovery-day</a>

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### 3. Implementation of Finnish/Estonian events

The aim of the three day event, 20-22<sup>nd</sup> September 2007, was to demonstrate to school pupils and visitors the opportunities advanced technologies are offering in order to improve their learning and experiences during the science centre visit.

The focus was to connect motion and exploring physical phenomena enhanced by advanced technology.

Heureka has demonstrated to science centre visitors the opportunities advanced technologies are offering to enrich their experience during the visit and the field trips. Due to the new technological achievements Heureka has been offering the opportunity to experience the phenomena presented in their own terms, freely choosing what to interact with, depending on their prior knowledge, interest and expertise by making a rich collection of contents of futuristic scenarios. The framework that attempt to connect informal and formal learning and to situate science and culture in real world contexts has been the main driving force.

Heureka has been working together with Discovery Days participants to create a culture for future operation of science centres and museums as well as to give to the young European and the wider public the opportunity to experience the new technological achievements during their visits in those places. One of the main aims for Heureka has been to create virtual and open learning environments by using augmented reality (AR) and mobile computation. In Heureka and other science centres the exhibits and the related phenomena are embedded in real world contexts where visitors can see and experience the real world's connections of these phenomena.

Heureka has promoted the active involvement of public to broad multinational activities in close co-operation with strong local partnerships by planning the Discovery days in Heureka, Finland with Ellinogermaniki Agogi (Greece) and Energiakeskus (Estonia). Local schools from Vantaa, have possibilities to connect ideas with European partners via Heureka and their own websites. The project website is one of the basic vehicles for promotion and the dissemination of the project together with the scenarios.

#### 3.1 Structure

Discovery Days event was realised for school pupils and visitors in Heureka with co-operation from Ellinogermaniki Agogi School, Athens and Energiakeskus, Tallinn. The three days event focussed on learning via to advanced technologies during a science centre visit. The visitors had the opportunity to experience the five exhibits presented in their own terms. They could freely choose what to attend to and interact with, depending on their prior knowledge and interest. Feedback forms were prepared to collect information and feelings about the chosen DD exhibits.

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With the help of a proper user manual and active email discussions the InLoT devices were easy to implement and work with. The technology was working all the time. Only a couple of times the flexi cable that interconnects BAN and STM Radio Devices in the belt assembly needed to be reconnected. The information on how to repair the cable connection was presented with illustrations and the work took only 3-5 minutes.

The total amount of visitors during the three days in Heureka was 2000. School groups were visiting Discovery Days (DD)exhibits on Thursday and Friday. During the DD happening more than 300 school pupils took part in organised actions. Students of ages 14-16 were offered to take part in the Man in Motion laboratory program. The experimental workshop has been developed in co-operation with researchers at the UKK Institute of Finland. In the experimental section, students measure and estimate the results of the person's heart rate, breathing frequency and oxygen consumption.

On Saturday there were more than 800 visitors in Heureka. (On Sunday without DD happening there were less than 400 visitors.). Heureka has been sending information and material relating the DD happening via internet pages, contacting newspapers, radio stations and editors.

#### 3.2 Scenario

In Heureka the exhibits Air Guitar and Circus Game are using technology of virtual reality. Time Machine is a simple exhibit application where the visitor can travel through ages by using the augmented reality technology. Furthermore we were supported by EA, Athens to enhance the interest towards our football exhibit "How hard you can kick". Heureka offered the InLoT experience to the visitors interested in football and physics. Via InLoT system the axions gave data in a format compatible with graphing and analysis software components, so that students could easily investigate trends and patterns in the data they collect with wearable sensors.

Participating schools came from Vantaa, Espoo and Helsinki and Tabasalu, next to Tallinn. Estonian students came from Tabasalu Ühisgümnaasium school, having active co-operation with science centre Energiakeskus. More than 60 Estonian participants spent a whole day in Heureka to take part in the DD happenings. All the school groups were invited to see a super movie in the Verne theatre during the DD visit.

Energiakeskus participated in the project in cooperation with the Finnish science centre Heureka via distance link with Finnish DD event. On Friday, 21th of September 2007 Energiakeskus in cooperation with Heureka organized a speed ship and bus trip for 57 Estonian 5th grade pupils (from Tabasalu Ühisgümnaasium, a comprehensive school near Tallinn having active cooperation with Energiakeskus) and their 4 teachers to Heureka where the Discovery Days

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happening took place. The augmented reality exhibits set up for the project were demonstrated to them and they were introduced with the main exhibition of Heureka. Estonian participants spent a whole day in Heureka, also attending a super movie in the Verne theatre. A representative from Energiakeskus took part in the event.

The event was also reflected in Estonian media. On October 14th, 2007 an overview written by the Estonian project coordinator Kristel Mõistus was published in Õpetajate Leht, the main weekly newspaper for Estonian teachers.

Image 1: Testing the InLot system in Heureka

Image 2: Matti Jokela from Heureka explaining the evaluation forms to Estonian visitors





Image 3: School visitor checking the results from InLot database at the Heureka Discovery Days event

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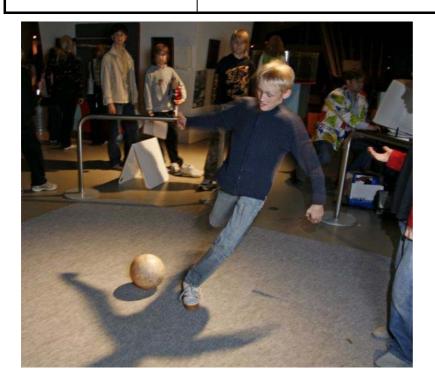


Image 4: School visitors playing the Circus Game at the Heureka Discovery Days event



Image 5: Heureka exhibit "How hard you can kick?" was part of the Discovery Day event

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#### 3.3 Impact

The Heureka Discovery Day event was evaluated to assess its impact. Evaluation forms were designed and distributed to all school participants at event. Two feedback forms were designed to reflect the two target audiences of the event: school children and teachers. The feedback forms were translated into Finnish and Estonian. 218 forms from children and ten from teachers were received from the 338 Heureka Discovery Days targeted participants. The feedback forms were not used for the general public. The children's form (see Annex C) uses a Likert scale 1-5 (1= poor, 5= very good). In section one the questions focus on the whole Discovery Days event in Heureka. In 4.4.2 the questions are on the InLot football exhibit.

Feedback forms for teachers (see Annex D) have a Likert scale part for quantitative feedback, and a more open part based on picture "New educational models or paradigms" for qualitative feedback.

#### 3.3.1 School children participants

218 forms were received:

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Scores are given on a Likert scale 1-5 (1= poor, 5= very good). The figure indicated is the average score given by participants.

What was your <b>overall impression</b> of the Heureka Discovery Days exhibit?	3,97	
How <b>enjoyable</b> was the exhibit to use?	4,10	
How <b>interesting</b> was the exhibit to use?	4,02	
How <b>easy</b> was the exhibit to interact with?		
How much do you feel you <b>learnt</b> from the exhibit?	3,23	
How interesting was the InLot football exhibit <b>compared to normal physics teaching?</b>	3,5	

First, it is important to note the high scores given all round. All average scores were above the midpoint 3 (satisfactory – good), and two of the five average scores were above 4 (good – very good). The highest scores were for the factors of enjoyment and interest, which are to be expected in an exhibit which utilizes new technologies as an extrinsic (situational) motivation for learning. Young people are motivated by the high-technology and augmented-reality nature of the exhibit, as shown by the high score for enjoyment.

Although above the midpoint, the lowest score is given for how much the young person feels he or she has learnt. Here it is important to take into account the fact that learning is typically considered in a conventional sense (memorizing facts and figures etc). The aim of the advanced technology in the Discovery Days exhibits was to stimulate learning through doing. As such, the young people interacting with the exhibits are engaging with the subject matter and developing an understanding of the theory behind it without the leaner necessarily feeling that they have "learnt." The key to this is the high score for "interest" which shows a true engagement with the exhibit.

#### 3.3.2 InLot football exhibit

Scores are given on a Likert scale 1-5 (1= poor, 5= very good). The figure indicated is the average score given by participants.

How **fun** was it? 4,25

How **interesting** was it? 3,96

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How **easy** was it to use? 4,25

How much do you feel you **learnt** from InLot exhibit? 3,71

What was your **overall impression** (InLot football):

Overall impression, **boys** 4,19

Overall impression, **girls** 4,13

#### 3.3.3 Teacher participants

From teachers' feedback forms can be found some guidelines on how they have experienced the advanced technology opportunities. Teachers felt that advanced technologies were taken in use in a good way in Discovery Days exhibits (4,1) compared to the other exhibits in Heureka. When comparing the technological applications to technology used in schools teachers' opinion were clear. The technologies used in Discovery Days were advanced technology (4,8).

Teachers were able to find the connection between motion, sport, physics and advanced technology easily (4,2) through the Discovery Days event. General arrangements for schools were working good (4,3) (the opinions were asked from teachers only).

In the open question part teachers have to discover the picture New Educational Models and Paradigms to find out three sections that demonstrated the role of advanced technology in teaching via Discovery Days event. Sections Pedagogical changes, New physical phase and From teacher-controlled learning to pupil controlled learning were all mentioned three times.

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## 4. Implementation of Greek events

## 4.1 Athens event "See, Feel and Interact with Advanced Technologies", 3-5 October 2007

Foundation of the Hellenic World (FHW), in collaboration with Ellinogermaniki Agogi (EA) and other partners, such as Q-Plan, Barco NV and Hooox, according to European Program "Discovery Days: Advanced Technologies meets Science and Culture" presented a virtual journey in Ancient Agora of Athens and the presentation of the Magic Book.

In collaboration with Ellinogermaniki Agogi (EA), Foundation of the Hellenic World hosted at Hellenic Cosmos the Magic Book in connection with the other technological installations and intelligent advanced surrounding technology through which the Discovery days have been presented to the wide public - approximately 3.000 visitors within the period of the activity.

The meeting of Culture and Technology with the title "See, Feel and Interact with Advanced Technologies", constituted one of the nine days of the Project Discovery Days and took place on 3-5 October 2007 at Hellenic Cosmos, the Cultural Centre of Foundation of the Hellenic World.

In the framework of these three days, the participants viewed a new production of the Foundation of the Hellenic World "Tour in the Ancient Agora of Athens: A virtual reality journey to the THOLOS", the new Theatre of Virtual Reality at Hellenic Cosmos. The work, which was addressed both to the wide public and the educational and research community, created an original digital collection of the buildings of the Ancient Agora of Athens, which constituted evidence of the political and cultural life of the Athenian Democracy. In this framework, the digital cultural collection included buildings that geographically were part of the area of the Ancient Agora of Athens and covered the period from the 6<sup>th</sup> century BC until the 3<sup>rd</sup> century AD. in parallel, the participants revived the past through the Magic Book, which was conceded from Ellinogermani Agogi and Barco NV to Hellenic Cosmos.

The Discovery Days results have been linked with the work of the ones realized in the frame of the 4<sup>th</sup> International Conference of the Intuition Project, a network of excellence on Virtual

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reality. The results and advanced technologies approached within the Intuition project have been also presented through the Discovery days wide public actions.

Additionally, Discovery Days has been linked with the 4<sup>th</sup> Intuition International Conference and Workshop "Virtual Reality and Virtual Environments", held in Athens, 3-5 October 2007.

## 4.2 Athens event "Interaction Tour in Ancient Agora of Athens" 26 September 2007

The high-school students at the Village Lala Ilias accomplished from their school desks a virtual reality journey in Ancient Agora of Athens. For 45 minutes, students connected via a broadband satellite with THOLOS, a Theatre of Virtual Reality at Hellenic Cosmos and watched the projection "Interaction Tour in Ancient Agora of Athens". The connection implemented in collaboration with Ellinogermaniki Agogi,, the Hellenic Aerospace Industry S.A. and Foundation of the Hellenic World in the framework of the Project "Discovery Days: Advanced Technologies meets Science and Culture". The connection has linked the remote mountainous and fire ravaged village with THOLOS, the International fair of Thessaloniki (where the virtual reality system where installed, through advanced communications system) in real time, providing an excellent opportunity to prove the use and importance of European technological applications presented within Discovery Days.

The scope of this common initiative was the highlight and exploitation of technologies, such as "digital radio-televisional broadcast – system channel of return" (DVB-RCS), such as the spatial technology for the grant of completed services to cover up the educational and cultural necessities of distance agricultural districts. Through the broadband satellite connection, the distanced schools had the opportunity to participate in an unprecedented educational experience.

In the framework of the project, the school came with an equipment of broadband satellite connection and number of educational applications, while in parallel it was supported so as to become a model of school innovation and worldwide and become a support centre for better knowledge in the community. Through pictures and sound of high quality, the students had the chance to visit the museums, libraries or archaeological spaces, to watch live some activities and to participate in the experience of interaction with the spaces and exhibits.

The first pilot implementation of the Project can be seen as the link of tomorrow between the school of the Village Lala Ilias and Tholos. Through virtual reality students were touring the Ancient Agora of Athens, in three different temporal historical periods (Classical, Hellenistic and Roman period) so as to see and understand the development and change of the space functions

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of the space, as they appeared in their architectural and city-structural differentiations through time. During the virtual reality tour in the Ancient Agora of Athens, students also had the opportunity to choose the route by their own.

## 4.3 Thessaloniki event "Thessaloniki International Fair" 8-16 September 2007

Foundation of the Hellenic World (FHW) participated in the 72<sup>nd</sup> Thessaloniki International Fair (TIF) on 8-16 September 2007. The place was at the International Exhibition Centre of Thessaloniki with 12 absolutely spectacular thematic events, 15 official state participations and exhibitors coming from 26 countries. Foundation of the Hellenic World was hosted at the pavillion 8 by the General Secretariat for Research and Technology (Ministry of Development).

The visitors of FHW had the opportunity to travel in space and time and to discover our cultural heritage. They participated in virtual journeys via the system of Virtual Reality – which was transferred from Athens to Thessaloniki. Our visitors had the pleasure to watch live FHW's new production "The Ancient Agora of Athens" through THOLOS, our new Theater of Virtual Reality. Moreover, the visitors had the opportunity to be informed about the Project "Discovery Days", its activities and generally to interact with new technologies .

This participation was a very good effort for Discovery Days Project, because every day, from Monday to Friday the live event of Ancient Agora of Athens was held from 17.00 to 23.00 and Saturday and Sunday from 10.00 to 22.00.

Many people, not only from Greece but also from other countries (Egypt, Belgium, France, Germany, USA, Hungary, Pakistan, Serbia, Sweden, Spain, Italy, etc.) revived the past through a system of Virtual Reality. The system was transferred from Athens to Thessaloniki for 11 days. The transportation was done by a specialized company.

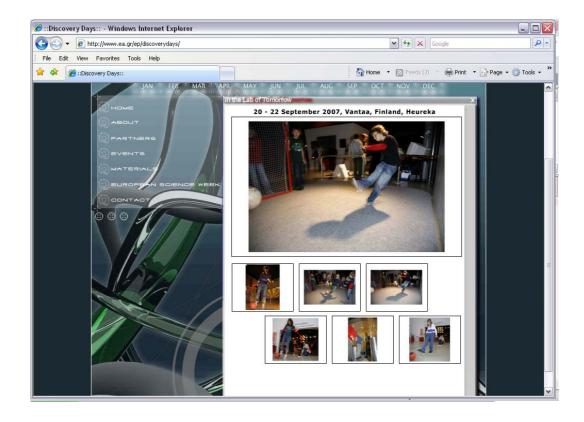
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#### 5. Implementation of Danish and Portuguese events



EA sent the InLoT system to the Danish Science Communication event on 23-24 of September and to Ciencia Viva (Lisbon) during the European science Week (November 19-25), on top of its presentation in HEUREKA (see section 4)). The InLoT system consists of wearable computers and intelligent sensors that are used for experimentation, data collection and storage. The system introduces innovation both in

pedagogy and technology. The specific technology allows for science centre's visitors or high school students (when in school) to use their every day life as the field where they will conduct sophisticated experiments and thus will deepen their understanding of the science concepts involved in the activities. The system represents an integrated effort to reconnect science teaching and understanding with real life of visitors/students. The InLoT system reveals to users hints of the magic aspects of physics and natural sciences while at the same time extended the capabilities of the school science laboratory much beyond its conventional borders.



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**Figure 5:** *InLoT in action in different locations in Europe. More than 100 students and teachers from Denmark and Portugal had the possibility to "play" with the system.* 

#### The Inlot system and Inquiry Based Learning

Science deals with the study of nature and the world around us, so teaching science cannot be separated from daily experiences resulting from student's interaction with the physical phenomena. The connection of tangible physical phenomena and scientific problems provides students with the ability to apply science everywhere and not only in specially designed experiments under the laboratory's controlled conditions. Wearable computers and intelligent sensors have been developed so that they are used by students to experience their every day activities in the context of science experimentation, data collection and constructing knowledge about phenomena and laws of physics.

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## 6. Communication and dissemination of Discovery Day events

The communication strategy and dissemination strategy were differentiated in the project in order to ensure that the information was tailored to each target audience. The communication strategy, coordinated by Workpackage 4, focussed on the public, while the dissemination strategy, under Workpackage 6, was targeted at professionals in the field of science communication, education and civil society. These two strategies were nonetheless linked, with the dissemination material linking to the two major communication outputs (the project website and the site hosting the Video News Releases.)

#### 6.1 Communication strategy

The scope of the Discovery Days communication plan was to provide the Local Events and the project's Final Event with adequate and effective communication instruments. In particular, the communication plan of the project aimed to:

- Convey the maximum possible number of people to the Discovery Days Local Events.
- Organise institutional communication for the Final Event.
- Establish a brand for the project.
- Identify and activate communication instruments and tools able to answer to the requirements of the Discovery Days communication at any moment during the lifetime of the project.
- Develop tools and instruments that had a high degree of re-usability, i.e. visible beyond the mere duration of the project.
- Localise the communication at all levels, in order to match audience needs.
- Provide instruments for corrective actions.

To meet these objectives, the instruments made available to the project have mainly been the following communication channels:

- The web
- The television

Each of these items have been organised at the local or global level, depending on the scope and on the required coverage of each event. In the following of this brief, we will describe the Discovery Days' relation to each of these communication channels. All actions have been carried out at the global level (i.e. at the project's level) and at the local level (i.e. promoted by the organisers of the Discovery Days Events).

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#### 6.2 Project website

The project website was the main "global" component of the Discovery Days communication plan overall. The site, located at http://www.ea.gr/ep/discoverydays is managed by Q-Plan, not as a management tool for project partners but public oriented. Content wise, it aimed to go beyond traditional "project websites" and appear as a rather a friendly gateway to the technologies and tools aimed to by Discovery Days, in scope with the project's objectives of showing how new technologies can relate to everyday life. The site contains the agenda of the 8 Events, information on the venue, on the content to be displayed, and the main outcomes of the Local Events which already took place and established links with websites of Discovery Days participating organisations, the Commission Services and other relevant bodies, such as National Ministries. Websites of participating organisations and the consortium partners cross-advertised the Discovery Days website in order to increase contacts and information.

#### 6.3 Video News Release (VNR)

The video news release (VNR) is the other element which ensured global coverage to the Discovery Days Events. Originally planned for month 4, as a presentation tool of the project, it was moved to the very end of the project (after the Final Event) in order to collect the main results of the national Events and of the Final Event. The VNR was developed by Gedeon Programmes and benefited from the inclusion in the www.youris.com audiovisual communication mainstream. youris.com is today a highly acknowledged resource providing audiovisual content about innovative research results, facts and information for TV stations across Europe. Among other references, youris.com is listed among the Eurovision world feeds and is an acknowledged content provider of the pan-European TV station Euronews. In 2005 the service tracked more than 300 TV broadcasts on national TV stations in 29 different countries, including the US. youris.com, opened in 2004 as a free open service for TV broadcasters, has been the forerunner of a new research-centred audiovisual communication model for the European Commission, and shall be regarded today as a de-facto standard for audiovisual production and distribution and as a highly scaleable platform for large research institutions and organisations. youris.com complies with the technical requirements of the Eurovision news and feature exchanges, as it provides a 90-seconds trailer complemented by 8-minutes footage enabling target TV station and programs to build their own reportages with their own editing and in their own language. This flexibility in the provision of the audiovisual content shall be regarded to as one of the main success factors of the service. The VNR consists of a 90 English-spoken edited teaser and a larger set of rushes (about 10 to 12 minutes) for broadcasters edit. At least 8 major national broadcasters have and will broadcast the Discovery Days VNR across Europe. The alternative option would have been the development of a 26 minutes video based on snapshots from the events and archive

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materials. This approach has nearly no reusability. High costs involved, very low cost/benefit ratio, extremely limited budget. On the other side, the development of a youris.com VNR module, of a shorter duration, but extremely modular, resulted in very attractive tools for TV media dissemination on all EU countries, with an extremely high cost/benefit ratio.

For the VNR, Gedeon Programmes made a special shooting during the last event of the Discovery Days conference.

Held in Athens on the 9th and 10th of November 2007, the final event of the Discovery Days program brought together 70 researchers from all around the world as well as 2000 teachers from Greece with the aim of sharing knowledge and experience about the use of ICT in the education world. Interactive tools such as Magic book, a program mixing sport and physics and new idea about teaching were presented during this symposium called Designing schools of tomorrow.

Organised around nine interactive workshops, the school of tomorrow symposium was an occasion to confront theoretical and practical approaches in education.

A journalist and his crew filmed the event during the two days conference.

He then edited a 1'30" teaser to present the event plus a 15 minutes rushes selection, that is to say a VNR (video news release).

The main objective of this video is to being shown to European public and to our target audience of journalists.

The material, produced in English, was disseminated to European journalists via two main channels:

 Gedeon Programmes international department: Gedeon Programmes (founded in 1994) is a key figure in international audiovisual production. We worked with more then fifty european television channels and people from our international department are being present to most audiovisual festivals worldwilde.

As all programmes of Gedeon Programmes, the Discovery Days VNR is being presented, free of charge, to our clients.

 Youris.com: This service was launched in January 2005 and rapidly became the European standard for VNRs production and distribution and as a highly scaleable platform for large research institutions and organisations.

youris.com works with a large network of national correspondents at national and local TV stations, and owns a distribution mechanism able to cover the totality of European

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countries and of the Mediterranean area. The service complies with the satellite distribution requirements of the Eurovision news feeds and is, as mentioned previously, one of the service providers of the pan-European TV station Euronews.

The Discovery Days VNR is available on youris.com. The journalists can either access the video and download it in broadcast quality or command a betanum tape.

#### 6.4 Dissemination

EUN and Ecsite were key dissemination channels to reach the target groups of the events, as they had a multiplier effect – each of their member institutions has contact with a much wider audience to whom they have established means of disseminating information. Ecsite member institutions attract more than 30 million visitors in their venue, and many millions more through their websites. More than 60% of visitors are under 25, and almost 40% of them are school students.

The following means of dissemination were identified as the most effective ways to reach the largest possible number of the target audience for the events:

#### 6.4.1 Website

The Ecsite website <a href="www.ecsite.net">www.ecsite.net</a> has a dedicated Discovery Days project page, linked to directly from the homepage, which was updated regularly with news on upcoming and past events. The information on this page was specifically targeted at science centre and museum professionals. The Ecsite website also had one of the main three navigation buttons on the homepage linked to the project website at <a href="www.ea.gr/ep/discoverydays">www.ea.gr/ep/discoverydays</a> throughout the length of the project.

#### 6.4.2 E-newsletter bulletins

Both EUN and Ecsite sent out descriptions and reminders of the events in their e-newsletters.

Ecsite sent out regular updates in its monthly e-Newsletter. This is received not only by Ecsite's 385 member institutions across Europe, who are directly involved in science centres and museums, but also an additional mailing list of 2500 contacts in the field of science communication, ranging from policymakers, NGOs, academics, exhibition designers, journalists and industry. This ensured that news of the Discovery Days events was widespread, and that awareness was raised not only of the events themselves but also of the importance of new technologies as a means to improve the experience of visiting science centres and museums for young people.

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EUN included bulletins on Discovery Days in their Teachers Newsletter, which is received by 50 000 teachers across Europe.

#### 6.5 Dissemination carried out locally: Austria

0.5 Dissemination carried out locally. Austria		
Date	Title	Number of persons attended + other information
24 <sup>-</sup> to 27 <sup>-</sup> May 2007	Discovery Days at the Kunsthaus in Graz	Invited: 300 personally invited experts & opinion leaders broad invitation to the public
		Attended: 200 of invited persons, 500 visitors
		Virtual visitors: up to today more than 1500 <a href="http://www.youtube.com/my_playlists?p=340A7AF3C">http://www.youtube.com/my_playlists?p=340A7AF3C</a>
16. May 2007	Vienna, Wiener Kaufmannschaft	Presentation at the Springdays Austria in Vienna <a href="http://www.virtuelleschule.at/springday">http://www.virtuelleschule.at/springday</a> http://www.virtuelleschule.at/springday
		by Michaela Schaller
30 <sup>-</sup> May to 1 <sup>-</sup> June 2007	Dissemination Activities and Meeting	BildungOnline <u>http://www.virtuelleschule.at/bildungonline</u>
5 <sup>-</sup> to 6 <sup>-</sup> Oct 2007	Discovery Days at Annual E- learning Conference in Eisenstadt	Invited: 100 personally invited experts & opinion leaders
		Attended: 50 of invited persons, 100 visitors from 10 countries
		Presentation of Virtual Reality / Augmented Reality at the Vienna University of Technology in Vienna and at the TechGate Vienna
		by Hannes Kaufmann, Virtual Reality by Alexander Nischelwitzer, Discover IT - Computer Interfaces
		Video documentation:
		mms://archiv.schule.at/vis/film_elearning_ conference 2007/eLnE07 Kaufmann.wmv
		mms://archiv.schule.at/vis/film_elearning

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		conference 2007/eLnE07 Nischelw Interfaces.wmv
22. – 24. November 2007	Dissemination Activities and Meeting	BildungOnline  http://www.virtuelleschule.at/bildungonline by Jutta Jerlich 1000 visitors
22. to 24. November 2007	Dissemination Activities and Meeting	Presentation at the Interpedagogica 2007  by Michaela Schaller  http://www.virtuelleschule.at/ip
4 <sup>-</sup> Dec 2007	Discovery Days at the Ars Electronica Centre in Linz	Science Communication - Science & School Project oriented activities and perspectives Invited: Public, 70 invited experts Attended: 50 of invited persons, 25 teachers Video documentation and Radio documentation link: Radio Oberösterreich <a href="http://www.virtuelleschule.at/discovery-day">http://www.virtuelleschule.at/discovery-day</a>

A lot of Meetings, Networking-Activities and Dissemination Activities took place during other events in Austria:

#### Report in the news area of the FH Joanneum

http://www.fh-

joanneum.at/aw/home/Studienangebot/Information Engineering/ima/News Events/news/~bgbl/ Margit Fischer bei %2527discover IT%2527 /?lan=de

Video playlist on YouTube (Graz) -

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http://www.youtube.com/view\_play\_list?p=340A7AF3C699A417

http://www.virtuelleschule.at/discovery-day

The YouTube clips met with a great deal of success, registering up to 1000 hits per clip.

Radiospot (Linz): Interview with Margit Fischer, Reinhold Hawle, etc. Audio available online at: http://www.virtuelleschule.at/discovery-day/dokumentation linz/ROOE 04-12-2007.MP3

#### 6.6 Dissemination carried out locally: Greece

Foundation of the Hellenic World participated in the Exhibition of Science, Technology and Innovation (<a href="http://www.gsrt.gr/default.asp?V ITEM ID=5303">http://www.gsrt.gr/default.asp?V ITEM ID=5303</a>) at the Zappeion Mansion, Athens (29<sup>th</sup> June-5<sup>th</sup> July 2007). FHW were one of 33 institutions taking part in this event, which was organized by the general secretariat for research and technology of the Greek Ministry of Development. The participation was as follows:

- Creation and operation of a kiosk-stand, which presented FHW's activities and products that were related to culture and new technologies (Virtual Reality programmes, CD-ROMs, Web Sites, Documentaries, Printed and Electronic Publications) and through computers the most important research projects and activities.
- ◆ Interactive systems: FHW's 3D digital programmes presented at Virtual Cinema. FHW's presence focused on the following thematic units: 1) Genealogy trees of Macedonia, 2) Ancient Agora (site, Virtual Reality

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programmes), 3) Programmes for the creation of a hyper-topic centre of cultural research and technology at Hellenic Comsos, 4) Presentation of other educational and research programmes though screens, computers and printed material, 5) Presentation of FHW's productions and projects (publications, CD ROM – DVD).

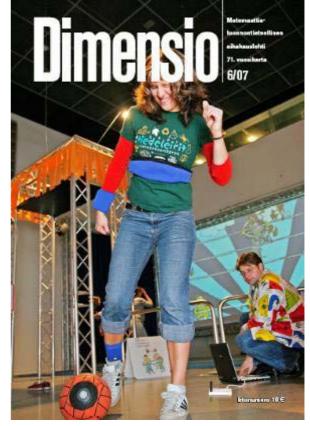
#### 6.7 Dissemination carried out locally: Finland

10 A2 posters and 20 A4 copies were designed in collaboration with Q-Plan and Zeeland, according to the template created in WP4. The posters were placed at the entrance of Heureka and around the exhibit area in order to promote the visual identity of the Discovery Days project.

Heureka's own information sheets were available couples of weeks before the event. The information about Heureka Discovery Days event was in Helsingin Sanomat, the most wide spread newspaper in Finland. The event was also promoted via Heureka's website

http://www.heureka.fi/portal/suomi/projektit/disco very\_days/. From Heureka websites links can be found to participating schools and organisations. The website is the main media for post dissemination and feedback from the schools.

A journalist was hired to make an article and take pictures from the event. The article was released



in Dimensio magazine for math/science teachers. The cover image of the magazine was from the Heureka Discovery Days event (see above image).

#### 6.8 Dissemination carried out locally: Estonia

A newsbrief of the event (in Estonian) was added to the news page of Energiakeskus:

http://energiakeskus.ee/index.php?option=com\_content&task=view&id=48&Itemid=71 (in Finnish)

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◆ An article was publicized by Energiakeskus (K. Mõistus) in national teachers' newspaper "Õpetajate Leht" about the Discovery Days happening in Heureka, where Estonian pupils attended:

http://www.opleht.ee/Arhiiv/2007/12.10.07/aine/12.shtml (in Estonian).

◆ The participating school Tabasalu Ühisgümnaasium also gave feedback from the event through their school webpage:

http://www.tabasalu.edu.ee/index.php?id=42&tx ttnews[pS]=1191186000&tx ttnews[pL]= 2681999&tx ttnews[arc]=1&tx ttnews[tt\_news]=11&tx ttnews[backPid]=43&cHash=b5d7d 7af41

• Estonian students left the event with positive impressions. They enjoyed the exhibition of Heureka. Especially the augmented reality exhibits were enthusiastically reflected in their short accounts sent us by their teacher. One student summarized the experience in Heureka as following: "It was such a great day that I'd like to play and have fun there all the week long!"

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## 7. Impact

Event	Date	Target audience	Technology	Direct impact
Graz, Austria: Kunsthaus Graz	24-27 May 2007	High school students, teachers, general public, policymakers	Discover IT, Touch the information	200 visitors invited to opening; several hundred visitors after that
Lisbon, Portugal: Lisbon Congress Centre	31 May 2007	Science centre and museum professionals	Overview of Discovery Days technology	45 participants; positive evaluation score of 4,2 out of 5
Mechelen, Belgium: Technopolis	16 June 2007	General public, young people, teachers	Virtual Book exhibit	110 participants, plus approx 300 visitors
Thessaloniki, Greece: FHW	8-16 September 2007	General public; young people	Virtual journey in Athens	Several hundred visitors
Vantaa, Finland: Heureka	20-22 September 2007	General public, young people, teachers	InLOT exhibit	338 participants; several hundred visitors
Athens, Greece: FHW	26 September 2007	High school students	Virtual journey in Athens	Approximately 50 participants
Athens, Greece: FHW	3-5 October 2007	General public; young people	Virtual journey in Athens; Virtual Book exhibit	Approximately 3000 visitors
Eisenstadt, Austria: Fachochschule Eisenstadt	5 October 2007	Policymakers, stakeholders, teachers, education professionals	Construct 3D technology; Time Shift; Magic Book; Ready to Row	300 experts from 10 countries
Linz, Austria: ARS Electronica	4 December 2007	Stakeholders in science and culture	Overview of the Discovery Days technology	70 participants

Table: an overview of the impact of the Discovery Days events

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This report and the preceding deliverable 5.1 Discovery Days underline the significant achievements that have been made in the implementation of Discovery Days events across Europe. A total of nine major Discovery Day events across Portugal, Belgium, Austria, Finland and Greece took place, as well as the major international conference in Athens, two follow-up events in Denmark and Portugal. Six of these events targeted the general public and young people directly, while three targeted specific audiences including policymakers, science centre and museum professionals, education professionals and stakeholders – the so-called multipliers, whose role enables them to transfer the impact of such an event to a much greater audience. The communication of these events through the video news release and project website, as well as through local and European dissemination by individual project partners as outlined in this report, also goes to ensuring that this positive impact is multiplied.

The results of the evaluation of the Finnish event in particular confirm the impact on the visitors to the Discovery Days themselves, with an extremely positive assessment all round. Notable are the high ratings given by both boys and girls, showing that these events used technology to heighten the experience of visiting science centres in a way which appeals to young people regardless of their gender. We see also from this evaluation that teachers see the importance of these technologies, which enhances links between schools and science centres; a crucial partnership for young people.

The project therefore achieved its objectives both directly, by demonstrating to a large number of key professionals and general public the opportunities that advanced technologies can offer in enriching the experience of visiting science museums to young people at the events, but also indirectly, through the strategic communication campaign and dissemination events, raising European awareness on future possibilities in this field.

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