PROJECT FINAL REPORT

Grant Agreement number: 290575

Project acronym: NANOPINION

Project title: Monitoring public opinion on Nanotechnology in Europe

Funding Scheme: Coordination and Support Action (CSA)

Period covered: **from** May 2012 **to** October 2014

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1. EXECUTIVE SUMMARY

For two and a half years the EC funded project NanOpinion undertook a multichannel activity on public engagement in nanotechnologies. The project used an innovative, multi-lingual outreach approach focusing on dialogue. Activities included surveys (available in 18 European languages), social media campaigns, face-to-face and online discussions, street labs and events in public and semi-public spaces in addition to an active web portal, an informational site for teachers and students, a student competition and wide media activities supported by four media partners. The objective was to monitor people's opinions on nanotechnology across Europe. Partners also collaborated with schools and teachers in 15 countries, and developed education materials which are offered as a lasting resource on the project portal's repository. With its huge network of 18 partners, the outreach numbers were rather impressive: 8,330 persons completed the questionnaire, approximately 15,000 persons were engaged in activities in public spaces and 1,556 students were engaged in school activities. More than 20 live events, debates and workshops have taken place in more than 18 countries. Media partners published 8 printed supplements in addition to 161 articles on blog posts. Radio programs dedicated to hot topics in nanotechnology, press microsites and social media campaigns attracted hundreds of thousands of additional visitors. All outreach activities fed into a common data collection.

Figure 1 shows the data sources used for qualitative and quantitative data analysis.

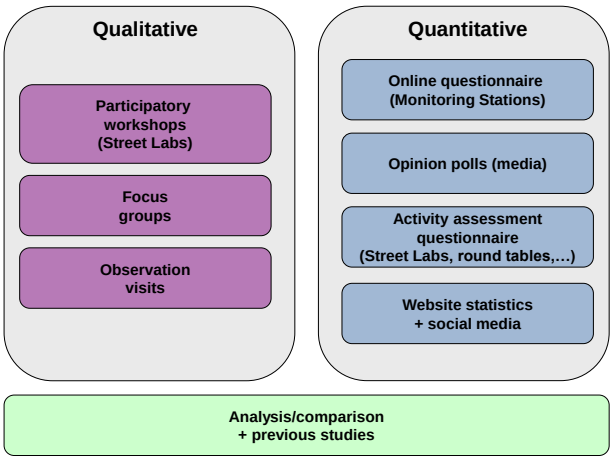


Figure 1 Evaluation instruments overview (See D6.1)

Based on diverse results, both quantitative and qualitative, the project distilled recommendations for policy makers on future engagement with nanotechnologies on three different levels:

- Future potential and need for nanotechnology education
- Future outreach and communication methodologies and tools for sustainable dialogue
- Public expectations regarding research, regulation and social implications (ELSA)

The project based its policy recommendations on three main tenets:

- **The public expectation regarding research; regulation and social implications of NT.** There is a need to improve the way citizens are included in the definition of the policy agenda of NT research and innovation, which calls for the participation of different stakeholders: the general public and consumers, young people, industry professionals, policy-makers and researchers.
- **Future communication, outreach, and public engagement methodologies for sustainable dialogue with citizens from European and associated countries.** Target groups should be addressed through different communication channels (media, mass media, social media) using a wide variety of tools. Face-to-face interactive communication is generally most effective.
- **Future potential and need for NT education at high school level across Europe.** To ensure future NT education projects reach schools efficiently, STEM teachers should be involved as part of a network of ambassadors or representatives.

Developments in nanotechnologies must be matched by continuous communication and dialogue activities, to consider people's expectations and concerns. The aim of the NanOpinion project was to establish a science-technology-social media-based platform for nanotechnology outreach to support a transparent and continuous dialogue in Europe to continuously monitor and understand consumers' and citizens' opinion on nanotechnologies. In order to do this the following actions were undertaken:

(i) develop and/or integrate reputable surveys of outreach status and public attitudes on nanotechnology;
(ii) integrate and/or set up monitoring stations, networks and infrastructures on nano-dialogue to respond to specific needs (e.g. regulation, safety) expressed by stakeholders;
(iii) build-on an extensive tool resource base developed by previous EU FP6/7 projects

The outcomes included:

- Analysis of content developed in past FP projects that dealt with NT communication & outreach (knowledge and ELSA)
- Best practice NT outreach & communication strategies using innovative methods.
- Definition of the current state of the NT debate in Europe ("hot topics")
- Identification of NT applications, topics, terminology relevant for the various stakeholders

NanOpinion activities took place in public space and at events not scientific in their primary purpose. They included Interactive activities, new ways of learning and participatory event dialogue activities.

The three main pillars of the project were:
- Information–a nano content hub
- Outreach–media/channel convergence
- Dialogue–interaction and dialogue

2. SUMMARY DESCRIPTION OF PROJECT CONTEXT AND OBJECTIVES

2.1 Project Goals and Objectives

The basic goal of the NanOpinion project was to establish a science-technology-social-media based platform, reinforced by physical on-site monitoring stations and street labs, for nanotechnology outreach to support a transparent and continuous dialogue in Europe to monitor and understand consumers' and citizens' opinion on nanotechnology and nanosciences.

Within this goal, were two main objectives:

1. *Integrate all relevant stakeholder groups into a major single dialogue arena:* Currently, the different sectors of society, such as scientists, school children, consumers and citizens, have separate areas for gathering information and communicating about nanotechnology and the societal issues associated with its development. NanOpinion aspired to create a holistic, informative and learning arena for discussing nanotechnology issues, encompassing the key stakeholders of school students and citizens/consumers, especially those from hard-to-reach segments. Within NanOpinion, these arenas led to an egalitarian share of information, views and opinions.

2. *Establish a vivid, ongoing dialogue about nanotechnologies (between different stakeholder groups) by using formal and informal communication settings*. NanOpinion used a new model of outreach and dialogue that encompassed traditional and new multimedia in addition to face-to-face interactions with citizens. Multimedia channels included the NanOpinion web portal, which served as a central hub for multiplier activities like social media campaigns, a Facebook page and Twitter feeds. An online repository of nanotechnology education resources, videos, online experiments and radio podcasts rounded out the multimedia promotions. Traditional media channels met their audiences via printed supplements. Face-to-face outreach to different target groups of the general public was done via monitoring stations in public spaces such as high streets and shopping malls, including urban and rural areas as well as reaching marginalised communities and social groups and via outreach towards European teachers via the EUN's expansive European network of schools in addition.

All of these activities had the same aim: to act as a place where the opinions of different stakeholders can be shared, discussed and voiced, therefore allowing different target groups to interact and exchange views and opinions can be gathered in order to prepare comprehensive policy recommendations for European policy makers.

In sum, to assure that all data was taken into account, partners comprehensively monitored and assessed existing knowledge, attitudes, policies, public debates as well as the impact of thematically relevant tools and programmes.

Each of the project tasks were designed to contribute towards reaching specific goals and audiences identified by the project. These tasks were arranged in a synchronised and comprehensive way.

2.2 Work Packages

Each work package within NanOpinion was systematically defined to fall into a sequential order in order to provide the foundation for each task that would follow. Below is an outline of the work package and a brief description. Details of the specific activities are available in Section 3.

WP1. Review and exploitation strategy of past FP6/7 and OECD results

The majority of partners in NanOpinion have been actively involved in related other EU-funded activities and FP6&FP7 projects, and much of past resource information is already accessible to the consortium. The key objective of WP 1 was to make use of the developed tools, bringing them into a new context, and eventually incorporating them into an extensive repository. The result was an attractive dissemination environment for past materials so they could be easily accessed, effectively promoted and exploited by stakeholders.

WP2. Developing and servicing the virtual NANOPINION platform

The main objective of WP2 was to create an online platform—a virtual nano-hub for nanotechnology outreach, continuous dialogue and opinion monitoring, with a searchable repository of NT information and educational content already available in the internet and also with new materials developed within the project. In order to promote the portal social media initiatives, such as the Facebook page and twitter accounts were initiated and expanded. The portal was available in 18 languages, with expanded materials available in 8 of those languages.

WP3. Content preparation for the NANOPINION platform

In WP3, information and education content was collated and developed based on the repository and other information developed in WP1. This content was available for the NanOpinion platform and was used by the teachers in formal education (WP4) and the presenters in the science centres (WP5) and as an information and dialogue gate for the general public to provide balanced information. The content included fundamental knowledge on nanotechnologies and their applications, as well as content related to ELSA topics for students and lay public in all European countries.

WP4. Outreach and dialogue in formal training and education settings

The objective of WP4 was to conduct Nanotechnology outreach to schools throughout Europe via teacher training and school competitions and explore how to incorporate nanotechnologies into school curricula.

WP5. General public outreach and dialogue

The objective WP5 was to conduct nanotechnology outreach in informal settings throughout Europe, directed at the general public, to involve a variety of target groups, including typically "hard-to-reach" groups. This WP included the development of the dialogue material, along with the implementation and the collection of feedback, via questionnaires, from participants through running monitoring stations and streetlabs in several public venues and science festivals, where the public could access scientific knowledge and research regardless of having any prior knowledge or interest in science.

WP6. Monitoring the outreach and public attitude towards NT

The aim of WP was to continuously evaluate and monitor the public attitudes and outreach status on nanotechnologies in Europe as well as to assess the effectiveness of the actions and impact on target audiences, and to understand the processes. The monitoring activities and surveys involved both quantitative and qualitative data collection methods. A key aspect was to conduct comparative opinion polls to monitor public knowledge and attitudes on nanotechnologies.

WP7. Framing policy options & dissemination

The objective WP7 was to raise awareness of the NanOpinion activities, disseminate its results and exploit, in a sustainable way, the outcomes. This included 8 published supplements in major European media outlets, a series of published articles on microsites hosted by these channels (Guardian: 51, Mundo: 77, radio broadcasts, social media campaigns and more). TiConUno published 8 newspaper articles, 10 videos on web TV and 6 radio broadcasts.

WP8. Management and coordination

The main objective of WP8 was to provide effective coordination of the project, to encourage communications amongst partners was smooth and effective and to ensure that all partners completed their tasks on time and within budget.

2.3 Project Reach

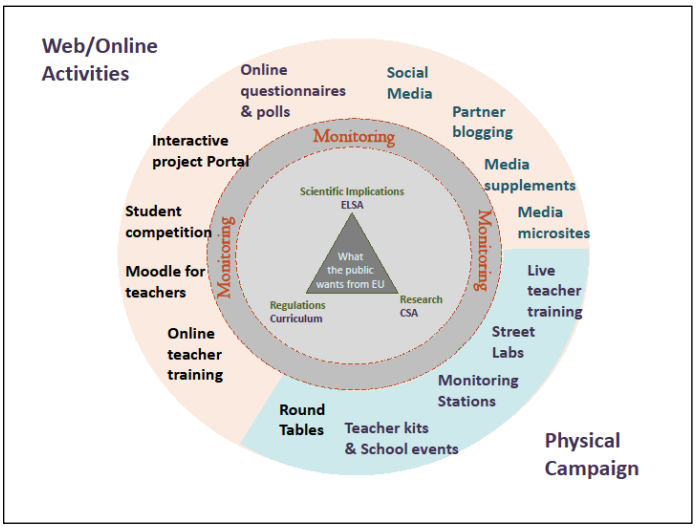


Figure 2 Overview of activities used to meet the objectives of the NanOpinion project

The target groups and stakeholders addressed by NanOpinion came from different backgrounds and therefore a variety of channels and venues were needed in order to reach them. The core intended audience were those Europeans who do not usually participate in science debates; however, also included in the audience were researchers who could inform about nanotechnology; educators who can transform the knowledge base into understanding; pupils and students who will receive a better education and training than their predecessors and will be the future nanotechnology scientists; consumers with their attitudes and opinions that can accept or reject new technology and products, underprivileged and special interest groups such as minority groups of citizens, associations, groups connected by activities and interests; industry that receives directional input on future product developments and positioning areas of business; citizens and NGOs as citizen's representatives who can articulate their opinions, needs, expectations and apprehensions and influence regulatory frameworks; policy shapers and policy makers who receive valuable options for framing policy responses in the light of public opinion; the media, which receives a wide range of edutainment products and regular opinion polls as well as updates on nano outreach and dialogue.

To reach these diverse audiences, the project included media print supplements and active microsites, radio broadcasts, social media campaigns, an ever changing project web portal, face-to-face Monitoring Stations and Street labs, live events, conferences, formal teacher training (both live and virtual), a student competition and more. Together they were designed to reach all audiences, overlapping where appropriate.

The four media partners published a total of 8 printed supplements, two each in Spanish, English, Italian and French. In addition to the print supplements, media partners also established and updated online microsites coordinated with the social media campaign initiated by the NanOpinion web portal.

In addition to print media, the NanOpinion project also engaged in 10 radio and pod casts, interviewing experts in a variety of nanotechnology applications.

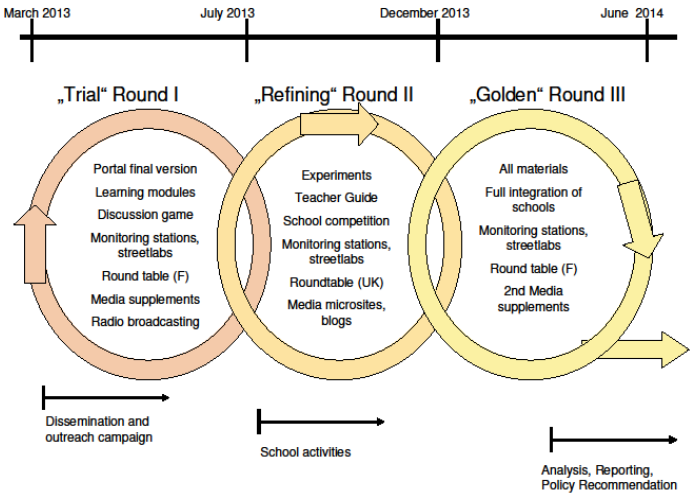


Figure 3 Synchronisation of tasks in the NanOpinion project (See D7.1)

The NanOpinion live events took place in 16 EU Member States (Austria, Belgium, Bulgaria, Czech Republic, Croatia, Denmark, England, France, Germany, Greece, Italy, Lithuania, Poland, Portugal, Romania, Spain), and two Associated Countries (Israel and Turkey) in order to offer the widest geographic coverage for live events. In total NanOpinion reached approximately 14,400 participants in one form or another at its Monitoring Stations. Roughly half of these people filled in the questionnaire. In total, NanOpinion Monitoring Stations and Street labs

went to 44 different locations, covering 26 cities in 18 countries.

Live events took place in Germany (hosted by BfR), UK (hosted by Guardian), Italy (hosted by TCU) and France (hosted by third party, Traces).

Participatory workshops took place in Israel (hosted by ORT) and Lithuania (hosted by LMNSC).
Spanning all of the activities was an integrated social media campaign that included the media, traditional social media such as Twitter and Facebook, and more. These activities were divided into three "rounds" Dissemination and outreach campaign, School activities, and Analysis, reporting and policy recommendations. This integration led to a strong and unified project that enabled partners to gather reliable and valid data to analyse, thus leading to effective and useful policy recommendations. See Figure 3 for details.

Table 1 shows the volume and structure of NanOpinion dissemination activities performed during the course of the project.

Table 1 Total number of NanOpinion dissemination activities (See D7.2 and D7.4)

	Whole project period May 2012–October 2014
Articles	175
Blog posts	48
Publications	6
Presentations	64
Lectures, school lessons	20
Workshops [1]	10
Live events	6
Radio programmes	7
Video+tv	21
Exhibitions, competitions	3
Debates, round tables	8
Infos, press releases	90
Promo, flyers	4
Interviews	2

[1] These workshops were organised mainly by LMNSC and IrsiCaixa and were focused on nanotechnology and its application in food and medicine. The participants were mostly teachers, students, members of general public. Another kind of workshop - ´Participatory workshops´ - were identified and described in D6.2 Dialogue report.

2.4 Project Partners

Each of the NanOpinion partners held a significant role in the overall project. They not only allocated resources, they also offered a professional guiding role in executing out each of the projects goals. The partners worked together in a comprehensive, collaborative and complementary way. Below is a chart that identifies each partner and their key role in the NanOpinion project.

Table 2 Description of project partners and their tasks in the project, as cited in the DoW

Participant no.	Organisation legal name	Organisation short name	Country	Primary WPs, Specialties in project
(Coordinator) 1	The Centre for Social Innovation	ZSI	Austria	WP6*, Coordination of project, data analysis
2	ORT Israel	ORT	Israel	WP3*, Educational projects, social media
3	EUN Partnership AISBL («European Schoolnet»)	EUN	Belgium	WP4*, Educational projects (live events at school and teachers kits)
4	British Council	BC	UK	WP5, Monitoring stations and live events
5	Association Européenne des Expositions Scientifiques, Techniques et Industrielles	ECSITE	Belgium	WP5*, Monitoring stations and live events
6	Aarhus University	AU	Denmark	WP1*, Repository, preparing video experiments
~~(7)~~ terminated	~~Parc Científic Barcelona (Barcelona Science Park)~~	~~PCB~~	~~Spain~~	WP2*,[2]
8	The Centre for Science, Technology, and Society Studies, Institute of Philosophy, Academy of Sciences	STSSCZ	Czech Republic	WP4, WP7, Teacher training, partner dissemination activities
9	Federal Institute for Risk Assessment	BfR	Germany	WP7, Host of live event
10	Lithuanian Centre of Non-formal Youth Education	LMNSC	Lithuania	WP4, Teacher training, Student competition
11	*The Guardian* News and Media Ltd	GUARDIAN	UK	WP7*, media supplement, microsite, host of live event
12	Unidad Editorial Información General, S.L.U.	MUNDO	Spain	WP7, media supplement, microsite
13	Courrier International SA	COURRIER	France	WP7, media supplement, microsite, host of live event
14	TiConUno srl	TICONUNO	Italy	WP7, radio broadcasts
15	Il Sole	SOLE	Italy	WP7, media supplement, microsite
16	Deloitte Brightman Almagor Zohar	DELOITTE	Israel	WP8*, Project administrator
17	Independent Journalist	TURNEY	UK	WP7, Chair of Editorial Board
18	Fundació Privada Institut de Recerca de la Sida Caixa	IrsiCaixa	Spain	WP2*, Web portal, social media

[2] *After M8, all of PCB's activities were transferred to Partner 18—Fundació Privada Institut de Recerca de la Sida Caixa (IrsiCaixa).*

** Work Package Leader*

2.5 External Advisory Board

Table 3 Advisory Board Members

#	Name of Advisory Board member	Organisation	Country
1	Alfred Nordmann	Institut für Philosophie, Technische Universität Darmstadt,Germany Philosophy Department, University of South Carolina, Columbia	USA/Germany
2	Ulrich Fiedeler	Nano-Trust team Institute of technology assessment	Austria
3	Antje Grobe	Stiftung Risiko-Dialog	Switzerland
4	Mark Morrison	Institute of Nanotechnology	UK
5	Georg Abel	Verbraucherinitiative	Germany

2.6 Editorial Board

Table 4 Editorial board members

#	Name of Editorial Board member	Organisation	Country
1	Jon Turney	Editorial manager	UK
2	Yoel Rothschild	ORT	Israel
3	ilse Marschalek	ZSI	Austria
4	Luisa Filipponi	AU	Denmark
5	Rosina Malagrida	IrsiCaixa	Spain
6	Sunita Gordon	Guardian	UK

3. DESCRIPTION OF THE MAIN S&T RESULTS/FOREGROUNDS

The success of the NanOpinion project was due to the detailed methodologies that were used in executing each of the project tasks. The mechanisms that were used were traditional print media, the web portal, social media, live events, radio events and pod casts, and the activities that encompassed the three pillars of activities (outreach, dialogue and education).

3.1 Repository

One of the major components of the NanOpinion project was to build a dialogue and communication platform that would identify and evaluate best practice examples of nanotechnology outreach and nanotechnology communication strategies on different targeted audiences, considering innovative methods and approaches. To meet this goal, the partners created a repository of the best educational and outreach material on nanotechnology available from previous projects, in particular FP6 and FP7 projects. This repository consists of all materials, guides, activities and multi-media from past projects related to nanotechnologies and includes new materials developed to address the gaps in past materials, incorporate the latest developments in nanotechnology. The analysis of content developed in past European-funded projects served as the basis for the NanOpinion online content repository was also included. In fact, more than 250 single items analysed assessment & selection. IN total, the repository enjoyed 56,799 page views. Table 5 shows a breakdown of the page views by content type. As shown in the table, hands-on activities were by far the most popular topics to be viewed and games were second.

Table 5 Repository page views by type of material

Content type	Page views
Hands-on-activity	**9,179**
Video	7,856
Reading material	3,355
Online mapping tool	906
Informative website	1,318
PWP presentations	2,126
Virtual lab	2,835
Podcast	394
Games	**3,448**
Dialogue activity kit	2,707
Virtual game	1,218

3.2 Major Media

With the participation from the four main press partners both published press supplements and active press microsites were produced. The press supplements were provided by El Mundo (Spanish), The Guardian (English), il Sole (Italian) and Courrier (French). Press microsites were produced and monitored by El Mundo, The Guardian and il Sole/TiConUno. All the articles that were written by the press were intended to inform and engage readers, not to provide a high level of technical detail. The objective of the campaign was to inform and engage the audience and disseminate the debate on nanotechnology using the different media platforms of the newspapers. In this way, a dialogue could evolve among EU citizens, providing them with the opportunity to convey their opinions and respond to the issues at hand.

All media partners featured a series of 10 opinion polls on their web platforms (a new one each month to six weeks), with the sequence of poll questions coordinated amongst all activities, including supplement topics, articles on the microsites, social media campaigns and as possible live events. These opinion polls were also posted on the project web portal and overall results were published there.

Topics for supplements, round tables and other media content were selected under the advice of the NanOpinion Editorial Board, which had overall responsibility for ensuring quality and relevance of the output, and based on relevant "hot" topics of the day.

3.2.1 Press Supplements

Each media partner published two supplements for a total of eight press supplements. The Guardian, EL Mundo, il Sole and Courrier each published two supplements. Four different European languages were represented: English, Spanish, Italian and French.

Table 6 Press Supplements by date and main topic

Source	Date published	Topics
El Mundo	28 May 2013	The graphene revolution
	25 March 2014	Nano-medicine
The Guardian	27 April 2013	Nanomaterials in food
	29 April 2014	Nano-medicine
Courrier	4 July 2013	Nano-organisms
	12 June 2014	Nanotechnology in our lives
Il Sole	11 May 2013	How nano-innovations will change our lives

The topics of the press supplements focused on the "me and mine" idea, discussing how nanotechnologies affect everyday life of Europeans. Topics ranged from nanotechnology in medicines and foods to how new nanomaterials are changing the world. For more detailed information, see Deliverable 7.2.

3.2.1.1 El Mundo (Spain): Press supplement

EL MUNDO was established in 1989. Within only two decades, it became the second largest newspaper in Spain, with a circulation of 178,000 (OJD, February 2014) and an audience estimated at 1,150,000. It is the only paper that has achieved such success in such a sort amount of time in the whole of Europe.

EL MUNDO is one of the most influential newspapers in Spanish society, able to set the political agenda and become a consistently informative reference. The editor company produces, as well as the national edition, 20 local and regional editions. Since the year 2010, thanks to ORBYT, anyone can have access to all editions from any digital terminal with internet access.

Its website, www.elmundo.es, is the leading Spanish language site (1st position in Spain, but also in South America), with more than 7.4 million unique users (comScore, February 2014).

For the NanOpinion project, El Mundo produced two 4-page supplements in its national edition (see Figure 4).


NANOTECNOLOGÍA EXTRA

EL MUNDO MARTES 28 MAYO 2013

NANOPINION

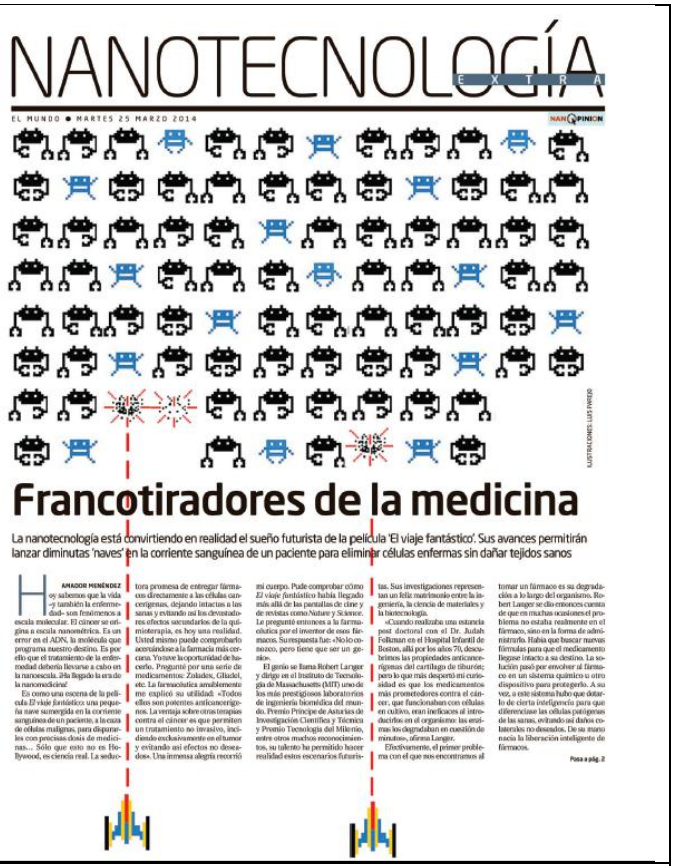
La revolución del grafeno

Casi una década después de su descubrimiento, este material flexible, transparente y extremadamente resistente comienza a salir del laboratorio. Los expertos creen que abrirá la puerta a una nueva era en campos como la electrónica y la aeronáutica

«Nunca se había visto tal cantidad de propiedades en el mismo material»

EL NUEVO PLÁSTICO. Los científicos creen que el abanico de aplicaciones del grafeno es tan amplio que en unos años estará tan presente en nuestras vidas como el plástico en la actualidad. Hay varios métodos para producirlo y básicamente se comercializa en formato lámina, en polvo y en tinta. El reto ahora es conseguir fabricar a gran escala grafeno de muy alta calidad. / JUSTY GARCÍA KOCH

Published 28 May 2013


NANOTECNOLOGÍA EXTRA

EL MUNDO • MARTES 25 MARZO 2014

NANOPINION

ILUSTRACIONES: LUIS VARGAS

Francotiradores de la medicina

La nanotecnología está convirtiendo en realidad el sueño futurista de la película 'El viaje fantástico'. Sus avances permitirán lanzar diminutas 'naves' en la corriente sanguínea de un paciente para eliminar células enfermas sin dañar tejidos sanos

Published: 25 March 2014

Figure 4 el Mundo printed supplements

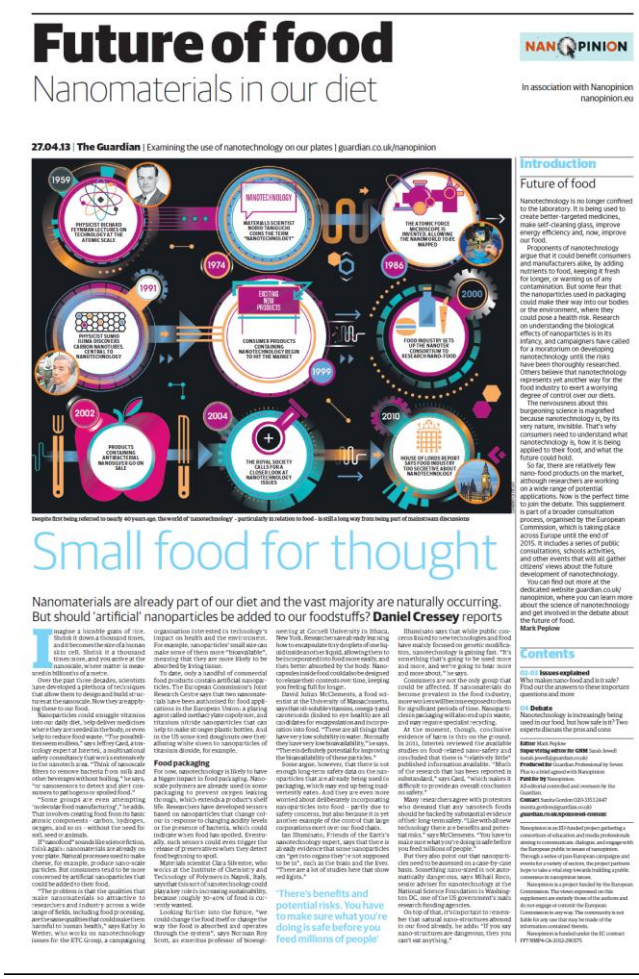
In addition to the requirements in the DoW, El Mundo also sent reporters to cover events sponsored by the NanOpinon project for its print and television editions. They covered the events as science news in the regular editions, and mentioned the project and encouraged readers and listeners to attend the events and enter the portal for more information and to answer the questionnaire.

All the content produced for NanOpinion project has been considered part of the newspaper and the website, under the editorial control of the Science editor, Pablo Jáuregui. Both printed supplements have formed part of the printed edition of el Mundo.

3.2.1.2 The Guardian (UK): Press supplement

The Guardian is a British national daily newspaper. It has become the world's third most read newspaper website, with 30.4 million readers in June 2012, according to industry analyst ComScore. The supplement sponsored by the NanOpinon project had a distribution of 353,288 and a readership of approximately 1.3 Million.

For the NanOpinion project, Guardian published two 4-page full colour supplements. Each of the supplements was posted on the NanOpinion microsite. (See Figure 5)



Published: 27 April 2013	Published: 29 April 2014

Figure 5 Guardian printed supplements

The Guardian conducted a reader survey in April 2013. Regular opinion polls have run on the microsite which was launched on 23 April 2013.

- The survey went out to the Brand Aid panel between 29 April and 6 May 2013. The total sample size was 551 respondents who read the Guardian on Saturday 27 April, of which 349 recalled seeing the supplement and 261 read it in some form and completed the rest of the survey.
- Of those who recalled seeing the supplement, 4% read it thoroughly, 15% read a few articles, 55% skimmed or glanced at it and 25% didn't read it.
- Most people recycled the supplement (70%), with a further 3% throwing it away. 21% kept it to read later, and 6% passed it on to someone else.
- Around half (49%) said they found the supplement interesting or very interesting – this was 89% for those who 'read' it (read all of it of read a few articles) and 34% for those who 'skimmed' (skimmed or glanced at it).
- 41% said it covered issues that were relevant to their daily life, and this was 74% for 'readers'.
- 38% said they thought the information in the supplement was balanced and 5% didn't – the rest (57%) don't know or weren't sure. Of those who 'read' it the number who didn't know was reduced but still relatively high (20%), and among this group 71% thought it was balanced and 9% didn't.
- 53% said they thought the content and the messages were clear, and 6% who didn't – again, a high percentage didn't know (41%). Among 'readers' 87% said it was clear and 6% said it wasn't.
- 42% agreed the supplement made them want to find out more – this was 75% among 'readers' and 29% among 'skimmers'.

- 28% agreed the supplement made them want to tell others about the issues they read about– this was 62% among 'readers'
- Overall, 38% of respondents said they now understand the basic principles of the use of nanotechnologies in the food industry. This was 78% for 'readers' and 23% for 'skimmers'.
- When asked in an open ended question what they thought were the main messages of the supplement, a fair amount of respondents (especially those who glanced or skimmed the supplement) said they weren't sure. However, the following broad themes were picked out by some respondents:
    - Changes and challenges in food technology, e.g.:
        - "We must look to new food sources to feed a growing population"
        - "'Management of food resources in the future will be challenging and governments should act now to plan for this rather than leaving these questions to "market forces"
    - Positives and negatives of nanotechnology in food, e.g.:
        - 'That there are potential dangers – but also potential benefits – in adding artificial nanoparticles to foodstuffs.'
    - Some respondents thought the articles were suggesting this was a good thing, some bad and some that the articles were trying to present a balanced view, e.g.:
        - "I am a materials scientist, currently teaching. The supplement has helped to keep me up to date. I felt from the tone of the articles that the aim was to reassure the public about new technologies & food safety."
        - "Beware of modifications to our food."
        - "'There is an argument about whether or not 'artificial' nanomaterials are safe to be added to our food."

3.2.1.3 Courrier International: Press supplement (France)

Courrier published a pair of 4-page supplements, selecting already published articles for translation into French. These supplements also appeared on a dedicated microsite. (See Figure 6)

Courrier published their supplement on 4 July 2013. It was circulated to 200,000 subscribers in France, Belgium, Luxumbourg and Switzerland with a global reach of 950,000 readers. It was uploaded on to the web site: http://www.courrierinternational.com/dossier/2013/07/04/tout-est-nano-dans-notre-vie. With additional articles on the subject, the website reaches 600,000 unique visitors per month measure – Médiamétrie.Audience, both for the magazine and the website is the civil society and the general public. We have a strong community of students and professors in our readership.

Published: 4 July 2013	Published: 12 June 2014

Figure 6 Courrier printed supplements

3.2.1.4 Moebius, Nòva and TICONUNO (Italy): Press supplements and radio shows

NanOpinion content was part of 10 editions of the science radio programme Moebius, produced by TiConUno, 10 articles in Nòva (Weekly science insert in Il Sole 24 Ore). Nòva worked with startups that have nanotechnology projects. The basic idea was to understand how these young companies are aware of all aspects relating to nanotechnology. (See Figure 7)

4 July 2013

Figure 7 Il Sole 24 Ore printed supplement

3.2.2 Press Microsites

The press microsites of the mass media partners were launched during May 2011. In addition to professional and informative pieces about different fields of nanotechnology (health, science, medicine, industry, etc.) the microsites included opinion blog articles, opinion surveys and opinion polls.

The addresses to the media partner microsites are as follows:

- Guardian: http://www.guardian.co.uk/what-is-nano
- el Mundo: http://www.elmundo.es/elmundo/nanotecnologia.html)
- Ticonuno (which is audio): http://www.moebiusonline.eu/fuorionda/ nanopinion/nanopinion_index.shtml.
- Courrier: http://www.courrierinternational.com/article/2013/07/04/tout-est-nano-dans-notre-vie

3.2.2.1 El Mundo: Microsite

El Mundo continued its microsite about nanotechnology, which was started as part of the NANOCHANNELS project. The microsite is hosted at http://www.elmundo.es/elmundo/nanotecnologia.html. Since the beginning of the NANOCHANNELS project, the microsite has become a standard section of the El Mundo website (http://www.elmundo.es), being updated every three or four days.

Before launching the microsite, el Mundo was interested in keeping the focus of attention in 'nano' stories, so that it would be easier to attract the readers. It is proved that readers are quite interested in nano-science and nano-technology and Mundo published different pieces (print and web) about this kind of matters (even if this task was not included in the DoW).

Every month, El Mundo published the NanOpinion opinion polls, to engage the readers in the debate about nanotechnology and ELSA issues. Launched 1n May 2013, El Mundo has dedicated a microsite to the project (http://www.elmundo.es/ciencia/nanotecnologia.html). The microsite was targeted to the general public and had a potential readership of 7.2 million unique users. Since the beginning of the project, the site has become a standard section of the main website (www.elmundo.es). The success of the microsite has been huge, with 280,264 visitors and 393,088 page views. According to the DoW, the microsite was to be live until July 2014, but due to its huge success, it was agreed with the project coordinator to extend the life of the site for two more months to allow it to continue until the end of the project. Table 7 shows the visitors and page views by month.

Table 7 Visitors and page views of the el Mundo microsite by month

Month	Visitors	Page Views
April 2013	12,430	15,346
May 2013	27,750	36,916
June 2013	31,799	39,108
July 2013	10,565	15,136
August 2013	47,530	58,247
September 2013	29,816	37,991
October 2013	15,194	21,439
November 2013	16,318	25,603
December 2013	9,363	16,427
January 2014	10,152	17,265
February 2014	9,587	15,164
March 2014	11,252	18,521
April 2014	9,971	16,877
May 2014	10,870	17,833
June 2014	8,328	12,836
July 2014	5,410	7,812
August 2014	3,738	4,865

September 2014	10,191	15,702
Total	**280,264**	**393,088**

Figure 8 shows screenshots from a few of the microsite entries.

Figure 8 Examples of Mundo's microsite

3.2.2.2 The Guardian: Microsite

The Guardian launched its microsite on nanotechnology on 23 April 2013.

The microsite is hosted on the Guardian platform http://www.guardian.co.uk/nanotechnology-world.

Since its launch, the microsite has been promoted across The Guardian through jointly branded –

The Guardian launched a blog on the science section of the paper's website, as well as a dedicated microsite for **NanOpinion** content. The microsite was a continuation of the site that was opened with the NANOCHANNELS project. The microsite included the 10 project polls, newly commissioned articles and partner content appropriate for English audiences. Two 4-page supplements appeared in the printed edition of the newspaper, and were also available on the paper's website.

The Guardian launched its microsite on April 23, 2013 for Nanopinion it has also incorporated the work that was done on Nanochannels. The microsite is hosted on the Guardian platform www.guardian.co.uk/what-is-nano. Since the launch, the microsite has been promoted across The Guardian through jointly branded – NANOPINION – advertisements in order to drive traffic from other sections of The Guardian newspaper.

Guardian – Continues to publish blogs off the science site along with new articles on the microsite and poll questions.

Blog: 73,796 unique users – 105,323 page impressions

Microsite: 21,552 unique users – 37,395 page impressions

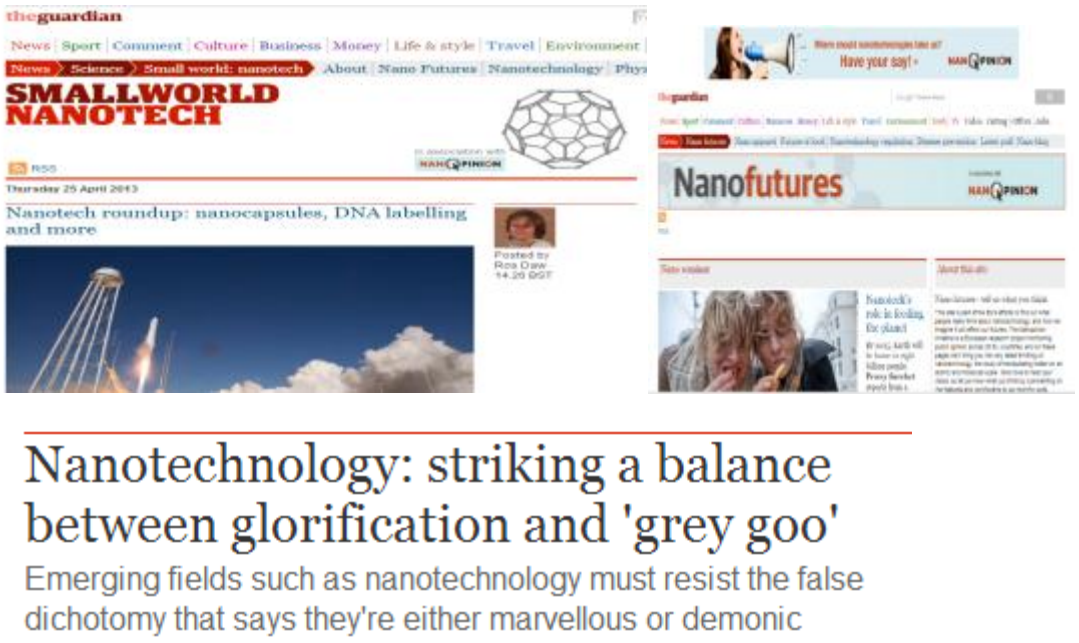


Figure 9 Examples of Guardian's microsite

3.2.2.3 Courrier: Microsite

The Courrier microsite was active starting in July 2013. They published two supplements. These supplements were compilations of articles that had been published by other sources and were translated into French. They were located in the section for technology, science and culture and tagged with the original source. Some original sources were Guardian (including the articles that were part of the NanOpinion Guardian supplements), New Scientist, New York Times, Die Welt, Washington Post, The Economist, L'Hebdo and Time magazine.

3.2.2.4 il Sole: Microsite

Nova designed a microsite, which is part of Meobius's site. The microsite incorporated selected content from other media partners, as appropriate for the Italian audience. In addition, pod casts were added as appropriate.

TiConUno Moebius, the weekly science on Radio 24 (directed by TiConUno), and Nòva, the insert of science Sole 24 Ore, developed a common strategy to produce content. They used the two media in a coordinated way to address the same issues with the aim to reach different audiences and recover; therefore, more comprehensive information could be disseminated, also using a microsite that gathered input from the radio and the newspaper.

3.2.3 Broadcast media

NanOpinion content was part of 10 editions of the science radio programme Moebius, produced by TiConUno. The microsite on www.Moebiusonline.eu includes a repository of their articles/radio broadcasts and of the other partners' activities. Table 8 and Table 9 show a sampling of the radio broadcasts that TiConUno produced, and the videos they translated from Italian as part of the NanOpinion project. Moreover they filmed and edited some interviews of NanOpinion partners and others involved with the project. These video interview were published and promoted on their Nanotechnology web pages and are aimed at the dissemination of NanOpinion's objectives, goals and spirit. For more information, see Deliverable 7.2.

Table 8 Radio broadcasts

Date	Topic	Podcast
18 January 2014	relationship between nanotechnology and textiles	http://www.moebiusonline.eu/trasmissioni/140118trasmissione.shtml
19 April 2014	Nanotechnology and cosmetics	http://www.moebiusonline.eu/fuorionda/nanopinion/nanocosmetici.shtml
13 September 2014	"Nanoworlds": Radio broadcast on nanotechnology. Interview of Roberto Cingolani, director of the Italian Institute of Technology (IIT)	http://www.moebiusonline.eu/fuorionda/nanopinion/nanomondi.shtml
19 July 2014	Nanotechnology and antibiotics. Can Nanotechnology help in avoiding the habit-forming in people's use of antibiotics?	http://www.moebiusonline.eu/trasmissioni/140719trasmissione.shtml
12 July 2014	Nanotechnology and the development of new therapies for muscolar distrophy.	http://www.moebiusonline.eu/trasmissioni/140712trasmissione.shtml

Translations of some videos previously made for the Nanopinion Project were completed in order to make them available for the English speaking audience, thereby increasing it's dissemination.

Table 9 Video broadcasts translated into English

Topic	Type	URL
Nanotechnology is coming – Directa Plus, a new generation of nanomaterials	Video interview on the new process developed by Da Directa Plus for the production of catalytic nanoparticles.	http://www.triwu.it/categorie/-/asset_publisher/Fm8O/content/nanotechnology-is-coming
Terahertz and Graphene: security revolution	An interview with Andrea Ferrari and Vittorio Pellegrini, italian authors of a study on the graphene applications for innovative sensors	http://www.triwu.it/categorie/-/asset_publisher/Fm8O/content/terahertz-and-graphene%3A-security-revolution%20
Nanotechnology Versus Open Source	The video of the panel discussion organized by Moebius and Nòva24	http://www.triwu.it/sezione-nanotecnologie/-/asset_publisher/E9rU/content/nanotechnology-vs-open-source

3.3 Web Activities

The website served as the main vehicle of dissemination of the NanOpinion project. It included links to all media partner microsites.

After the first third of the project, the portal was changed significantly. The final version of the website was finalized and prepared as a static version to be available after the end of the project, as required by the DoW. The homepage, as well as, some other sections have been redesigned as a result of the publication of the results and outcomes of the project. See below the main changes that have been done.

The DoW requires that the website be available for 6 months after the end of the project. Because the partners strongly feel that the information available on the portal is so important and useful to the European community at large, they have decided to extend the availability for at least 3 years. ZSI, the project coordinator, has agreed to host a static version of the portal during this time. If additional funding is found or made available, they may open the portal for updates and improvements or extend the length of time the portal is made available.

3.3.1 Web Portal

By the end of April 2013 the final version of the website was launched. This version was built following the steps specified in the DoW: conceptualization, architecture (expandable functionalities), graphic design and development. The NanOpinion platform included six main sections. The website also includes other sections (such as a blog, a newsletter section and a page to describe the project). For more information, see D2.1 and D2.4.

Table 10 NanOpinion platform sections

Section	Description
About Nano (Infopack) http://nanopinion.eu/en/about-nano	This section included general information on nanotechnologies. The users could also find the main applications for nanotechnologies in fields as varied as food, sports, health, energy, cosmetics or environment. Different multimedia resources were included. All information in this section was translated into 18 languages.
Media News http://nanopinion.eu/en/media-news	NanOpinion media partners created different microsites on nanotechnologies within their websites. They were integrated on the NanOpinion portal through the Nanonews Blog, which was fed by a RSS gadget that pull together the contents published in each microsite. The blog also offered links to each microsite.
Have your say http://nanopinion.eu/en/views-nanotechnologies	This section contained the questionnaire and the poll of the month. Users were invited to express their opinion by filling in the questionnaire or answering the polls. This section was closed in June 2014 and replaced with was substituted with a "Results" section.
Events http://nanopinion.eu/en/events	This section was constantly updated with relevant events, including both online and live events. Visitors could find information on upcoming events, as well as a photo gallery with a repository of pictures from all events organised within the project.
Education http://nanopinion.eu/en/education	NanOpinion developed an educational programme in parallel with the European Commission on nanotechnologies. This section included links to resources such as videos, hands-on and virtual experiments and Moodle courses. In addition, it linked to the competition page for high school students and contains a map with the network of pilot schools and teachers.
Multimedia http://nanopinion.eu/en/about-nano/multimedia-repository	A repository of educational and outreach materials, with videos, virtual experiments, classroom activities, hands-on experiments, etc. is included on the portal. The repository has different searching possibilities and gathers more than 150 multimedia resources, which are organised in a data base with tags to ensure that users can find related resources.

Distributed among these sections, the final design of the website included the functionalities specified in Table 11.

Table 11 Platform functionalities

Functionalities	Description
Homepage Slideshow	A total of 4 images with different NanOpinion slogans are shown on the top of the homepage to give a short description of the project.
Poll of the month	On the homepage visitors could have their say at our poll of the month. A dynamic European map shows the results in real time.
Multimedia repository	The multimedia resources repository is built on a database that has a search engine that allows users to filter by different fields to refine their search.
Events calendar	This section has different subsections for each event category, such as street labs, monitoring stations, workshops and live events. The both upcoming and previous events and can be filtered by type of activity.
Photo gallery	In the events section there is also a photo gallery with some pictures of each event.
Newsletter	This section is a repository that includes all newsletters sent during the project.
Social Media widgets	Widgets offering windows to visualize Facebook and twitter channels appearing in all pages of the website
Languages menu	A total of 18 languages are available.
Newsletter subscription box	An application form is available at the top of the home page so visitors can subscribe to the newsletter.
Competition section	The competition page is devoted to the competition, with a submission form and a link to a photo gallery available on the Facebook page.
Online questionnaire	The online questionnaire includes 26 questions and a submission form to participate in a contest.
Registration button for events	The registration button offers the possibility to register for an activity.
Tool of the month	A banner on the home page highlights a resource from the repository each month.
Blog	The blog encourages visitors and project partners to publish posts on the latest news or the activities of the project.
Media news section	The blog is fed via RSS with all pieces of news published on media partners sites.

In order to increase the visibility of the results, the banner to the questionnaire was adapted to lead to the results page (www.nanopinion.eu/results). Figure 10 shows the final banner.

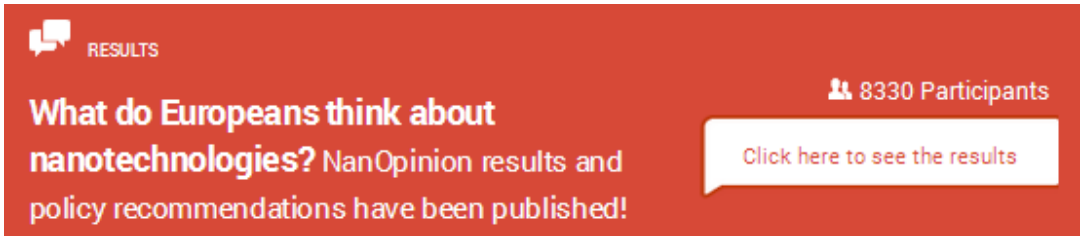


Figure 10 Banner of results page

When users clicked to the banner, they were led to the results page (See Figure 11). This page contained a short introduction to the results and included a banner that redirected to the visualization page with all infographics and findings, which is a subdomain developed by ZSI.

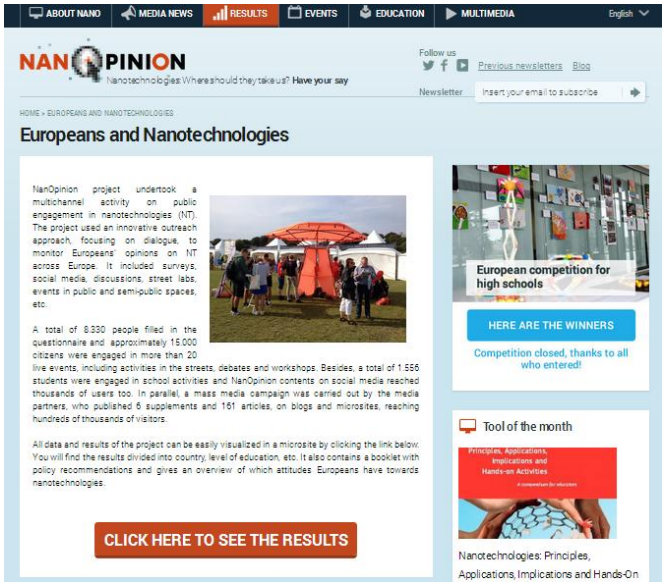


Figure 11 Screenshot of questionnaire results page

All infographics, results, findings and also the booklet with the policy recommendations of the NanOpinion project were available in the subdomain developed by ZSI, preserving the same look and feel of the NanOpinion portal and its URL is "results.nanopinion.eu". The integration of this subdomain with the portal was led by ZSI in coordination with the IrsiCaixa team. Find below the screen capture of this subdomain.

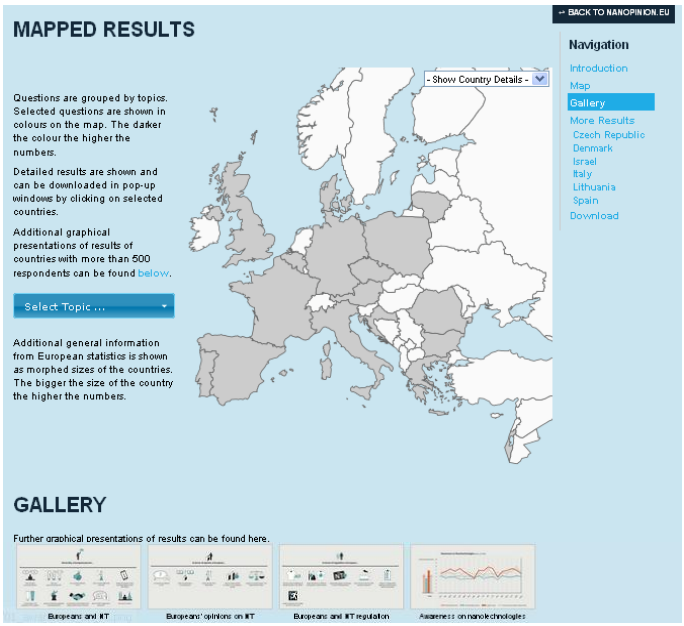


Figure 12 Mapped results (See D6.4)

3.3.2 Repository

Within the NanOpinion project, a repository of information and education content was developed and collated for the platform. The repository consisted of more than 150 items that included the best educational and outreach material generated in previous projects focused on nanotechnology, with a special attention to materials produced in previous FP6&7 and OECD projects. The repository included citations for fundamental knowledge on nanotechnologies and their applications, as well as content related to ELSA & NT topics for K–12 students and the lay public in all European countries. The content included reading material, videos, online mapping tools,

informative websites, PowerPoint presentations, virtual labs, hands-on activity kits, podcasts, games, dialogue activities, virtual games and more.

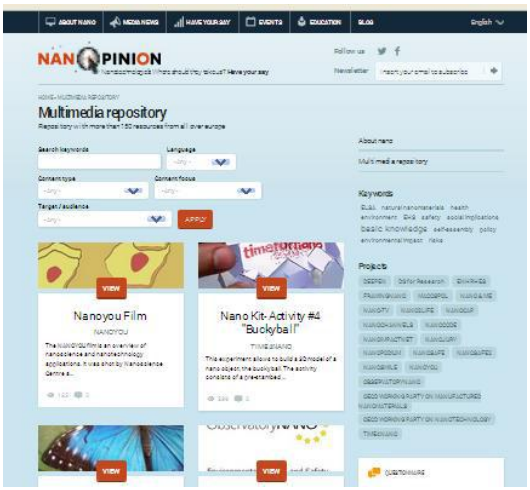


Figure 13 NanOpinion repository

The repository is located on the virtual NanOpinion platform and formed the base of the virtual nanotechnology campus for K–12 students and lifelong learning for the general public. The Editorial Board used the resources in this repository as the basis for choosing the topics for supplements, polls and more.

Copyright issues were resolved for EU projects content. For all non-FP funded projects, URLs were cited. The repository can be searched by keyword, language, content type, content focus or audience type.

One of the most important resources developed as part of the NanOpinion project is the repository. Due to its impressive nature and incredible usefulness, the partners have tried to find a way to keep the portal active long after the project is over.

To highlight the wealth of information available on the repository, each month, a new item was highlighted on the NanOpinion web portal and disseminated through social media channels

The NanOpinion repository was produced in accordance to the DoW description, hence it includes the best educational and outreach resources on nanotechnology knowledge and ELSA produced by EC funded projects (FP6, FP7) and OECD initiatives and also resources produced by the NanOpinion project (e.g. videos, discussion game, experiments) Throughout the duration of the project, AU continued to provide additional resources to maintain the repository updated. Analysis of data showed that the repository was (and still is) a very successful tool, and that the resources that have been mostly download are hands-on activities, videos and games. Table 12 shows the download statistics of the most frequently viewed resources. For more information, see www.nanopinion.eu. The portal enjoyed 56,799 page views. A breakdown of the content type is below.

Table 12 Repository views per resource

Content type	Page views	Duration
Repository home	21,437	12:46
Hands-on-activity	9179	8:50
Video	7856	12:34
Reading material	3355	8:23
Online mapping tool	906	32:48
Informative website	1318	14:18
PWP presentations	2126	14:15
Virtual lab	2835	08:19
Podcast	394	18:19
Games	3448	11:32
Dialogue activity kit	2707	11:01
Virtual game	1218	18:50
TOTAL	**56,779**	—

Towards the end of the project it was decided (together with the coordinator and with the partner IrsiCaixa) to enrich the repository even further, and include in it outstanding educational/outreach projects funded by non-EU initiatives (i.e. international projects; national projects, etc.) that have focused precisely in developing educational and/or outreach content in this field. Informative websites and school resources were also included. This action (not foreseen in the DoW) was done to improve the sustainability of the NanOpinion repository, even after the end of the project, since now it is a comprehensive resource. Technically speaking the resources produced by those non-EC funded projects are not uploaded in the repository (due to copyright issues) therefore only external links are

provided. Each resource is explained through a summary and the same tags were used in order to make them easily accessible to the user.

3.3.3 Competition page

The IrsiCaixa team edited the competition page according to the calendar and directions from LMNSC, the coordinator of the competition. Firstly, the submission form was published. Afterwards, when the competition ended, the page was redesigned announcing the winners and publishing the chosen entries. See below two screen captures from the competition page.

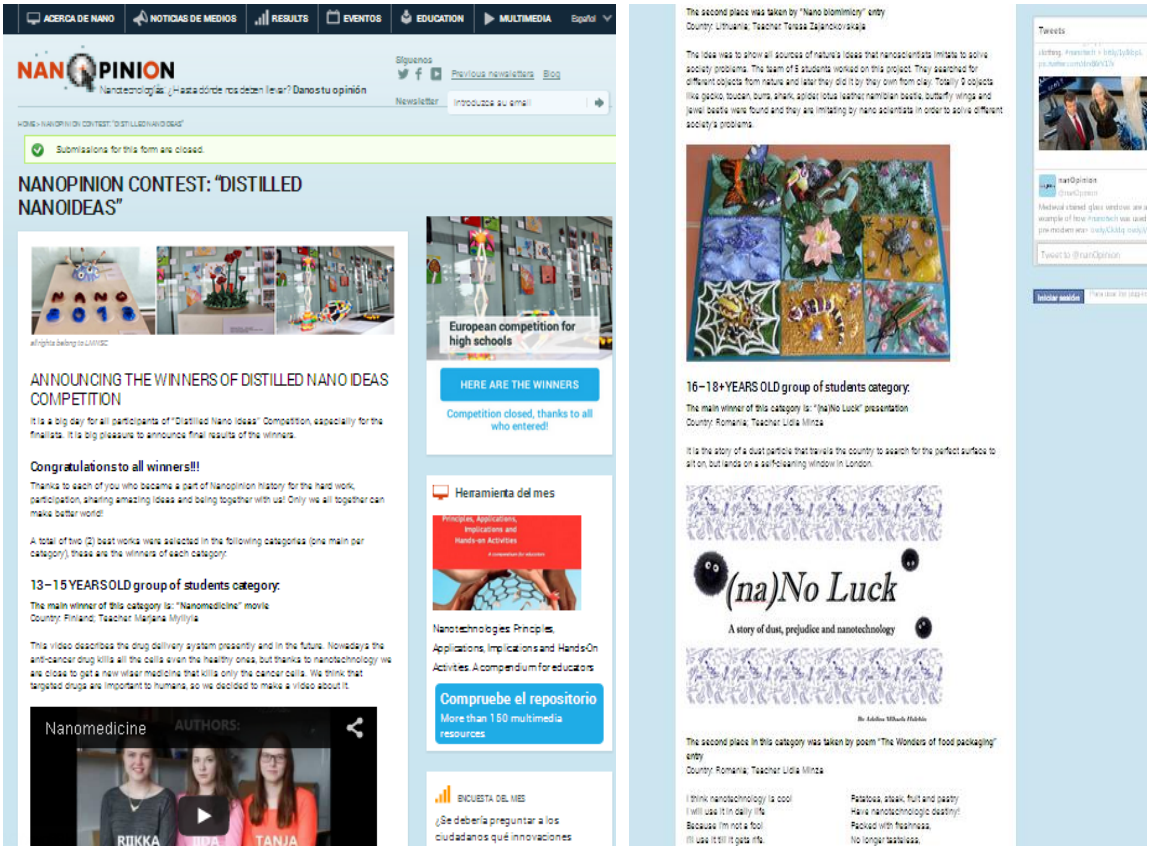


Figure 14 Screenshot of page on the web portal about the competition

3.3.4 Blog

Figure 15 Sample of blog page

Blogging has evolved into a beneficial and efficient dissemination tool. It has largely involved the blog site on the NanOpinion portal and that of ZSI. Some 30 blog posts have been published on the NanOpinion blog during the project period. They mostly informed about the course and the current results of the project, while some posts framed NanOpinion activities into broader context.

The NanOpinion blog was a channel that gathered all the news on the project in general. This platform was integrated into the NanOpinion Portal (nanopinion.eu/en/blog) and allowed users to leave comments.

A monthly newsletter was started in July 2013 and was sent it to subscribers. As of 6 June 2014, the total number of subscribers was 314. During the project, a section was created on the website, called "Previous newsletters", where all newsletters since the beginning of the project are available online. In general, more than a half of the subscribers read the newsletter and the most clicked sections were "NanOpinion in pictures", the tool of the month and the blog post.

The NanOpinion blog was open to anybody to post. The NanOpinion blog even received posts by students. The posts were standardized and posted by IrsiCaixa, after passing moderation.

ZSI has regularly used its own blog site (www.technikwissen.at) for highlighting and analysing NanOpinion activities. ZSI has published over 20 blog posts mostly focused on NanOpinion events while containing some analytical approaches. Readers of the ZSI blog could gain an objective and vivid idea on NanOpinion as well as be inspired for thinking about nanotechnologies.

Jon Turney published his contributions on the widely read blog site of the British Council in which he made some broader reflections on nanotechnology highlighting NanOpinion activities.

3.3.5 Newsletter

IrsiCaixa prepared and sent the project's newsletter each month to subscribers who registered via the portal. The final newsletter was sent in July 2014. The number of subscribers has grown steadily and the last newsletter was sent to more than 314 subscribers. All newsletters since the beginning of the project have been uploaded to the website and are available in the portal section called "Previous Newsletters".

Figure 16 Examples of newsletters

3.3.6 Opinion polls

In the framework of the NanOpinion project, opinion polls were conducted and an online questionnaire was launched. (T6.2; See D6.1 for details on methodologies and D6.4 for details on results). These polls were in the form of short statements or questions and were distributed through the NanOpinion portal and through NanOpinion microsites by the participating media partners. The opinion polls took place between April 2013 and August 2014. Results showed that the respondents were mainly willing to buy all different kinds of nano-products, but become more cautions when it comes to direct body contact with these products. They also show high awareness on environmental impact. They want to be asked about what innovations they want to be developed with nanotechnologies and they are very interested in current information on new nano-products on the market. In general, they believe that nano products will only be affordable for wealthy people. In total, 2147 persons answered the polls in different locations. In the following section the cumulated results are presented.

3.3.7 Analytics (Statistical tool)

IrsiCaixa monitored the NanOpinion portal with the tools implemented during the previous period. The main tools were Google analytics and Google Alerts.

The NanOpinion portal showed consistent growth throughout the project. During the last year of the project, the NanOpinion portal received 29,924 visits having 21,476 unique visitors. By the end of July, the number of visitors decreased coinciding with the end of the school competition, the end of live events in different countries and the completion of the school year. More detailed information on the results from social media channels, see Section 3.4.

The dips in visitors and page views, generally coincided with summertime. It is also observed that when the school year starts in September the number of sessions starts rising. Figure 17 shows that the highest points in the graph occurred March/April/May 2014, which corresponds to the launch of the competition. We could also speculate that if the project would continue this course 2014–2015, the number of sessions would have been slightly bigger than the same months in 2013–2014.

Some 8330 completed questionnaires were collected (6779 were usable after data cleaning).

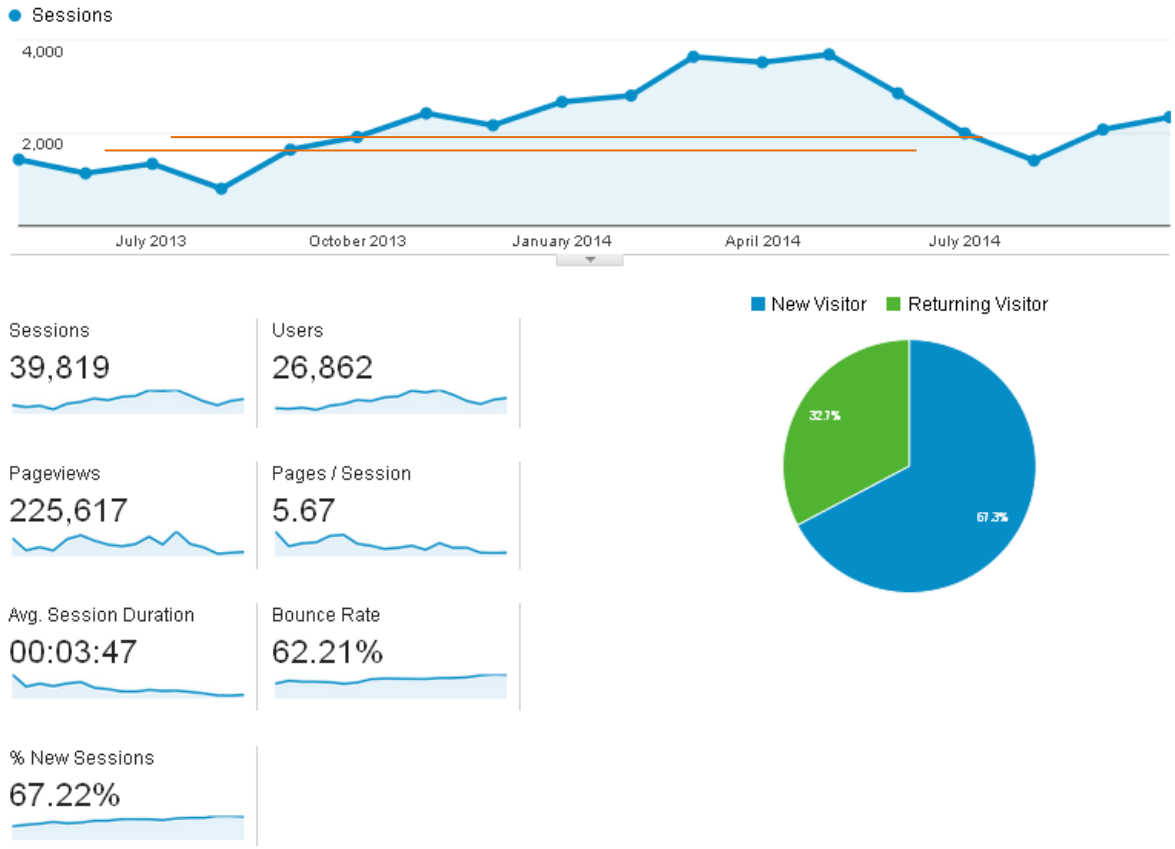


Figure 17 Portal statistics

3.3.8 Videos

Video A (Drug delivery and DNA nanotechnology): The video focuses on a new technology called DNA nanotechnology. This bottom-up nanofabrication method exploits the structural motifs and self-recognition properties of DNA to self-assemble pre-designed nanostructures in a bottom-up approach. 2D and 3D structures have been fabricated using this self-assembly method. Recently, the revolutionary DNA origami method was developed to build two-dimensional addressable DNA structures of arbitrary shape that can be used as a platform for arranging nanomaterials with high precision and specificity. DNA nanotechnology represents one of the latest developments in nanotechnology. It has applications for the fabrication of nano guides (e.g. wave guides), sensors (for diagnostic and imaging), logic gates, drug release, nano-motors and electronics (wires, transistors). It could lead to bottom-up electronics and DNA computing which could become the computing of the future.

The video describes the technology in simple terms, and answer simple ELSA questions like: where does the DNA used come from? Can this technology be used to create a person bottom-up? Could this technology lead to harmful living things? The video then describes some potential applications in nanomedicine, with a focus on the NanoBox created at Aarhus University.

The video was published at the start of November 2013 and uploaded on YouTube. As of October 2014, the video was viewed 1504 times.

http://www.youtube.com/watch?v=k1pCKruO3qo&feature=youtu.be

Video B "The environmental impacts of nanosilver: an earthworms point of view": The topic of the video is nanosilver, a nanomaterial used in many consumer products as anti-bacterial agent, and the potential impact its release can have in the environment. The story is told by a PhD student at iNANO, Yuya Hayashi, who is currently studying the effect of nanosilver on earthworms. The aim is therefore not only to show to students the type of experiments researchers are doing to answer the question "is nanosilver safe?", and the results they are getting, but also the life of a young researcher, and what it means to choose this type of career, the interdisciplinary nature of nanoscience research, and the team work that is needed to perform these types of studies. The video is available on YouTube at this link: http://www.youtube.com/watch?v=_eMkwTwzTFI. As of October 2014, the video was viewed 1410 times.

This video can be used together with other tools developed by NanOpinion that cover the same topic, specifically:

- one of the Moodle courses (developed in Task 3.2), called "Smart food packages", covers the use of nanosilver in food containers;
- in the NanOpinion website, in the "About Nano" section, the use of nanosilver in sport products is mentioned, as well as the potential risks associated with it

Both videos were due in the second year of the project (M16: August 2013) but were delayed due to production problems. The first video (Video B) was published in September 2013 and the second video (Video A) was published in November 2013. Videos were produced for iNANO by AUTV and Science Media Lab (Aarhus University).The videos can be modified since they have a Creative Commons Non-Commercial Share Alike 3.0 license. The video scripts were provided to EUN so they can be used for translation.

In addition, TiConUno published 10 videos, mostly on web TV Triwu, ZSI produced 2 videos, IrsiCaixa published 3 videos/TV productions, STSSCZ and BfR each published 1 video. In all, a total of 21 videos were produced during the project. TCU also coordinated 6 radio broadcasts. See D7.4 for details on the videos.

3.4 Social Media

NanOpinion also promoted the debate on nanotechnology via social media. Social media channels were monitored with the analytic tools presented in D7.5. The main tools we used were Facebook insights and Hootsuite analytics for twitter.

The following addresses are directly connected with the project.

- Web portal: www.nanopinion.eu
- Twitter: twitter.com/#!/Nanopinion
- Facebook: www.facebook.com/nanochannels
- Moodle: http://nanopinion-edu.eu/
- YouTube: http://www.YouTube.com/user/NanochannelsEU
- LinkedIn: http://www.linkedin.com
- Google+: https://plus.google.com/

The NanOpinion social media campaign used the internal and external online channels detailed below:

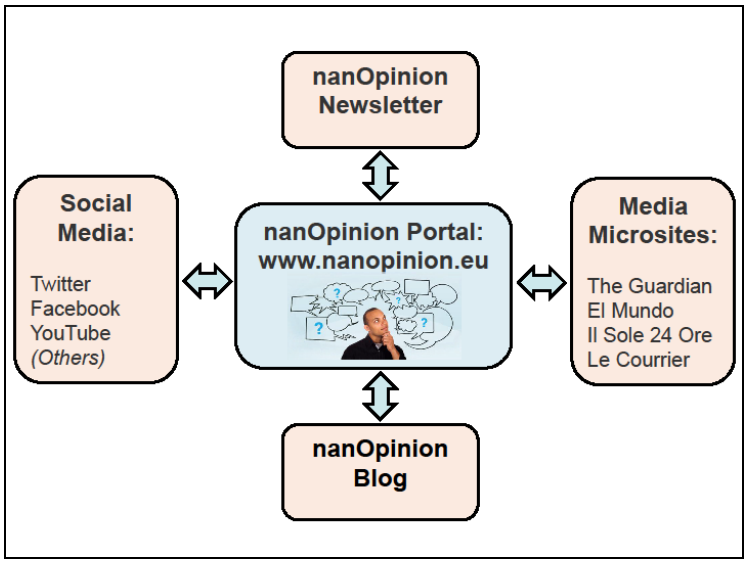


Figure 18 Virtual channels (See D7.5)

In addition to these social media venues, the partners also used their organizational and personal accounts to further disseminate the project and its goals, especially local events that would be of interest to their personal audience.

The campaign was conducted according the plans reported in D2.3 and D2.4 which defined the strategy, actions and best practices for the online communication of the NanOpinion project and laid down guidelines on how to integrate the different channels. The content strategy, as planned by the Editorial Board and described in D3.5, was followed. See also Deliverables 7.4 and 7.5 for more information.

The plan was continuously updated as the project proceeded and the partners identified actions to improve its impact. During the summer of 2013, the Content Strategy Plan was improved with revised topics highlighted in the social media channels, with "the poll of the month" and the information published in the media partners' supplements and microsites. This allowed NanOpinion to widen and consolidate its virtual community, facilitating access to the hard-to-reach population.

The topics tackled in the Social Media channels were defined according to the Polls of the Month and the features and news published in the media partners' supplements and microsites. A second part of the content was information on the project activities.

Because the social media channels are different, not only in their technical parameters (e.g. number of text characters, timing and frequency of publications), each channel is described separately below. This section concludes with the general recommendations.

3.4.1 Twitter

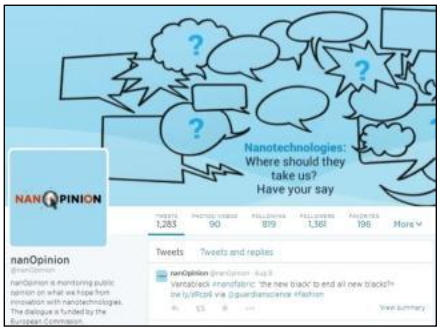


Figure 19 Twitter account

Twitter was used as a recruiting tool to the wider the community as well as for exchanging information and having direct contact with the users. It also allows users to have access to specialized information platforms.

As this account was a continuation of the NANOCHANNELS account (FP7-Nanochannels), the baseline for the campaign was 461 tweets, 461 followers and a following of 1118 others. Figure 20 shows the growth of the NanOpinion Twitter account.

The number of followers of the NanOpinion account has kept increasing steadily. The number of new followers increases more quickly than the one in Facebook, even without paying any kind of advertisement. This is the channel that definitely worked better.

The Twitter account grew steadily as the project progressed. It is interesting to highlight that some of the new followers are profiles related to the topics of the different polls, that is, the project approached some interested communities via social media and that our Content Strategy is successful. In addition, the Twitter account was mentioned and retweeted quiet often by some prominent profiles on nanotechnology such as @Nanowerk.

Find below the five tweets that have had a major impact measured by the number of clicks during the reporting period. Two of the most successful posts refer to multimedia tools, which are included in our repository. There is another pair of posts referring to the competition, which reinforces the idea that the competition has had a real effect in boosting the engagement with our channels. Finally the last one is on a video of general Nano info.

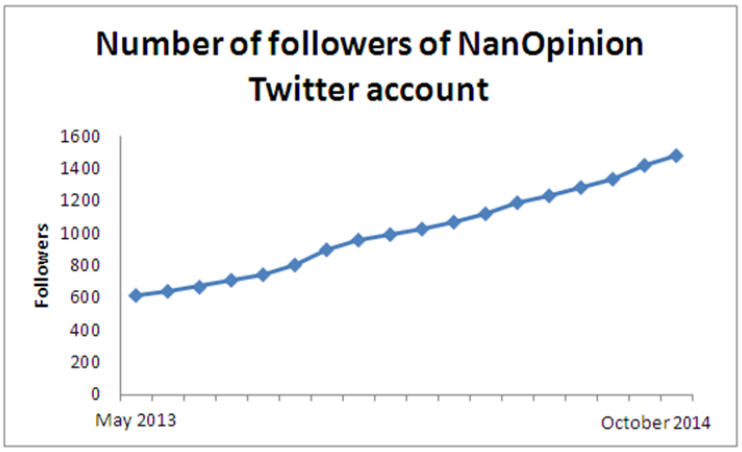


Figure 20 Increase of Twitter followers to the NanOpinion account

Figure 21 Actual number of followers to the Twitter account

Table13 shows the top five tweets in number of clicks. Note that most of them are about tools of the repository, the school competition, media partners, etc.

Table 13 Top 5 Twitter posts

Rank	Date	Post	Clicks
1	Jun 25, 2014	http://ow.ly/yqvYJ http://nanopinion.eu/en/reading-material/nanote... New tool! Check out this compendium with relevant & valuable educational material on #nanotech applications> http://ow.ly/yqvYJ #edu	76 clicks
2	May 19, 2014	http://ow.ly/x0zZb https://www.facebook.com/media/set/?set=a.72948... 20 finalists for the school competition are published on our FB page. Like&share your favourite one!> http://ow.ly/x0zZb @scientix_eu	69 clicks
3	Jul 5, 2013	http://ow.ly/mGkah http://courrierint.com/node/1005852 "Tout est nano dans notre vie" is the supplement on #nanotechnology of the @courrierinter newspapers in French. http://ow.ly/mGkah	28 clicks
4	Jul 28, 2014	http://ow.ly/zaGVs http://www.nanopinion.eu/en/video/nanoinlife Great documentary! The Nobel Prize winner Sir Harry Kroto discovers how #nanotechnology could revolutionise our lives http://ow.ly/zaGVs	27 clicks
5	May 30, 2014	http://ow.ly/xqZag https://www.facebook.com/media/set/?set=a.72948... Only 3 days left to like & share your favourite finalist for the Distilled Nanoideas contest!> http://ow.ly/xqZag #nanotech @scientix_eu	26 clicks

The findings for Twitter:

- Popular in the EU
- Hashtags allow the community to gather around event/project etc.
- Spread easily to other languages

3.4.2 Facebook

Facebook was used as a recruiting tool, as well as a channel to disseminate information. Most of all, it became a platform to interact with the community that "liked" NanOpinion's Facebook page. The NanOpinion project made use of the FP7-NANOCHANNELS account in order to preserve the number of followers gained from this project; however, the design was updated and customized to match the NanOpinion look and feel.

The Facebook page also became a key player in the pilot competition (D4.3). Posts concerning the call for the NanOpinion competition were promoted. In addition, students voted for their favourite submissions via Facebook.

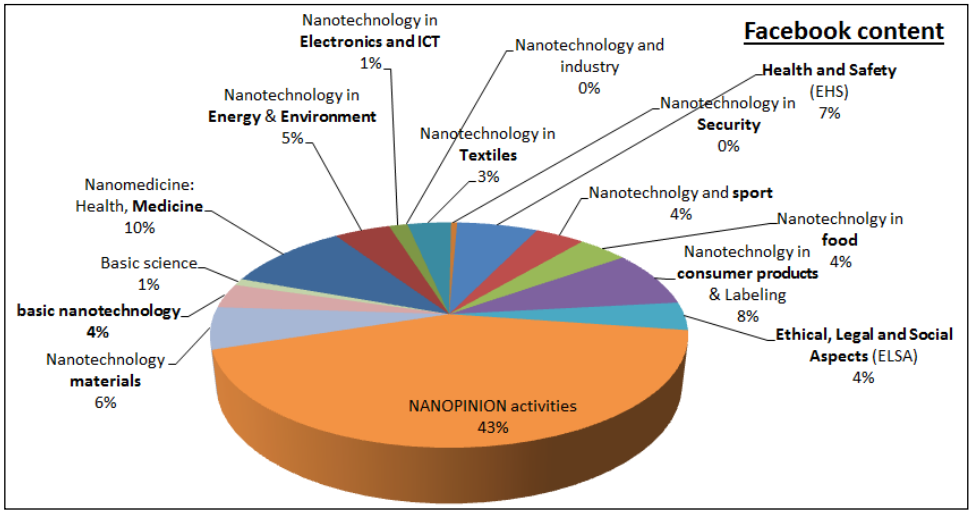


Figure 22 Division of Facebook Nano Topics (See D7.5)

The paid campaign in Facebook was carried out by ORT in coordination with the IrsiCaixa team. Although the number of fans in the Facebook page did not increase remarkably in the number of fans as a result of this

campaign, but it had a huge impact in terms of reach, that is, the number of people who saw some of the published contents. Another positive result is that the NanOpinion virtual community was engaged as they not only was the posts, but also "liked" and shared them. For more information on Social Media, see Section 3.4.

The number of fans shows a sustained growth pattern, with a peak coinciding with the weeks where students could vote for the winner of the school competition. At the beginning of the reporting period our Facebook page had 922 fans and now it counts with more than 1130. See below the number of new likes that we have received daily to our page.

The number of fans increased steadily during the project. From May-June 2014 the number increased significantly coinciding with the launch of the competition and the paid campaign.

Figure 23 Progression of Facebook likes throughout the project

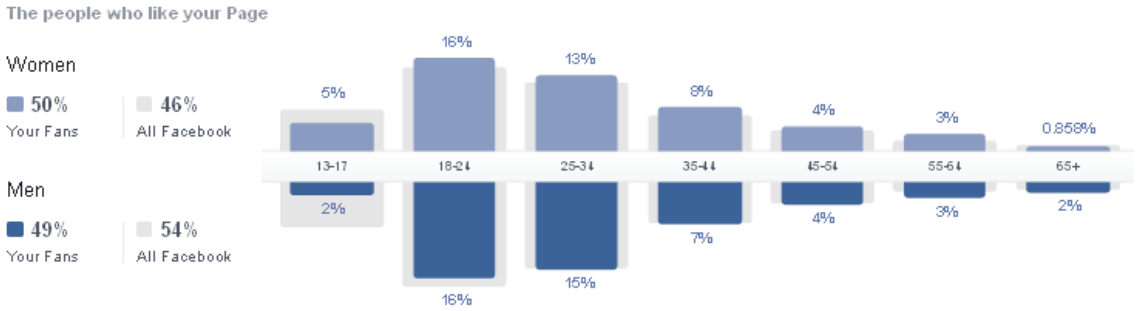


Figure 24 Type of Facebook fans who liked the NanOpinion page

Figure 25 The reach of the project

The reach was constant. However, there was a peak from April to June, when the paid campaign started. The main contribution of the paid campaign was to increase the reach.

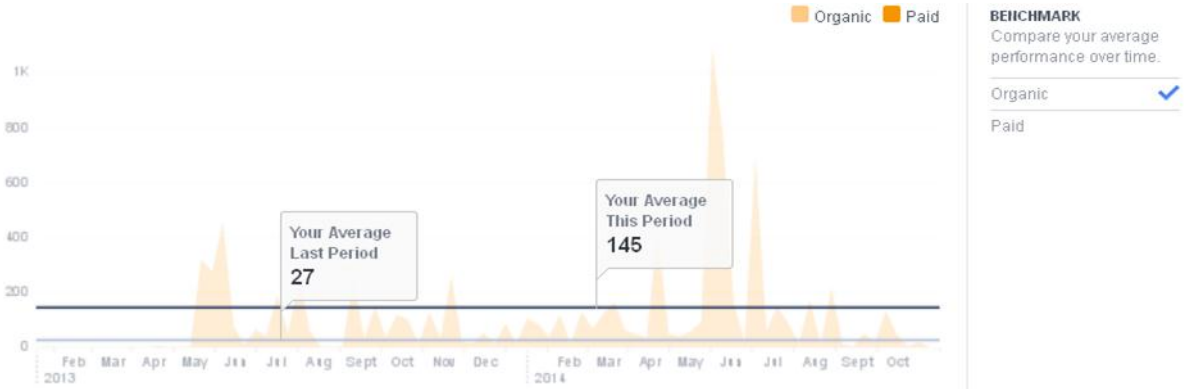


Figure 26 The reach with the paid Facebook campaign

The main conclusions for the Facebook page are:

- High ROI (return of investment): huge reach with little to medium effort, especially with a paid campaign
- Reach to youngsters
- Easy access to hard to reach group
- Access to wide variety of countries and languages
- Very little comments or discussions
- Need to refer audience to the blog for discussion

The following figures show the outreach of questionnaire and explain the composition of the respondent group. Hard to reach people could be reached as well.

3.4.3 YouTube

The NanOpinion YouTube page took over the profile of the NANOCHANNELS project and customized it with NanOpinion's look and feel (http://www.YouTube.com/user/NanochannelsEU). It was used mainly as a repository of videos. Still, by the end of the campaign there were 20 subscriptions. Other partners and teachers who worked in the project published videos on the project too. There were a total of 2481 views.

The two videos produced for the project had 1353 views (drug delivery system and DNA nanotechnology) and 1163 views (Video on the environmental impacts of nanosilver), respectively.

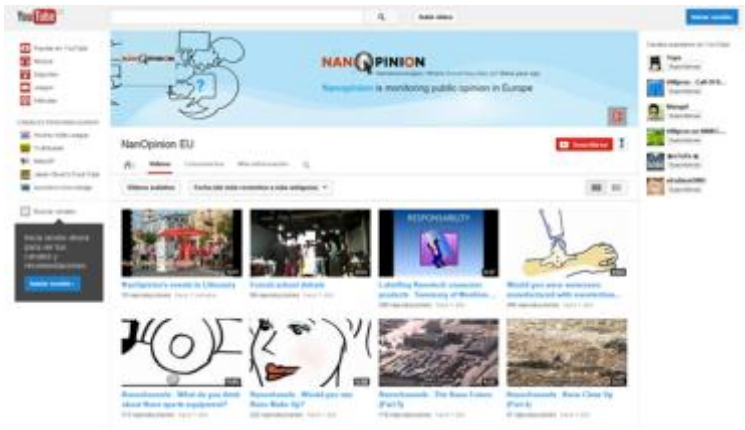


Figure 27 YouTube home page

3.4.4 LinkedIn

As LinkedIn is focused on the professional lay public, and the focus of the NanOpinion project was the hard-to-reach public, this social media venue was not stressed and no real activity took place. Still, in order to feed the LinkedIn profile, the project also joined to IFFFT, which is an automatic online feed tool that connected the NanOpinion Facebook and Twitter pages to LinkedIn.

3.4.5 Google+

Under the project three Google+ accounts were established. Only the NanOpinion outreach account Ecsite established was active, and it was used for Monitoring Station hosts to share their experiences. The account has 21 members and on the Google+ page 33 posts were uploaded with text and pictures or videos.

3.5 Physical On-Site Monitoring and Engagement Stations

3.5.1 Monitoring Stations

The Monitoring Stations concept was developed to collect the nanotechnology opinions of "hard-to-reach" groups throughout Europe. The Monitoring Stations were a core element of outreach and data gathering activities, and were implemented by three different project bodies; the ECSITE members, which are NanOpinion's third parties, British Council local offices, and NanOpinion consortium partners. The NanOpinion consortium worked hard to ensure the widest EU representation possible and recognised the importance of including both large and smaller EU countries. For specifics on Monitoring Stations, see D5.2.

Monitoring Station events were implemented at 18 locations across Europe by the ECSITE network partners, British Council local offices, and NanOpinion consortium partners. The locations were specifically chosen to include places not usually associated with science outreach in order to engage the audience of interest to the project. Each Monitoring Station event engaged the public with nanotechnology information, demonstrations of current products that use nanotechnology, and a questionnaire designed to capture their understanding and opinions of nanotechnology. Large eye-catching stands (Monitoring Stations) were used to attract people's attention, and staff (Facilitators – on average 5) facilitated the interactions and discussions. Once engaged, people stayed for an average of 20 minutes.

The main objective of the Monitoring Station was to collect the opinion of citizens on nanotechnology, as well as raise their awareness of the subject and provide them with information and materials on nanotechnologies. Monitoring stations are physical objects. They are large mushroom-like stations, equipped with tablet devices, a team of experienced facilitators, a set of products made with the help of nanotechnology, and a kit with experiments (see D5.2 for more information on what is a Monitoring Station).

The different elements of the Monitoring Station had varied success. Weaknesses and strengths were highlighted early on leading to the development and improvement of the Monitoring Station. The changes implemented led to a richer engagement experience reflecting the desire of the public for this. Greater learning experiences were observed in the participants and deeper discussions were generated.

It was originally envisaged in the DoW that the Monitoring Stations could function as a stand-alone system where people access the information about the project and nanotechnology, as well as the questionnaire, on the online portal via the tablet devices. However, due to the lack of usability of the tablets and the way in which participants became engaged and wanted to gain the information, the Monitoring Stations relied on the facilitators (who were often nanotechnology experts) and nanotechnology demonstrations.

The estimated numbers of questionnaires collected at Monitoring Stations and the proportion these represent of the project total, as well as the number of people engaged that did not complete a questionnaire, show that the in terms of quantity the Monitoring Stations were successful. The level of engagement achieved, and the number of hard-to-reach that completed the questionnaire, shows that the Monitoring Stations were also successful in terms of quality.

Three key lessons regarding successful science engagement were learned from the Monitoring Station events:

1. To engage people with science/technology and understand what their opinion is, it pays to get out there and talk with them face-to-face
2. People are much more engaged when you show them how the science is relevant to their lives, through the use of live demonstrations of applications
3. The choice of venue for engagement makes a difference; people are much more willing to be engaged when they expect it, i.e. at a festival style event, science themed or not; different places and events can attract different sections of society.

With regards to the Monitoring Stations, partners concluded that too many goals were put into one activity. For the project to develop real 'labs' where people could get a more in-depth experience and debate on nanotechnologies, which would last for a couple of hours, different locations needed to be chosen. Public spaces are not as people usually rush and are not prepared to spend much time. For example, something like pop-up labs in empty shops

could have worked really well. However, the so called Monitoring Stations+ were very successful in providing a short, engaging experience on nanotechnologies and capturing opinions.

3.5.2 Street Labs

The main purpose of Street Labs was to create a space for dialogue between the scientific world and the 'hard-to-reach-public' in conventional and mundane spaces. Street Labs were always linked to Monitoring Stations, and as the project progressed, the two concepts became very similar (see D6.2 for more information on how and why the concepts and definitions of both Monitoring Stations and Street Labs evolved and changed). For details on Street Labs, see D5.3.

There were a few obligatory elements that each Street Lab was supposed to have. These were:

1. Street Labs helped attract the hard-to-reach audiences and involve them in discussions; Monitoring Stations involved these same audiences in the data collection process which was an important part of the project. Thus Street Labs always hosted a Monitoring Station.
2. Each Street Lab had to have a catching, innovative, entertaining outreach activity that attracted this hard-to-reach audience. This catching activity aimed to get the initial attention and interest of the audience. Often this catching element was the Monitoring Station, due to its striking design. Other examples included activities such as a surgery performed on a bear with a hockey glove in the Czech Republic, or science busking and a piece of drama in Italy.
3. Each Street Lab had to have a dialogue activity, which was one of the key aims of Street Labs. This activity aimed to involve the audience in a discussion about nanotechnology. Often the theatrical Discussion Game, which was developed within the project (see D3.3), was used as a dialogue activity. The game was developed specifically for Street Labs taking into account that visitors and passers-by do not have much time and the activity needs to be quick, catchy and entertaining all at the same time. That is why theatrical techniques were used. In some cases the game was adapted to fit within the topic better. For example, in Portugal they concentrated on the topic of energy, so the characters of cyclists were used instead of tennis players.
4. Street Labs had to provide some interactive elements that helped introduce the products, topics or nanotechnology in general to the hard-to-reach audience. The focus was on the "interactivity" where the audience could learn or experience nano not only by reading a poster or a brochure, but by interacting with a multimedia station, a product, etc. In most cases the products and experiments provided together with the station were demonstrated by experienced facilitators.
5. Each Street Lab had to include an opinion-collecting mechanism to collect audience opinion on nanotechnology on-site. Often opinion boards were placed with a couple of simple questions, where people quickly mark their answer with a magnet or a post-it. It was also a good way to initiate instant discussions. Questions 7 and 14 from the live event questionnaires were suggested for the opinion boards (How interested are you in further information regarding nanotechnologies? After having visited this event, do you feel now more … ?)

When developing the detailed concept for each Street Lab the main question organisers had to think about was how to bring the hard-to-reach groups to start thinking and discussing nanotechnologies (including controversial issues). According to the involved target groups Street Labs could focus on one or two selected topics. If the location and involved target groups were general, then Street Labs could also cover a broader range of topics and be more general. It was the case for most countries.

3.5.3 Monitoring Stations Evolved into Street Labs

The main difference between Monitoring Stations and Street Labs was to be that that Street Labs had activities or elements that facilitate dialogue either between visitors and facilitators or amongst the visitors themselves.

In the end, Street Labs and Monitoring Stations became very similar. One reason was related to the fact that some incompatible goals were supposed to be reached by Street Labs. On the one hand, Street Labs needed to go to the 'hard-to-reach' audiences; that is, outside science museums, science festivals or other places established for science communication. Street Labs needed to take place in the streets, in public spaces, parks, shopping malls and other public places. In other words, places where people usually pass by, where they do not go for the purpose of a

specific event. So, if passers-by were the main audience, the activities had to be short. Long discussion games and scientists/artists discussions were not feasible. On the other hand, within this quick experience participants had to fill in the questionnaire, have an experience of debate or discussions or participate in some demonstrations of nano-products. All of these interactions were supposed to provide data for analysis in WP6.

Including participation through the online NanOpinion portal and on-site monitoring described in D5.2 and D.5.3, a total of 8330 people completed the questionnaire. Some 82 % (6884, with 5368 eligible for assessment) of these responses came from face-to-face encounters.

The gender balance of participants was effectively equal but over 25% of questionnaire respondents were between 20 and 35 years old and over 40% are still in education. The vast majority of all questionnaire responses have been a result of direct interaction with our monitoring station facilitators, and 20% of all participants claimed to have not heard anything about nanotechnologies before.

Table 14 Summary of data from Monitoring Stations and Street Labs (See D5.2 and D5.3)

	Monitoring Station	Street Lab	Total
Total events	18	26	44
People engaged (estimate)	6490	7921	14411
Questionnaires (estimate)	3241 (2976 valid)	3643 (2392 valid)	6884 (5368 valid)
Average people engaged per event	36	305	328 (average of MS and SL)
Average questionnaires per event	180	140	156 (average of MS and SL)
Average number of facilitators used	4	3	4 (average of MS and SL)

3.5.4 Live events

Live events took the form of interactive seminars and workshops. See D 7.4 for detailed descriptions.

3.5.4.1 Guardian (UK)

The Guardian seminar, "The Future of Food Manufacturing," was held on 9 October 2013 at the Guardian offices in London. The seminar was well attended by over 50 people who participated in a robust debate. The write-up published in the Guardian and uploaded to the microsite simultaneously. A detailed description was given in D7.2.

3.5.4.2 BfR (Germany)

From 3rd to 5th of June 2014 the German Federal Institute for Risk Assessment (BfR) conducted three focus group discussions with German consumers. The participants discussed about nanotechnology as well as nanoproducts and their labelling. The three groups consisted of 8 to 9 participants and were composed differently. One group consisted of eight women, one of 9 men and one of 4 women and 5 men.

All three groups discussed the same topics. At the beginning participants discussed what they have heard so far about nanotechnology and which experience they had, if any, with products which were based on the application of nanotechnology.

Subsequently a number of different products were presented to the participants. Some products openly advertised the use on nanotechnology while other did not. Participants discussed the perceived benefits of nanotechnology concerning the individual products and spoke also about whether, and if so, how product labelling of nanoproducts should look like. At the same time participants views about the EU labelling obligation for nanotechnology in cosmetics and food were discussed.

The discussions of the three groups were recorded on video and are currently subjected to a qualitative content analysis. Here a few short first impressions should be delineated.

Overall the male and the mixed gender group showed a positive attitude towards nanotechnology and its applications in consumer products while in the female group a skeptical attitude dominated. In all groups an

initially neutral to positive attitude was qualified as soon as information about possible health risks from nanoparticles was provided to the participants.

Concerning product labelling a majority called for distinct labelling for the sake of consumer's free choice. A minority of participants were of the opinion that distinct labelling was not necessary. The minority argued that it was not clear why nanotechnology should be so different in comparison to other substance groups which are not distinctly labelled either. All groups did not understand that the EU labelling obligation for nanotechnology in cosmetics entered into force before the labelling obligation for nanotechnology in food which participants apprehended as more important.

All groups were surprised how many applications of nanotechnology in consumer products already exist and how many times one comes across nanotechnology in everyday life and that it is not science fiction anymore.

3.5.4.3 TiConUno

TCU organized, held and recorded a Round Table based on Nature's comment "Make Nanotechnology Research Open-Source" (the video recording has been published on www.Moebiusonline.eu).

3.5.4.4 France

On 6 October 2014 during Fête de la science, a national event, two workshops were organized by Traces within the framework of the NanOpinion project. They were held at a science centre belonging to the ESPCI ParisTech, the industrial chemistry and physics higher education institution of the City of Paris, France. A total of 26 high school students from lycée Camille Sée in the 15th arrondissement of Paris participated. The students who participated were in grade 11 oriented to science and between 15 and 17 years old. They were invited through their math teacher, who had participated in previous events organised in the science centre. They had little previous knowledge of nanotechnologies and showed interest in the topic, but since they came with their class, the levels of participation varied. Discussions in smaller groups helped involve all participants, who then started to express their thoughts better. The workshop structure drew on parts of the Participatory Workshop scheme (especially the quiz and the examples for nanotechnologies in products) and elements from the Theatrical Discussion Game developed within NanOpinion (the discussion continuums), with input from Traces.

Students were generally more sensitive to advantages than to potential problems, especially for some products (i.e. for T-shirts: nothing is negative, just the price). Discussion about food packaging made them conscious that it was not as simple as they initially thought. They showed more concern about what could go inside their body. They also tended to just repeat the advantages that were already mentioned without further analysis. They made comparisons to products they already knew, like Febreze (a spray that takes smell away from fabric) or a sponge for the nano T-shirts, but did not make any reference to opinions other than their own. It is interesting to note that some of their arguments are located both on the advantages side and on the problems side, usually with the same wording. This allowed the facilitators to stress the ambivalence of technology and to consider who benefits or suffers from the same characteristic of a product.

The discussions in small groups were followed by a closing exercise with the entire group, leading to further discussions. Price was an important issue even though it is never mentioned during the product presentations. The students connected it to how hard it must be to work at such a small scale. They were concerned about the possibility for anyone to access products using these technologies. Why some products are developed rather than others (profit, progress…) was tackled.

Crosscutting topics involved:

- effects on the body and health (it could create new diseases,
- you cannot know before you test it;
- it can go in your blood,
- no, it's on your skin
- it can go through, it is so small it can go everywhere)
- environment and recycling (where does the sunscreen go when we swim in the sea? It could be eaten by a fish and then you eat the fish)
- marketing and safeguarding private life (a pirate can get to the information from the salad packaging chip)
- aesthetics, practicality…

The variety of these topics made them conscious how transversal the impact of nanotechnologies can be in our lives.

The students wanted more information before deciding whether these products should be available. Comparisons with GMOs and testing on animals were drawn as were differences between personal desires and what is desirable for society, current and future needs. Who should be included in the discussion of these issues was also raised, and the example of the 2010 national debate on nanotechnologies in France was discussed. Participants were then asked which products using nanotechnologies that they thought would be worthwhile. Some did not want any. Others suggested medical applications, for which there was a consensus that it was a good thing to continue.

Forming an opinion

Two quick summary exercises asked the students give their opinions.

- Students generally agreed with: "Research should always take ethical consequences into account." "Research should only be conducted once concerned parties approve it". There was less agreement regarding ethical questions.
- Would you use products that contain nanoparticles? The results showed that most of them would.
- How should nanotechnologies products be regulated to balance innovation with safety? Most students leaned towards strict regulations. Opinions were split in the first group since those in favour of freedom voted for complete freedom for researchers. They were more balanced in the second group.

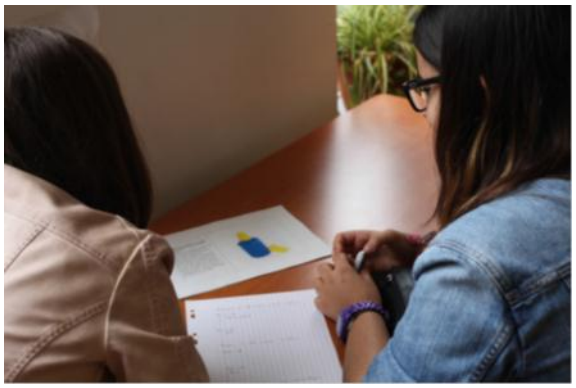


Figure 28 Live event in France

3.6 Formal training and educational settings

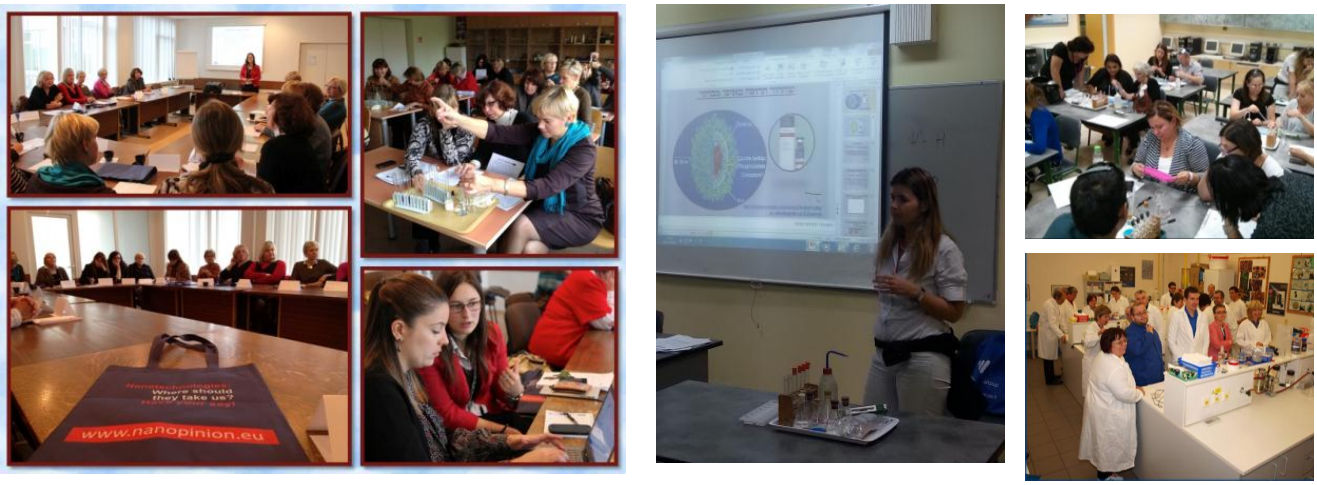


Figure 29 Face-to-face teacher events

There were a total of 12 face-to-face and 13 online teacher training sessions from 7 October 2013 to 16 January 2014. Participants included 468 teachers and 16 teacher coordinators. They were trained by 15 teacher trainers and 22 experts, scientists and partners.

The network of Teacher Coordinators in Europe reached 1556 students in 15 European countries and dedicated a total of 265 hours. Detailed reports from Teacher Coordinators on the different type of tools developed to teach nanotechnology included experiments, videos, Moodle courses, virtual game, discussion games. A wide dissemination campaign was organised at the European and national levels to reach out to teachers.

3.6.1 Target population

The program was aimed towards high school students in grades 9–11. In order to allow the lay public have access to the mini-courses, special programing was enabled as part of the Moodle system. A unique feature was prepared especially for this project to allow anyone to use the LMS, including the quizzes and other features of the Moodle.

3.6.2 Teaching place

The teaching and learning took place in a computer room (allowing individual learning in an online environment) or at home with a combination of frontal classroom sessions.

3.6.3 Course Content

According to D1.3 and the latest research, pure science is not the main interest of the lay public and applications, especially products that the public can find today or in the near future, are much more appealing and interesting. Therefore, we decided on a shift in the division of the mini courses content. Instead of dividing the content into basic knowledge and properties of NT, NT applications, products and everyday life and NT ELSA issues, and then debating NT the dilemmas, we decided to work from the "me & mine" approach. The same scientific knowledge as well as ELSA will be discussed but the point of entry for the students will be different. The entrance to each module will be by presenting a daily problem that the students can relate to (the odours in the classroom after a sports lesson, a parent dealing with side effects of cancer treatment etc.). After understanding the problem, a product or application that can solve this problem will be presented and the scientific knowledge will be taught. At the final stage of the module a discussion on the ELSA topics will be included after presenting the students with arguments from different angles.

In order to work from this approach and to maintain accurate scientific knowledge and include diverse and wide NT principles, we chose the following modules and organised them into three mini courses.
The content is available at: http://nanopinion-edu.eu/

The three mini-courses contained a total of eight modules and were translated into 11 languages:

1. Nano outdoors
   - Improved sports gear
   - nano coatings
   - Solar panels
2. Nano Indoors
   - Air filters and purifiers
   - Flexible electronics
   - Food sensors
3. Nano inside Us
   - Tissue engineering
   - Drug delivery & Theranostics

The modules were modular and divided into independent parts. Each teacher was free to choose which of the modules to teach. Before starting the courses, each student went through a pre-test of basic knowledge. At the end of the learning process (at every module) the student went through a post-test in order to measure the change in knowledge.

Each of the eight modules was based on the same concepts and structure. The first concept was focused on a self-learning process in an online environment with additional teaching methods such as animations, videos, discussions, demonstrations and laboratory activities.

The second concept focused on the point of entry. Each module began with a problem from our daily life, e.g. bad odours, spoilt food. Such entry point helped the students relate to the learning materials and understand NT issues close to them.

The third concept was that by understanding the different products/applications to solve the problem at hand, we can learn and understand the benefits of nanotechnology.

A fourth concept was that NT is related to more than one discipline. In each module the student dealt with materials/concepts from chemistry, physics and/or biology. The final concept is that each NT solution/application incorporates in itself many aspects. There was no right or wrong answer, good or bad idea. Each solution included both to show students that as part of society, they have to understand and be aware of the dilemmas and decide when/where to use them and when/where not to. We need to address circumstances.

3.6.4 Live Teacher Training

The aim of the training activities was to introduce teachers to Nanotechnology teaching, the NanOpinion portal and the educational tools developed under the project. For more information, see Deliverable 4.2.

The first in-person training was given at European Schoolnet to prepare the teachers in charge of coordinating the educational activities in their country and provide training themselves. The rest of the training was provided at national level in the language of the country by the Teacher Coordinator and partner located there. An extra training was given in English as part of the programme of the conference of a partner project, Pathway1.

The face to face workshop structure was as follows:

1. Explaining to teachers the objectives of the NanOpinion project and the formal education outreach programme
2. A basic introduction to nanotechnology done by a professional science communicator.
3. Introduction to NanOpinion and the portal.
4. Training on the educational tools

The training activities were launched in April 2013 with the 16 Teacher Coordinators workshop to prepare them for the upcoming school year 2013–2014. The aim was to make sure they could plan their programme well in advance.

They were prepared to use and train other teachers with the NanOpinion tools and promote the project at national level.

The main content of the training at the European and national levels were: an introduction to Nanotechnology and the aim and method to integrate the topic in STEM teaching, the NanOpinion project and the portal, the teacher guidelines, the Moodle courses, the two hands-on experiments, the two videos, the virtual experiment and the discussion game.

The national training were kicked-off on 7 October 2013 with the in-person training performed in Israel and closed with the online workshop run for 52 Turkish teachers on 16 January 2014. In total 468 teachers were trained. The 16 Teacher Coordinators and 19 experts and partners were involved as moderators, trainers and lecturers.

The 12 face-to-face workshops were given in 10 European countries (Austria, Belgium, Bulgaria, Czech Republic, Denmark, Germany, Israel, Lithuania, Spain, and Turkey). The first in-person training was given at the European Schoolnet premises to prepare the Teacher Coordinators.

The rest of the face-to-face trainings were provided at national level in the language of the country, moderated by the Teacher Coordinators and partners located there. An extra training was given in English as part of the programme of the conference of a partner project, Pathway. In addition to the 16 Teacher Coordinators of the NanOpinion project, in total, 291 teachers have been trained in person. There were 22 experts in education, science teaching and nanotechnology involved in the face-to-face trainings.

3.6.5 Virtual Teacher Training

The 13 online trainings started with the two additional trainings given to the Teacher Coordinators, as follow-up to the Brussels training. The aim was to give updated information on the educational tools developed for the NanOpinion project that were not finalised when the first training was provided and to train them on the functionalities of WebEx and how to run properly an online training.

In addition, there were 10 national online workshops moderated by the Teacher Coordinators in their languages for teachers of their country (Austrian, Bulgarian, Danish, Finish, Greek, Italian, Romanian, Spanish, Turkish and English). The workshops for teachers were supported by European Schoolnet and in some cases NanOpinion partners based in their country. In addition to the 16 Teacher Coordinators of the NanOpinion project, in total, 177 teachers have been trained online. 15 experts in relevant disciplines were involved in the online training of NanOpinion.

3.6.6 Teacher Moodle

The NanOpinion partners believe that the next generation of customers, voters and policy makers are today's K–12 students. For these reasons, three mini courses were developed for 9–11 graders and the lay public. The mini courses dealt with daily problems such as avoiding waste of food, dealing with bad odours or addressing drug side effects. From this starting point, the NanOpinion project addressed the solutions and the way they are learnt best, as well as the scientific principles of nanotechnology. The interdisciplinary nature of NT was presented by learning about more than one scientific discipline in each module. A special emphasis was given to ELSA issues. In each module, areas of controversy and various other aspects were presented. The final stage of each module included a student discussion/debate (face-to-face or online forum). For more information, see D2.2.

The teaching modules (http://nanopinion-edu.eu) were at introductory, intermediate and advanced levels. A total of eight teaching modules were developed and translated, for a total of up to 60 hours of learning. Overall, 31 non-English modules were produced: translated, designed, programmed and launched. The Moodle enjoyed 40,000 page views, which included 425 registered users and 890 guests. The pages were translated into 11 languages.

In each mini course, there were two to three main modules. An additional module of basic NT understanding was built to help students and the lay public fill knowledge gaps. The content was presented in a variety of ways, from animation, videos and texts to interactive questioning, quizzes and discussion groups.

The learning modules were built on the Moodle 2.4.3 platform and included the benefits of the learning management systems built into the Moodle system. A special feature was programed in order to allow the lay public to enjoy all the features these modules can offer. In order to assess student progress, pre- and post-tests for the mini courses were included, in addition to a quiz for each module. A wide and comprehensive teacher's guide was built in order to help the teachers implement these modules. A face-to-face teacher training session took place in Brussels on 11–12 April 2013.

The main goals of the mini-courses were to help students:

- Gain knowledge of the fundamental concepts, knowledge of phenomena and principles in nanotechnology.
- Learn commercial applications and significance of nanotechnology for the individual and society.
- Foster critical thinking skills and have a meaningful debate.
- Generate interest (based on knowledge) in nanotechnology.

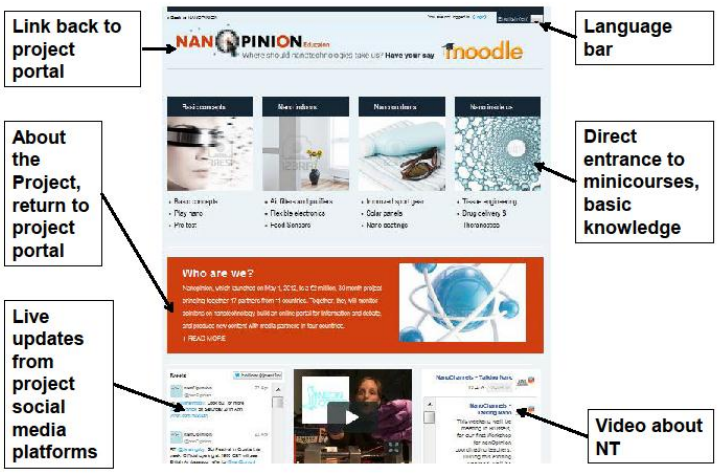


Figure 30 Teacher Moodle (See D2.2)

3.6.7 Teacher kits

The Teacher guide was used to encourage and inspire more teachers to integrate nanotechnology knowledge in their classes. EUN developed the teachers' guidelines to accompany the educational tools provided by NanOpinion. The concept was created by EUN and the specific ideas of activities by the Teacher Coordinators. Five of them worked on these guidelines and EUN integrated the various parts together to make homogeneous guidelines. The guidelines encourage teachers to apprehend nanotechnology as an interdisciplinary subject and think out of the curriculum box. It included two parts that were published on the public portal in January 2014.

The first part of the teacher guide consisted of a document called "Activity Sheets", which were based on short exercises. The exercises in the activity sheets were designed to treat a specific theme or question with a short activity that can be easily organised within a lesson.

The activity sheets consisted of 5 guidelines that covered most of the NanOpinion educational resources. The themes of the activity sheets were air pollution, smart materials for smart green homes, nanotechnology for health, solar panels, and nanotechnology and the environment

The second part of the Teacher Guide consisted of a series of kits developed to encourage teachers to use creative approaches and resources like ICT tools, social media, group activities, collaborative work and storytelling.

The kits were presented in a PowerPoint format. The descriptions were easy to follow and not time consuming for the teachers. The proposed activities were designed to last anywhere from one class session to a full quarter or a whole semester. Each included at least three NanOpinion tools.

3.6.8 Competition

"DISTILLED NANOIDEAS" was an interactive contest for school teachers and their students who had been working on nanotechnologies in the classroom and who wanted to communicate their conclusions through art. The competition opened on 31 January 2014 and closed on 1 May 2015.

The main objective of "DISTILLED NANOIDEAS" was to promote a meaningful dialogue about nanotechnologies present the Ethical, Legal & Social Aspects (ELSA); to use tools developed by the NanOpinion project and available from the repository; and to engage students in active creation of tomorrow's world.

The competition invited teachers to work together with their students with a minimum of one tool developed by the NanOpinion project (http://nanopinion.eu/en/education) and educational tools on nanotechnology available from the multimedia repository (http://nanopinion.eu/en/about-nano/multimedia-repository).

The class project was articulated around one or several of three topics:

- My opinion on nanotechnology, in general or a specific aspect.
- Nanotechnology around us. What kind of nano materials can be found in nature? How are these aspects implemented in modern products? How do they work?
- Invent your own product! Explain how it will work, how it is relevant to nanotechnology.

The competition was open to school teachers (secondary and higher education) and their students. The group could consist of 2–5 students, led by their teacher, who submitted the entry. The competition was divided into two categories according to age:

- 13–15 year old students
- 16–18+ year old students

The competition was disseminated by all of the project outlets, including banners on the website, social media, the Moodle educational learning system, the teachers' system of communication (Basecamp), partner newsletters, at live events and more. In addition, the teachers acting as national coordinators promoted the competition to ensure participation in their country.

Round 1 – European expert evaluation

A first evaluation round was conducted by a group of four experts composed of NanOpinion partners, education experts and experts with in-depth knowledge of nanotechnology. This panel analysed all 117 entries, with a distinction between the two age groups. Only 21 entries were chosen to advance to the next round.

Round 2 – European Grand Jury evaluation

The Grand Jury included the advisory board and members of the NanOpinion consortium, a team of 19 experts (different specialists in nanotechnology, education and relevant aspects). From the shortlist, the jury awarded one winner per age category.

Additional Round – Public evaluation

After all works appeared online, the public became an evaluator and via Facebook, chose the work they liked best. Votes were tallied by counting the number of "Likes" each project received. The winning entry received more than 2183 likes and 134 shares, and many entries obtained over 100 likes.

The three winners (one from each category) received a NanoTool Kit Box, valued at €150–€200. The teacher of each winning entry was invited to attend the Scientix conference at the EUN facilities in Brussels.

A certificate of participation was sent by email to the participants whose entries advanced to Round 2.

3.6.9 Experiments

In collaboration with a research group led by Dr. Pau Gorostiza from the Institute of Bioengineering of Catalonia (IBEC) and with the support of iNANO, Aarhus University for content and images two experiments were designed for teachers to use. First the script was designed and then the storyboard, showing all the content and images that will appear in the virtual experiment. The development of design and programming of the virtual experiment was

supervised by IrsiCaixa, ORT and AU ensured the accuracy of the information and data contained in the experiment. For more information, see Deliverable 3.4.

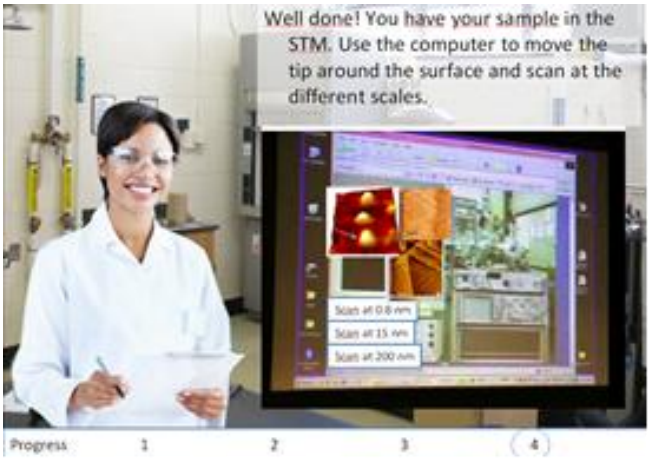


Figure 32 Look and feel of the virtual experiment

Figure 31 Story Board Experiment

The experiments, in particular experiment A were extremely popular and successful among teachers. One of the experiments (Experiment A) was used inside an article for a scientific publication that AU prepared.

AU is the leader of this task that involves developing two new "hands-on" experiments and one virtual experiment for schools and science centers (leader of this task is IrsiCaixa). The experiments should exemplify some nanoscience basic concepts, and show practical applications of nanotechnology. During the third period of the project AU developed the experiments, following also the advice and requests of some NanOpinion teacher coordinators.

Experiment A: The general concept behind many novel drug delivery systems is to "trap" the drug inside a capsule, which acts as a carrier to deliver the drug at the target, in some cases passing through the cell barrier and reaching the inside of the infected cell. The capsule has a protective shell that prevents the capsule from being dissolved before reaching the target. In addition, some biomolecules can be attached to the outer shell, which are specific to the target. This experiment exemplifies a drug delivery system, and how release can be controlled based on the media used. The experiment involves the self-assembly of alginate microspheres and the use of media with different acidity to control the release of a dye entrapped in the microspheres. The coating of the microspheres with a nanocoating prevents the release all together. Through these experiments teachers can show students the process of self-assembly (a key fabrication method in nanotechnology) and discuss controlled drug delivery, one of the most important applications of nanotechnologies to the medical sector.
To make the most of this experiment, teachers are encouraged to use it together with the NanOpinion Moodle minicourse called "Drug Delivery & Theranostics", where students can see some practical applications of controlled drug release using a core-shell nanoparticle (http://nanopinion-edu.eu/).

Experiment B: Thin films with nanoscale thickness are interesting novel materials that are being investigated in "smart" windows (for instance electrochromic and thermochromic thin films) and in biosensors (for medical detection, food monitoring, etc.). In this experiment students will produce electrochromic thin films of Prussian Blue having different thickness through electrodeposition. To perform the synthesis, they will build a graphite counter electrode. A simple extra laboratory activity (which can be done as a separate, free-standing laboratory activity) is suggested to further demonstrate that this nanomaterial is conductive, as oppose to other allotropes of carbon like diamond. This activity can be used to illustrate a fundamental concept in nanoscience: the nanostructure of a material can affect its properties in unique ways. In the second part of the experiment, the students study the optical properties of the thin films (absorbance) and verify a fundamental law in optics, the dependence between film thickness and magnitude of the absorbance. In the third part of the experiment the students verify the well-known electrochromic properties of Prussian blue thin films.

To make the most of this experiment, teachers are encouraged to use it together with the two NanOpinion Moodle minicourses called "Smart Surfaces" and "Smart Food Packagings", where students can see some practical applications of different types of surface nanoengineering and nanocoatings (http://nanopinion-edu.eu/).

The teacher and student documents for Experiment A and B are also uploaded in the NanOpinion repository.

Virtual Experiment: According to the DoW, the Virtual Experiment was to be developed by IrsiCaixa (PCB) with support from AU. The virtual experiment was developed by IrsiCaixa in collaboration with a research group led by Dr. Pau Gorostiza from the Institute for Bioengineering of Catalonia (IBEC), and with the support of iNANO, Aarhus University for content and images. In the Virtual Experiment students were able to get to know and work with a Scanning Tunnel Microscope and to build a molecular transistor in the same manner as Dr. Gorostiza does in his research line.

The NanOpinion virtual experiment allowed students to learn the operational principles of a fundamental instrument used in nanoscience and to try themselves to "move molecules". Students used a virtual Scanning Tunnel Microscope (STM) with a specific application in mind, i.e., to create a nanosized molecular transistor for an innovative product—a new type of mobile phone—much smaller than current available ones. The experiment was based on research being performed currently in the field of transistors for electronic devices used in daily life, like mobile phones, radios, televisions and computers. In the virtual experiment students were able to learn about and manipulate a STM, and also how to build a molecular transistor. http://nanopinion.eu/en/virtual-lab/virtual-experiment-stm-can-you-make-your-mobile-smaller

For more information, see D3.4 "NT lab experiments" The document is uploaded to the NanOpinion Moodle platform. The teacher and student documents are included in the deliverable as Appendixes. These documents have a Creative Commons license, specifically Creative Commons Non-Commercial Share Alike 3.0; therefore, teachers and other users are allowed to modify them or create new documents from them. This applies to all text and figures with the exception of some images that come from scientific journals, for which reprint permission was requested and obtained by AU (free or subject to charge). These images are clearly indicated in the text, as well as their copyright details.

3.7 Data Collection and Monitoring

As the key idea of WP6 was to monitor and evaluate processes of nanotechnology perception in Europe as well as to launch NanOpinion dialogue outreach activities, its main objectives relates to two main objectives of research.

Firstly, a major research goal was to indicate and evaluate the levels of knowledge and awareness on nanotechnologies of the general public (with special focus on "hard to reach" people), as well as to gather their opinions on nanotechnology and attitudes on specific nano-related applications.

Secondly major line of monitoring and evaluating activities focused on a wide and versatile range of outreach dialogue activities in which general public, "hard to reach" groups as well as education institutions were actively involved. Different types of dialogue activities were carried, out mainly using platforms such as live events and workshops organized at Monitoring Stations and Street Labs, various online channels and round table events held by NanOpinion media partners.

The different modes of outreach activity were also assessed by qualitative data to indicate strong and weak points, highlight best practices and evaluate effects and results of respective forms of dialogue.

At the more specific level, the objective of NanOpinion outreach activities—to be monitored and evaluated in WP6—could be structured into several main tasks (operationalised into measurable indicators) as follows (D6.1 Evaluation strategy):

- Take the debate to the outdoor arena, involving the public and a "hard to reach" audience in a trustworthy and informed dialogue
- Collect and understand citizens knowledge of NT
- Collect and understand citizens opinions on NT
- Collect and understand citizens attitudes towards NT
- Increase the dialogue with educational institutions on NT
- Build a vivid dialog about NT
- Create a virtual NT information and discussion platform

Both quantitative and qualitative instruments were applied in monitoring activities. Among the quantitative instruments, besides the crucial (online) questionnaire, there were also activity assessment questionnaires, opinion polls and social media statistics. The main instruments for qualitative assessment were reports from participatory workshops, usually held at Street Lab locations.

While the questionnaires collected quantitative data on NT-related topics, the participative workshop delivered qualitative data based on deeper insight and interactive dynamic of opinion forming.

Online questionnaire

The questionnaire covered all aspects identified as most relevant for NT opinion forming: NT awareness, opinions and attitudes, variables influencing NT opinion and demographic data.
The questionnaire method respected proved survey experience and was focused primarily on concrete fields of application and consumer products while avoiding abstractness.

Distributed in 18 languages, the questionnaire was originally called "online" questionnaire – but practice showed that the majority of copies were filled in by paper and pen formats at live events (and subsequently converted into digital form by organizers) as tablets appeared not to be the most suitable tool for the purpose (D6.3). In total 8308 questionnaires were collected, which roughly corresponds with genuine expectations of 200 questionnaires per each live event.

Opinion polls

Ten short statements or questions were distributed through the NanOpinion portal and through media partner microsites. The opinion polls were realized according the initial plan. Ten questions of the month were published via the NanOpinion online channels: the NanOpinion portal, the media microsites and different social media. The opinion polls were mainly designed to reveal the differences amongst the countries as well as to show whether

opinion polls are a suitable tool to stimulate online debate. The opinion polls took place between April 2013 and July 2014. Although the polls remain open, they will not be monitored. The last polls were monitored in July 2014. Results showed that the respondents were mainly willing to buy all different kinds of nano-products, but become more cautions with regards to direct body contact with these products. Participants also showed high awareness of issues related to environmental impact. They wanted to be asked about what innovations to develop with nanotechnologies and they were interested in current information on new nano-products on the market. In general, participants felt that nano-products would only be affordable for wealthy people. In total, 2147 respondents answered the polls in different locations. All polls will be left open, in case someone who accesses to the static portal wants to vote. The results were not monitored, however, after July 2014.More detailed information is available in D6.4.

Monitoring Stations/Street Labs

The street activities proved to be the main entrance points for collecting questionnaires – 83% of respondents filled the questionnaire during these events. (also see D6.2. and D6.3) However, the questionnaire was available basically at all NanOpinion communication channels, the NanOpinion portal, the media microsites, the educational workshops and all partners web sites.

The local organizers of Monitoring stations and Street Labs compiled live events records (e.g. discussion game played at the Street Labs). These reports described the nature of live events, summarized their results, and added some ideas for their advancement. The records also documented the artefacts produced and used at Street Labs (e.g. post-its).

The aim of the reports was to gain some insight into what kinds of outreach activity are suitable to attract broader public attention and invoke debate. The core of analytical description was involvement of public into live dialogues: what topic stimulates and provokes people most, what are their hopes and fears regarding NT. To structure and standardise their observation and written reports, the organizers could make use of the observation and assessment templates that offered a list of main points to be followed: level of interactivity and participant involvement, reactions, new topics, reflections, best practice, recommendations.

All outreach activities – not only Monitoring Stations or Street Labs but also school events, media debates, focus groups – were monitored and used for the major outcomes of D6.4. Thus all these reports proved valuable sources of monitoring data.

Participatory Workshops

The purpose of the participatory workshops was to continue the nanotechnology dialogue in a more structured way and to provide deeper understanding of key issues discussed in the NanOpinion project through interactive assessment and dialogue. The workshops were intended to amend a qualitative dimension to quantitative data collected in online questionnaire.

During the project, 10 participatory workshops—held in Estremoz, Perugia, Rome, Pilsen, La Coruna, Istanbul, London, Vilnius, Tel Aviv and Barcelona—were organized with 10 participants in each, on average. The participants learned in live debate how opinions and attitudes can be changed via interpersonal communication. The moderators of the workshops then filled in reporting template to provide detailed information (D6.2 – Dialogue report).

In some cases, it was difficult to include hard-to reach people to the workshops. The majority of those interested were science-curious people. This is not necessarily a negative fact – to try to attract hard-to-reach people does not mean to repel more knowledgeable and interested ones. On the contrary, it may show the quality and attractiveness of the workshop.

In general, participants enjoyed the workshop methodology, using visualization and interactive formats and nano-products enriched events that made it more attractive and entertaining. Under guidance of competent moderators, they became active actors of group dynamics as for nanotechnology-related opinion forming – a new unique experience for most of them. Some moderators recommended stressing the explaining risks and benefits of nanotechnology products (D6.2).

Policy recommendations workshops
Specific instruments included two interactive internal workshops held at consortium meetings in Tel Aviv and Prague where the participants themselves became producers of new knowledge.

The aim of the Tel Aviv workshop was to analyse experience gained in the previous NanOpinion outreach activities and thus to upgrade dialogue and outreach in the following phases of the project. Participants worked in pairs and in groups while identifying success drivers as well as barriers of outreach activities. In the second round of the workshop, participants were instructed how to apply a specific heuristic model invented by the Swiss astronomer Fritz Zwicky oriented on creative structuring and re-structuring various problems and relationships. The NanOpinion outreach activities were separated into individual items which, were then re-configured in various imaginative ways. In this way new approaches and horizons were opened.

The Prague policy recommendation workshop was conceived as the initial step towards a production of the policy recommendation report and a brochure targeted at policy makers. It aimed at creating a series of recommendations focusing on major NT-related issues regarding research, regulation and social implications as well as education and dialogue.

All these actions resulted in data analysis, deliverables and reports that allow drawing a large range of recommendations around three axes:

1. The public expectation regarding research; regulation and social implications of NT
2. Future communication, outreach, and public engagement methodologies for sustainable dialogue with citizens from European and associated countries
3. Future potential and need for NT education at high school level across Europe

For more detailed information, see D6.4 and D7.6.

Results are also published at: http://results.nanopinion.eu/

4. THE POTENTIAL IMPACT

4.1 Demographic Outreach

The NanOpinion project was designed as a communication project. One of the key tasks of the NanOpinion project was to develop and support dialogue. Outreach and dissemination activities included live ("outdoor") events in the form of Monitoring Stations, Street Labs, live teachers workshops (and other educational enterprises), participatory workshops, etc. As such, these activities were analysed in deliverables submitted in WP4 and WP5. The same applies to social media dealt with in WP3 (D7.5).

Support of nanotechnology dialogue was a substantial part of NanOpinion project. The role of media was to enable and stimulate audiences to express their opinion on nanotechnology issues. The main platforms were microsites of printed media, web sites of various other media formats – including radio or web TV – and the respective social media (FB, Twitter) where readers and listeners had space to have their say about presented materials. Details can be found in D7.2 and D7.4

The summary numbers for dissemination activities in the whole project show a vast range and variety. Printed supplements published in media with circulations of hundreds of thousands and microsites visited by hundreds of thousands of people indicate a large audience. See Table 1 for the total number of NanOpinion dissemination activities carried out during the duration of the project.

Several NanOpinion dissemination practices emerged from our review as ´good practices´—the pillars of NanOpinion dissemination performance. These are the following: synchronisation and synergy between channels, networking, blogging, ´academic´ activities, branding and videos.

WP7 focused on media activities and then on dissemination activities carried out by all other NanOpinion partners alongside their main NanOpinion commitments. This covers all information that moves beyond the internal area of the NanOpinion project and reaches public space, as articles, blogs, lectures, presentations, videos, various press and web items, etc., in which NanOpinion is described or cited. However, separation of individual work packages, e.g. that of WP2 and WP7, is only methodological. In reality what is desirable is overlapping and synergy of web and social media activities with dissemination of actual events.

Regarding the quantitative dimension of dissemination, the overview in the previous chapter offers the following picture:

- mass media still deliver the largest audiences – hundreds of thousand through paper supplements. Visits and views on their microsites also reached hundreds of thousands. Trusted media brands remain a strong driver of internet traffic.
- media portfolio used was diverse, reflecting the increasing complexity of the media ecosystem, and the fact that audience preferences often differ, between publics, age groups, or countries. Accordingly, our work embraced almost all media formats – paper, web sites, radio, web TV, face-to-face debates. This increases the organisational and management burden for dissemination in a project targeted at generating public discussion on an unfamiliar topic, but helps getting response and thus results.
- dissemination engagement of non-media partners was also continuous and strong in outputs, with a large number of articles, blogs, presentations, videos, radio and web TV broadcasts, social media posts and referrals that were broadcast beyond NanOpinion partners and displayed in public sphere
- Dissemination material (Poster, leaflets, cards) was provided as indesign templates, and easily adoptable to any project language. Therefore a wide use and distribution of promotion materials was guaranteed.

The project confirmed the importance of synchronization of dissemination activities between channels to maximise impact. The key role here was played – as planned – by the NanOpinion web portal. In this sense, the portal worked properly. It informed about all relevant outreach events and offered linkages to all dissemination channels. When a new paper supplement appeared, the number of views and visits on the NanOpinion portal increased (D7.5 – Social Media Campaign Report).

For media partners, the synergy task meant to synchronize their "traditional" and "new" formats, paper and digital activities. All media partners coordinated NanOpinion activities in newspapers with those appearing on their microsites, social media also being integrated. TiConUno properly used its diverse portfolio – newspaper, radio, web TV and their websites – for sharing and mutually reinforcing its outreach effects. Besides that, TiConUno media made content accessible from other media partners so serving as another relevant NanOpinion communication hub.

Networking: Ecsite, EUN and BC proved able to mobilise their networks – third parties – to participate actively in dissemination work. That represented a lot of communication work for NanOpinion partners, to motivate third parties, not only to arrange Monitoring Stations and Street Labs but also to inform the public about them. The result was a great number of press releases, news and web infos, radio and TV broadcasts in national and local media.

Blogging evolved into beneficial and efficient dissemination tool.

Under "academic" dissemination activities we understand articles, lectures, presentations, workshops, seminars – certainly not activities addressed to and consumed by "hard-to-reach" people. However, audiences at these activities were the science community and multipliers – mostly teachers and students – but also interested people in general who gained knowledge from their environment.

The Branding campaign was detailed and extensive–thanks mainly to ZSI. The logo, brochure, leaflets, cards, flyers, all branding activities on web platform and websites endowed NanOpinion with an attractive and distinct identity. This carry-over will last into the after-life of the project, with the continuation of the NanOpinion web portal.

Video has recently become a major communication tool in outreach activities towards the general public. So it was also in NanOpinion. Basically all partners produced and published some videos, largely featuring Monitoring Stations and Street Lab events taking place in their countries. An extraordinary role was assigned to video presentations in all NanOpinion educational efforts. Most often they were available on general channels as YouTube or Vimeo.

The topics tackled in the Social Media channels were defined according to the Polls of the Month and the features and news published in the media partners' supplements and microsites. A second part of the content was information on the project activities. More information about social media can be found in D7.5.

Facebook is a viral way of spreading content. Although only 202 posts were published during the campaign, each of the posts reached people who, in time, spread them to others. Over all, people were exposed to the NanOpinion content over 1 million times (see Table 15). These numbers demonstrate the power of this tool: with an effort of writing only 202 paragraphs one can reach millions of readers. Obviously, it also depends on other parameters such as timing and visuals, call for action, etc. The number of people who engaged with the content, by clicking to read, sharing with others etc., was 17,494 people with only 38 giving negative feedback. See Figure 23 for division of nanotopics posted on Facebook.

Table 15 Summation of Facebook impressions & engagement

	Total Impressions per post (The number of people who saw a page post. Unique or Total Count)	**Engaged users** (The number of people who engaged with the page. Engagement includes any click)	**Lifetime Negative feedback**
Total	**1,050,504**	**17,494**	**38**

Twitter was used as a recruiting tool to the wider the community as well as for exchanging information and having direct contact with the users. It also allows users to have access to specialized information platforms.

As this account was a continuation of the NanoChannels account, the baseline for the campaign was 461 tweets, 461 followers and was following 1118 others

Until August 8th, towards the end of the campaign, there were over 1121 new tweets.

The NanOpinion project established a much wider audience and added, during the campaign, 900 new followers.

Table 16 Twitter statistics

Indicators on Twitter	
Number of followers and followers growth	1,361 followers 819 following
Number of published tweets	1,283 and growing
Number of clicks in the links tweeted	150 per month
Number of retweets	50 per month
Number of lists where we have been included	1
Number of mentions	28

The NanOpinion YouTube page took over the profile of the NanoChannels Project and customized it with NanOpinion's look and feel (http://www.YouTube.com/user/NanochannelsEU). By the end of the campaign the cannels has 20 subscriptions. We used this channel as an online repository of videos. The only video uploaded to the channels was NanOpinion's events in Lithuania. A playlist of 7 videos uploaded by other partners showing the project activities are published in the YouTube channel. Other partners and teachers who worked in the project published videos on the project too. There were a total of 2481 views of the videos uploaded to YouTube.

The two videos produced for the project have 1353 views (drug delivery system and DNA nanotechnology) and 1163 views (environmental impacts of nanosilver).

The purpose of the videos was educational and not advertising. Yet, an overall total of almost 5000 views for 13 videos can hardly be treated as a viral phenomenon or regarded as a wide spread of information on this channel.

Table 17 Estimated exposures to partner channels (See D7.5)

Partner	**Form of publication**	**Number of publication**	**Type of information**	**Estimated number of viewers**	**Exposures to articles/posts or videos**	**Exposures to NanOpinion tweets**
ZSI	ZSI newsletter and Site (https://www.zsi.at/presse/zsi_ejournal)	*9*	Infos on nOp	1500 views/month	*13,500*	
	https://technikundwissen.zsi.at	14	posts on nOp	1100 views/month	*15,400*	
EUN	EUN newsletters (http://www.eun.org/news/newsletters)	*6*	nOp infos	9000 recipients/ month	*54,000*	
	EUN twitter account: Scientix Twitter	*14*	nOp tweets	6405 followers 1757 followers		*114,268*
BC	BC blog (http://blog.britishcouncil.org)	*3*	blog post	868 views	*2604*	
	BC newsletter (http://www.britishcouncil.org/society/science/public-engagement)	*2*	nOp info	2509 subscribers	*5018*	
	British Council Twitter (https://twitter.com/BritishCouncil)	*20*	nOp tweets	115,000 followers		*2,300,000*
	Tim Slingsby Twitter account	*2*	tweets	122 followers		*244*

ECSITE	Ecsite newsletter (http://www.ecsite.eu/news_and_events/e_news)	18	nOp monthly report	6000 viewers/month	*108,000*	
	C:\\Users\\marschalek\\AppData\\Local\\Temp\\Ecsite Twitter (https:\\twitter.com\\Ecsite)	20	nOp tweets	*1385 followers*		*27,700*
	Ecsite Facebook (http://goo.gl/RQKpHT)	17	nOp posts	*973 page likes*	*1,241*	
AU	Aarhus university news	13	web infos			
	Luisa Filipponi Twitter acount	10	tweets	*50* followers		*500*
IrsiCaixa	www.xplorehealth.eu/ www.irsicaixa.org	3	blog posts	5000 visits/month	*15,000*	
	IrsiCaixaTwitter	14	Tweets	1300 followers		*18,200*
STSSCZ	http://utesla.cz	2	web info	100 visits/month	*200*	
	http://stss.flu.cas.cz	2	web info	60 visits/month	*120*	
	Facebook account	10	posts	140 fans	*1400*	
	YouTube video	1	video	118 viewers	*118 video views*	
BfR	BfR website	1	web info			
	YouTube video	1	video	392 viewers	*392 video views*	
LMNSC	LMNSC website	1	web info			
	YouTube video	1	video	108 viewers	*108 video views*	
The Guardian	what-is-nano	11	Articles	5702 views/month	*62,722*	
	small-world	39	Articles	9575 views/month	*373,425*	
El Mundo	Microsite	67	Articles	26,430 views/month	*1770,810*	
Le Courier	website	4	Articles			
TiConUno	online science magazine moebiusonline.eu	5	Articles	1,300 views daily + 33,000 Twitter followers	*6500*	
	http://www.triwu.it/	31	Articles	4000 viewers/month	124,000	
Jon Turney	Twitter account	40	15 tweets + 25 RT	2598 followers		*103,920*
	Blog	3	posts			
ORT	ORT Web portal	8	Articles	50,000 Viewer per month	*400,000*	
	ORT's Facebook	3	Posts	17,805 Followers	*53,415*	
	Nili Moses Bloch's Facebook account	9	Posts	167 friends	*1679*	

Total *3,009,034 Exposures to the NanOpinion articles or posts*

2,564,832 Exposures to NanOpinion tweets

The videos were seen 618 times.

Table 18 Summary of social media (See D7.5)

Channel	Efforts	Results	Advantages	Downside
Facebook	202 posts	• 1,116 fans • More than 1 million impressions • More than 17,500 engagement actions (likes, shares etc.) • Only 0.2% of the actions were negative sentiments	• High ROI (return of investment): huge reach with little to medium effort, especially with a paid campaign • Reach to youngsters • Easy access to hard to reach group • Access to wide variety of countries and languages	• Very little comments or discussions • Need to refer audience to the blog for discussion
Twitter	1121 tweets	• 900 new followers	• Hashtags allow the community to gather around event/project etc. • Spread easily to other languages • Popular in the EU	•Need to structure tweets very carefully •Depends on the ability to follow and retweet other key persons
YouTube	1 video + 2 iNANO video	• 10 more videos of the project were uploaded by others	• Used as a repository	• The advantages of playlists as a way to gather and spread information were not exploited to the full
NanOpinion Blog	32 posts	• More than 300 subscription to the newsletter	• Platform for publishing long texts • Platform for discussions • Newsletter as a way to inform people who are interested	• Elaborated texts should be written • Mostly seen by the people who are already interested (usually not hard to reach groups)

4.2 Project Success Criteria

The table below presents the main project technical objectives of the NanOpinion project for the period (M1–M12).

Table 19 Main project technical objectives of the NanOpinion project for the period (M1–M12)

Technical Objectives from DoW	NanOpinion Work Plan & Contribution	Measure	Period 1 Status
Screen past and ongoing activities in the realm of communication and outreach of nanotechnologies, reviewing and incorporating existing materials and extracting useful content for further usage and development	Compiled list of all projects (CSA, SiS, etc.) that were funded during FP6, FP7 and other European funding schemes for content developed in NT knowledge and dialogue. Categorised the list by topic. Selected best content. Identify outreach project and events to be assessed and find information (where not readily available online).	D1.1 "Content mapping review and exploitation strategy of past FP6/7 and OECD results" D 1.2. Best practise report D1.3 "Report on the current state of debate on nanotechnology" D1.4 "Communication requirements" D3.1 "Repository for enriched content collection"	Achieved
Technical set up and programming of the portal will start in this phase.	Collected partner's needs for the platform. WP leader met with web development professionals to evaluate the feasibility of the partner requests and prepared and launched the call for tenders to design and develop the NanOpinion platform. Collected logos of all partners and the draft texts for the first version of the platform. Collaborated with logo designer to prepare the look and feel of the site Decided (with partner input) how to organize the portal and what content to highlight on the homepage. Purchased the domain of the website (www.nanopinion.eu). The next stage will focus on reporting on all of the events of the project. The first version includes the repository with more than 150 resources on nanotechnologies (developed in WP1).	D2.1 "NANOPINION Platform – version 1" completed	Achieved. The website is constantly being updated
Develop and collate information and education content for the NANOPINION platform,	Defined the basic concept of the Monitoring Station (MS) and Street Lab (SL) and the materials to include.	D2.2 "Moodle environment" D3.1 "Repository	Achieved

Technical Objectives from DoW	NanOpinion Work Plan & Contribution	Measure	Period 1 Status
including a repository of all materials, guides, activities and multi-media from past projects related to Nanotechnologies. And the development of new materials that address the gaps in past materials, incorporate the latest developments in Nanotechnology.	Launched a call for MS designers. Engaged designer for the MS. Coordinated optimal logistics plan for transport of MSs across EU. Trained Third Parties (TP) on construction and running of MSs and SLs. Defined the relationship between MS and the website (interface). Developed Nanopinion discussion game. Prepared an info pack on nanotechnology topics, translated it into 17 languages and uploaded everything to the portal. Identified 16 appropriate teachers from 15 countries to be trained as coordinators in disseminating nanotechnology outreach in their home countries Determined the methods teacher coordinators use to teach about nanotechnology. Developed a mapping report on the integration of Nanotechnologies topics in the various curricula of countries and regions participating in the project. Conducted live teacher training session and set up model for virtual meetings. Developed a Moodle environment for teachers and students Prepared learning modules and teacher training materials	for enriched content collection" D3.2 "Learning modules" D3.3 "Discussion game" D4.1 "School mapping report" D5.1 "Concept of general public outreach and dialogue activities"	
A continuous monitoring and evaluation process will already be implemented from the beginning of the development phase.	Prepared questionnaires to evaluate current opinions with regards to nanotechnology. Designed online debate to be incorporated into the website and for use during the MS. These questionnaires were already translated into some of the 17 languages,	D1.2 "Best practices report" D6.1 "Evaluation strategy plan"	Achieved
Develop an editorial plan to include dissemination and publishing activities	Designed a brief set of guiding principles in the fashion best suited to realising NanOpinion's overarching aims – transparent dialogue and an improved understanding of consumers' and citizens' opinions on nanotechnologies Developed a synchronisation strategy for implementing the disseminating the project	D3.5 "Editorial plan" D7.1 "NANOPINION dissemination and implementation strategy"	Achieved

Technical Objectives from DoW	NanOpinion Work Plan & Contribution	Measure	Period 1 Status
	Microsites, which were coordinated with the NanOpinion portal, were launched for Mundo and Guardian and Moebius. Held round table event in Italy. The event was video recorded and uploaded to the internet. Supplement published in the Guardian on 27 April 2013 then uploaded on the microsite. (Supplements are planned for Mundo in May and for Courrier in June)		

Table 20 presents the main project technical objectives of the NanOpinion project for the period (M13–M30). Details about each objective and the contributions of the NanOpinion partners are described in the individual work package reports and deliverables.

Table 20 Main project technical objectives of the NanOpinion project for the period (M13–M30)

Technical Objectives from DoW	NanOpinion Work Plan & Contribution	Measure	Final Status
Improve the portal to ease the navigation and usability of the webpage since the first version of the website was published of the portal	Launched the the final version of the website by the end of April 2013 – translations of main areas in 18 languages including Hebrew	D2.4 "NANOPINION Platform – Elaborated version	Achieved
Create an arena for a holistic, informative, learning environment, discussing nanotechnology issues, encompassing the key stakeholders of school students and citizens/consumers–a round table for an egalitarian share of information, views and opinions.	Social media channels, blogs, opinion polls Hosted round tables in Germany (Berlin), , UK (London), France and Italy Coordinated and hosted live and web-based teacher trainings. Held a student competition. 114 teams submitted entries.	D3.4, D4.2, D4.3, D4.4, D5.2, D5.3, D6.3	Achieved
Outreach to different target groups of the general public via street labs in public spaces such as high streets and shopping malls, including urban and rural areas as well as reaching marginalised communities and social groups, with the aim of gathering their opinions and attitudes	Hosted more 44 Monitoring Station and Street Lab events in 18 countries.	D5.2, D5.3, D6.3	Achieved
Comprehensively monitor and assess existing knowledge, attitudes, policies, public debates as well as the impact of thematically relevant tools	Conducted live opinion polls on knowledge, expectations, attitudes and concerns on nanotechnologies. The polls were published on media microsites and the portal. More than 2000 questionnaires were completed and the results assessed.	D6.2, D6.3, D6.4	Achieved

Technical Objectives from DoW	NanOpinion Work Plan & Contribution	Measure	Final Status
and programmes	A comprehensive questionnaire in 18 languages was available on the portal.		
Design and develop a social media campaigns	Added social media components to the Portal. Twitter, YouTube and Facebook accounts were opened and partners actively promoted social media. Facebook ads were purchased to increase traffic. Media partner microsites were interlinked with the project social media activities	D2.3, 7.5	Achieved
Promote outreach in schools via the EUN's expansive European network of schools	EUN hosted a workshop for teacher coordinators. Held 12 live national training workshops at partner sites. Held 13 online training sessions.	D3.4, D4.2, D4.3, D4.4, D7.3	Achieved
Analyse knowledge and attitudes comparable by countries, evaluate and assess the impact. Evaluate results, effectiveness	Quantitative and qualitative data analysis according to evaluation strategy	D6.2, D6.3, D6.4	Achieved
Engage school students and multipliers through interactive trainings and competitions.	Coordinated DISTILLED NANOIDEAS interactive contest for school teachers and their students	D4.3, D7.3	Achieved
Disseminate and publish activities as an integral part of the outreach and dialogue activities	Implemented a wide scale media campaign. Realized extensive dissemination activities by non-media partners via websites, blogs and comments in institutional and personal social media accounts. Attended conferences, workshops, courses, summer schools, in which partners delivered presentations and lectures, and participated in discussions.	D7.2, D7.4	Achieved
Feed results and analysis into policy recommendations for further outreach activities.	Policy recommendations presentation and discussion at Scientix annual networking day (in presence of project PO) Policy recommendations workshop and discussion at LET's conference Article in Parliament Magazine Issue 379 Policy recommendations booklet: "Nanotechnologies – A subject for Public Debate), 500 print copies and pdf version downloadable, distribution of copies	D7.3, D7.6	Achieved

4.3 Project Outcomes

The NanOpinion project was designed to deliver new insights and recommendations on the question how to promote a broad social discussion of nanotechnologies. The aim of NanOpinion was to investigate how opinion on this new generation of technologies is shaped, and how to successfully launch public debates and dialogs, especially among hard to reach groups, and enhance education.

In order to do so, NanOpinion launched a multi-channel approach for the engagement of the general public. Street Labs and Monitoring Stations were organised to engage a broad public audience in discussions and dialogs. To target young people, school activities including teacher trainings and online learning mini-courses for students were launched. Via international media channels like newspaper supplements, radio programmes, media micro-sites and videos, the broad public was addressed.

To complement these rather conservative channels, a virtual platform was established and supported by social media integrated tools such as Facebook, Moodle and Twitter. This web gateway compiled a repository of carefully vetted materials on risks and benefits of nanotechnologies, along with a blog, online questionnaire, links to media micro-sites and polls.

By developing and performing all these outreach activities for the general public, a whole range of different organisations supported this work:

- Science centres,
- Education networks,
- Schools and universities,
- Newspapers and media,
- Cultural institutions,
- Research institutes,
- Science communication agencies,
- Governmental institutions.

The project achieved all required activities and implemented even more activities than foreseen in the DoW as summarized again in brief below:

The teacher Moodle offered 60 hours of learning in 11 languages. There were 40,000 page views from 425 users and 890 guests.

The Environmental Impacts of Nanosilver video (http://youtu.be/_eMkwTwzTFI) had 1410 views. The Drug delivery and DNA nanotechnology video (http://youtu.be/k1pCKruO3qo) had 1504 views.

Two simple hands-on and one virtual experiment that can be performed in a teaching laboratory (for schools or science centres) that cover fundamental and applied concepts of nanotechnologies were developed. The hands-on experiment (Controlled drug delivery) was translated into 9 languages and the “Smart” thin films experiment was translated into 6 languages.

The outreach included printed media supplements from four major media outlets and accompanying media microsites. The languages of the media were English (Guardian), French (Courrier), Spanish (el Mundo) and Italian (il solé 24 ore). In addition to print media, 10 radio programmes were hosted and pod casts were made available.
The network of Teacher Coordinators in Europe reached 1556 students in 15European countries and dedicated a total of 265 hours.

A successful social media campaign included Facebook, YouTube and Twitter. The Twitter account ended with 1422 followers. The Facebook page had 1121 likes, 1,050,504 Post impressions and 17,494 engaged users.

For educators, a Moodle platform was prepared to include lesson plans and teacher guides. It was translated into 8 languages and was added to the Scientix translation options. The network of Teacher Coordinators in Europe reached 1.556 students in 15European countries and dedicated a total of 265 hours.

Dialogue -interaction and dialogue included live events such as round tables, panel discussions, workshops, street events. Opinion polls and questionnaires were introduced at all monitoring stations, on the portal, via social media and during other live events. Dialogue also included the NanOpinion student competition and school events in addition to discussions via social media

The student competition received 117 entries from14 countries and included pictures, drawings, poster poems, PPT presentation and videos. The aim was to inspire students & STEM teachers to envisage better future combining state of the art nanoscience, arts and creativity.

A total of 44 events took place in 18 countries and 23 cities. More than 14,000 people took part and more than half completed questionnaires. NanOpinion events took place in city squares, shopping malls, libraries, a zoo, community centres, university campuses and during music festivals, food festivals, film festivals, sports events, art performances, and Christmas events. 83 % of respondents of the online questionnaire could be reached at these events.

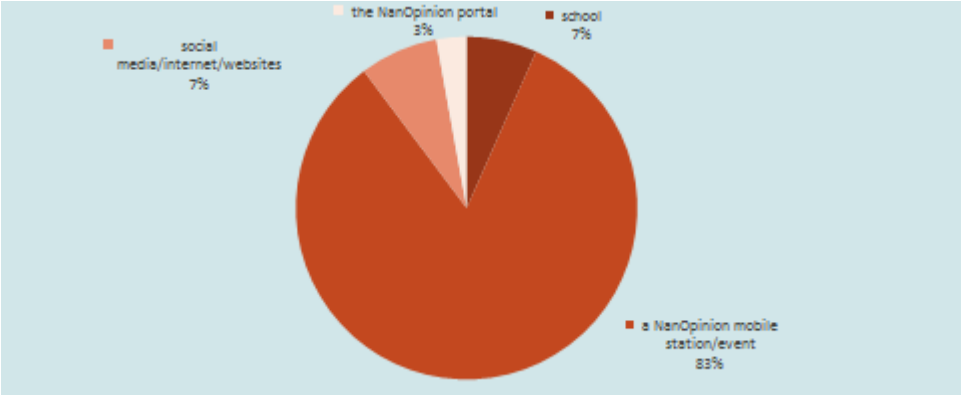


Figure 33 How did respondents find the survey? (See D6.4)

See below the number of respondents per month (peaks can be seen according to monitoring stations activities). The first peak was in May 2013 and is related to the Monitoring Stations in Lithuania. The highest numbers of questionnaires throughout the whole project have been collected in September and October 2013, whereas the extremely successful activities in the Czech Republic and in Aarhus, Denmark are highlighted. The last peak followed in March 2014, where a lot of different activities, were going on, e.g. in Italy and in Romania.

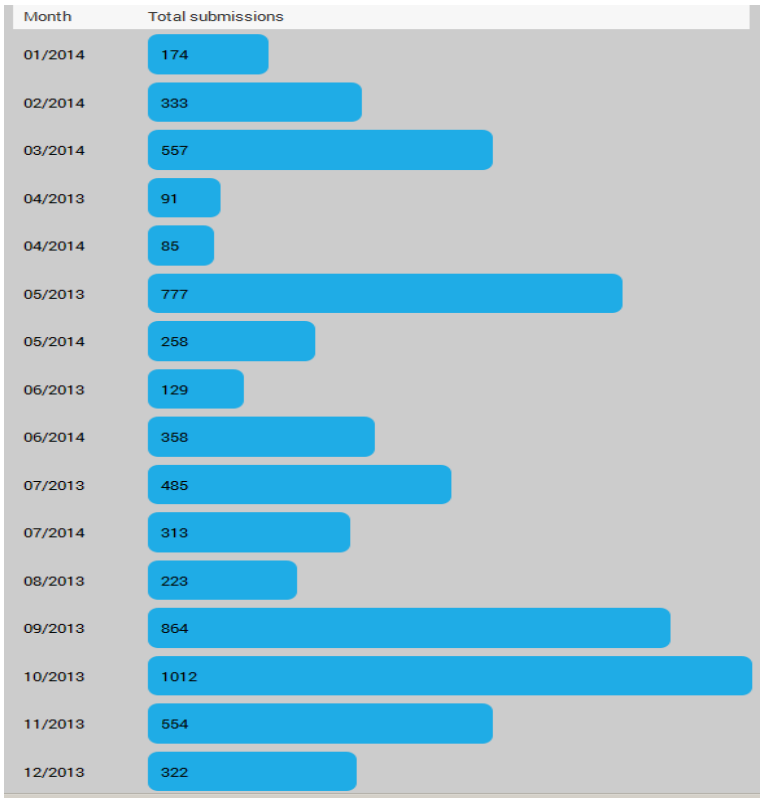


Figure 34 Online questionnaire–monthly statistics (See D6.4)

The numbers of respondents increased continuously during the outreach activities (never stagnated) accordingly. See below the increasing numbers per month. The raw sample size comprises 8308 cases. 233 cases were deleted because they were not members of the target population (i.e. they were younger than 14 years of age). 236 cases gave implausible information and were therefore deleted from the sample. 1060 cases were deleted because of incomplete or missing data in the main questionnaire modules. The statistical analyses were done with the 6779 remaining cases (82%) which provided valid information for the main variables.

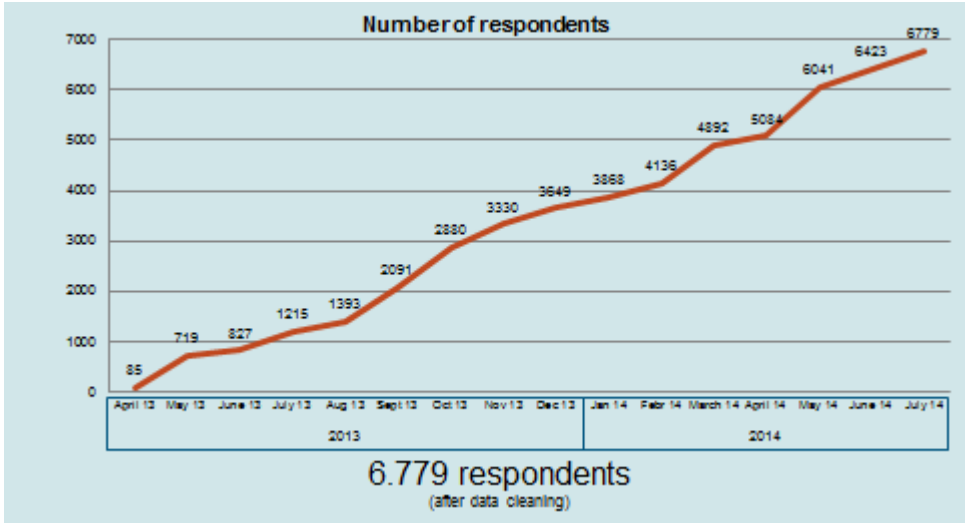


Figure 35 Online questionnaire–Increasing responses (See D6.4) – numbers after data cleaning

In six countries we could reach more than 500 respondents. More detailed analysis could be carried out. Visualised results can be seen at: http://results.nanopinion.eu/ and in the annex of D 6.4.

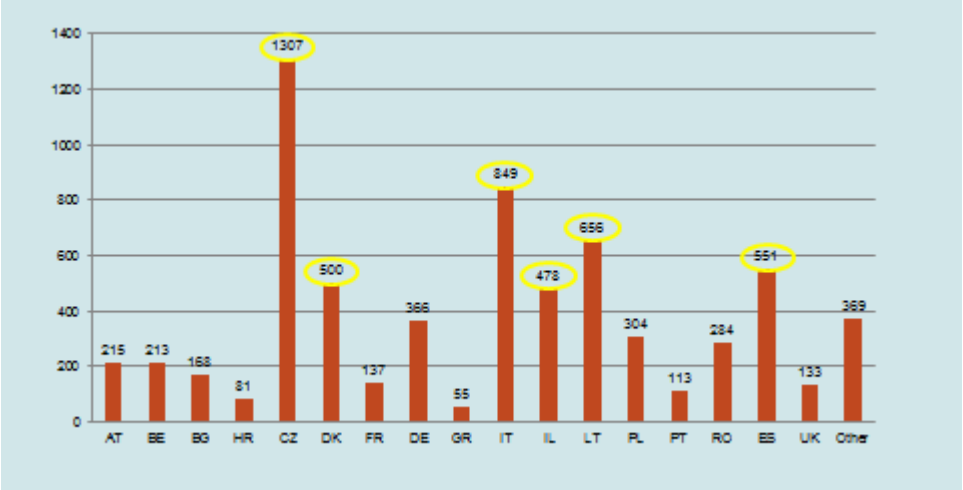


Figure 36 Number of survey respondents by country (See D6.4)

Find below more information on the composition of the sample.

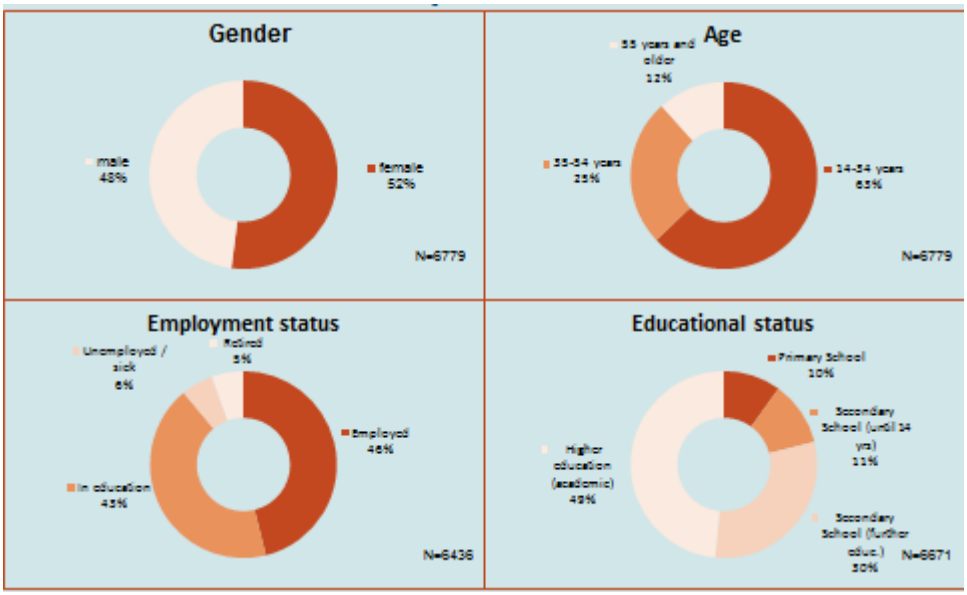


Figure 37 Survey respondents–demographic information (See D6.4)

For additional detailed information and analysis see D6.4.

Did we reach our hard to reach target groups?

- Yes, to a certain extent, because:
  - One fifth of the people we met in the streets had never heard about NT (in some countries up to one third).
  - They stated that they were not interested in science news as their primary source of information.
  - Most of our respondents were met directly at a monitoring station in a location which was not related to science centres or science events.

4.4 Recommendations for the Future

The following recommendations of the NanOpinion project are targeted at policy-makers working at different levels (local, regional, national and European) on various policy agendas.

Based on the activities and outcomes shown above, and all data analysis, the project concluded with a list of recommendations. (For more details, see D7.6 and the policy recommendations booklet).

The NanOpinion project organised a set of activities to monitor opinions of citizens about research and innovation involving nanotechnologies (NT). The opinion monitoring was carried out within outreach and public engagement activities around several strands which were complemented with the development of a public portal, which offers a repository with existing and newly developed educational resources and with other materials and engagement tools. In addition to developing tools and resources, NanOpinion organised communication, outreach, dialogue and engagement activities (workshops, Monitoring Stations, Street Labs) (also see D6.2. and D6.3.), formal education actions and monitoring outreach activities (a survey questionnaire in 17 languages, opinion polls, monitoring station and Street Lab). All these actions resulted in data analysis, deliverables and reports that allow drawing a large range of recommendations around three axes:

1. The public expectation regarding research; regulation and social implications of NT
2. Future communication, outreach, and public engagement methodologies for sustainable dialogue with citizens from European and associated countries
3. Future potential and need for NT education at the high school level across Europe

1. The public expectation regarding research; regulation and social implications of NT

Inclusion of citizens in the definition of the policy agenda of NT research

- Policy-makers and decision makers at various levels should make sure more time and money is invested to engage and include people in the definition of the policy agenda on NT research. Special attention should be given to target groups affected by the NT research field or innovation through an increased dialogue with CSOs.
- Knowledge must be created at an early stage among citizens, starting by educating young people.
- Industries should improve their communication strategies as most consumers are concerned about the way industries communicate about the process and outcomes of the production of NT products.
- At the level of policy-makers, it is recommended that policy-making is done by taking advantage of the wisdom of the crowd. In other words, there are certain scenarios in which knowledge gathered from the many can exceed the accuracy or completeness of that provided by the expert few. These complementary approaches have overall the aim to improve the democratic validation.
- More funding is necessary to facilitate dialogue with the general public on regulation and social implications.

The current awareness of citizens in Europe towards NT and related policy-recommendations

- People have to be encouraged and empowered to feel confident to build and express their own opinion and to influence the directions of Research and Innovation.
- People should be addressed by their understanding of Ethical, Legal and Social aspects of NT according to their experience knowledge and common sense.

The current knowledge of citizens in Europe towards NT and related policy-recommendations

- Informal education settings and school systems need to play an essential role to raise awareness on NT towards the general public.
- Outreach and engagement activities that target all citizens with a special attention to less well-educated parts of the population need to be organised.

Inclusion and engagement of citizens in NT research and innovation processes

- Tools that facilitate participation of citizens (e.g. discussion games) should be developed and methodologies to set the research agenda should be designed. These tools should facilitate the collection of qualitative data about citizens' opinions for a more in depth understanding.
- Significant budget and time should be invested to engage hard to reach citizens in activities organised in public places where they are spending time.
- Specific dedicated activities for females or elderly (hard to reach group) should be designed in order to engage them into the public dialogue.

Expectation for labelling of nanoproducts

- People should be informed if NT is applied in a product, application or treatment. Different levels of information shall be provided from simple seals to comprehensive sources for further information.

Expectation for independent testing of nanoproducts

- Authorities and regulation agencies should prove their trustworthiness.
- Approved labels by independent institutions should be applied for consumer products with information on their functions, properties, price, availability and impact.

Include citizens in the debate related to societal, public health and environmental implications related to NT

- NT and food needs to be addressed carefully when it comes to public engagement.
- Exposures of NT and nanoparticles related to the human body have to be treated with special care.
- Long term studies on environmental and health impacts have to be undertaken and information must be published.
- Scepticism has to be considered seriously and addressed regularly when environmental aspects, sustainability, and societal aspects (e.g. affordability) are concerned.

Addressing NT Responsible Research and Innovation (RRI)

- The various stakeholders concerned by NT Research and Innovation must be engaged with a combination of participatory governance, reflections, inquiry-based education, opinion forming, decision-making and participatory techniques.
- Young people must be better introduced to RRI and teachers should be trained to teach all aspects of NT (ethical, legal, social and scientific).
- The general public should be engaged in an empowering way to better involve them in all aspects of NT debates and outreach activities. The way their view can have an impact on the shape of future RRI policies should be highlighted.
- Researchers and industries should rely on facilitators like science communicators to engage both policy-makers and the general public in the NT research in a responsible way.
- It is essential to include the general public in the process and outcome of Research and Innovation. This way, labelling, regulation and information provided to the public on NT products will be developed taking into account societal values.

2. Future communication, outreach, public engagement methodologies for sustainable dialogue with citizens from European and associated countries

Communication methodologies for future outreach activities on NT

- Since diverse target groups prefer diverging communication channels, different media and channels for further information have to be provided to ensure a broad communication that reaches all targeted people.
- Aiming for information, reflection and awareness of NT, a neutral position of the communicators and materials that provide balanced information is needed.
- Balanced (including risks and benefit) information has to be provided on official sites to raise people's interest and their ability to receptiveness in nanotechnology.

- To reach the broad general public, reliable but easily accessible information in mass media is needed.
- Face-to-face contacts and participation in interactive and discussion formats like nanOpinion workshops should be prioritise to give citizens the opportunity to build an informed opinion.

Social media tools for future outreach and communication activities on NT

- Social media channels could be used to provide sound and balanced information provided by labelled serious sources. "Nano-App" graphically simple, user-friendly, but regularly updated device with accurate and actual information for continuous usage could be implemented.
- It is recommended to create an overview of social media infrastructures for electronic public debates in the targeted countries.

Actions recommended on communication, outreach and engagement activities related to NT

- Emphasise debate and collaborative learning to help develop opinions.
- More investment and support to produce videos and infographics materials to disseminate in various channels
- Provide more reliable and easily accessible information in mass media (TV, daily newspaper…) and social media
- Investment in permanent network of stakeholders engaging citizens in live dialogue and reflection activities on research and innovation agenda
- To trigger debate and collaborative learning to help citizens form their opinion
- Invest in the engagement of hard to reach citizens through dialogues in venues were they normally spend time for daily activities (malls, parks, libraries, waiting areas in hospitals...).
- To invest in publicly engaged science, a collaborative participatory research.

3. Future potential and need for NT education in high school level across Europe

Aim of NT education at secondary level

- The outcome of NT education should be that students understand how NT is relevant to society.
- NT education should be based on an interdisciplinary approach involving peer-to-peer and Inquiry Based Science Education methods.
- At secondary school level it is appropriate to focus on NT in the three main areas of science, in chemistry, physics and biology.
- Funding and time should be dedicated to the development of teaching materials for physics.
- The possibility to tackle NT in non-scientific topics is recommended, especially to form the soft skills of students.
- Bringing current and relevant research to the classroom should be supported to as it is a motivating factor that can bring young people closer to science.
- NT education at secondary level should inspire young people toward employment opportunities within the scientific research field and European industry area.

The main challenges for NT teaching in Europe and related recommendations

- Teachers should be trained on the relevance of NT subject not only for young people but for the general public/consumers.
- Stakeholders within the NT research field should be encouraged to help bring more interest toward the NT research area.
- Policy-makers should help bring NT into the school system by ensuring teachers training on NT. This effort should be ongoing and make sure the teachings are up to date on the newest developments in the NT research field.

Recommendations to ensure future nanotechnology education projects reach schools efficiently

- STEM teachers should be encouraged in their voluntary participation in NT education initiatives with rewards, certificates, money for consumables, training and resources.
- Teacher training should be supported with collaboration with NT science researchers to allow direct insight into the status of current research.
- Policy-makers should support the NT approach by allowing more flexible curricula and in a way that allows teachers to implement NT and in a creative way in their teaching.

Recommendations to funding programmers to support successful secondary school NT activities

- Funding programmers should support teachers training opportunities and make sure funded projects integrate already existing teacher network at European, national and regional levels.
- It is important to support financially and formally (special certificate, titles) teachers willing to integrate extra curricula lessons and activities.
- NT education activities should also consider reaching the general public/consumers with assignments and workshops in mixt teams (children, grown-ups and experts) to investigate different subjects together.
- Funds should be invested to support collaboration between industries, academia and the education sector to provide activities and tools for schools.
- Policy-makers can support secondary school level participation through funds based on the requirements mentioned above and/or through tax incentives to institutions and industries that support NT educational activities. They should also have a key role to facilitate participatory governance.

Actions recommended on potential and need for NT education at secondary school level across Europe

- Create a European NT online hub with e-courses and e-activities with support for learning and online moderation.
- Invest in the collaboration between education, industry, research, academia, policy-makers and CSO.
- Focus on school activities that combine hands-on experiments, multimedia, school competitions, and tools for reflection and channels for participatory governance.

4.5 Conclusions

NanOpinion, which began in May 2012, was a 30 month project to investigate how opinion on this new generation of technologies is shaped, and how to inform public debate, especially among hard to reach groups, and enhance education. The results inform recommendations about future discussion and regulation of NT.

The project included surveys, social media, school activities and public engagement activities built around specially designed street labs and monitoring stations. Our analysis draws on 8,330 questionnaires, as well as data from workshops attached to the Street Labs, and reports from teachers and monitoring stations. The project also built a web gateway to a repository of carefully vetted materials on risks and benefits of NT, along with a blog, online questionnaire, links to media microsites and polls. And other strands of the project developed new materials for use in schools, including online curriculum modules and virtual experiments, and ran teachers' workshops. This effort yielded a wealth of data to help plan future public engagement on NT and manage their regulation.

The initial message presented in this report is based on NanOpinion results from the outreach and engagement activities (Monitoring Stations and Street Labs) showing the attitude of people towards NT, this way demonstrating the urgent need for more public and civil engagement in the NT topic.

NanOpinion messages shaped for policy-makers in this report are formed as recommendations on the need and the models to engage, inform, educate and engage citizens on NT.

Public engagement in NT will serve policies leading to better competitiveness, attractiveness of regions including the environmental dimension. It will also enable job creation. In order to create good recommendations key stakeholders should be engaged in the formulation process through group discussions at workshops or conferences.

NanOpinion has been a very good pilot to test a methodology to facilitate participatory governance of NT. The reflections have also focused on what is the right impact of innovation. They are extremely diverse, and feature prominently in EU research strategy. Yet few citizens know much about them. The NanOpinion project delivered new insights and recommendations on this question.

The recommendations stress the importance of continuity of projects like NanOpinion and similar activities to pursue the outreach and engagement efforts. The recommendations are thus focusing on what policy-makers can do to support NT outreach activities to the general public.

In the case of NanOpinion, it can be summarised as:

- Funding to maintain the platform.
- Funding for having the NanOpinion Monitoring Stations to continue travelling, stimulating introductory dialogues and participatory workshops and collecting data of people's opinion on NT.
- Funds for translation of educational resources and for new outreach resources and materials.

Hard to reach citizens respond to introductory dialogues in venues were they normally spend time (malls, parks, libraries, waiting areas in hospitals, airports, or at work). An eye-catching stand helps draw people in, but give-aways and additional information are also essential. Facilitators are important. Their number, background, attitude, performance and understanding of the target group are decisive.

Education policies must support a more flexible STEM curriculum, and support teachers with training, and with access to NT science researchers. Teachers need a minimum background and training in NT. Rewards, certificates, and money for consumables can all help. Formal education serves well to launch public engagement if materials are adapted to curriculum needs.

The experience from the NanOpinion project suggests there are many opportunities for improving stakeholder involvement in discussion of NT in the future. The public and consumers have to be engaged in the Research and Innovation process, and in the debates on regulation, social implications and labelling. We need regular monitoring

of people's opinion as NT develops. Public concerns include wishing for assurance that there can be an NT exit strategy.

We know that reflective and consultation methodologies help citizens form their opinion, and can inform policy-makers and help design future programmes. They facilitate real participation in the Research and Innovation system. Public engagement activities prompt reflection and seeking more information, and thus are a good start to public discussions. They need time and money to organize. Participants also need time to focus on the topic.

Public engagement should thus not only offer punctual consultation activities but rather continuing programmes. It needs a sustainable information and dialogue hub and ongoing public activities.

5. USE OF DISSEMINATION OF FOREGROUND

Template A1: list of scientific (peer reviewed) publications, starting with the most important ones

NO.	Title	Main author	Title of the periodical or the series	Number, date or frequency	Publisher	Place of publication	Year of publication	Relevant pages	Permanent identifiers[3] (if available)	Is/Will open access[4] provided to this publication?
1	***N/A***									
2										
3										

Section B (Confidential[5] or public: confidential information to be marked clearly)

Part B1

[3] A permanent identifier should be a persistent link to the published version full text if open access or abstract if article is pay per view) or to the final manuscript accepted for publication (link to article in repository).
[4] Open Access is defined as free of charge access for anyone via Internet. Please answer "yes" if the open access to the publication is already established and also if the embargo period for open access is not yet over but you intend to establish open access afterwards.
[5] Note to be confused with the "EU CONFIDENTIAL" classification for some security research projects.

Template A2: list of dissemination activities double check the numbers, make sure they are corresponding								
NO.	Type of activities[6]	Main leader	Title	Date	Place	Type of audience[7]	Size of audience	Countries addressed
1	Articles – I. supplement „Future of food“	Guardian	Nanotechnology offers small food for thought	27.3.2013	The Guardian, http://www.guardian.co.uk/what-is-nano/nanotechnology-small-food-for-thought	General public	Circ. 340,000 audience 1.2 million	UK, global
2	Articles – I. supplement „Future of food“	Guardian	What you need to know about nano-food	27.3.2013	The Guardian, http://www.guardian.co.uk/what-is-nano/what-you-need-know-about-nano-food	General public	Circ. 340,000 audience 1.2 million	UK, global
3	Articles – I. supplement „Future of food“	Guardian	More than a question of taste	27.3.2013	The Guardian, http://www.guardian.co.uk/what-is-nano/nanotechnology-food-more-than-	General public	Circ. 340,000 audience 1.2 million	UK, global

[6] A drop down list allows choosing the dissemination activity: publications, conferences, workshops, web, press releases, flyers, articles published in the popular press, videos, media briefings, presentations, exhibitions, thesis, interviews, films, TV clips, posters, Other.

[7] A drop down list allows choosing the type of public: Scientific Community (higher education, Research), Industry, Civil Society, Policy makers, Medias ('multiple choices' is possible.

					question-taste			
4	Articles – I. supplement „Future of food“	Guardian	Nanofood: the global picture – infographic	27.3.2013	The Guardian, http://www.guardian.co.uk/what-is-nano/graphic/nanotechnology-the-global-picture-infographic	General public	Circ. 340,000 audience 1.2 million	UK, global
5	Articles – II. supplement „Nanomedicine“	Guardian	Small science, big future	28.3.2014	The Guardian, http://www.theguardian.com/what-is-nano/small-science-big-future	General public	Circ. 340,000 audience 1.2 million	UK, global
6	Articles – II. supplement „Nanomedicine	Guardian	What on earth is this thing and how exactly can it help me?	28.3.2014	The Guardian, http://www.theguardian.com/what-is-nano/what-is-nano-and-how-can-it-help-me	General public	Circ. 340,000 audience 1.2 million	UK, global
7	Articles – II. supplement „Nanomedicine	Guardian	The life-saving future of medicine		The Guardian, http://www.theguardian.com/what-is-nano/nano-and-the-life-saving-future-of-medicine	General public	Circ. 340,000 audience 1.2 million	UK, global

8	Articles – II. supplement „Nanomedicine	Guardian	What are the risks of nanotech?		The Guardian, http://www.theguardian.com/what-is-nano/what-are-the-risks-of-nanotech	General public	Circ. 340,000 audience 1.2 million	UK, global
9	Survey	Guardian	Survey on I.supplement Future of Foodsee	29.4.–6.5.2013	London, The Guardian	General public	551 respond.	UK
10	Web microsite	Guardian	„What is nano“ – 11 articles		http://www.theguardian.com/what-is-nano	General public – civil society	Average 5,702 views per a month	UK, global
11	Web blog	Guardian	„Small world“ – 40 blog posts – see Annex 2	Since April 2013	http://www.theguardian.com/science/small-world	General public – civil society	Average 9,575 views per a month	UK, global
12	Panel discussion	Guardian	How will we continue to feed ourselves	9.10.2013	London	General public – civil society	50 part.	UK, EU
13	Poll survey	Guardian	Displaying questions and collecting ansers for nOp month poll	May 2013–March 2104	http://www.theguardian.com/what-is-nano	General public – civil society	413 votes	UK, global
15	Articles - (pre-campaign period)	Mundo	Una crema contra el cáncer de piel	14.7.2012	Madrid, El Mundo	General public	1,150,000	ES, South America
16	Articles - (pre-campaign period)	Mundo	El cerebro del mayor ojo cósmico’	3.9.2012	Madrid, El Mundo	General public	1,150,000	ES, South America
17	Articles - (pre-campaign period)	Mundo	El periódico electrónico y enrollable llegará en 2015	10.12.2012	Madrid, El Mundo	General public	1,150,000	ES, South America
18	Articles - (pre-campaign period)	Mundo	Un diminuto laboratorio portátil debajo de la piel	20.3.2012	Madrid, El Mundo	General public	1,150,000	ES, South America
19	Articles – web- pre-campaign	Mundo	¿Sabías que el oro puede ser un imán?	26.7.2012	www.elmundo.es/elmundo/2012/07/26/nanotecnologia/1343313168.html	General public		ES, South America
20	Articles – web- pre-campaign	Mundo	Dispositivos electrónicos que se desintegran en el cuerpo	27.9.2012	www.elmundo.es/elmundo/2012/09/27/	General public		ES, South America

					ciencia/1348769484.html			
21	Articles – web- pre-campaign	Mundo	El blindaje de las nuevas nucleares	1.10.2012	www.elmundo.es/elmundo/2012/10/01/castillayleon/1349077292.html	General public		ES, South America
22	Articles – web- pre-campaign	Mundo	El grafeno multiplica la cantidad de electricidad que se obtiene de la luz	25.2.2012	http://www.elmundo.es/elmundo/2013/02/25/ciencia/1361816560.html	General public		ES, South America
23	Articles – I. printed supplement	Mundo	La revolución del grafeno	28.5.2013	Madrid, El Mundo	General public	1,150,000	ES, South America
24	Articles – I. printed supplement	Mundo	Electrónica flexible y de muy bajo coste en cada rincón	28.5.2013	Madrid, El Mundo	General public	1,150,000	ES, South America
25	Articles – I. printed supplement	Mundo	Del laboratorio a nuestra vida cotidiana	28.5.2013	Madrid, El Mundo	General public	1,150,000	ES, South America
26	Articles – I. printed supplement	Mundo	La fascinante danza molecular en nuestras pantallas electrónicas	28.5.2013	Madrid, El Mundo	General public	1,150,000	ES, South America
27	Articles – II. printed supplement	Mundo	Francotiradores de la medicina	25.3.2014	Madrid, El Mundo	General public	1,150,000	ES, South America
28	Articles – II. printed supplement	Mundo	Nanopartículas de oro para controlar coágulos en la sangre	25.3. 2014	Madrid, El Mundo	General public	1,150,000	ES, South America
29	Articles – II. printed supplement	Mundo	La revolución nanotecnológica en la medicina del futuro	25.3.2014	Madrid, El Mundo	General public	1,150,000	ES, South America
30	Web microsite	Mundo	Nanotecnología microsite – 54 articles	April 2013 – March 2014	http://www.elmundo.es/ciencia/nanotecnologia.html	General public	Average 27,438 views per a month (April 2013 not included)	ES, South America
31	Poll survey on microsite	Mundo	Displaying questions and collecting answers for nOp month poll	May 2013-March 2104	http://www.elmundo.es/ciencia/nanotecnologia.html	General public	513 votes	ES, South America
32	Web microsite	TCU	NanOpinion micro-site on Moebiusonline –	Since October	http://www.	Scientific	1,300	IT

			articles, videos, nOp monthly poll questions	2012	moebiusonline.eu/fuoriionda/nanopinion/nanopinion_index.shtml	community – General public	views daily, 33,000 Twitter followers	
33	Web TV	TCU	NanOpinion micro-site on web TV Trivu	October 2012	http://www.triwu.it/sezione-nanotecnologie/-/asset_publisher/E9rU/content/il-progetto-europeo-nanopinion	Industry – Scientific Community		IT
34	Article	TCU	„La guerra dei brevetti nanotech“ by Francesca Cerati	7.4.2013	Nova/Il sole24ore, http://www.ilsole24ore.com/art/tecnologie/2013-04-05/guerra-brevetti-nanotech-193203.shtml?uuid=Ab6UQgkH, www.moebiusonline.eu, www.triwu.it	Industry – Scientific Community	400,000 copies	IT
35	Article	TCU	„Il nanopasto che sfamerà il mondo“ by Francesca Cerati	16.6.2013	Nova/Il sole24ore, http://www.ilsole24ore.com/art/tecnologie/2013-06-16/nanopasto-sfamera-mondo-082605.shtml	Industry – Scientific Community	400,000 copies	IT

					, www.moebiusonline.eu, www.triwu.it			
36	Article	TCU	„Nanoavanguardia: la sicurezza è a prova di futuro?" by Francesca Cerati	1.12.2013		Industry – Scientific Community	400,000 copies	IT
37	Video – round table	TCU	Nanotecnologia – open source?	13.3.2013	http://www.moebiusonline.eu/fuorionda/nanopinion/nanotecnologie_open_source.shtml	Scientific communita – General public		IT
38	Video	TCU	Il Progetto Europeo NanOpinion, Milan MS event video	June 2013	www.triwu.it/sezione-nanotecnologie/-/asset_publisher/E9rU/content/il-progetto-europeo-nanopinion	Scientific community – Industry – General public		IT
39	Video	TCU	Nanotecnologie, dite la vostra, Milan MS event	June 2013	http://vimeo.com/69004009	Scientific community – Industry – General public		IT
40	Video	TCU	NANOTECNOLOGIE ALLA RIBALTA, Video on new ways of producing nano-particles	11.12.2013	www.triwu.it/sezione-nanotecnologie/-/asset_publisher/E9rU/content/nanotecnologie-alla-ribalta	Scientific community – Industry – General public		IT
41	Video	TCU	MS event Roma	28.1.2013	www.triwu.it/sezione-nanotecnologie/-/asset_publis	Scientific community – Industry – General public		IT

					her/E9rU/content/la-monitoring-station-di-nanopinion-arriva-a-roma			
42	Video – interview	TCU	Video on a new application of Graphene	3.3.2013	www.triwu.it/sezione-nanotecnologie/-/asset_publisher/E9rU/content/grafene-e-onde-terahertz	Scientific community – Industry – General public		IT
43	Radio broadcast	TCU	Moebius broadcast on NT and textile	18.1.2014	www.moebiusonline.eu/trasmissioni/140118trasmissione.shtml	Scientific community – Industry – General public		IT
44	Radio broadcast	TCU	Various Radio 24 stations – dissemin. of nOp monthly poll questions	continuously		General public	Radio24 audience	IT
45	Article	TCU	Le nano – innovazionici cambieramo la vita	11.5.2014	Nova – il sole 24	General public	400,000	IT
46	Article	TCU	Nanoparticelle trasparenti	22.6.2014	http://nova.ilsole24ore.com/progetti/nanoparticelle-trasparenti			IT
47	Article	TCU	Batterie ricaricabili giusto il tempo di un caffè	27.7.2014	http://nova.ilsole24ore.com/frontiere/batterie-ricaricabili-il-tempo-di-un-caffe			IT
48	Video/web TV	TCU	NANOTECHNOLOGY IS COMING	23.9.2014	http://www.triwu.it			IT
49	Video/web TV	TCU	TERAHERTZ AND GRAPHENE: SECURITY REVOLUTION	25.9.2014	http://www.triwu.it			IT

50	Radio broadcast	TCU	Nanotecnologie e terapie per le distrofie muscolari	12.7.2014	www.moebiusonline.eu/trasmissioni/140118trasmissione.shtml	General public	150,000 weekly listeners	IT
51	Radio broadcast	TCU	Nanotecnologie e antibiotici	19.7.2014	http://www.moebiusonline.eu/trasmissioni/140719trasmissione.shtml			IT
52	Radio broadcast	TCU	Nanomondi: tecnologie inspirate alla natura	16.9.2014	http://www.moebiusonline.eu/fuorionda/nanopinion/nanomondi.shtml			IT
53	Article	Courrier	Déjà dans l'Antiquité...	4.7.2013	Le Courier, http://www.courrierinternational.com/article/2013/07/04/deja-dans-l-antiquite	Scientific community – General public	950,000	FR, BE, LU, CH
54	Article	Courrier	Il nous faut des garde-fous	4.7.2013	http://www.courrierinternational.com/article/2013/07/04/il-nous-faut-des-garde-fous	Scientific community – General public	950,000	FR, BE, LU, CH
55	Article	Courrier	Nanotechnologie : les découvreurs	4.7.2013	http://www.courrierinternational.com/article/2013/07/04/nanotechnologie-les-decouvreurs	Scientific community – General public	950,000	FR, BE, LU, CH
56	Article	Courrier	Vous reprendrez bien un peu de nanopurée ?	4.7.2013	http://www.courrierintern			FR, BE, LU, CH

					ational.com/article/2013/07/04/vous-reprendrez-bien-un-peu-de-nanopuree			
57	Web microsite	Courrier	Tout-est-nano-dans-notre-vie	4.7.2013	www.courrierinternational.com/dossier/2013/07/04/tout-est-nano-dans-otre-vie	Scientific community – General public		FR, BE, LU, CH
58	Article	Courrier	Au cœur des plantes	12.6.2014	http://www.courrierinternational.com/article/2014/06/12/au-coeur-des-plantes	Scientific community – General public	950,000	FR, BE, LU, CH
59	Article	Courrier	Déplacements magnétiques	12.6.2014	http://www.courrierinternational.com/article/2014/06/12/deplacements-magnetiques	Scientific community – General public	950,000	FR, BE, LU, CH
60	Article	Courrier	http://www.courrierinternational.com/article/2014/06/12/miraculeux-graphene	12.6.2014	http://www.courrierinternational.com/article/2013/07/04/nanotechnologie-les-decouvreurs	Scientific community – General public	950,000	FR, BE, LU, CH
61	Blog	Turney	What is nanotechnology and why does it divide public opinion?	11.10.2013	http://blog.britishcouncil.org/2013/10/11/what-is-nanotechnology-and-why-does-it-divide-	General Public – Civil society		UK, EU

					public-opinion			
62	Publication	ZSI	NanOpinion brochure, poster and card template for use in all languages	2012	Vienna, Indesign templates at google plus group	General public – Civil society - Media	15-20.000	EU
63	Blog	ZSI	Kick-off meeting	26.5.2012	https://technikundwissen.zsi.at	Scientific community – Civil society	1100	AT, EU
64	Blog	ZSI	nOp 2nd consortium meeting in London	13.11.2012	https://technikundwissen.zsi.at	Scientific community – Civil society		AT, EU
65	Blog	ZSI	nOp on tour and online – jetzt auf deutsch!	27.6.2013	https://technikundwissen.zsi.at	Scientific community – Civil society		AT, EU
66	Blog	ZSI	nOp presented at Forschungsfest Vienna	16.10.2013	https://technikundwissen.zsi.at	Scientific community – Civil society		AT, EU
67	Blog	ZSI	nOp consortium meeting Tel Aviv	26.11.2013	https://technikundwissen.zsi.at	Scientific community – Civil society		AT, EU
68	Blog	ZSI	nOp in action	2.12.2013	https://technikundwissen.zsi.at	Scientific community – Civil society		AT, EU
69	nOp portal blog	ZSI	How do people get the information to form their own opinion on nanotechnologies?	31.1.2014	http://nanopinion.eu/de/blog	General public	Portal visitors	AT, EU, internet
70	nOp portal blog	ZSI	Preliminary results of the analysis of the public opinion on our future with nanotechnologies	13.12.2013	http://nanopinion.eu/de/blog	General public	Portal visitors	AT, EU, internet
71	nOp portal blog	ZSI	More than 2000 questionnaires answered within the NanOpinion Research Project	23.9.2013	http://nanopinion.eu/de/blog	General public	Portal visitors	AT, EU, internet
72	nOp portal blog	ZSI	Lessons learned from the first Mobile Stations of NanOpinion	16.7.2013	http://nanopinion.eu/de/blog	General public	Portal visitors	AT, EU, internet
73	Presentation	ZSI	nOp presentation and discussion in Master course „Social Innovation“	17.2.2014	Donau Uni Krems	Scientific community	15	AT
74	Presentation	ZSI	Euro-Nanoforum Dublin – Education workshop	20.6.2013	Dublin Ireland	Scientific community	70	IR

75	Presentation	ZSI	Communicating Nanotechnologies	6.9.2012	Nancy, France	Scientific community	120	FR
76	Presentation	ZSI	PCST 2012 12th International Public Communication of Science and Technology Conference	18-20.4.2012	Florence	Scientific community	60	IT
77	Presentation	ZSI	Fourth Annual Conference of the Society for the Study of Nanoscience and Emerging Technologies	22-25.10.2012	Twente	Scientific community	80	NL
78	Newsletter	ZSI	Nanoday Deutsches Museum	25.6.2012	Munich	Students, teachers	300	DE
79	Newsletter	ZSI	7 infos on nOp and its events incl. invitations to the events – ZSI e-newsletter	November 2012- March 2014	https://www.zsi.at/presse/zsi_ejournal	Scientific community – Civil society - Media		AT, EU
81	Newsletter	ZSI	Info on nOp Austrian school competition	February 2014	Austrian Science Centre Network	Scientific community		AT
82	Newsletter	ZSI	Info on Guardian nano blog – Institute of Nanotechnology newsletter – enabled by ZSI - IoN newsletter	July 2013	www.nano.org.uk	Scientific community		UK, EU
83	Newsletter	ZSI	Info on Guardian panel discussion on food – enabled by ZSI – IoN newsletter	September 2013	www.nano.org.uk	Scientific. community		UK, EU
84	Info- press release	ZSI	Press release on MS event	11.4.2014	Press release sent to Austrian press agencies	Media		AT
85	Promo	ZSI	Logo, posters, cards					EU
86	Web info	ZSI	Mushroom design – enabled by ZSI	December 2012	www.postlerferguson.com/design/nanopinionnanopod	General public		EU
87	Publication	ZSI	NanOpinion brochure, poster and card template for use in all languages	2012	Vienna, Indesign templates at google plus group	General public – Civil society - Media	15-20.000	EU
89	Publications, articles	ZSI	Nanotechnologie als Hoffnungsfeld oder rätselhafte Welt	May 2014	https://www.zsi.at/page/40/attach/0_ZSI_eJournal_	Sc. community, Civil society	1,000	AT, DE

					Mai_2014.pdf			
90	Publications, articles	ZSI	Nanotechnologies – taking discussion on to the street	September 2014	The Parliament, issue 397 https://www.theparliamentmagazine.eu/articles/magazines/issue-397-22-september-2014	General public, Policy makers		EU
91	Publications, articles	ZSI	Nanotechnologies. A Subject for Public Debate	October 2014	Vienna	General public		EU
92	Publications, articles	ZSI	nOp mentioned in: Report on best practices in NT education .., EU project nanoEIS	October 2014	ORT, Israel	Scientific community, education	1,000	EU
93	Blog	ZSI	NanOpinion in the Wiener Lugner City: Friday, 25. and Saturday, 26. April 2014	22.4.2014	https://technikundwissen.zsi.at/?p=557	Scient. Community – Civil society	1,100	AT,EU
94	Blog	ZSI	Impressions of the NanOpinion event in Vienna	6.5.2014	https://technikundwissen.zsi.at/?p=570	Scient. Community – Civil society		AT,EU
95	Blog	ZSI	Are you in favour of developing nanosensors to detect illnesses in its initial stages?	12.5.2014	https://technikundwissen.zsi.at/?p=585			AT,EU
96	Blog	ZSI	NanOpinion at EC open day	20.5.2014	https://technikundwissen.zsi.at/?p=593			AT,EU
97	Blog	ZSI	Students express nanotechnology by works of art – view the results!	21.5.2014	https://technikundwissen.zsi.at/?p=600			AT,EU
98	Blog	ZSI	ZSI presenting at the NTA6-TA14, Vienna	3.6.2014	https://technikundwissen.zsi.at/?p=616			AT,EU
99	Blog	ZSI	Nanotechnology – responsible research and innovation for the 21st century	3.6.2014	https://technikundwissen.zsi.at/?p=621			AT,EU

100	Blog	ZSI	NanOpinion in Barcelona	18.6.2014	https://technikundwissen.zsi.at/?p=629			AT,EU
101	Blog	ZSI	Lessons learned from the first Mobile Stations of NanOpinion	16.7.2013	http://nanopinion.eu/de/blog	General public	Portal visitors	AT, EU
102	Blog	ZSI	nOp presenting Policy Recommendations and results at LET´S conf.	26.8.2014	https://technikundwissen.zsi.at/?p=659	Scient.community – Civil society	1,100	AT, EU
103	Blog	ZSI	NanOpinion presenting final results	22.10.2014	https://technikundwissen.zsi.at/?p=721	Scient.community – Civil society		AT,EU
104	Blog	ZSI	NanOpinion – promoting broad social discussion, but how?	14.10.2014	https://technikundwissen.zsi.at/?p=692	Sc. Community-civil society		AT, EU
106	Presentation	ZSI	Ecsite annual conference	24.5.2014	Brussels	Sc. Community Civil society		EU
107	Presentation	ZSI	Scientix workshop	5.9.2014	Brussels	Teachers		EU
108	Presentation, workshop	ZSI	LET´S conference	30.92014	Bologna	Sc. Community, industry	35	EU
109	press release	ZSI	Info on nOp workshop at LET´S conf.	September 2014	Bologna	Sc. community		EU
110	Video	press release	Video on MS Lugner City	25.-26.4.2014	http://vimeo.com/94324680, https://www.youtube.com/watch?v=3ssonbIqkLc	General public		AT
111	Video	ZSI	NanOpinion video	17.10.2014	https://www.youtube.com/watch?v=u2ADkYU3B5c	General public		EU
112	Web info	ORT	nOp info on ORT portal	29.6.2012	http://ort.org.il	Scientific community - Civil society		IL
113	Web info	ORT	Info on teachers seminar	October 2013	http://ort.org.il	Scientific community		IL
114	Presentation	ORT	Presentation of the NanOpinion Project in a symposium in the framework of the	17.3.2013	IPN, Kiel, Germany	Scientific community - Civil		DE, IL

			Minerva-Weizmann Group			society – Policy makers		
115	Presentation	ORT	Presentation at 4th International Nanotechnology Conference & Exhibition	24.-25. 3. 2014	Tel Aviv	Scientific community - Industry – Policy makers		IL
116	Blog	ORT	Blog on nOp teachers seminar	October 2013	http://ort.org.il	Scientific community - Civil society – Policy makers		IL
117	Social media campaign	ORT	Facebook social media campaign	April 2014-June 2014	Talking Nano facebook page	Facebook users – Civil society	Reach of 600,000 FaceBook users. Additional 8% fans-followers of the page	EU, global
118	Teacher training	ORT	4 hours workshop of introduction to teaching nanotech in school	30.9. 2014	R&D center of ORT Israel	Science teachers	15 teachers from 11 different schools	IL
119	Blog	ORT	NanOpinion workshop in Tel-Aviv	7.7. 2014	http://www.nanopinion.eu/en/blog/nanopinion-workshop-tel-aviv	Teachers, experts	17	EU
120	Presentation	ORT	LET´S conf.	30.9.2014	Bologna	Sc. community	35	EU
121	Workshops	EUN	Teachers workshop	11.4.2013	EUN classrooms	Scientific community (higher education, Research) - Civil society		EU
122	Publication - info	EUN	Workshop for eTwinning	8.3.2013	InGenious Academy, Madrid	Scientific community (higher education, Research) - Civil society		ES
123	Publication - info	EUN	Description of the NanOpinion project on the	1.2.2013	http://tinyurl.	Scientific		EU

			Scientix portal		com/bm4laqh	community (higher education, Research) - Civil society		
124	Newsletter	EUN	the newsletter for Danish Science Communication	2.1.2013	EUN Newsletter	Scientific community - Industry - Civil society		DK
125	Newsletter	EUN	Austrian nOp info	October 2013	https://www.imst.ac.at/	Sc. community (teachers)		AT
126	Newsletter	EUN	Greek nOp online Workshop	October 2013	Greek School Network Newsletter	Sc. community (teachers)		GR
127	Newsletter	EUN	Romanian nOp online Workshop	October 2013	Newsletter for teachers in the Galati County	Sc. community (teachers)		RO
128	Newsletter	EUN	Croatian nOp online Workshop	October 2013	Croation School Network Newsletter	Sc. community (teachers)		HR
129	Newsletter	EUN	nOp info	September 2013	http://www.eun.org/news/newsletters	Sc. community (teachers)		EU
130	Newsletter	EUN	German nOp workshop	October 2013	Newsletter for physics teachers	Sc. community (teachers)		DE
131	Newsletter	EUN	Nanotechnologies closer to education	November 2013	http://www.eun.org/news/newsletters, http://us6.campaign-archive2.com/?u=fcaa73d53911340a72d92d73f&id=f99aa5bee2	Sc. community (teachers)	9 000	EU
132	Newsletter	EUN	NANOPINION CONTEST: “DISTILLED NANOIDEAS”	February 2014	http://www.eun.org/news/newsletters	Sc. community (teachers)	9000	EU
133	Newsletter	EUN	Invitation to Online Workshop in Finland	November	MAOL (the	Sc. community		FI

				2013	Federation of Finnish STEM Teachers): http://uutiskirje.maol.fi/index.php?id=1835	(teachers)		
134	Newsletter	EUN	Invitation to Online teacher training in nOp	November 2013	The Austrian association ELSA – Schulen (eLearning schools Austria)	Sc. community (teachers)		AT
135	Newsletter	EUN	Nano school competition	February 2014	In the Italian Physics department newsletter	Sc. community (teachers)		IT
136	Presentation	EUN	nOp present.	25 10. 2013	European Schoolnet, Brussels	Sc. comm. - Danish schoolmasters		DK
137	Presentation	EUN	nOp present.	August 13	Conference for physics teachers in Hradec Králové http://vnuf.cz/2013/cz/	sc. Comm- CZ teachers of physics		CZ
138	Presentation	EUN	nOp contest "Distilled nanoideas"	5.2.2014	3rd Science Projects Workshop at the Future Classroom Lab, Brussels http://files.eun.org/SPWatFCL3/Gx_closingevent_FCL_Feb_2014_program.p	Sc. comm. - teachers		EU

					df			
139	Presentation	EUN	Presentation of nOp brochure	28 May 2013	CPD Lab project, Brussels	policy makers - regional repr. Brussels		EU
140	Interview	EUN	Nano school competition	13 February	Interview in Radio Varna (Bulgaria)	Teachers		BG
141	Article (Newspaper)	EUN	Nano school competition	13 February	national education newspaper Az Buki (Bulgaria)	Teachers		BG
142	Article (Newspaper)	EUN	nOp mentioned at event	Sept. 13	Announcement of the online workshop during workshop for sci. teachers in Split Dalmatian region	Sc. comm., chem +physics teachers		HR
143	Flyers	EUN	Finnish nOp workshop	4.-5. 10. 2013	MAOL Training Days for STEM teachers	Sc. comm., chem +physics teachers		FI
144	Flyers	EUN	Flyer for workshop at the conference "Faszination Nanotechnologie"	7.10.2014	Augsburg, Germany	Sc.comm., teachers		DE
145	Flyers	EUN	Nano school competition	March	Finish distribution of flyers with information about the competition	Sc.comm., teachers		FI
146	Flyers	EUN	Nano school competition	March	Austria, Bulgaria, Czech Republic, Croatia, Denmark,	Sc.comm., teachers		EU

					Germany, Greece, Israel, Italy, Lithuania, Romania, Spain, Turkey and United Kingdom (see annex 3)			
147	web info/invitation 15x	EUN	info or inv. to nOp events	May-Feb	15 Eur. Countries			Europe
148	web info/invitation 15x	EUN	Nano school competition	6 March	LUMA News: http://www.luma.fi/artikkelit/2842/luova-nanoteknologiakilpailu-opettajille-ja-oppilaille	Sc.comm., teachers		FI
149	Presentation	EUN	EC Open Day	17.5.2014	Brussels	General public	200	EU
150	Presentation	EUN	Scientix workshop	5.9.2014	Brussels	General public	40	EU
151	Presentation	EUN	LET´S conf.	30.9.2014	Bologna	Sc. community	40	EU
152	Presentation	EUN	Scientix workshop	25.10.2014	Brussels	Teachers	35	EU
153	Blog	BC	What is nanotechnology and why does it dividepublic opinion? By Jon Turney	11.10.2013	http://blog.britishcouncil.org/2013/10/11/what-is-nanotechnology-and-why-does-it-divide-public-opinion	General public - Civil society		UK, EU
154	Info/journal	BC	nOp info in journal BBC Knowledge Bulgaria	December 2013	http://knowledge.bg	Scientific community – General public		BG
155	Newsletter	BC	Info on nOp	October 2012	http://www.b	General public –		UK, EU

					ritishcouncil.org/society/science/public-engagement	Civil society		
156	Newsletter	BC	Info on nOp and invitation to MS	February 2014	http://www.britishcouncil.pl/en/events/nanopinion	General public – Civil society		UK, EU
157	Interview	BC	Darik Radio	December 2013	http://dariknews.bg/view_article.php?article_id=1192556	General public – Civil society		UK, EU
158	Social media	BC	2 posts FB British Council Poland	February - March 2014	www.facebook.com/BritishCouncilPolska	Scientific community - General public – Civil society	3,320 likes	PL
159	Blog	BC	Posts FB British Council Bulgaria	December 2013	www.facebook.com/BritishCouncilBulgaria	Scientific community General public – Civil society	FB page 24,155 likes	BG
160	Info/journal	BC	Twitter on nOp – 20 tweets	October 2013-March 2014	BC + Tim Slingsby Twitter	Scientific community - General public – Civil society	BC Twitter 103,000 followers	UK, EU
161	Newsletter	BC	Twitter on nOp	26.2.2014	BC Poland Twitter	Scientific community - General public – Civil society	560 followers	PL, UK
162	Newsletter	BC	Twitter on nOp	December 2013	BC Bulgaria+ Lyubov Kostova Twitter	Scientific community - General public – Civil society	1,263 followers	BG, UK
163	Newsletter	BC	Info on Barcelona MS	July 2014	Barcelona, BC Spain	General public – Civil society	3,200	Spain, EU
164	TV broadcast	BC	TV on MS Barcelona (together with IrsiCaixa)	July 2014	http://www.btv.cat/alacarta/connexio-barcelona/31533/	General public – Civil society		

165	Publication	BC	Policy Recommendation (co-author)	October 2014	Vienna	General public – Civil society		EU
166	Newsletter info	ECSITE	nOp info in Ecsite -newsletter	each month, May 2012-March 2014	http://www.ecsite.eu/news_and_events/e_news	Scientific community - Civil society – Policy makers	6000 recipients	EU, global
167	Presentation	ECSITE	Present. (incl. MS) at Ecsite conference	6.-8.6. 2013	Gothenburg	Scientific community – General public - Civil society – Policy makers		EU
168	Presentation	ECSITE	nOp in present.by Joerg Haas – enabled by Ecsite	February 2014	Deutsches Museum	Scientific community - General public - Civil society - Policy makers		DE
169	Presentation	ECSITE	nOp present. - meeting with Director of NT Industry Association	17. 3. 2014	Brussels	Industry	1	EU
170	Article	ECSITE	Let´s talk nanotechnology – by Maria Zolotonosa	Q.2., 2013	Attraction Magazine, vol.18, Q.2., 2013 http://www.attractionsmanagement.com/	Scientific community - General public - Civil society - Policy makers		EU
171	Article	ECSITE	Why is NT dividing public opinion by Jon Turney (orig. on BC blog)	Winter 2013	Ecsite magazine Spokes	Scientific community - Industry – Policy makers	Approx 400 people recive a hard copy	EU
172	Web info/post	ECSITE	nOp info, Technopolis	Duration of the project	http://www.technopolis.be/eng/?n=9&e=153	General public		BE, EU
173	Web info/post	ECSITE	nOp info, Explora	Duration of the project	https://www.mdbr.it/en/nanopinion/	General public		IT
174	Web info/post	ECSITE	nOp info, Techmania	Duration of the project	http://www.techmania.cz/info.php?mn1=471&mn2	General public		CZ

					=612&inf=NANOPINION			
175	Web info/post	ECSITE	Info on festival programme, Psiquadro	Summer 2013	https://sites.google.com/site/isoladieinstein2012/programma	General public		IT
176	Web info/post	ECSITE	Post on the websie of the Rome city	January 2014	https://www.comune.roma.it/wps/portal/pcr?contentId=NEW572115&jp_pagecode=newsview.wp&ahew=contentId:jp_pagecode	General public		IT
177	Web info/post	ECSITE	Info on MS event	February 2014	http://prensa.mc2coruna.org/2014/02/la-domus-organiza-talleres-sobre.html	General public		ES
178	Social media, FB, Twitter	ECSITE	About 20 facebook/tweet posts	Duration of the project	Ecsite FB, Ecsite twitter	Sc. community	800 likes on FB and 1000 followers on Twitter	EU
179	Newsletter info	ECSITE	Explora, various posts	January-February 2014	https://www.facebook.com/mdbr.it	General public	8000 likes	IT
180	Presentation	ECSITE	Domus, various posts	February-March 2014	https://www.facebook.com/casacienciias	General public	5000 likes	ES
181	Presentation	ECSITE	Techmania, varous posts	November 2013	https://www.facebook.com/pages/Tec	General public	2000 likes	CZ

					hmania-science-center/23514 1045157			
182	Presentation	ECSITE	Ciencia Viva Estremoz, various posts	September-October 2013	https://www.facebook.com/centrocienciaviva.estremoz/media_set?set=a.532 8261468054 14.10737418 31.10000234 1012919&type=1	General public		ES
183	Article	ECSITE	Psiqudro	Summer 2013	https://www.facebook.com/pages/Psiquadro/11337 0305393819?fref=ts	General public	1000 likes	IT
184	Newsletter info	Ecsite	nOp info in Ecsite -newsletter	each month, May 2014-October 2014	http://www.ecsite.eu/news_and_events/e_news	Scientific community - Civil society – Policy makers	6000 recipients	EU, World
185	Presentation	Ecsite	nOp pres. at EC Open Day	17.5.2014	Brussels	General public, Policy makers	250	EU
186	Presentation	Ecsite	nOp present. at Ecsite conference	24.5.. 2014	Hague	Scientific community – General public –	50	EU
187	Article	Ecsite	Nanotechnologies: Study reveals European citizens' interest	Autumn 2014	Spokes magazine	Scientific community - General public - Civil society - Policy makers	Circulat. 400	EU
188	Social media	Ecsite	About … facebook/tweet posts	May 2014-October 2014	Ecsite FB, Ecsite twitter	Sc. community	800 likes on FB and 1000 followers on Twitter	EU
189	Social media	AU	Inano and NanOpinion is getting ready for	9 August	http://inano.a	General public -		DK

			food festival	2013	u.dk/news-events/news/show/artikel/inano-and-nanopinion-is-getting-ready-for-food-festival/	Civil society - Media		
190	Social media	AU	NanOpinion received great response at the food festival	12 September 2013	http://inano.au.dk/news-events/news/show/artikel/nanopinion-received-great-response-at-the-food-festival/	General public - Civil society - Media		DK
191	Social media	AU	Inano produces video for nanopinion	7 October 2013	http://inano.au.dk/news-events/news/show/artikel/inano-produces-video-for-nanopinion/	General public - Civil society - Media		DK
192	Social media	AU	NanOpinion MS Aarhus	12 September 2013	https://www.youtube.com/watch?v=k1vpxqrV070#t=57, http://inano.au.dk/news-events/news/show/artikel/nanopinion-received-great-response-at-the-food-festival/,	General public - Civil society - Media		DK

193	Social media	AU	The Environmental Impacts of nanosilver - An earthworms point of	7 October 2013	https://www.youtube.com/watch?v=_eMkwTwzTFI#t=41, http://inano.au.dk/news-events/news/show/artikel/inano-produces-video-for-nanopinion/	General public - Civil society - Media		DK
194	Social media	AU	10 tweets –	Duration of the project	Twitter Luisa Filipponi		47 followers	DK
195	Interview	AU	Teaching Nanotechnology, interview with Luisa Filipponi	May 2014	Scientix Newletter,	Teachers, Sc. community	500	EU
196	Article	AU	Article on experiment A (submitted)	October 2014	Journal of Chemical Education	Teachers, Sc. community	1,000	EU
197	Article	AU	Article on nOp results - planned		Public Understanding of Science	Sc. community		EU
198	Communication	AU	Comm. with prof. South Africa (Sanette Brits, University of Limpopo on nOp materials	August 2014		Sc. community		EU
199	Presentation	IrsiCaixa	Xplore Health Course	1.–4.7. 2013	Barcelona	Sc. community (teachers)	23	ES
200	Presentation	IrsiCaixa	Xplore Helath Course	13.11.2013	Barcelona	Sc. community (teachers)	18	ES
201	Presentation	IrsiCaixa	Xplore Health Course	9.1.2014	La Coruna	Sc. community (teachers)	32	ES
202	Presentation	IrsiCaixa	Xplore Health Course on AIDS research	January 2014	Lleida, Catalonia	Sc. community (teachers)	18	ES
203	Presentation	IrsiCaixa	Xplore Health Course on AIDS research	January 2014	Tarragona, Catalonia	Sc. community (teachers)	26	ES
204	Presentation	IrsiCaixa	Xplore Health Course on AIDS research	February 2014	Girona, Catalonia	Sc. community (teachers)	6	ES
205	Presentation	IrsiCaixa	conference „Science in Public“	22.–23.7.2013	Nottingham	Sc. community, Civil society, Media, Policy	34	Global

						makers		
206	Presentation	IrsiCaixa	summer school „Campus Gutenberg“	16.–17.9.2013	Barcelona	Sc. community, Civil society, Media	20	ES
207	Lecture	IrsiCaixa	Lecture at Faculty of Biology, Uni Barcelona	5.12.2013	Barcelona	Sc. community	72	ES
208	Lecture	IrsiCaixa	Lecture in Master on Bioethics and Law, Uni Barcelona	11.2. 2014	Barcelona	Sc. community (teachers)	21	ES
209	Blog	IrsiCaixa	Senzibilar a la opinion publica sobre la nanotecnologia	5.8.2013	www.media-tics.com	Sc. community, Civil society, Media		ES
210	Blog	IrsiCaixa	Blog on nOp teachers seminar	October 2013	www.irsicaixa.org	Sc. community, Civil society, Media		ES
211	Web info	IrsiCaixa	info on nOp and nOp teachers workshops	5.12.2013	http://www.ibecbarcelona.eu/IBEC-News/ibec-and-irsicaixa-collaborate-in-eu-project-to-bring-nanotechnology-to-the-classroom.html	Sc. community	4,392 un. visitors, 411 FB fans	ES
212	Web info	IrsiCaixa	link to nOp video	January 2013	http://paper.li/Greenomic/1309171306	Sc. community, Civil society	2,200 Twitter followers	EU
213	Presentation	IrsiCaixa	ECSITE Annual conference	21.5.2014	Hague	Sc. Community, treachers	30	EU
214	Presentation	IrsiCaixa	Seminar for teachers	28.5.2014	University Pompeu Fabra	Teachers	10	Catalonia
215	Presentation	IrsiCaixa	Clinical session	6.6.2014	Hospital Germans Trias i Pujol	health care professionals and managers	19	Catalonia
216	Presentation	IrsiCaixa	Journal Club IrsiCaixa	12.6.2014	Institute of the “Germans Trias i Pujol” Foundation (IGTP)	Sc. community	42	Catalonia

217	Presentation	IrsiCaixa	IPs Meeting	11.6.2014	IrsiCaixa	IP researchers and managers	10	Catalonia
218	Presentation	IrsiCaixa	2 Seminars in a Masters on Translational Medicine	16–18.6.2014	University of Barcelona	Healthcare professionals and researchers	17	Catalonia
219	Presentation	IrsiCaixa	Scientix meeting	5.9.2014	Brussels	Teachers, sc. managers	40	EU
220	Presentation	IrsiCaixa	Campus Gutenberg	16.9.2014	University Pomeu Fabra, Barcelona	Sc. communication	110	ES
221	Presentation	IrsiCaixa	Scientix workshop	24–26.10.2014	Brussels	Sc. Community, teachers	35	EU
222	Blog	IrsiCaixa	Blog on student workshop	27.5.2014	Barcelona, http://nanopinion.eu	General public		ES
223	Blog	IrsiCaixa	Blog on nOp events	28.6.2014	Barcelona, http://nanopinion.eu	General public		ES
224	Lectures	IrsiCaixa	Lecture at Faculty of Biology, Uni Barcelona	5.12.2013	Barcelona	Sc. Community(Students)	72	ES
225	Lectures	IrsiCaixa	Lecture in Master on Bioethics and Law, Uni Barcelona	11.2.2014	Barcelona	Sc. community (teachers)	21	ES
226	Lectures	IrsiCaixa	Mention in „Buscaciència“ calendar, which is a blog on outreach science activities in Catalonia.	May 2014	http://buscacienciacat.wordpress.com/2014/05/25/del-26-de-maig-a-l1-de-juny/	General public	---	Catalonia
227	Info	IrsiCaixa	nOp info	9.5.2014	http://paper.li/Internetmeds/1366377642#!	Sc. community	2,388 Twitter followers	EU
228	Info	IrsiCaixa	MS info on IrsiCaixa website	22.5.2014	http://www.irsicaixa.es/en/irsicaixa-and-british-council-foster-social-	Sc. Community, industry, media	Over 3.200 visits a month on average	EU

					reflection-nanotechnologies			
229	Info	IrsiCaixa	Web info - Institute for Bioengineering of Catalonia (IBEC)	4.6.2014	http://www.ibecbarcelona.eu/IBEC-News/ibecs-science-on-show.html	Sc. Community, industry, media	4,392 unique visitors to + 589 followers in Twitter	EU
230	Info	IrsiCaixa	nOp page in online program of science festival	June 2014	http://festivalcti.bcn.cat/festa_post/nanotecnologies-quina-innovacio-volem-que-ens-aportin/	General public	---	Catalonia
231	Newspaper info	IrsiCaixa	Info in "El Periódico de Catalunya"	15.6.2014	http://www.am.ub.edu/sites/default/files/images/activities/FCTI_Especial_Periodico.pdf	General public	613,000 readers	ES, Catalonia
232	TV	IrsiCaixa	Report on MS in Public TV Barcelona	26.5.2014	http://www.btv.cat/alacarta/connexio-barcelona/31533/	General public	—	Catalonia
233	TV	IrsiCaixa	Report on MS in RTVE (public tv)	15.6.2014	http://www.rtve.es/alacarta/videos/linformatiu/festa-ciencia-2014-barcelona/2616298	General Public	—	ES, Catalonia
234	TV	IrsiCaixa	Twitter XploreHealth, various tweets mentioning some nanopinion resources	Throughout the year	https://twitter.com/XploreHealth_en;	General public	1207 followers in total	ES, EU

					https://twitter.com/XploreHealth_es		(English, Spanish & Catalan)	
235	TV	IrsiCaixa	Twitter IrsiCaixa, various tweets announcing events	Throughout the year	https://twitter.com/IrsiCaixa	General Public	1283 foll.	ES
236	Web info	STSSCZ	nOp info	October 2012	http://stss.flu.cas.cz/cz/projekty/nanopinion	Sc. comm.		CZ
237	Video	STSSCZ	Video on MS Pardubice	20.11.2013	https://www.youtube.com/watch?v=66WHQOUW7Xc	General public, Civil society	100 views	CZ
238	Presentation	STSSCZ	Presentation of nOp	2.1.2013	Prague universities	Sc. community	120	CZ
239	Lecture	STSSCZ	6 lectures on NT and nOp	April 2012–March 2014	Prague universities	Sc. community	250	CZ
240	Lecture	STSSCZ	3 lectures on NT and nOp	April 2012–March 2014	Uni Pardubice	Sc. community	80	CZ
241	Presentation	STSSCZ	Scientix workshop	25.10.2014	Brussels	Sc.+teacher community	50	EU
242	Presentation	STSSCZ	Summer camp for young scientists	August 2014	Pardubice	High school students	40	CZ
243	Exhibition	STSSCZ	Exhibition NanOpinion	May–June 2014	Prague	General public	150	CZ
244	Web info	BfR	Info on MS in Berlin		http://www.bfr.bund.de/de/presseinformation/2013/25/berlin_alexanderplatz__das_bundesinstitut_fuer_risikobewertung_stellt_sich_vor-187765.html	General public		DE
245	Video	BfR	Video on MS in Berlin		www.youtube.com/watch	General public		DE

					?v=UQYC9nKTHcI			
246	Focus group	BfR	3 focus group discussions on nanoproducts	3–5.6.2014	Berlin	General public	26	DE
247	Blog	BfR	German consumers discuss	30.6.2014	http://www.nanopinion.eu/en/blog/german-consumers-discuss-nanoproducts	General public	hundreds	EU
248	Presentations at conferences	LNMSC	conference „EUROSENSORS“ (on Solid-State Transducers)	September 2012	Cracow	Sc. community	500-600	EU
249	Presentations at conferences	LNMSC	conference of Young Chemists „Nanochemistry and Nanomaterials“	December 2012	Palanga, Lithuania	Sc. community	130	EU
250	Presentations at conferences	LNMSC	EuroNanoforum	June 2013	Dublin	Sc. community	400-500	EU
251	Presentations at conferences	LNMSC	conference „Advanced Materials“	August 2013	Palanga, Lithuania	Sc. community	150	Eastern Europe
252	Presentations at conferences	LNMSC	EcoBalt conference	October 2013	Vilnius, Lithuania	Sc. community, civil society. Policy makers	250-300	Baltic countries
253	Presentations at conferences	LNMSC	National student conference „Stebiu, tiriu, darau“	October 2013	Kaisiadorys, Lithuania	Sc. community	100	Lithuania
254	Presentations at conferences	LNMSC	conference „Modern achievements of young researchers in S&T“	December 2013	Chuvassia, Russia	Sc. community	125	EU, Asia
255	Presentations at conferences	LNMSC	Young scientists international Baku forum	May 2013	Baku, Azerbaijan	Sc. community	150-200	Global
256	workshop	LNMSC	2 workshops "How to teach about NanoFood at school?"	March 2013	Vilnius	Sc. community	53	Lithuania
257	workshop	LNMSC	workshop for teachers about future of the food	March 2013	Kaunas	Sc. community	55	Kaunas region
258	workshop	LNMSC	workshop about Future of nanofood	March 2014	Vilnius	Sc. comm. (LMNSC colleaugues)	20	Lithuania
259	round table	LNMSC	round table with the guests from Japan	February 2013	Vilnius	Sc. community	15	Lithuania, Japan
260	round table	LNMSC	student meeting with guests from Malaysia and Netherlands	September 2013	Vilnius	Sc. community	13	Lithuania, Malaysia, Denmark, Netherlands
261	round table	LNMSC	round table with guests from Denmark, Singapore, Malaysia	October 2013	Vilnius	Sc. community	12	Lithuania, DK,

								Singapore, Malaysia
262	summer camp	LNMSC	international scientific summer camp „Smithy Ideas“	July 2013	Rusne, Lithuania	Sc. community	33	Lithuania
263	summer trip	LNMSC	summer trip through Ignalina region with nOp volunteers team	July 2013	Lithuania	Sc. community	20	Lithuania
264	Researchers night	LNMSC	International event „Researchers´night“	September 2013	Vilnius	General public	10000	Lithuania
265	school	LNMSC	part-time chemistry school „Cognition“	October 2013	Vilnius	Sc. community	80	Lithuania
266	school	LNMSC	part-time biochemistry school	January 2014	Vilnius	Sc. community	30	Lithuania
267	exhibition	LNMSC	exhibition „Mokykla 2013“ (School 2013)	December 2013	Vilnius	General public	10 000	Lithuania, neighbouring countries
268	competition	LNMSC	national research competition "My view on the world around me"	February 2014	Vilnius	Sc. community	120	Lithuania
269	lesson	LNMSC	lesson for schoolchildren about nanotechnology	March 2014	Kaunas	General Public	55	Kaunas region
270	Presentation	LNMSC	Workshop for public about nano	May 2014	Vilnius	General public	25	LT
271	Presentation	LNMSC	Baku world science forum Pres.+abstract	May 2014	Baku	Scient. community	250	Global
272	Presentation	LNMSC	International scientific summer camp “Smithy of Ideas”Pres.+abstract	June 2014	Kaisiadorys	Scient. community	35	Azerbaijan, EU
273	Presentation	LNMSC	Summer camp for students	July 2014	Vilnius	Students	40	LT
274	Presentation	LNMSC	Scientix workshop	25.10.2014	Brussels	Sc.+teacher community	50	EU
275	Lecture	LNMSC	International olympiad of astronomy	April 2014	Vilnius	Sc. community, students	30	LT
276	Lecture	LNMSC	´Researcher´s night´	September 2014	Vilnius	General public	30	LT
277	Workshop	LNMSC	Workshop on Nanomedicine	October 2014	Vilnius	Sc. community	22	LT
278	Workshop	LNMSC	Virtual workshop on nanomedicine	October 2014	Lithuania	Teachers	10	LT
279	Round table (discussion)	LNMSC	International meeting	October 2014	Tbilisi	Students	10	EU
280	Round table (discussion)	LNMSC	International meeting	October 2014	Vilnius	Sc. Community (youth researchers)	15	EU

Section B (Confidential[8] or public: confidential information to be marked clearly)

[8] Note to be confused with the "EU CONFIDENTIAL" classification for some security research projects.

Part B1

Template B1: List of applications for patents, trademarks, registered designs, etc.					
Type of IP Rights[9]:	Confidential Click on YES/NO	Foreseen embargo date dd/mm/yyyy	Application reference(s) (e.g. EP123456)	Subject or title of application	Applicant (s) (as on the application)
N/A					

[9] A drop down list allows choosing the type of IP rights: Patents, Trademarks, Registered designs, Utility models, Others.

Part B2

Type of Exploitable Foreground[10]	Description of exploitable foreground	Confidential Click on YES/NO	Foreseen embargo date dd/mm/yyyy	Exploitable product(s) or measure(s)	Sector(s) of application[11]	Timetable, commercial or any other use	Patents or other IPR exploitation (licences)	Owner & Other Beneficiary(s) involved
N/A								

[19] A drop down list allows choosing the type of foreground: General advancement of knowledge, Commercial exploitation of R&D results, Exploitation of R&D results via standards, exploitation of results through EU policies, exploitation of results through (social) innovation.
[11] A drop down list allows choosing the type sector (NACE nomenclature) : http://ec.europa.eu/competition/mergers/cases/index/nace_all.html

6. REPORT ON SOCIETAL IMPLICATIONS

A General Information *(completed automatically when **Grant Agreement number** is entered.*	
Grant Agreement Number:	290575
Title of Project:	Monitoring public opinion on Nanotechnology in Europe
Name and Title of Coordinator:	Ms. ilse Marschalek, Project Coordinator

B Ethics	
1. Did your project undergo an Ethics Review (and/or Screening)? • If Yes: have you described the progress of compliance with the relevant Ethics Review/Screening Requirements in the frame of the periodic/final project reports? Special Reminder: the progress of compliance with the Ethics Review/Screening Requirements should be described in the Period/Final Project Reports under the Section 3.2.2 *'Work Progress and Achievements'*	***No***
2. Please indicate whether your project involved any of the following issues (tick box) :	***YES***
RESEARCH ON HUMANS	
• Did the project involve children?	Yes
• Did the project involve patients?	No
• Did the project involve persons not able to give consent?	No
• Did the project involve adult healthy volunteers?	No
• Did the project involve Human genetic material?	No
• Did the project involve Human biological samples?	No
• Did the project involve Human data collection?	No
RESEARCH ON HUMAN EMBRYO/FOETUS	
• Did the project involve Human Embryos?	No

• Did the project involve Human Foetal Tissue / Cells?	No
• Did the project involve Human Embryonic Stem Cells (hESCs)?	No
• Did the project on human Embryonic Stem Cells involve cells in culture?	No
• Did the project on human Embryonic Stem Cells involve the derivation of cells from Embryos?	No
PRIVACY	
• Did the project involve processing of genetic information or personal data (eg. health, sexual lifestyle, ethnicity, political opinion, religious or philosophical conviction)?	No
• Did the project involve tracking the location or observation of people?	No
RESEARCH ON ANIMALS	
• Did the project involve research on animals?	No
• Were those animals transgenic small laboratory animals?	No
• Were those animals transgenic farm animals?	No
• Were those animals cloned farm animals?	No
• Were those animals non-human primates?	No
RESEARCH INVOLVING DEVELOPING COUNTRIES	
• Did the project involve the use of local resources (genetic, animal, plant etc)?	No
• Was the project of benefit to local community (capacity building, access to healthcare, education etc)?	Yes
DUAL USE	
• Research having direct military use	No
• Research having the potential for terrorist abuse	No

C Workforce Statistics

3. Workforce statistics for the project: Please indicate in the table below the number of people who worked on the project (on a headcount basis).

Type of Position	Number of Women	Number of Men
Scientific Coordinator	9	3
Work package leaders	8	0
Experienced researchers (i.e. PhD holders)	N/A	N/A
PhD Students	N/A	N/A
Other	N/A	N/A

4. How many additional researchers (in companies and universities) were recruited specifically for this project?	0
Of which, indicate the number of men:	8

D Gender Aspects		
5. Did you carry out specific Gender Equality Actions under the project?	○ X	Yes No

6. Which of the following actions did you carry out and how effective were they? N/A

	Not at all effective				Very effective
❑ Design and implement an equal opportunity policy	○	○	○	○	○
❑ Set targets to achieve a gender balance in the workforce	○	○	○	○	○
❑ Organise conferences and workshops on gender	○	○	○	○	○
❑ Actions to improve work-life balance	○	○	○	○	○

○ Other:

7. Was there a gender dimension associated with the research content – i.e. wherever people were the focus of the research as, for example, consumers, users, patients or in trials, was the issue of gender considered and addressed?

X Yes- please specify

Survey and analysis of different age and gender groups was done, checking their general knowledge and attitude towards NT. Facebook and Google analytics were analysed for gender

○ No

E Synergies with Science Education

8. Did your project involve working with students and/or school pupils (e.g. open days, participation in science festivals and events, prizes/competitions or joint projects)?

X Yes- please specify add project activities here

See D4.1, D4.3, D5.2, D5.3

○ No

9. Did the project generate any science education material (e.g. kits, websites, explanatory booklets, DVDs)?

X Yes- please specify specify add project activities here

See D1.1, D1.2, D1.3, D1.4, D3.1, D3.2, D4.1, D2.2, D4.2, D4.4, D7.3

○ No

F Interdisciplinarity

10. Which disciplines (see list below) are involved in your project?

○ Main discipline[12]:

X Associated discipline[12]:

X Associated discipline[12]:

G Engaging with Civil society and policy makers

11a Did your project engage with societal actors beyond the research community?	X	Yes

[12] Insert number from list below (Frascati Manual).

(if 'No', go to Question 14)	○	No

11b If yes, did you engage with citizens (citizens' panels / juries) or organised civil society (NGOs, patients' groups etc.)?

- ○ No
- ○ Yes- in determining what research should be performed
- X Yes - in implementing the research
- X Yes, in communicating /disseminating / using the results of the project

11c In doing so, did your project involve actors whose role is mainly to organise the dialogue with citizens and organised civil society (e.g. professional mediator; communication company, science museums)?	X ○	Yes No

12. Did you engage with government / public bodies or policy makers (including international organisations)

- ○ No
- ○ Yes- in framing the research agenda
- ○ Yes - in implementing the research agenda
- X Yes, in communicating /disseminating / using the results of the project

13a Will the project generate outputs (expertise or scientific advice) which could be used by policy makers?

- ○ Yes – as a **primary** objective (please indicate areas below- multiple answers possible)
- X Yes – as a **secondary** objective (please indicate areas below - multiple answer possible)
- ○ No

13b If Yes, in which fields?

Agriculture		Energy		Human rights	
Audiovisual and Media		Enlargement		Information Society	
Budget		Enterprise		Institutional affairs	
Competition		Environment		Internal Market	
Consumers	X	External Relations		Justice, freedom and security	
Culture		External Trade		Public Health	
Customs		Fisheries and Maritime Affairs		Regional Policy	
Development Economic and Monetary Affairs		Food Safety		Research and Innovation	X
Education, Training, Youth	X	Foreign and Security Policy		Space	
Employment and Social Affairs		Fraud		Taxation	
		Humanitarian aid		Transport	

13c If Yes, at which level?

- ○ Local / regional levels
- X National level
- X European level
- ○ International level

H Use and dissemination

14. How many Articles were published/accepted for publication in peer-reviewed journals?		**N/A**
To how many of these is open access[13] provided?		**0**
How many of these are published in open access journals?		**0**
How many of these are published in open repositories?		**0**
To how many of these is open access not provided?		**0**
Please check all applicable reasons for not providing open access:		**0**
❑ publisher's licensing agreement would not permit publishing in a repository ❑ no suitable repository available ❑ no suitable open access journal available ❑ no funds available to publish in an open access journal ❑ lack of time and resources ❑ lack of information on open access ❑ other[14]: ……		**0**
15. How many new patent applications ('priority filings') have been made? *("Technologically unique": multiple applications for the same invention in different jurisdictions should be counted as just one application of grant).*		**N/A**
16. Indicate how many of the following Intellectual Property Rights were applied for (give number in each box).	Trademark	**N/A**
	Registered design	**N/A**
	Other	**N/A**
17. How many spin-off companies were created / are planned as a direct result of the project?		**N/A**
Indicate the approximate number of additional jobs in these companies:		

18. Please indicate whether your project has a potential impact on employment, in comparison with the situation before your project:

❑	Increase in employment, or	❑	In small & medium-sized enterprises
❑	Safeguard employment, or	❑	In large companies
❑	Decrease in employment,	X	None of the above / not relevant to the project
X	Difficult to estimate / not possible to quantify		

19. For your project partnership please estimate the employment effect resulting directly from your participation in Full Time Equivalent (*FTE = one person working fulltime for a year*) jobs:	*Indicate figure:*

[13] Open Access is defined as free of charge access for anyone via Internet.
[14] For instance: classification for security project.

	X
Difficult to estimate / not possible to quantify	

I	Media and Communication to the general public

20. As part of the project, were any of the beneficiaries professionals in communication or media relations?

X Yes No

21. As part of the project, have any beneficiaries received professional media / communication training / advice to improve communication with the general public?

X ○ Yes No

22 Which of the following have been used to communicate information about your project to the general public, or have resulted from your project?

X	Press Release	X	Coverage in specialist press
X	Media briefing	X	Coverage in general (non-specialist) press
❑	TV coverage / report	X	Coverage in national press
X	Radio coverage / report	X	Coverage in international press
X	Brochures /posters / flyers	X	Website for the general public / internet
X	DVD /Film /Multimedia	X	Event targeting general public (festival, conference, exhibition, science café)

23 In which languages are the information products for the general public produced?

X	Language of the coordinator	X	English
X	Other language(s)		

Question F-10: Classification of Scientific Disciplines according to the Frascati Manual 2002 (Proposed Standard Practice for Surveys on Research and Experimental Development, OECD 2002):

FIELDS OF SCIENCE AND TECHNOLOGY

1. NATURAL SCIENCES

1.1 Mathematics and computer sciences [mathematics and other allied fields: computer sciences and other allied subjects (software development only; hardware development should be classified in the engineering fields)]

1.2 Physical sciences (astronomy and space sciences, physics and other allied subjects)

1.3 Chemical sciences (chemistry, other allied subjects)

1.4 Earth and related environmental sciences (geology, geophysics, mineralogy, physical geography and other geosciences, meteorology and other atmospheric sciences including climatic research, oceanography, vulcanology, palaeoecology, other allied sciences)

1.5 Biological sciences (biology, botany, bacteriology, microbiology, zoology, entomology, genetics, biochemistry, biophysics, other allied sciences, excluding clinical and veterinary sciences)

2 ENGINEERING AND TECHNOLOGY

2.1 Civil engineering (architecture engineering, building science and engineering, construction engineering, municipal and structural engineering and other allied subjects)

2.2 Electrical engineering, electronics [electrical engineering, electronics, communication engineering and systems, computer engineering (hardware only) and other allied subjects]

2.3. Other engineering sciences (such as chemical, aeronautical and space, mechanical, metallurgical and materials engineering, and their specialised subdivisions; forest products; applied sciences such as geodesy, industrial chemistry, etc.; the science and technology of food production; specialised technologies of interdisciplinary fields, e.g. systems analysis, metallurgy, mining, textile technology and other applied subjects)

3. MEDICAL SCIENCES

3.1 Basic medicine (anatomy, cytology, physiology, genetics, pharmacy, pharmacology, toxicology, immunology and immunohaematology, clinical chemistry, clinical microbiology, pathology)

3.2 Clinical medicine (anaesthesiology, paediatrics, obstetrics and gynaecology, internal medicine, surgery, dentistry, neurology, psychiatry, radiology, therapeutics, otorhinolaryngology, ophthalmology)

3.3 Health sciences (public health services, social medicine, hygiene, nursing, epidemiology)

4. AGRICULTURAL SCIENCES

4.1 Agriculture, forestry, fisheries and allied sciences (agronomy, animal husbandry, fisheries, forestry, horticulture, other allied subjects)

4.2 Veterinary medicine

5. SOCIAL SCIENCES

5.1 Psychology

5.2 Economics

5.3 Educational sciences (education and training and other allied subjects)

5.4 Other social sciences [anthropology (social and cultural) and ethnology, demography, geography (human, economic and social), town and country planning, management, law, linguistics, political sciences, sociology, organisation and methods, miscellaneous social sciences and interdisciplinary , methodological

and historical S1T activities relating to subjects in this group. Physical anthropology, physical geography and psychophysiology should normally be classified with the natural sciences].

6. HUMANITIES

6.1 History (history, prehistory and history, together with auxiliary historical disciplines such as archaeology, numismatics, palaeography, genealogy, etc.)

6.2 Languages and literature (ancient and modern)

6.3 Other humanities [philosophy (including the history of science and technology) arts, history of art, art criticism, painting, sculpture, musicology, dramatic art excluding artistic "research" of any kind, religion, theology, other fields and subjects pertaining to the humanities, methodological, historical and other S1T activities relating to the subjects in this group]