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IMPULSI – IL TG DEI MUSEI: SCIENCE NEWS ENTER SCIENCE MUSEUMS AND SCIENCE CENTRES

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Abstract (EN)

"Impulsi – Il TG dei musei" is an initiative aimed at bringing front end science news in science museums and science centres. It is currently displayed in 11 museums in Italy, in plasma screens or video projections located in museums' "neutral" spaces (the entrance, the cafeteria, near the bookshop, etc.). *Impulsi* is composed of three parts, updated weekly: a multimedia news section (rich in films, images and animations), text scrolling news, and an agenda of the activities of Italian science museums.

Science museums, in particular medium and small size museums, are often perceived as disconnected from the social fabric. *Impulsi* has the objective of creating a cognitive link between the news provided by popular media, and the exhibitions in museums, thus emphasising the role of museums as mediators of the evolution of scientific research and its impacts on society.

A second objective is to highlight the activities of science museums. Through the agenda tool, visitors of one museum are informed about initiatives taking places in neighbouring cities. *Impulsi* thus contribute to the structuring of a science museum community in the eyes of the visitors. Finally, museums have the possibility of personalising *Impulsi*, adding their own content, selecting the news and using the agenda to better respond to the interests of their publics.

Keywords: science news, frontline news, science museums, science centers

Zusammenfassung (DE)

"Impulsi – Il TG dei musei" ist eine Initiative, die darauf abzielt Front-End Nachrichten aus der Wissenschaft in die Wissenschaftsmuseen und -zentren zu bringen. Zurzeit wird *Impulsi* in 11 Museen in Italien an „neutralen" Orten (Eingangsbereich, Cafeteria, in der Nähe des Buchshops) auf Plasmabildschirmen oder in Form von Videoprojektion gezeigt. *Impulsi* besteht aus drei Teilen, die wöchentlich aktualisiert werden: Ein multimedialer Nachrichtenteil (reich an Filmen, Bildern und Animationen), Nachrichten in Textform und eine Agenda der Aktivitäten italienischer Wissenschaftsmuseen.

Wissenschaftsmuseen, und zwar vor allem mittlere und kleine, werden oftmals als von der gesellschaftlichen Struktur getrennt wahrgenommen. *Impulsi* hat sich zum Ziel gesetzt eine kognitive Verbindung zwischen den Nachrichten, die von den Medien verbreitet werden, und den Ausstellungen in Museen herzustellen. Dadurch soll die Rolle von Museen als Vermittler

von der Entwicklung in der wissenschaftlichen Forschung und deren Einfluss auf die Gesellschaft betont werden.

Ein weiteres Ziel ist es die Aktivitäten von Museen aufzuzeigen. Durch das Agenda Tool sind die Besucher eines Museums darüber informiert, welche Initiativen in benachbarten Städten unternommen werden. Auf diese Weise trägt *Impulsi* zu einer Strukturierung einer Wissenschaftsmuseums-Community bei. Schließlich haben die Museen die Möglichkeit *Impulsi* zu personalisieren, indem sie es um ihre eigenen Inhalte ergänzen, die Nachrichten auswählen und die Agenda dazu benutzen um den Interessen ihrer Besucher besser gerecht zu werden.

Schlüsselwörter: Wissenschaftsnachrichten, Front-End Nachrichten, Wissenschaftsmuseen, Wissenschaftszentren

Résumé (FR)

"*Impulsi – Il TG dei musei*" est une initiative visant à présenter l'actualité scientifique de pointe dans les musées et centres de science. *Impulsi* est actuellement diffusé dans 11 musées en Italie, sur des écrans plasma ou des vidéo-projecteurs situé dans les espaces "neutres" (hall d'entrée, cafétéria, à proximité de la librairie, etc.). *Impulsi* est composé de trois parties, mises à jour hebdomadairement : une section multimédia de nouvelles (riche en films, images et animations), des actualités en texte déroulant, et un agenda des activités des musées italiens de science.

Les musées scientifiques, en particulier ceux de taille moyenne ou petite, sont souvent perçus comme étant déconnectés du tissu social. *Impulsi* a pour objectif de créer un lien cognitif entre les informations fournies par les médias populaires et les expositions des musées, renforçant ainsi leur rôle de médiation des évolutions de la recherche scientifique et de son impact sur la société.

Un deuxième objectif est de promouvoir les activités des musées de science. L'agenda informe les visiteurs des initiatives dans les villes voisines. *Impulsi* contribue ainsi à donner corps, aux yeux des visiteurs, à la communauté des musées scientifiques.

Enfin les musées peuvent personnaliser *Impulsi* en ajoutant leur propre contenu, en sélectionnant les nouvelles et en utilisant l'agenda pour mieux répondre aux centres d'intérêt de leurs publics.

Keywords: Actualité scientifique, Musées de science, Centres de science.

I. *Impulsi* in brief

Impulsi is a multimedia news bulletin diffused on large or medium size screens in science museums, science centres and universities. It is located in the halls, at the entrance, at the cafeteria, near the ticket office, or in other spaces within the museums where the public enjoy a moment of pause or suspension in the visit (having a coffee, waiting for friends or family, taking a rest).

Impulsi feature the latest breaking news on science, technology and the environment through short silent videos, text, images, animations, schemes, in an innovative multimedia style. It also features science news scrolling in plain text, and an agenda listing important events in science museums, or more generally science events open to the public. All news are written by a leading science news agency in Italy, Zadigroma, already providing science news to several newspapers and magazines: news are therefore updated and carefully checked scientifically.

Impulsi is updated weekly. The host institution automatically download it form the Internet, and diffuse it in loops. The loops of the three sections (multimedia news, text news and agenda) are timed differently, so the screen appears to be constantly changing. At present, the multimedia section is composed of 5 to 8 news and lasts between 5 and 10 minutes, depending on the topic and the quality of the audiovisual materials available for each news.

Impulsi is customizable: the software has been implemented in order to allow each museum to compose its edition, thus including news more closely related to its specific interests, and possibly including home made news, animations, images and texts.

Impulsi started on march 2004, and is currently displayed in 11 Museums and 2 Universities in 7 Italian cities. These are: Museo Tridentino di Scienze Naturali, Trento; Città della Scienza, Napoli; Museo Civico di Storia Naturale, Milano; Immaginario Scientifico, Trieste; Life Learning Center, Bologna; Perugia Officina della Scienza e della Tecnologia, Perugia; Museo Civico di Zoologia, Roma; Museo Storico Nazionale di Arte Sanitaria, Roma; Museo della Matematica, Roma; Planetario e Museo Astronomico, Roma, Museo della scienza e della tecnologia "Leonardo da Vinci", Milano.

Impulsi is an initiative of the science news agency Zadigroma, and is sponsored in Italy by the

Italian National Association of Science Museums (ANMS), Isitituto Nazionale di Fisica della Materia (INFM), Fondazione Marino Golinelli, Fondazione Sigma-Tau. It is technically developed by the INFM spin-off company Infmedia.

II. Background

The following general considerations represent the theoretical background on which the project of "Impulsi - il TG dei musei" was developed.

1. science news and science museums

The discussion whether museums have to be considered as mass media has going on since decades. The discussion is particularly relevant in the case of science museums, for which a rapid evolution has taken place in recent times. Indeed, the so called "science centre movement" has drastically changed the nature of science museum and their relationship with the public, and the typologies of museum have been multiplied by the increasing relevance given to science and technology by western society. What we now call in general terms "science museums" cover a wide range of cultural activities, ranging from conservation of specimen for research purposes to the conservation of historical instruments, from the edutainment approach of hands-on museums to the discussion of controversial scientific issues (Pearce, 1996; Farmelo and Carding, 1997, MacDonald, 1998) . This leads to very different establishments, grouped not in terms of their public or their politics of display, but by the fact that in their origin or in their social justification they refer to science and technology. The fact that the very definition of what is and what is not science and technology is not at all clear give rise to an even more blurred definition.

The contemporary evolution of science centres and museums has also to be analysed in the wider context of the evolution of the role of science communication to the public, in what has been summarised as a transition from public understanding of science to public engagement of science and technology (Miller, 2001; Science, 2002) and in official report and documents is mostly referred to as "science and society" (see for example Bucchi, 2004 for a review, EC, 2001; Novotny *et al.*, 2001; Pitrelli, 2003; Science and society, 2000. For a background discussion of the evolution of the scientific enterprise and how it affects or reflects on the public, see Novotny *et al.*, 2001; Ziman, 2000; Jasanoff *et al.*, 1995).

Within this complex scene, modern science centres and science museums (and in many cases also "old style" museum) share a common need: linking themselves to the dynamics of

socio-cultural debates taking place in society at large. Indeed, as science and technology are more and more central in contemporary debates, science centre and science museums are asked, more or less implicitly, to redefine their role (Lindqvist, 2000). They are faced with more and more complex requests by the citizens. One of the basic element to respond, is to demonstrate that the museum walls do not represent an impermeable membrane, but on the contrary the museum is strictly connected with what happen in the "outside" world. In other words, the image of scientific developments and controversial issues rendered by the media should be reverberated inside the museum (Farmelo, 1997; Schiele, 1998).

Science museums are usually perceived as independent, trustworthy institutions. They are serious, but not boring, as they are often directly connected with universities and research institutions, but their missions (in particular for new generation museums) is centred on the satisfaction of the public. Thus, they tend to act as an important mediator between science and society (Miller *et al.*, 2002).

However, production times of museum exhibitions are much slower than the pace at which scientific development is presented by the media (it is not the case of discussing here the relevant issue of whether the rhythm of science news is determined by the rhythm of scientific development, or is an artefact due to media necessities and determining in turn a public-relation oriented science communication). Thus museums are often perceived as "rear-guard" media: places where only background information and well-established academically-backed concepts are presented.

Recent development of science centres are heading in the direction of combining two apparently diverging tendencies: preserve the role of museums as provider of well founded, in depth scientific topics, and at the same time be up to date, flexible, and capable of interpreting citizens' concerns.

Large, national museums are presently proposing several activities to meet these challenges: to name but two of the largest European centres, *A n t e n n a* (www.sciencemuseum.org.uk/antenna) within the Wellcome Wing, and more recently the Dana Centre (www.danacentre.org.uk) , at the Science Museum in London, and *Science actualité* and to some extent the *College de la Cité* (www.cite-sciences.fr/college) at the Cité des Sciences et de l'Industrie (www.cite-sciences.fr), in Paris. Similar experiments or proposals can be found in most large size science centres.

However, bringing science news inside museums, by respecting the front-end media grammar while adapting it to the environment of museum, has not, in our opinion, been fully achieved yet, and most attempt have proven partially unsuccessful.

2. A network of science museums in the eye of the beholder

If bringing science news inside science museums is the main aim of *Impulsi*, a second, relevant goal is creating a recognisable element of continuity between different museums. Indeed, science museums are mostly perceived as separate, non interactive objects. This do not reflect reality, as many exhibitions, educational programmes, training schemes, etc., are often developed by a collaborative effort among several museums. Moreover, at least in Italy several small museums are actually part of a systems of museums, with a central, larger museums coordinating smaller, local, often thematic ones (an emblematic case among *Impulsi* partners is Museo Tridentino di Scienze Naturali, in Trento, http://www.mtsn.tn.it).

The presence of *Impulsi* in several museums has a double effects. Firstly, visitors find the same, recognisable screen during their visit to different museum. This highlights the fact that different museums, although proposing different exhibits on different topics, organised by different institution and targeted to different publics, actually belong to a same, grander cultural scheme: the dissemination of scientific culture.

Secondly, the Agenda section of *Impulsi* can echo the activities of museums. Being possible to personalise it, museums can chose to highlight activities (i.e. new exhibitions, conferences, educational programmes) of geographically or thematically neighbouring institutions. This will allow visitors, satisfied of the visit to one museum, to be aware of similar cultural proposal in the surrounding area, and thus invite them to a new visit to another museum. This can have as a result a synergetic, collaborative effect.

3. Looking for a reason to a kiosk

A more trivial, but still relevant issue, concern the presence of informative multimedia screens or kiosks in museums. These are very useful tools to provide information on future activities of the museum and/or its neighbouring institutions, to update schedules of demonstration, screenings, etc, or to recall the visitor of the existence of less visited areas of the museums. With the exception of very large institutions, where the number of simultaneous activities is very high, these information are not rich enough to justify the attention of the visitors. The software delivering *Impulsi* allows each museum to personalise by adding specific information, in textual or visual form, which adds up to the news developed by Zadigroma. Thus it can act as an informative screen or kiosk, while providing visually appealing contents (the science news) that can justify its presence within the museum.

III. *Impulsi* in details

1. Structure

Impulsi is composed of 3 main sections, corresponding to three areas of the screen.

The main area is occupied by the animated news. Each week, up to date science news are presented with a limited number of words, making use of iconographic material including pictures, animations, and videos. News are selected among the most important of the week, taking into account also the availability of pictures, images and videos. Iconographic material is used to illustrate the topic, and in some case also with an evocative role, to give an additional pathos to the news, without corrupting the scientific accuracy. Humour is also sought for, as it is considered a valid tool in infotainment contexts.

A box on the right hand side ("Scienza in diretta") contain textual news. These are news for which the iconographic material is not strong enough to allow for an animated news. Although at the present stage also textual news are updated weekly, the software was conceived in order to allow for a daily update, thus providing front end news, often anticipating newspa-

pers or even TV.

A third box on the lower right corner contains the agenda ("Scienza in mostra"), were initiatives and activities of science museums across Italy and abroad are listed. This currently appear as the most updated agenda of its kind in Italy.

The contents of "Scienza in diretta" and "Scienza in mostra" are also reported on the web-site, where links to the original sources of the news or to the museums proposing the activities are provided to allow a free exploration by the visitor.

2. Location within the museums

Impulsi is designed in order to be projected or displayed in plasma screens, but can also be viewed on 19" or 17" computer screens. The ideal locations for *Impulsi* are believed to be spaces within the museums where the public enjoy a moment of pause. This can be at the entrance near the ticket office, where often groups wait for one of them to purchase the tickets, at the end of specific exhibits, where "fast" members of a group usually wait the slower one, inside or in the vicinity of the bookshop, inside or in the vicinity of the cafeteria. All the above location are being experimented in different museums. Evaluation of the impact of *Impulsi* on the visitor, aimed at better defining the location within the museums (as well as the content format) is being performed by one of the author (see Conti, 2004 for a general methodological background) at the moment of writing. Preliminary results of such evaluation will be presented at ICHIM 2004.

An important aspect of *Impulsi* is the fact of being light and non invasive. The decision of keeping it silent also follow this philosophy. It is important that the visitors do not feel "obliged" to watch it (that is, they must not feel as they are loosing something essential); they should be able of just glancing at it, capturing an image or a title, watching two or three news, or attentively follow the whole loop.

3. The science news production

A key aspect which can guarantee the success of *Impulsi* is the fact that news are selected, produced and edited by a specialised agency.

Zadigroma is a journalistic and publishing company dealing with the definition and implementation of communication strategies on specialised subjects. It mainly focuses on topics related to science and technology, environment, energy, medicine, education and human development. Zadigroma, was created in 1999 as affiliated company of *Zadig*, established in Milan in 1993. The staff of the two agencies consists of more than one hundred people; they

are active in the area of journalism, as well as publishing and training. Finally, a particularly important and constantly growing sector is the design and implementation of communication projects, journals, newsletters and web sites, brochures on behalf of ministries and public or private institutions, editorial consulting.

As journalistic agency, Zadigroma is engaged in journalistic co-operation with several Italian papers, in the participation in radio and television programmes and in the participation with specialised subjects on Internet portals.

The fact that a professional press agency specialised in science provide the news for *Impulsi* guarantees that the choice of the news, and the language and style of writing, are made according to an up to date journalistic style. Moreover, it would be financially impossible to produce a high number of thoroughly checked, up to date, set of news and appointment entries, if the agency was not already producing similar news for several newspapers and televisions, thus being strongly immersed in the daily specialised news flow and taking advantage of a well established network of personal contacts with international scientific institutions.

As for the specific design and journalistic style of *Impulsi*, a professional with experience both in museology and in audiovisual production is in charge. Each edition (12 editions were produced at the moment of writing) is presently evaluated and commented, also with the help of museums, in order to redirect the style, rhythm, writing, number of news, etc. *Impulsi* is indeed in an experimental phase, in search of the proper language to bring science news inside museums.

4. Technical specification

Impulsi rely on a software conceived in order to guarantee a high level of flexibility, a virtually zero maintenance by museums, adaptability to specific needs, possibility of fast and easy upgrades. The software was developed by *Infmedia* (http://www.infmedia.it), a company based in Pisa (IT), born as a spin-off of the italian National Institute for the Physics of Matter (INFM). Infmedia is specialised in cultural multimedia design and production, with specific focus on science education and popularisation. Activities include multimedia software (online and offline), web sites, 2-D and 3-D animations and simulations, e-learning systems, intelligent tutoring. Among other notable recent Infmedia production, "La conquista dell'energia" (for INFM), "Enciclopedia della scienza Rizzoli" (RCS libri), " In volo sull'Italia in 3D " (for Focus, Gruner und Jahr / Mondadori).

Specific requirement that the software intended to satisfy are computer-based editing and distribution, customization to user needs, delivery of large datasets, adaptability of the system,

quick and cheap implementation. In order to best satisfy such requirements, it was chosen:

1. to use the web as the transmission medium

2. not to use a standard browser, but to develop a purposely conceived software.

A three-tier architecture (database-server-client) has been designed.. Database and server are currently located at Infmedia; clients are the museums hosting *Impulsi*. Although in the first experimental phase the contents of *Impulsi* are updated every week, the system is already configured to update the content every night, and it can be easily upgraded for a more frequent update. Most of the control of the update procedure is given to the server, that can also remotely upgrade the software itself.

The editorial choice was to produce animated news of medium to high visual quality. This requires a quite intensive network use. Clients can be scheduled to connect for the download of *Impulsi* edition, at their preferred time, thus arranging a compromise between the respect of specific needs of each museum, and avoiding excessive superposition with other clients and connection time.

A special web service allows the staff of *Impulsi* to easily manage the whole publishing process, from news edition, to multimedia production and final publication. The journalists publishing for *Impulsi* are divided in three categories: journalists, chief editors, and director, each having different permissions. This allows journalists to work easily and independently, without losing a strict control on the outcome.

A key feature of *Impulsi* is the possibility for each museum to provide customized edition of *Impulsi* to their public. At present, this can be done directly by the client, by selecting among the standard edition or special editions of *Impulsi*. A higher level of customization is technically controlled centrally: this consists in delivering specifically produced animations or news or agenda entries to each museum, according to specific requirement (features of local interest added to the general news, etc., see above): in fact the software has been conceived so that the staff can easily send animated news to selected users in between the centrally edited news. The present version allow for 6x4 news to be added, but can be further expanded to add an indefinite number of information.

As for the animated news themselves, they are produced with Macromedia Flash, plus the usual set of tool used to edit video clips, animations, etc

IV. Conclusions

Impulsi started to be screened in 11 Italian museums in march 2004. It is thus a very young

experience still in its experimental phase. A careful evaluation procedure is being carried on, in order to evaluate the impact and redirect the proposal, making it even more appealing for the museum public.

As the experimental phase will be over, our goal is to redistribute *Impulsi* in as many museums and cultural centres as possible, both in Italy and in other European countries.

Indeed, the possibility of delivering video-news in specific location can be exploited not only for diffusing commercials or to provide site-specific information (such as inside airports or stations), but to provide a real encounter with science news. The long term goal of *Impulsi* is thus relocating science at the heart of cultural communication, by inventing a new communication tool taking advantage of and giving value to existing cultural agencies such as science centres and science museums, and making use of up to date technology.

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After few years of scientific research in radiation biophysics, Matteo studied science communication at SISSA, Trieste, where he is currently in charge (with Paola Rodari) of teaching and research (within the ICS – Innovation in the Communication of Science group) in the "science communication in museums" sector, and is responsible of the research sector on the radio and of the EU funded project SCIRAB (Science in Radio Broadcasting).

He is collaborator of Zadigroma for "IMPULSI", a newstand currently bringing multimedia science news in 11 Italian museums.

As a journalist, he has been producer and presenter, together with Sylvie Coyaud, of the weekly science radio programme "*Il ciclotrone*" at Radio Popolare, then in 2000-2002 of the daily "Le Oche di Lorenz" at RAI - Radio 3 and is presently contributor to the daily programme "Il volo delle Oche", Radio 24. He is contributor to the culture pages of the newspaper "Il Sole 24 Ore" and to the French magazine "Science & vie".

He has published with Sylvie Coyaud, *Guida ai musei della scienza in Europa* (Clup guide, UTET, Torino, 1999) and with Federico Pedrocchi, *Dove vanno le macchine* (Ed. Le Vespe, Milano 2000).

He has also been coordinator of science exhibitions, such as *Energia* 2001 in Trento, and has co-organised several editions of the science film festival *Vedere la scienza*. He lives in Paris, where he has been working at CNRS Images/Media on a European project on science in TV Drama.

Francesca Conti

After a University degree in biology, Francesca Conti achieved a Master in Science Communication at the International School of Advanced Study (SISSA) in Trieste, with a specialisation in museology of science. She is working as author and director of scientific documentaries (RAI and RAI Educational), and as a freelance scientific journalist. In particular, she is in

charge of a project for collecting data national archives of science museums (led by Zadig srl), and she contribute to web sites reviewing science museums (for INFM, Italy). In 2003, she spent a period of work at the At-Bristol Science Centre (Bristol -UK), where she was in charge of an evaluation study. She is currently part of the Innovation in Science Communication group at SISSA. She is the chief-editor of *Impulsi*.