SEVENTH FRAMEWORK PROGRAMME

Networked Media

Specific Targeted Research Project

SMART

(FP7-287583)

Search engine for MultimediA environment generated contenT

D7.1.2 Report on Dissemination and Standardization Activities M30

Due date of deliverable: 01-05-2014

Actual submission date: 16-05-2014

Start date of project: 01-11-2011 Duration: 36 months

Summary of the document

Code:	**D7.1.2 Report on Dissemination and Standardization Activities (M30)**
Last modification: **State:**	16/05/2014 Final
Author(s):	Arta Babaee (Imperial College), Aristodemos Pnevmatikakis, John Soldatos (AIT) Irene Schmidt, Jose Miguel Garrido Gonzalez (ATOS) Antonis Litke (Telesto), Craig Macdonald, Iadh Ounis (GLA) Massimiliano Tarquini (S3LOG), Tomás García Fresno (City of Santander), Jorge Tomé (PRISA Digital), Zvi Kons (IBM).
Audience:	☒ public ☐ restricted ☐ internal
Abstract:	*This deliverable is a living document (report), which documents the planned and accomplished dissemination activities of the SMART project (including both the activities carried out by individual partners and by the project as a whole). It will be delivered to the EC in three releases (periodically).*
Keywords:	• Dissemination • Outreach
References:	DoW, D7.3 Project Website and D7.5 Exploitation Activities and Plans

Table of Contents

Table of Figures

Table of Tables

1 Executive Summary

The SMART Deliverable D7.1.2 series describes the dissemination strategy and activities intended and performed by the SMART consortium. This represents the Month 30 (M30) and final iteration comprising/reporting the dissemination activities undertaken by the partners up to April, 30, 2014. The period represents an overlap between phases of its dissemination and outreach campaign; an initial one of general presence and awareness, and a new phase focusing on scientific dissemination and stakeholder promotion, use and adoption - leveraging SMART's new tangible technical releases.

Following the strategy, the document then presents the actions which have been taken by the partners in line with the initial dissemination directives proposed in the work plan and previous iterations of this deliverable series. It also sets the context of how the project has continued and evolved these actions in its more stakeholder-oriented second half.

This deliverable has been maintained as a "living" document for the SMART dissemination activities throughout the project. As already outlined, the present release of the document represents the final one, which collectively reports all the dissemination activities conducted since the start of the project.

2 Introduction

The main outcome of SMART in terms of a product is the SMART multimedia search engine. The engine and its development constitute a significant size of research and innovation work. Therefore, one project objective is to ensure the proper dissemination of the project results both as a complete SMART search engine as well as the individual pieces of research work that make an inherent basis for the proper functioning of the SMART multimedia search engine.

SMART provides an opportunity for cooperation among a wide range of partners from the industrial sector as well as R&D institutions and Universities. In conjunction, the efforts of the project partners in promoting the project visibility and the wide dissemination of its outcomes, has ensured a diverse and wide outreach. In particular, the impact of the SMART project will be realized in a wide and varying business and academic landscape represented by the partners.

The main purpose of this deliverable is two-fold. Firstly, it serves to present the dissemination and outreach activities executed by the SMART project partners. Secondly, it demonstrates the overall approach taken to coordinating dissemination, analysis of current success and plans which have been executed. Dissemination is an important element of the project strategy as ultimately (i) the exploitation success of the project is related to the number of users, developers and providers which can be recruited, and (ii) the impact in the research and academic arena is related to the extent of distribution and interest in the components and findings of the project. Furthermore dissemination efforts leads to collaboration with other projects, both FP7 and or otherwise, and is in the interests of other stakeholders (promoting the innovation capability of the involved partners and the European Commission's commitment to R&D).

This deliverable has been maintained as a "living" document for the SMART dissemination activities. This version is the final update at the Month 30 of the project.

The remainder of this document is structured as follows: In Section 3, the flexible dissemination strategic framework is discussed and the overall objectives are divided with respect to targeted communities, activities and time frames, as well as a set of directives is laid out which has guided the partners towards achieving these objectives. In Section 4, dissemination activities achieved are described and analyzed.

3 Dissemination Strategy and Directives

The dissemination strategy was designed to make the results of our up to date research and technology development available to targeted communities.

Instead of a rigid and detailed strategic plan for the project, a lightweight agile strategic framework was assumed: the overall objectives were divided with respect to targeted communities, activities and time frames, then a set of directives were given to guide partners into the activities meant to achieve these objectives. This agile framework was meant to enable partners to move quickly and easily with respect to opportunities of dissemination while guiding their activities and leveraging their autonomy.

Table 1: SMART's Dual-Phase Dissemination Campaign

Phase	Targeted Communities	Focus	Actions/activities	Time Frame (approx.)
Phase 1 Presence & Awareness	Researchers: Search Engines, Internet Of Things, Information Fusion, and more.	Presence	SMART Website Social Media (e.g. Twitter), etc.	M1
		Awareness	Scientific Publications Conferences, etc.	M12
Phase 2 Exploitation & Promotion	Actors: Application developers in Smart City and IoT domains, data providers, integrators, A/V search providers, etc.	Demonstration of Exploitation	Test and demonstration of SMART assets, promoting exploitation potential	M24
		Promotion	Participation to, demonstration in and organization of events and meetings.	M36

Currently we are at the end of phase 2 reflected above in Table 1. While the partners continue publishing their research endeavors in different conferences, SMART has provided tangible demonstrations and has been promoting availability of its open source assets.

3.1 Phase 1: Presence & Awareness

During the first half of the project, the SMART dissemination campaign focused on presence and awareness: a) identifying and liaising with concurrent research efforts with an eye for future collaboration; b) initial outreach to early innovators on the potential user or provider side which could assist in developing an exploitation path.

In additional to raising awareness and collaboration among researchers, the initial objectives of SMART's dissemination campaign was focused on promoting the general context of the project and initial community outreach to establish a network of interested parties for the results and adoption-driven second half of the project.

Activities included:

- publications and conference attendance to disseminate initial results and findings
- project website for a consolidated online hub for SMART-related content
- social media for generating online awareness
- publicity and media channel connections to create initial awareness among wider audience
- hosted workshops to foster collaboration among related research

The initial dissemination actions have not only served to establish SMART presence and awareness within the research area, but they also reached a wider, worldwide public. As the results materialized, the focus shifted to include a set of stakeholders encompassing future developers, providers and users.

Section 3 and 4 summarizes our activities in detail, along with the crossover objectives between two major phases of Dissemination campaign.

3.2 Phase 2: Exploitation & Promotion

Since the previous report at Month 18, SMART has transformed towards the technical demonstration and exploitation phase: a) demonstrating the potential academic or commercial exploitation of SMART technical frameworks; b) attracting a large and active user community that might consider the developed technologies in their projects; c) preparing the way for future research efforts in the relevant fields; and d) preparing for possible future adoption in any application domain.

Stakeholders in this context have made available to the 3rd-party organizations the SMART's open-source framework and tools for added-value benefits and profit i.e. application developers in Smart City and IoT domains, data providers, integrators, A/V search providers, etc.

3.2.1 Facilitating Stakeholder Feedback

SMART's outreach is not only oriented to amassing an awareness and network around the project output, but also to facilitate a channel to provide stakeholder input to the rest of the project. The primary links for this collaboration is between the requirements (WP2) and validation activities (WP6).

The dissemination campaign leveraged its conference participation, its hosted workshops and online outreach to help establish a stakeholder network, as well as collaborates with SMART's requirements, development and validation work packages to create tools and opportunities to feed into the project's development release cycles, reflected in Figure 1.

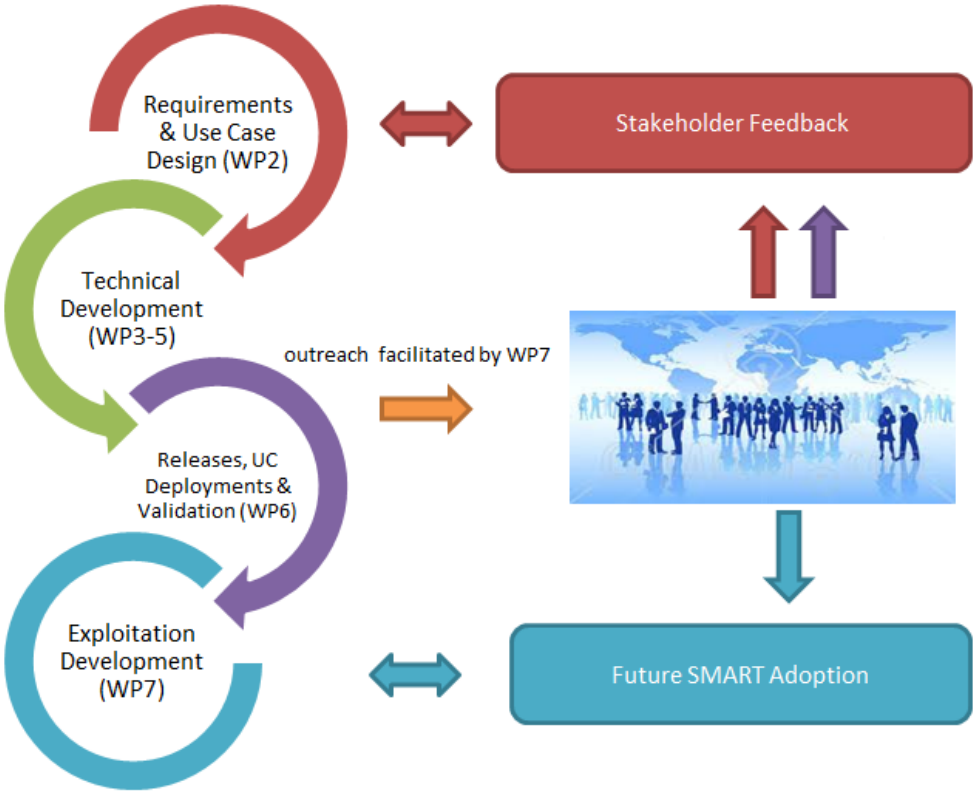


Figure 1: SMART's Stakeholder Outreach and Feedback

An example of this is a survey exercise launched at SMART's FIA Workshops in Dublin, May 2013 and in Greece in 2014. By interacting with fellow researchers in the IoT and Smart City domains, the project was able to pool together a sample of consolidated requirements and experience from multiple initiatives.

This type of external feedback was amplified towards the end of Year 2 (with first release) and throughout Year 3 (second release), timed with the SMART release schedules and development cycles, reaching external developers and data providers that could leverage the system. Increased external participation to the project's early releases was meant to increase adoption potential at the end of the project.

3.2.2 Open Source Communities

A fundamental aspect of our dissemination plan has been to release many of the built software tools as open source licensed, building on the Terrier open source framework. In particular, SMART has continued advertising widely the releases of Terrier, through mailing lists of information, retrieval and related-fields, as well as widely known open source software portals and forums.

During the last year of the project, special emphasis has been given to building an open source community for the SMART results. This is essential; given that open source will be a primary exploitation modality/channel towards achieving the project's impacts. Such strategy has become very relevant in the workplan, following the availability of the first and second open-source release.

3.2.3 Project Demonstration

Understanding that supporting early releases in real-life scenarios is the most impactful stakeholder outreach, SMART has showcased its use cases and Santander deployment in order to add a practical and tangible marketing value to highlight its potential within Smart City and Internet of Things related arenas.

Stakeholders relating to the project application domains (e.g., security/surveillance, on-line collaboration) will be pursued, as well, with intention of future investment in Smart City scenarios utilizing the SMART framework.

A number of demonstrations relating to SMART middleware platforms and related applications/trials were planned as the project progressed. These demonstrations were used to present the project in prominent business and academic events relating to interactive multimedia content, multimedia systems and search engine solutions.

3.3 Overview of Dissemination Campaign Progress

Since the last iteration of the series at month 18, the project has evolved some of its methods for dissemination, particularly as the workplan adjusted between awareness to an adoption-oriented campaign. This natural transition in the 3-year project allowed the project to adapt and foster a bridge between results and impact.

With the context and focus of the two campaign phases, Table 2 below represents success metrics for dissemination in this transition, along with notes to signify areas where the SMART campaign has been evolving.

The term "Adoption Stakeholder" refers to the 3rd-party organizations that can adopt SMART's open-source framework and tools for added-value benefit and profit: application developers in Smart City and IoT domains, data providers, integrators, A/V search providers, etc. (See parallel deliverable series "D7.5.X Exploitation Activities and Plans".)

Table 2: Dissemination Progress Quantitative Overview

Dissemination Activity	Target Values (Current/ Planned)	Target Community	Notes
Publications and Presentations in International Conferences (including open source conferences)	20	Research/Academic Community Open Source Community	The project has been very successful in conferences and publications. Given the range of research topics within the project,
Journal Publications (International Referred Journals)	2	Research/Academic Community	
Press Coverage (formerly "Press Releases")	50+	Adoption Stakeholders Open Source Community Research/Academic Community General Public	Originally measured by amount of press releases, the project is now measuring in terms of coverage. Media is less likely to run several press releases over a short period of time (i.e. incremental progress); as such, the project will consolidate its effort and reach its media channels strategically to bolster its awareness, outreach and adoption.

Dissemination Activity	Target Values (Current/ Planned)	Target Community	Notes
SMART Newsletter Issues	3	Adoption Stakeholders Open Source Community Research/Academic Community General Public	
Participation in Public Exhibitions and Demonstrations	11	Adoption Stakeholders Open Source Community	Refer to Table 7.
SMART Workshops and/or Conferences	3	Adoption Stakeholders Open Source Community Research/Academic Community	
Flash studies (White Papers)	2	Adoption Stakeholders	
Production of SMART material (formerly “leaflet”)	3	Adoption Stakeholders Research/Academic Community	We have expanded the material publication to include posters, flyers, etc., to adapt to the larger conference attendance than originally planned.
Participation in major SMART-related events outside Europe	2	Adoption Stakeholders Research/Academic Community	

4 Dissemination Activities

To engage in these overlapping phases of SMART's dissemination campaign, the project utilized a wide range of methods to increase awareness, circulate results and incorporate stakeholders.

4.1 Publications and Conferences

Over the first 18 months of the project, an awareness campaign focused on scientific papers, conferences and related workshops allowed SMART to reach an early following of the project's initial results and findings (see Table 3 below). This effort continued throughout the project, supporting the scientific dissemination of SMART as results mature.

Table 3: Conferences, Events and Publications

Title	Authors / Presenters	Type	Venue	Date	Location	Description
Multimedia Search over Integrated Social and Sensor Networks	John Soldatos, Moez Draief, Craig Macdonald and Iadh Ounis	conference paper	WWW2012, conference (EU Projects Track)	16-Apr-12	Lyon, France	Covers the motivations and the gap in existing technologies that gave rise to the SMART project, as well as describing the overall architecture of the SMART search engine product, and plausible use cases.
Norms and Learning in Probabilistic Logic-Based Agents	Régis Riveret, Antonino Rotolo, Giovanni Sartor	conference paper	DEON 2012 (Deontic Logic in Computer Science)	16-Jul-12	Bergen, Norway	Investigates formalisms and algorithms for Probabilistic Rule-based Argumentation for inference and learning. Within the SMART project, this work prepares the construction of a probabilistic rule-based engine as an alternative to Markov Logic Networks. (Imperial)

Title	Authors / Presenters	Type	Venue	Date	Location	Description
SMART: An open source framework for searching the physical world	M-Dyaa Albakour, Craig Macdonald, Iadh Ounis, Aristodemos Pnevmatikakis and John Soldatos	conference paper	SIGIR (Special Interest Group of Informational Retrieval) Workshop in Open Source Information Retrieval	16-Aug-12	Portland, Oregon, USA	Feedback was in general very positive with respect to the tackled application (combining sensor and local search) and many delegates commended the introduction of a new ranking paradigm. Most other feedback was related to the efficiency of the framework: i.e. the necessary architecture to handle a large number of edge nodes, in addition to handling the social networks, which are themselves very problematic to process in real-time during busy peaks.
Learning to Predict Response Times for Online Query Scheduling	Craig Macdonald, Nicola Tonellotto and Iadh Ounis	conference paper	SIGIR 2012 (Special Interest Group of Informational Retrieval)	16-Aug-12	Portland, Oregon, USA	Proposes a new technique of query efficiency prediction, which facilitates the more accurate scheduling of queries within a replicated/distributed search engine. Learning to rank techniques will feature within the effective SMART search engine, while efficiency prediction can be used for large distributed instances of the SMART search engine. (GLA)
The Whens and Hows of Learning to Rank	Craig Macdonald, Rodrygo Santos and Iadh Ounis	journal paper	Information Retrieval	2-Sep-12	n/a	Investigates several practical research questions about how to deploy the latest generation of learning to rank techniques. (GLA)
Multimedia Search and Retrieval over Integrated Social and Sensor Networks	Irene Schmidt, John Soldatos and Paul Moore	conference paper	Third International Conference on Computational Aspects of Social Networks (CASoN 2011)	19-Oct-12	Salamanca, Spain	Cover the motivations and the gap in existing technologies that gave rise to the SMART project, as well as describing the overall architecture of the SMART search engine product, and plausible use cases.

Title	Authors / Presenters	Type	Venue	Date	Location	Description
Probabilistic Rule-base Argumentation for Norm-Governed Learning Agents	Régis Riveret, Antonino Rotolo, Giovanni Sartor	journal paper	Journal of Artificial Intelligence and Law	1-Nov-12	n/a	Investigates formalisms and algorithms for Probabilistic Rule-based Argumentation for inference and learning. Within the SMART project, this work prepares the construction of a probabilistic rule-based engine as an alternative to Markov Logic Networks. (Imperial)
University of Glasgow at TREC 2012: Experiments with Terrier in Medical Records, Microblog, and Web tracks	Nut Limsopatham, Richard McCreadie, M-Dyaa Albakour, Craig Mac-donald, Rodrygo L. T. Santos, and Iadh Ounis	conference paper	21st Text REtrieval Conference (TREC)	6-Nov-12	Gaithersburg, Maryland, USA	Evaluated new adaptive filtering models for microblogs streams.
Identifying Local Events by Using Microblogs as Social Sensors	M-Dyaa Albakour, Craig Macdonald, Iadh Ounis	conference paper	International Conference on Open research Areas in Information Retrieval (OAIR 2013)	22-May-13	Lisbon, Portugal	Describing a novel event retrieval framework that can identify and rank local events in a response to a user query by using evidence from geo-located social media content.
Diffusion Maps for PLDA-based Speaker Verification	Oren Barkan, Hagai Aronowitz	conference paper	The 38th International Conference on Acoustics, Speech, and Signal Processing (ICASSP)	27-May-13	Vancuver, Canada	The paper proposed a non-linear method for representing speech sessions as a front-end for speaker verification.
Visual Measurement Cues for Face Tracking	A. Pnevmatikakis, A. Stergiou and N. Katsarakis	conference paper	18th International Conference on Digital Signal Processing (DSP 2013)	1-Jul-13	Santorini, Greece	Details the face tracker used in SMART, focusing on the three different measurement cues employed, and how they are modeled under a common framework. (AIT)
Cascaded Dynamic Noise Reduction utilizing VAD to improve residual suppression	Theodoros Petsatodis, Christos Boukis,,Fotios Talantzis and Lazaros Polymenakos	conference paper	18th International Conference on Digital Signal Processing (DSP 2013)	1-Jul-13	Santorini, Greece	Details an audio denoising system that employs voice activity detection which characterischaracterizes an audio frame as speech or non-speech. (AIT)

Title	Authors / Presenters	Type	Venue	Date	Location	Description
Audio Event Classification Using Deep Neural Networks	Zvi Kons, Orith Toledo-Ronen	conference paper	14th Annual Conference of the International Speech Communication Association (Interspeech)	25-Aug-13	Lyon, France	This paper presents audio event classification for different outdoor events using deep neural networks and compares this to other classifiers.
On Leveraging Conversational Data for Building a Text Dependent Speaker Verification System	Hagai Aronowitz, Oren Barkan	conference paper	14th Annual Conference of the International Speech Communication Association (Interspeech)	25-Aug-13	Lyon, France	The paper proposed methods for leveraging commercial corpora (NIST) for training a speaker verification system in a different domain.
On Sparsity and Drift for Effective Real-time Filtering in Microblogs	M-Dyaa Albakour, Craig Macdonald and Iadh Ounis	conference paper	22nd Annual ACM International Conference on Information and Knowledge Management (CIKM 2013)	28-Oct-13	San Francisco, CA USA	The paper describes novel adaptive real-time filtering approaches for tweets. These approaches tackle the sparsity challenge stemming from the brevity of tweets. They also tackle drift into certain aspects of the general topic due to occurrence of events. These approaches were evaluated extensively on the TREC Microblog track.
Challenges in Recommending Venues within Smart Cities.	Romain Deveaud, M-Dyaa Albakour, Craig Macdonald and Iadh Ounis	conference paper	1st International Workshop on Information Access in Smart Cities (iASC-2014), colocated with ECIR 2014.	13-April-13	Amsterdam, the Netherlands	The paper discusses the research opportunities that can arise with the use of the digital infrastructure of a smart city, and how the venue recommendation applications can benefitt from this infrastructure. We focus on the potential applications of social and physical sensors for improving the quality of the recommendations, and highlight the challenges in evaluating such recommendations.

Title	Authors / Presenters	Type	Venue	Date	Location	Description
"Search-the-City" – A versatile dashboard for searching and displaying Environment and User Generated Content in the context of the future Smart City	Athanasios Moralis, George Perreas, Anastasios Glaros and Dimitrios Dres	conference paper	1st International Workshop on Information Access in Smart Cities (iASC-2014), colocated with ECIR 2014.	13-April-13	Amsterdam, the Netherlands	The paper presents a visualization Framework based on SMART FP7 project, that allows users and developers to build visual applications that empower these environmental- and user-generated data in a meaningful way, appropriate for the future Smart City.sCities
Domain Adaptation for Text Dependent Speaker Recognition	H. Aronowitz, A. Rendel	conference paper	Interspeech 2014	Sept-2014	Singapore	Proposes novel techniques for being able to train a speaker recognition system on one domain and using it on a different domain.
Compensating Inter-Dataset Variability in PLDA Hyper-Parameters for Robust Speaker Recognition	H. Aronowitz	conference paper	Speaker Odyssey, 2014	June-2014	Joensuu, Finland	Major improvements of the Inter Dataset Variability Compensation (IDVC) method introduced in our ICASSP 014 paper. IDVC has shown to effectively reduce the influence of dataset variability on our state-of-the-art i-vector PLDA system.
Inter Dataset Variability Compensation for Speaker Recognition	H. Aronowitz	conference paper	ICASSP, 2014	May-2014	Florence, Italy	Introduced a novel method named Inter Dataset Variability Compensation (IDVC) which has shown to effectively reduce the influence of dataset variability on our state-of-the-art i-vector PLDA system.
A Monte-Carlo Tree Search in Argumentation	Regis Riveret, Cameron Browne, Didac Busquets, Jeremy Pitt	conference paper				Learning logical theories "on the fly" for complex event processing.
Improving Event recognition using Sparse PCA in the Context of London Twitter Data	Theo Pavlakou, Arta Babaee, Jeremy Pitt, and Moez Draief	conference paper (submitted)	ISCIS 2014	Oct-2014	Krakow, Poland	Demonstrated that using Sparse PCA algorithms it is possible to infer results from microblogs such as Twitter. Different matrices representing the data features have then been analyzed and feed to the algorithm for Sparse PCA to produce results in the context of London twitter data.

4.2 Flash studies/White papers

As the project entered its second half, results-specific materials were also published. As mentioned by DOW there have been topics inside the context of the project that met extensive scientific and industrial interest. During the third year of the project, industry partners of the consortium created several such flash studies, in the form of small documents. Below a table of these studies can be seen along with a brief description.

Table 4 - Flash studies/ White papers

Title	Created by	Description
Live News Application using automatic data generation based on the SMART search engine for multimedia environment generated content	PRISA	The objective of this white paper is to present the solution built by the SMART consortium for local live news generation and visualization using automatically generated events combining data collected by physical sensors and social network geo-localized conversation.
SMART Search-the-City Platform // A versatile solution for urban monitoring and situational awareness	TELESTO	This white paper aims to describe the use of SMART for the development of innovative Web based services for urban monitoring and situational awareness. The intended audience is the technical services department of a city or a municipal authority.
SMART COP- When it happens…It's too late	S3LOG	The objective of this white paper is to address the following problem; An observer is confronted with a two dimensional array of monitors. He has to switch to select the one or ones from which a time-lapse video recording is made and he has to do this repetitively. The problem is that the observer is likely to lose concentration. Furthermore significant events are very infrequent, they may not be observed at all because observer is not active for the majority of time. When a significant event happens. It is often too late.

4.3 Stakeholder Workshops, Exhibitions, Partnerships and Public Engagements

In addition to conference and event participation, SMART has been very active with regards to dissemination through other channels, namely by hosting its own workshops, showcasing SMART technology at exhibitions and presenting SMART at different venues for increased stakeholder engagement. As SMART has had numerous presences in multiple venues we first present the major efforts, most importantly, workshops organized by SMART itself and then present a summary table of different types of other dissemination efforts by partners.

4.3.1 Presence at Future Internet Assembly

The first of the series was at the Future Internet Assembly in Dublin on May 7th, 2013. Titled "Sensing Smart Cities", the workshop brought together a variety of projects in the IoT and Smart Cities domains, discussing

requirements and strategies to foster developer demand for SMART and related solutions.

Figure 2: FIA Dublin Workshop - Participating Projects

Collaborating projects joining SMART included iCore, SocialSensor, Smart Santander and Radical. The workshop began with plenary presentations outlining their approach, and concluding with a panel roundtable focusing on both technological trends and sustainable business solutions stemming from the Smart City context. The agenda is summarized below in Figure 3.

Sessions	***Welcome and scope of workshop*, Chairman:** Paul Moore, Atos
	Sensing Smart City - Enabling Technologies
	SMART – Web-scale Multimedia Search and Social Networking as sensing smart city enablers. **Speaker**: John Soldatos, Athens Information Technology (AIT) & Craig MacDonald (University of Glasgow)
	***iCore: Internet Connected Objects for Reconfigurable Eco-systems. Cognition as sensing smart city enabler.* Speaker**: Raffaele Giaffreda, CREATE-NET
	***FP7 SocialSensor,* Speaker:** Sotiris Diplaris, CERTH
	Combining Cloud, Sensing & Cognition for making the Smart City happens. **Speaker:** Abdur Rahim Biswas, CREATE-NET
	Smart Santander, Speaker: Jose Antonio Galache López, University of Cantabria
	***FP7 RADICAL*, Speaker:** Paul Moore, Atos
Panel Discussion	
Panels	Topic 1: Technological trends in combining media, sensing, cognition, big data and cloud for creating smart cities ICT infrastructure.
	Topic 2: Business Ecosystem in the Smart City. Applications and Business Models. End user and Business Requirements.
Wrap up (10 min)	
	Wrap up and conclusions

	Paul Moore (Atos)

Figure 3: FIA Dublin Workshop - Agenda

The concluding roundtable offered several thoughts on challenges, opportunities and sustainability.

Challenges:

- fragmentation: IoT and Smart City domains have fragmented approaches and a long way from standards; while media has established standards (i.e. formats) we are still hindered in a mashup scenario of all three
- interoperability: is a priority, particularly in the access of data - a RESTful API would be a step forward in this direction
- data filtering: a challenge and priority is to filter data; by doing so we can advance before established, low-level standards and specifications

Opportunities:

- open-source: important to have a SMART-like framework open-source, not only for the flexibility and integration to applications and services, but also to be able to extend the search engine to place on top of other layers, other projects, etc.
- mobiles: should be leveraged as both a sensor and device; it's a dynamic where the end-user is also providing the data in the value chain

Sustainability:

- stronger collaboration: a sustainability model has to derive from increased collaboration between communities, e.g. census + web community
- developer incentives: win-win partnership needed for smart cities applications, where developers have access to open data and can profit from citizen/consumer oriented services
- austerity environment: cuts in local funding creates difficulties for municipality (data providers) to provide and curate the data needs for added-value applications; public-private partnerships need to adapt and foster to not only support third-party development, but the investment of sensors and data management infrastructure

These points have helped catalyze additional discussion in the project in both the technical roadmap and exploitation/sustainability development, also forming further discussion for a wider stakeholder engagement leading up to the third year.

SMART co-organized another workshop before the FIA Athens (March 17-20, 2014). The workshop was organized in collaboration with other FP7 projects and in particular with FP7 - 610802 - CloudWave, FP7-287975-SOCIALSENSOR and FP7 -611596-USEMPprojects. The workshop was titled: «Mobile Crowdsensing, Social and Big Data as Innovation Enablers for Future Internet Cloud-based Architectures and Services» and aimed at exploring how crowdsensing, social media and BigData processing in the cloud enable innovative Future Internet applications in several areas ranging from manufacturing to infotainment and media. The agenda of the workshop is provided in the following table:

Table 5 - Agenda of the PreFIA workshop co-organized by SMART during FIA Athens, 2014

«Welcome, Opening», Prof. Symeon Papavassiliou National Technical University of Athens (Greece)

«Cloud Based IoT Applications», Prof. Antonio Puliafito University of Messina (Italy)
«Resource abstraction, representation and virtualization», Stella Kafetzoglou, NTUA-Greece
«Mobile Crowd Sensing Applications», Salvatore Distefano (PoliMI-Italy)
«Mobile platforms and integration with IoT technologies», Theodoros Michalareas (VELTI-Greece)
«Agile Service Engineering: the CloudWave project», Prof. Antonio Puliafito University of Messina (Italy)
«Infusing social innovation in FI for Manufacturing», Fenareti Lampathaki (National Technical University of Athens - Greece)
«Integrating Social Sensors in IoT applications for Smart Cities», Prof. John Soldatos Athens Information Technology, Greece
«Enabling FI with large-scale mining & sensing from social streams», Symeon Papadopoulos (Centre for Research and Technology Hellas - Greece)
«User privacy in FI social networks», A drian Popescu (CEA LIST – France)

The following questions were addressed during the workshop:

- how new consumer and marketing services can be built around mobile and IoT technologies.
- how mobility contributes to the development of new service architectures,
- what consumer related issues should be considered (personal clouds and personal data management).
- what is the role of social media processing elements in providing new advanced services.
- how applications should be developed and mobile services adapted to the environment (e.g. CloudWave),

The SMART presentation was titled «Integrating Social Sensors in IoT applications for Smart Cities» and emphasized on how combinations of data streams from physical sensors and social networks can lead to innovative participatory applications in smart cities. The presentation emphasized the SMART search approach/framework and how it can contribute to event identification and processing in the scope of niche applications. SMART attracted attention as being a project that bridges social media /networks with IoT, whereas the approaches of other projects were mostly focused on either IoT or social media processing. Three participants asked explicit questions about SMART and they were invited to the SMART exhibition booth within the FIA 2014.

4.3.2 Information Access in Smart Cities (i-ASC 2014)

The team at the University of Glasgow, with researchers from IBM, Dublin and the University of Waterloo, Canada, has co-organised on information access in smart cities (i-ASC 2014). The workshop was held in conjunction with ECIR 2014. The goal of the workshop is twofold. Firstly, we aim to foster building a research community to work on the aforementioned research themes within smart cities. We envisage that this community will be inclusive of academics and practitioners not only in IR, but also in a variety of disciplines such as knowledge management, databases, machine learning, and human computer interfaces. Secondly, we aim to define a roadmap for developing information access systems in smart cities, where we identify the key challenges in each of the four themes and instantiate concrete tasks we can start working on as a community.

The workshop was well attended and it attracted 45 registered attendees. The programme featured 4 invited speakers from both academia and industry and 7 presentations for the submitted papers which has been selected by an international programme committee. The table below details the agenda of the workshop:

Table 6 - i-ASC Workshop Agenda

Session 1	09:00 - 09:10 Welcome
	Searching Smart Cities
	09:10 - 09:55 *Keynote 1: Content, Connection and Context: From Data to Insight in Smarter Cities* Dr. Pól Mac Aonghusa, Senior Research Manager at Smarter Cities Technology Centre, IBM
	09:55 - 10:10 *From Smart Cities to Smart Neighborhoods: Detecting Local Events from Social Media* Yang Li and Alan Smeaton (Dublin City University, Ireland)
	10:10 - 10:25 *Modeling the Web of Things from an IR approach* Cristyan Manta-Caro (District University of Bogota Francisco Jose de Caldas, Columbia) and Juan M. Fernández-Luna (University of Granada, Spain)
Session 2	**City Data**
	10:45 - 11:30 *Keynote 2: Smart Cities, Smart Citizens and the case for the CitySDK* Frank Kresin, Research Director at Waag Society
	11:30 - 11:45 *The Influence of Indoor Spatial Context on User Information Behaviours* Yongli Ren (RMIT University, Australia), Martin Tomko (The University of Melbourne, Australia), Kevin Ong, Yuntian Brian Bai and Mark Sanderson (RMIT University, Australia)
	Context and Recommendation
	12:00 - 12:35 *Invited contribution: Mining digital footprints for smart tourism.* Dr. Raffaele Perego, Head of HPC Lab, ISTI CNR, Pisa, Italy
Session 3	13:45 - 14:00 *Challenges in Recommending Venues within Smart Cities.* Romain Deveaud, M-Dyaa Albakour, Craig Macdonald and Iadh Ounis (University of Glasgow, United Kingdom)
	14:00 - 14:15 *Smarter Cities, Safer Travels: Integrating Contextual Suggestion*. Adriel Dean-Hall and Jack Thomas (University of Waterloo, Canada)
	HCI & Applications in Smart Cities
	14:15 - 14:50 *Invited Contribution: Tourists in Smart Cities: Data mining for hidden treasures.*Professor Jon Oberlander, School of Informatics, University of Edinburgh, UK
	14:50 - 15:05 *"Search-the-City" – A versatile dashboard for searching and displaying Environment and User Generated Content in the context of the future Smart City*. Athanasios Moralis, George Perreas, Anastasios Glaros and Dimitrios Dres (Telesto)
Panel and breakout	15:30 - 16:15 Panel discussion
	16:15 - 17:00 Breakout session (one group per theme) to address issues raised by panel
	17:00 - 17:30 Report from the breakout

The panel concluded the workshop and raised topics that were grouped into three main themes (City data, IR tasks in Smart Cities, and privacy). The discussion in the breakout groups resulted in identifying the main challenges and research

4.3.3 Partnership with UrbanTec Asia 2014

In March 2014, Imperial College London (on behalf of SMART consortium) and UrbanTech Asia conference formed a partnership to promote SMART activities in the upcoming conference in May 2014. Subsequently, Imperial College London is the invited speaker at the UrbanTec Asia conference to present the achievements of the SMART project during the first two years. The partnership includes the following points. Koelnmesse Ltd, organiser of UrbanTec Asia confrence will provide the following:

1) Place SMART FP7 logo on available marketing materials as supporting partner, including conference materials and backdrop;

2) Promote SMART FP7 through UTA media network to both in and out of China with UTA press activities (press releases, eDM, advertisement, etc.);
3) Provide travel sponsorship for SMART FP7 representative/speaker;
4) Free conference passes to SMART FP7 partners;
5) 1-page advertisement for SMART FP7 in UTA Conference Directory 2014;

In return, the SMART will promote UrbanTec Asia 2014 e.g. via website and newsletters, send one representative to speak at the UTA 2014 sub-forum on The IOT and Digital City. Furthermore, SMART invites partners to attend UTA 2014 and explore matchmaking opportunities with Chinese counterparts.

4.3.4 Public engagements, exhibition and workshop presence

In addition to the efforts in the previous subsections, the following table shows the SMART activities in dissemination through other channels.

Table 7- Summary of public engagements, exhibition and workshop presence

Title	Authors / Presenters	Type	Venue	Date	Location	Description
Use of Data Streams Management and Search Capabilities for Smart City Services (Translation from Greek)	Aristodemos Pnevmatikakis, Nikolaos Katsarakis, Thanos Alexiou	Exhibition/Presentation	Cloud & Green InfoCom	10-Apr-13	Athens, Greece	Demonstrated the SMART edge node as the centre for collection of local information. Presented the concept but focused on the software implementation and accompanying documentation.
SMART Networking at Mobile World Congress	Dimitris Drakoulis, Dimitris Dres	Exhibition/Presentation	Mobile World Congress 2013 (Barcelona), B2B matchmaking event	28-Feb-13	Barcelona, Spain	See below table
Glasgow Science Festival	Glasgow Team	Public Engagement	University of Glasgow	09-Jun-13	Glasgow	Showcased the SMART project and demos during the Glasgow Science Festival. During this event, members of the public (inc. professionals, families and children) had the chance to know more about the SMART project by interacting with the demos and having the chance to discuss the project's underlying technologies.

Title	Authors / Presenters	Type	Venue	Date	Location	Description
Scotland's Technology Show Event	Glasgow Team	Exhibition/presentation	Scottish Exhibition and Conference Centre (SECC)	11-Jun-13	Glasgow	Secured a stand within the Smart Cities exhibition section at (STS 2013) which has "smart cities and communities" among its main themes. During this event, the GLA team made contacts with professionals working in different sectors including government, health and education. The discussions resulted in important feedback to the SMART consortium providing potential leads for future collaborations. Among the most notable organisations that have shown interest in SMART during this event are the DSTL (cyber security, crisis management), Mott MacDonald (traffic management), and the BSI group (SMART cities Standards).
SICSA MMI Information Retrieval Workshop	Glasgow Team	Workshop	Glasgow Caledonian University	31-May-13	Glasgow	Participated in the SICSA MMI Information Retrieval Workshop, which is an opportunity for members of the vibrant IR community in Scotland to meet, present and discuss their ideas. In this event, GLA gave two talks covering the IR challenges in the SMART project and the research progress we made to tackle these challenges.
Smart City Expo 2013	Arta Babaee, Irene Schmidt, Paul Moore, Dimitris Drakoulis, Dimitris Dres, Thanous Alexio	Exhibition/presentation	FIRA Barcelona	Nov 2013	Barcelona	SMART was represented at smart City Expo in Barcelona (www.smartcityexpo.com). The SMART project booth was visited by many stakeholders from different countries and various sectors (Public sector and Industry).

Title	Authors / Presenters	Type	Venue	Date	Location	Description
DEMOfest	Glasgow Team	Exhibition/ Presentation	Robert Gordon University	11-Feb-14	Aberdeen	DEMOfest is an annual SICSA (Scottish Informatics & Computer Science Alliance) event where researchers from all areas of Computing Science in Scotland gather in one space to demonstrate their projects to representatives from industry and other practioners in the field. The SMART project participated in the DEMOfest North edition through the presentation and demonstration of the SMART personalized venue recommendation and anticipation application.
SICSA Future Cities Workshop	Glasgow Team	Workshop	SICSA workshop	9-Jan-14	Glasgow	The team at the University of Glasgow were on-hand at the kick-off workshop of the SICSA's Future Cities theme. The vision for the SMART project was presented, as well as current progress (e.g. event retrieval and venue suggestion), and finally a forward-looking position on other possible types of information needs could be tackled within Smart city environments. This workshop is the first of a series of SICSA workshops in Scotland on the topic of Future Cities, bringing together academia, cities authorities and other public agencies.

Title	Authors / Presenters	Type	Venue	Date	Location	Description
Keynote at CORIA	Dr. Iadh Ounis	Exhibition/Presentation	CORIA (COnférence en Recherche d'Information et Applications).	21-Mar-14	Nancy	The keynote was titled: "*Drowning in Data: On Big Data Streams in IR for Detecting, Tracking and Summarising Events on Twitter*". The keynote discussed four key challenges currently facing the IR community with respect to big data streams, some of which we have also tackled in SMART, namely: the shift from batch to stream processing; the physics of tackling Big Data; how to develop systems that can scale robustly to achieve high steam throughputs; and how to evaluate the effectiveness of stream processing systems over time.
Presentation and Exhibitor's booth in Smart Sustainable Cities	Dr. Dimitris Drakoulis	Exhibition/Presentation	Athens, OTE Academy	1-Apr-14	Athens	The talk discussed the opportunities represented by Open Source frameworks for Smart City Services like SMART, available sources of funding (mentioned the FI-PPP and the FI-Lab), dissemination of Smart City services through Hands-On events (like Hackathons). An open invitation was made for cities to host the SMART infrastructure.
SMART Cities of Future	Dr. Jeremy Pitt	Presentation	UrbanTec Asia	28-May-14	Beijing	The talk discusses the transition from SMART algorithms for data and video collection, search, event recognition and curation, to the self-organising structures required for knowledge commons, as a first step in developing the participatory sensing applications and services based on user generated content that are required for building Smart Cities founded on the institutional design principles of Nobel Laureate Elinor Ostrom.

SMART's presence at the Mobile World Congress (25-28 February 2013, Barcelona) is an example of a stakeholder venue where the project was able to receive initial feedback following its initial requirements exercises.

Likewise feedback from the community of EC researchers and project's was received based on SMART's participation in the FIA 2014 exhibition session in Ath-

ens, Greece. SMART participated in FIA 2014, based on exhibition booth were several SMART demonstrators were showcased, including live demonstrators leveraging data streams from the city of Santander. The booth was promoted under the title: «Build your own smart city», and attracted attention of EU researchers working on smart cities, but also on individual technologies employed in the SMART project (such as video signal processing). A list of 10 people with direct interest on SMART technologies was created during the event.

Several private meetings were either a request by Telesto or a request by the other company or organization. In the latter case, out of the total 7 meetings that actually took place, there were 4 that brought feedback to SMART. The SMART project was published in the meetings portal as "*SMART - intelligent collection and combination of sensor generated multimedia data*" and a short description was also provided.

The following is a description of the 4 meetings whose interest involved SMART, as well as the feedback received:

Infinit (InfinIT - Innovation Network for IT) is an alliance of private organizations and University start-ups in Denmark. The focus of the meeting with InfiniT's R.Koch, was on the potential use cases of the system for the private sector. Both the use cases were presented (1. live news and 2. security), and the feedback was positive especially on the potential for commercial exploitation of live news by the network's start-ups for combining feeds from social media and from the real world (audiovisual). In the follow-up we pursued, the primary opportunity was indicated to be a company organizing the concerts and art events in Denmark and Norway.

SADE GROUP (Turkey) develops products and services that utilize wireless networks to provide connectivity for machine-to-machine (M2M) applications. SADE was not present directly but through their representative (part of the Turkish national presence in MWC), they asked to know more about the opportunity of SMART to connect heterogeneous devices, so I directed them to the respective web page in our website, where the Sensor Edge Server was presented as demo. They were very much focused in the opportunities for offering the SMART services as part of the mobile operators' ecosystem (they are the main service provider for TurkCell in Turkey).

Our meeting with the **CENTRE FOR AMBIENT INTELLIGENCE AND ACCESIBILITY OF CATALONIA** (Spain), which works in the UAB premises in Barcelona, was very interested in opportunities for using the M2M technologies in combination with SMART, to be exploited by municipalities in Spain. The main interest was in the interoperability of the system with several communication protocols for Automated Meter Reading, to be applied in Water Resource Management.

Arctic Crossing Consulting (Finland) is a company interested in Partnership and Sales, whose primary interest was in Co-operation projects on Wireless ICT sector including telecom and Health Care, to be performed in the Scandinavian countries' market. The motivation for the meeting was to research the potential of SMART to offer such services and was not convinced that the Telecom market and especially the mobile services could exploit the results of SMART within a short-to-medium timeframe.

Among other contacts that have been made is **Intel** (i.e. discussions on use of SMART technologies in Dublin or Eindhoven pilot sites) and **Umbrellium (Pachube).**

The above interested contacts, and others made, form a growing project network during SMART's release cycles.

4.4 Project Website

The public website of the project is www.smartfp7.eu. It has been continually updated so that project stakeholders can visualize the main features of future SMART based products, including interactive demos.

The content of the SMART site includes a dedicated page on the SMART system, demos, a newsroom, a public report repository and a consortium section. With the release of SMART's first and second open-source framework, the website also brought tangible results as a technology preview for developers. A screenshot of the primary homepage can be seen below in Figure 4.

Figure 4: Project Website - Homepage

- The SMART system reflects the chosen 3-layer architecture. Extensive information is included in these subsections, as the technologies become available. Similar information is to be found in the public versions of the various deliverables.
- The Demonstration section includes pre-recorded or on-line SMART technology demonstrations, seen below in Figure 5.
- The Downloads section features SMART releases, such as the first open-source framework released in the project's second year.
- The Newsroom serves for news on meetings and other important events like publications. It also serves as image gallery for those events.
- The publication section groups the publications of the project and offers pre-final versions of some of them.
- The public reports section contains links for the public documents, to be updated as they become available. The expected date of publication of all of them is also listed.

- The consortium section gives information on the partners and the key people of the project.

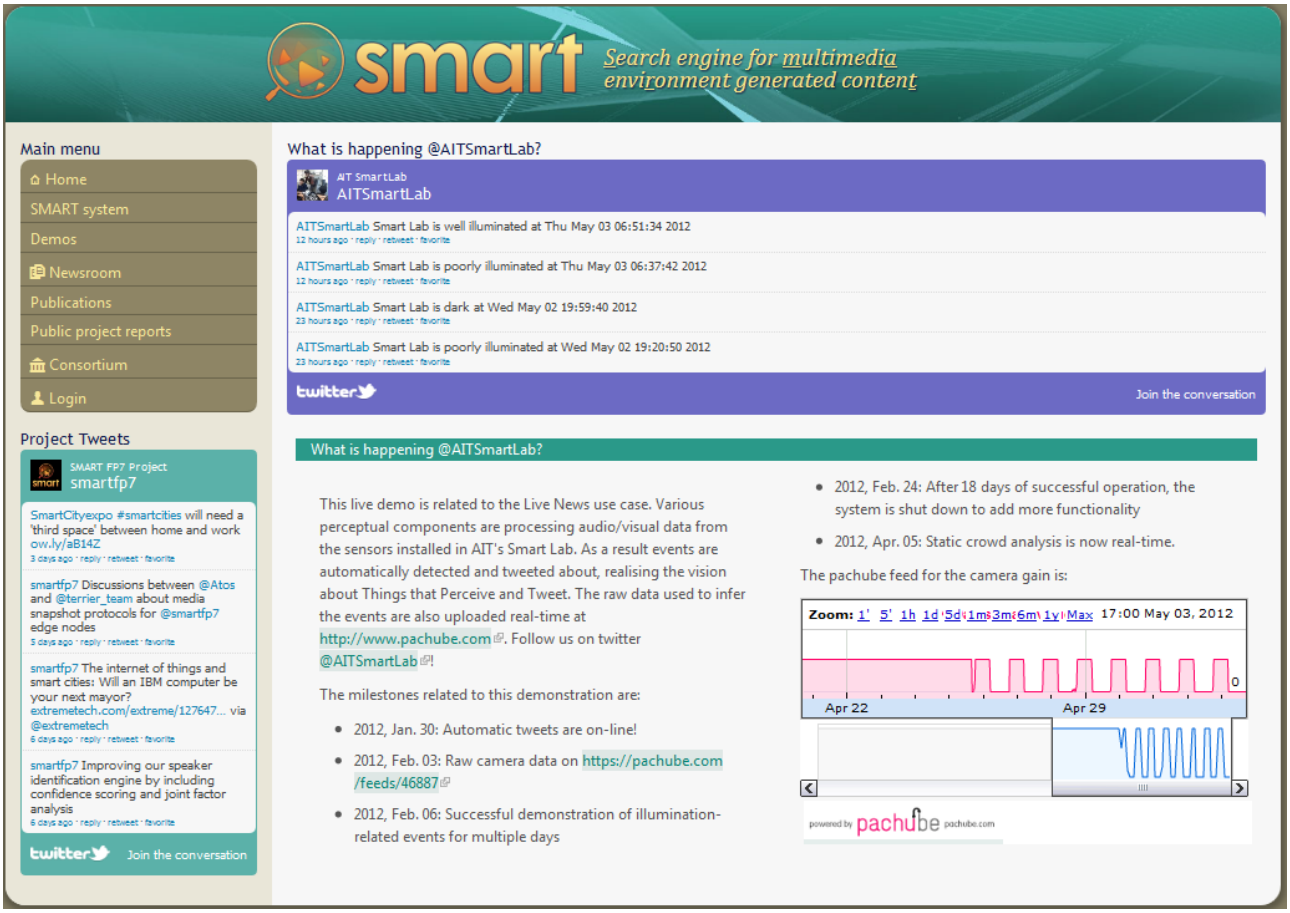


Figure 5: Project Website - Use Cases & Demos

Effort was invested into the website as the project continued its transition towards a dissemination campaign focused around its tangible results. For example, the project's evolving use cases in security and live news offered practical examples and marketing for stakeholder adoption by data providers and developers who could leverage added-value applications and services from the framework. As well, easy links between SMART's open-source hosting page and the primary website was improved.

The number of visitors through the first 18 months of the project is modest (see Figure 6), though this was expected due to the early stage of the project and lack of tangible results for download.

We can identify two peaks that occurred during the summer 2012: they are related to the interviews given by the University of Glasgow (GLA) to the BBC and proceeding press coverage.

As we had anticipated in the previous version of this deliverable the website traffic and visit duration has risen towards Year 3 which reflects increased engagement with SMART releases.

The following table shows the traffic, visits and traffic for the year 2014.

Table 8- Website Visits and Traffic in 2014

Month	Different visits	Number of visits	Pages	Requests	Traffic
Jan 2014	718	6,072	26,904	33,369	1.25 GB
Feb 2014	761	5,306	34,170	42,029	1.62 GB
Mar 2014	986	5,328	34,258	44,829	1.76 GB
Apr 2014	869	1,333	4,126	12,438	1.79 GB
May 2014	311	454	1,343	4,180	491.74 MB
Total	3,645	18,493	100,801	136,845	6.90 GB

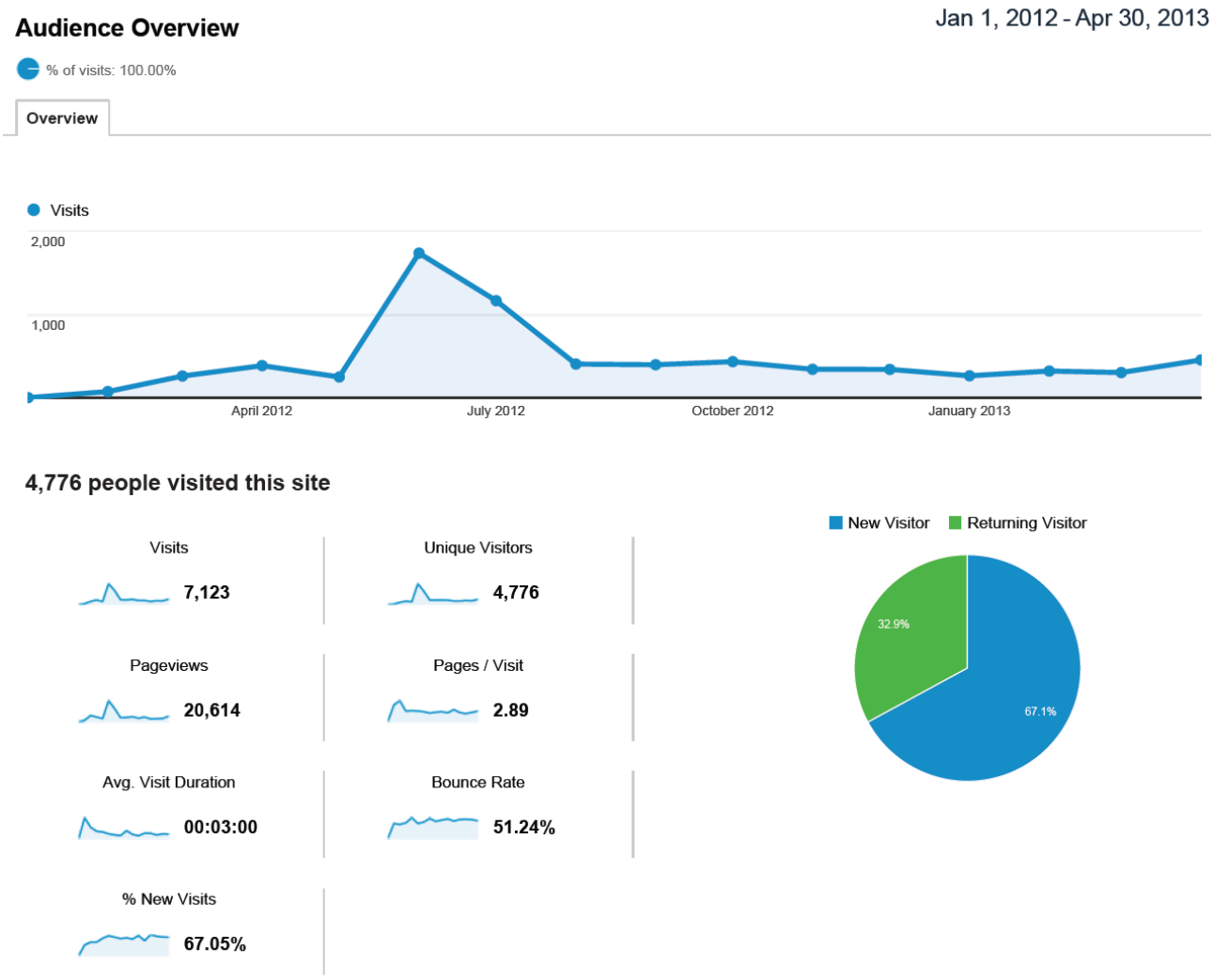


Figure 6: Project Website - Statistics per Visits

The following table shows the traffic and number of visits

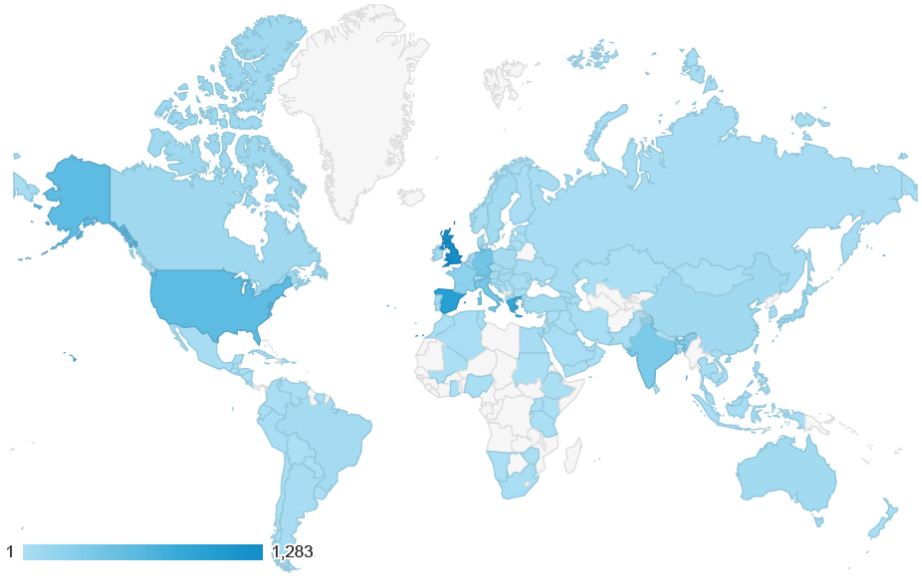
European-based traffic reflects the project's initial dissemination campaign of conferences and networking in the UK, Spain and Greece, seen below in Figure 7. Beyond the other EU Member States, SMART website visits is seeing traffic from countries also leading in research, such as the USA, India and Japan.

Location Jan 1, 2012 - Apr 30, 2013

% of visits: 100.00%

Map Overlay

Site Usage



Country / Territory	Visits	Pages / Visit	Avg. Visit Duration	% New Visits	Bounce Rate
	7,123 % of Total: 100.00% (7,123)	**2.89** Site Avg: 2.89 (0.00%)	**00:03:00** Site Avg: 00:03:00 (0.00%)	**67.08%** Site Avg: 67.05% (0.04%)	**51.24%** Site Avg: 51.24% (0.00%)
1. United Kingdom	**1,283**	3.11	00:03:32	50.90%	41.00%
2. Spain	**996**	4.01	00:03:35	60.24%	49.80%
3. Greece	**836**	3.45	00:05:06	37.56%	41.87%
4. United States	**573**	2.20	00:02:49	87.26%	60.56%
5. Germany	**438**	2.40	00:01:56	68.49%	52.51%
6. Italy	**405**	2.61	00:01:58	67.90%	54.07%
7. India	**341**	1.68	00:01:13	90.03%	71.26%
8. France	**222**	2.93	00:01:55	89.19%	46.85%
9. (not set)	**112**	2.90	00:02:41	80.36%	56.25%
10. Japan	**105**	3.23	00:03:15	67.62%	59.05%

Figure 7: Project Website - Statistics per Geography

4.5 Open-Source Portal and Documentation on GitHub

Since the last version of this deliverable SMART's open-source public documentation has moved from Trac to a new repository https://github.com/SmartSearch utilizing GitHub. Our users should be using this documentation as their source of information about:

- What SMART is,
- How to get information from the existing SMART system,
- How to work with existing installations (our sandboxes),
- How to install their own elements of SMART, and
- How to use our source code.

The homepage of the online documentation is shown below in Figure 8.

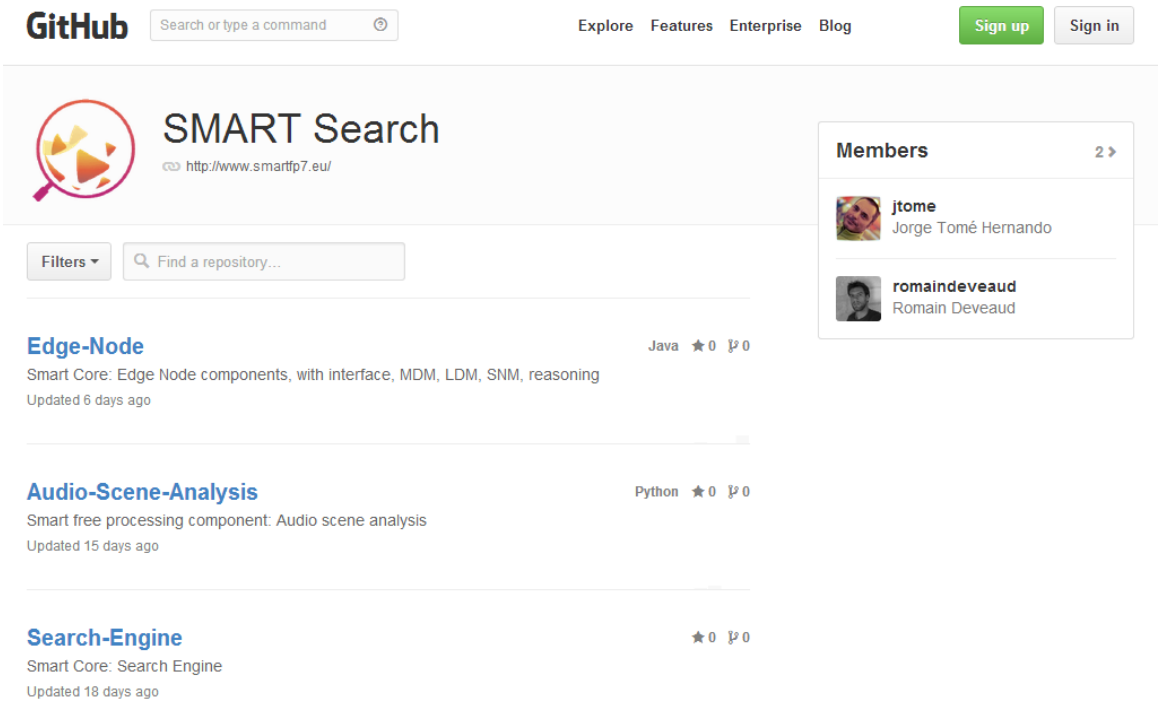


Figure 8: Open-Source Github Portal

This site and its updates have been increasingly important as SMART continued its release cycles. The initial open-source release in Spring 2013 and its subsequent release in Spring 2014 has prioritized a direct channel of collaboration between WP6 and WP7 goals, where stakeholder outreach focused on the tangible assets of the project for early adoption interest and trials.

4.6 Social Media

As with all modern communication campaigns, SMART leveraged social media to ensure a wide online presence and awareness.

4.6.1 Twitter

The project has a Twitter account @smartfp7 for manual tweets, and a related account, @AITSmartLab, for automatic tweets generated by the SMART system.

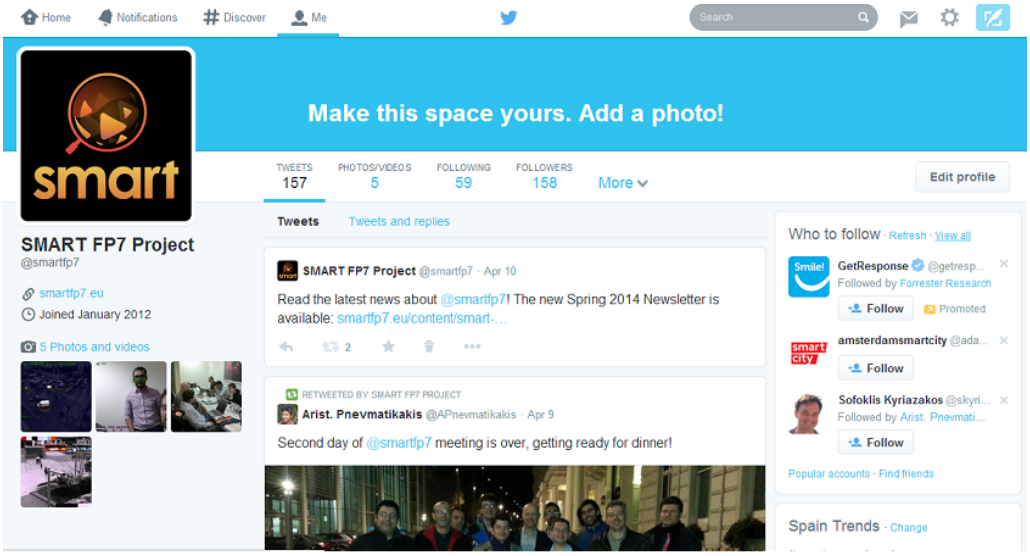


Figure 9: Twitter - Overview

SMART has a growing presence on Twitter. Since the establishment of our project's account, @smartfp7 in January, 2012, the project has consistently been using the service to spread awareness among five categories:

- Technology & demos: These are the majority of the tweets, which describe the evolution of the SMART technology. In some cases links to the public versions and demos in the site are provided.
- Dissemination: These are tweets about publications of the project, or closely related to the project.
- Code & Open source: These are announcements of the parts of SMART code that is in the repository and about the open source community around the project.
- Project news: These tweets are mainly about SMART in the media and consortium meetings.
- Various: External information and @smartfp7 re-tweets about smart living and anything we like.

The SMART tweets are distributed in these categories as shown in Figure 10 below: totaling 119 tweets, 124 followers and we follow 60 tweeters.

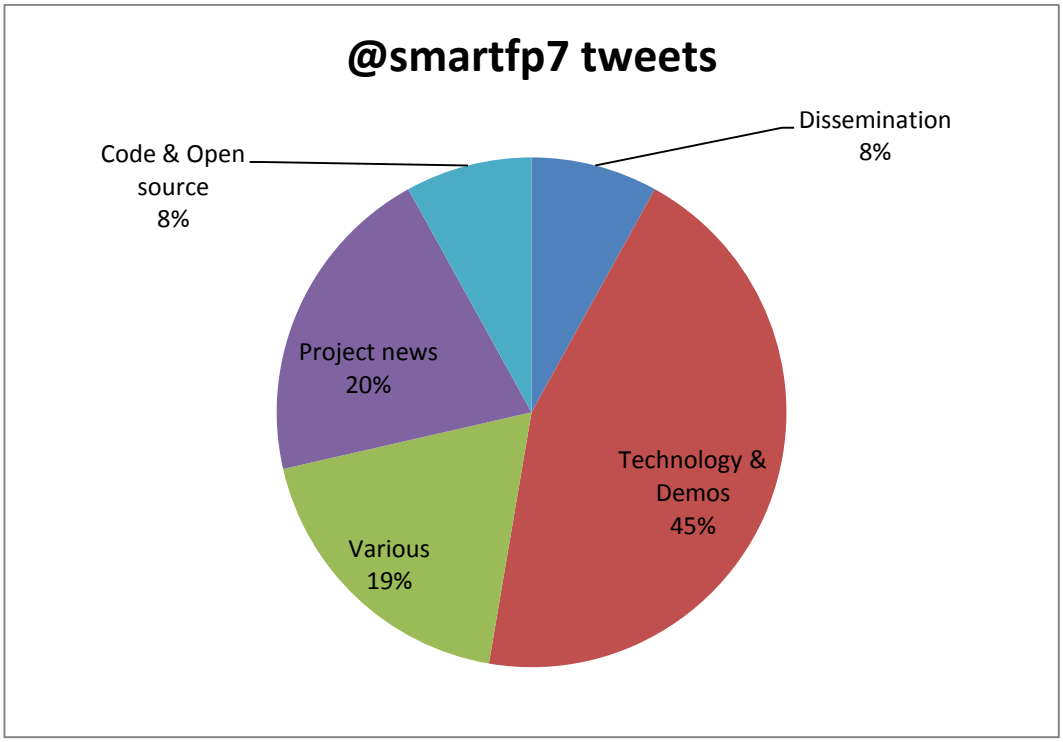


Figure 10: Twitter - Distribution of "Tweets" per Topic

@AITSmartLab provides a second Twitter account related to the project. All the tweets here are automatically generated by our demos that employ Twitter as an information sink. This Twitter feed is accessible from the "What is happening @AITSmartLab?" demo page, available at http://www.smartfp7.eu/content/what-happening-aitsmartlab.

Twitter will be continued to be used as a primary online dissemination channel for adding activity awareness as SMART begins a larger online engagement with project releases during its workplan's second half.

4.6.2 LinkedIn

In anticipation of a community building objectives for the project's second half, SMART coordinated a LinkedIn group dedicated to the project. Just as Twitter is a form of online outreach, the project's LinkedIn group served to consolidate and maintain contacts, allowing an easy channel for follow-up in particular for those trialing the project's early releases.

.

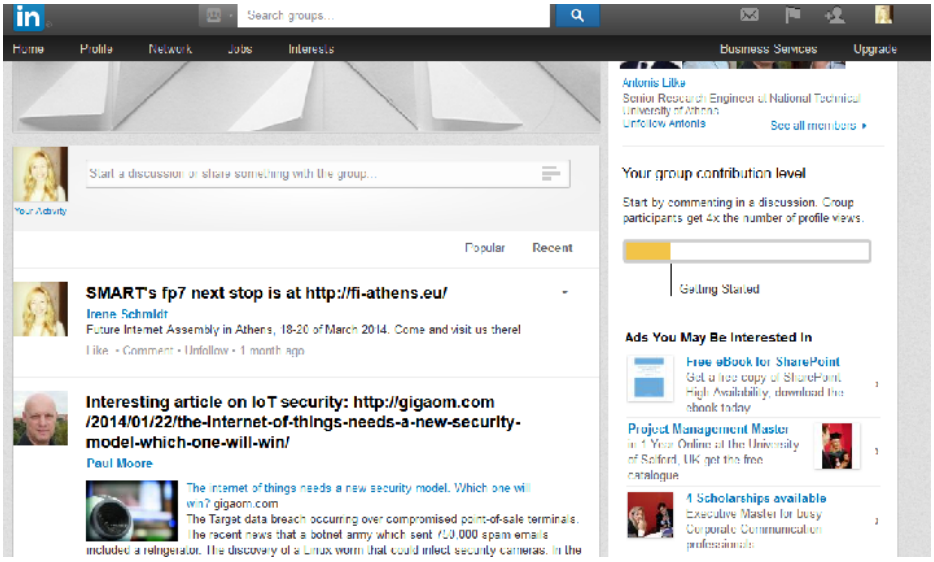


Figure 11: LinkedIn Group

4.7 Newsletter Series

As a consolidated SMART news source for interested stakeholders, the project publishes a newsletter highlighting recent activity and progress.

The latest Spring 2014 issue[1] focused on the advances in audio and video processing, and the reasoning & search layers of the architecture.

Throughout the project circulation of the publication reached the SMART stakeholder network: including Twitter followers, developers trying out the open-source releases, LinkedIn group members, event networking contacts and individual project partner commercial and academic channels.

4.8 Media Coverage

SMART engaged media for its outreach, as well. In the project's initial awareness stage of dissemination, the project successfully tapped initial media channels, highlighted by a BBC World interview of GLA on 11 June, 2012. Coupled with supporting networking, this in turn helped the project receive a viral coverage from other media outlets, reflected below in Figure 12 and Table 6.

This wide initial coverage in SMART's awareness phase helped the project's outreach for early trials and future adoption, particularly for reconnecting with those sources to publicize the second release at the beginning of Year 3.

[1] SMART Newsletter - Spring 2014:
http://www.smartfp7.eu/sites/default/files/field/files/events/SMARTnewsletter-Spring-2014.pdf

Figure 12: Media Coverage - Samples

Table 9 - Media Coverage - Listings

Media Channel	Article
BBC News	Glasgow University pioneers internet sensory search engine
STV.tv	Computer scientists on brink of inventing 'sensory search engine'
Glasgow University News	University of Glasgow developing new type of internet search engine
Scotsman.com	Sensor search engine developed
Techworld.com	Scottish scientists build search engine for 'Internet of Things'
ZDnet.co.uk	Glasgow's SMART search engine senses cities
Evening Times	Boffins make a SMART move to rival Google

Media Channel	Article
Herald Scotland	Scots work on new web search engine
IBN Live	New sensor-based search engine to be developed
The Times of India	Scientists developing sensor-based search engine
The Telegraph	New search engine aims to Google the real world
BBC, Technology Section, Featured Article	Researchers work on smart city search engine
TechWeek europe	Smart City Search Engine Uses Sensors: University of Glasgow search engine project will use social media and sensors to take the pulse of a city.
Digital Spy	SMART search engine lets users search real world
SmartPlanet	A search engine for smart cities
Irish Independent	New search engine aims to Google the real world
Economics Times	New sensor-based search engine to be developed
The Telegraph	SMART searching
Westend TV	New search engine aims to Google the real world
Techeye	Scientists create real-time smart city search engine: "SMART" provides live local updates
New Electronics	Researchers developing 'smart city' search engine
IT Pro	Researchers outline real-time search engine plans
ITProPortal	University of Glasgow researchers working on new search engine to answer queries Google can't
Wall Street Journal (blog)	New Search Engine Combines Twitter with Sensors
The Cutting Edge (Feature Article)	Search Engine Aims to Quiz Sensor Networks
ComputerWorld (Feature Article / long interview)	Scots develop search engine which uses social media data: A new search engine is in development which will tell users what their friends are up to
DANIWEB	Can Scottish students fill the Google gap with a SMART search engine?
meshcities.com	The City as Media Database
techthefuture.com	Search Engine Queries Physical World In Real Time
BUZZOOM	Scientists to develop a Sensor-based search engine
TECHLI	Get Ready For A Search Engine Right Out Of George Orwell's 1984
Top Internet Providers in Philadelphia	New SMART Search Engine to Draw Results from Sensors in Physical World
PCWorld New Zealand	Scottish scientists build search engine for 'Internet of Things'
IDM Magazine	University researchers sense a new type of Internet search
Urban Systems Collaborative	Researchers work on smart city search engine

Media Channel	Article
R&D Magazine	A new type of Internet search engine
The Times of India	In search of real-world data
Computer World UK	Scottish scientists build search engine for 'Internet of Things'
secuLinx	What if? Online Real-Time Searchable Sensor Data
Nano Patents and Innovations	New Search Engine Will Get Results From Sensors Located In Physical World
Computer World NZ	Scottish scientists build search engine for 'Internet of Things'
Digital Crunch	Scientists working on sensor-based search engine
Bottom Line	Euro Researchers Get SMART
EE Times	Search engine aims to quiz sensor networks
EE Times Asia	Search engine aims to utilize "Smart City" concept
ELPort.News	Search engine aims to utilize "Smart City" concept
futura-sciences.com (French)	Smart, le moteur de recherche qui interroge des capteurs en ville (SMART: the search engine that queries the sensors in town)
SG.hu (Hungarian)	Szenzoradatok az online keresésekben (Sensor data in the online search)
IDGNOW! (Portuguese/Brazil):	Cientistas criam busca baseada em sensores reais (Scientists develop sensors based on actual search)
computersweden.idg.se (Sweedish)	Sökmotorn som hör en trafikstockning (The search engine that includes a traffic jam)
computerworld.com.pt (Portuguese)	Motor de busca para a “Internet das Coisas” (Search engine for the "Internet of Things")
golem.de (German)	Europäische Suchmaschine Smart bezieht Sensorendaten ein (European search engine incorporates data from smart sensors)
20 minutes online (French/Switzerland)	Terrier denichera du son et des videos (Terrier searches for sound and video)
EE Times Taiwan (Chinese/Taiwan)	新式搜尋引擎利用感測器網路答疑解惑 (The new search engine to use a sensor network FAQ)
Laoyaoba.com (Chinese)	新式搜索引擎利用传感器网络答疑解惑 (The new search engine sensor networks answering questions)
Η Καθημερινή (Greek)	Μία... ζωντανή μηχανή αναζήτησης (A live search engine)
EL PAIS – (web) Technology section (Spanish)	SMART, un buscador de código abierto (SMART, an open source search engine)
CINCO DÍAS.com (Spanish)	PRISA participa en el proyecto europeo de innovación tecnológica Smart (PRISA involved in the European technological innovation project Smart)

4.9 Supporting Material

In order to support SMART's dissemination campaign at scientific conferences and stakeholder events, a variety of booklets, fliers and posters are published in a mix of research results and marketing oriented towards future adoption. In the project's awareness campaign in the first half of the project, the design and circulation of this material has already begun, including an initial tri-fold brochure and a poster summarizing the project's overview.

Figure 13: Tri-Fold Brochure

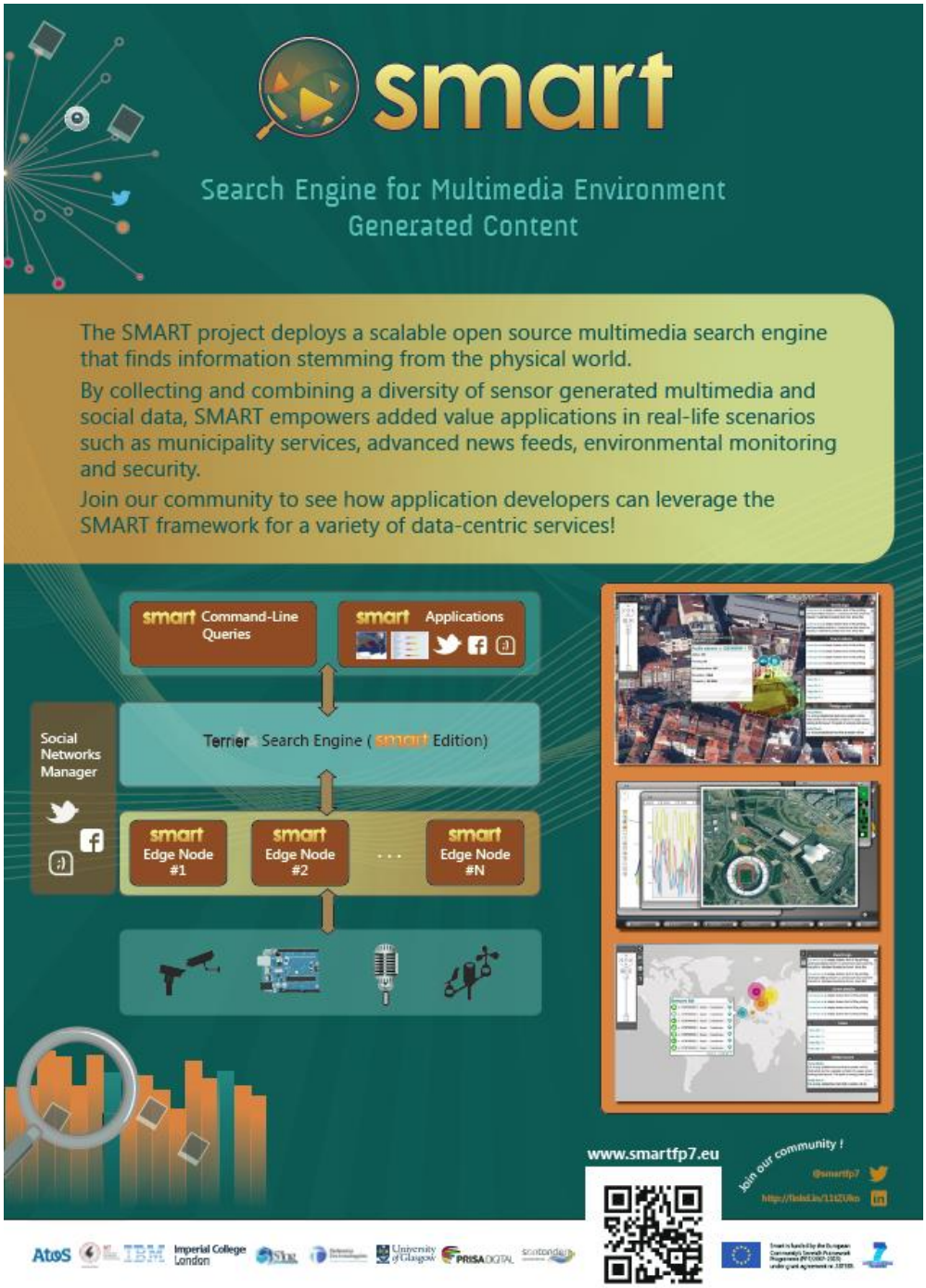


Figure 14: Poster

5 Conclusion

In this document, an agile strategic dissemination framework tailored for the SMART project has been presented. This lightweight approach is demonstrated appropriate in light of the results of dissemination achieved. Cumulating the variety of papers, conferences, website hits, project workshops and media coverage, SMART coverage has reached thousands of people.

The successful first half of the dissemination campaign set a momentum and network for the project's transition into the more engaging and adoption-oriented campaign in the third year, reflecting the first open-source results of the project at its subsequent recent release during the last year of the project.

Since the last deliverable the project has moved towards developing relationships with stakeholders which offered feedback and collaboration potential, including fellow researchers in the Smart City, IoT, Search and Media context, application developers of these domains, data providers (such as municipalities) and integrators of such sensor/device/software systems. A dynamic collaboration between the dissemination campaign, validation activities, requirements/design work and exploitation development has ensured that stakeholder engagement would be a two-way channel that influenced the project and leveraged its initial results.