INFSO-ICT-216284 SOCRATES

D5.4

Report on Dissemination and Standardisation Activities

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Abstract:
This document reports on the dissemination and standardisation activities of the first year of the SOCRATES project. It describes how knowledge and results have been exchanged among the SOCRATES partners, with other European projects, with the scientific community and with standardisation bodies and other fora.

Keyword list:
Dissemination instruments; presentations; publications; project workshops; liaisons to standardisation bodies and other fora.
**Executive Summary**

This document provides an overview of the dissemination and standardisation activities within the first year (Month 1-12) of the SOCRATES project. It describes how results and knowledge obtained in the project have been exchanged among the partners of SOCRATES, with other European projects, with the scientific community and with standardisation bodies and other fora.

Dissemination of the project results is an important activity within SOCRATES. It draws upon the results in all technical work packages and all partners are contributing to its achievements. The dissemination activity is part of Work Package 5 (‘Integration, demonstration and dissemination’) and runs over the total duration of the project.

In its initial phase the SOCRATES project has developed several dissemination instruments, such as a website, a leaflet, a mailing list, etc. Some of these are used for introducing the SOCRATES project to the public, while others are instruments for easy exchange of information among the project partners.

Dissemination to peers in research has been achieved through eight presentations at conferences and workshops, five conference/workshop publications, and a publication in a magazine. While a number of contributions have already been made, with a focus on the approach and goals of SOCRATES, it is anticipated that the most significant publications will occur when technical results become progressively available in the second and third year of the project.

Further, dissemination of the project results to the scientific community and industry will occur through two public workshops the SOCRATES project has planned. A proposal for the first workshop (“Self-organisation for Beyond 3G Wireless Networks”) was prepared in cooperation with other FP7 projects, and has been accepted as a pre-conference workshop of the ICT Mobile Summit 2009.

SOCRATES cooperates with related projects in the ‘Future Networks’ FP7 project portfolio and is actively involved in the clusters ‘Future Internet Technologies’ and ‘Radio Access & Spectrum’. Close contacts have been established with the COST 2100 project.

Self-organisation in communication networks is also covered in various standardisation bodies and other fora. Therefore, SOCRATES already had coordination meetings with 3GPP delegates, with NGMN and contributed to the WWRF #20 conference.
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<th>Description</th>
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<tr>
<td>3G</td>
<td>3rd Generation</td>
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<td>3GPP</td>
<td>3rd Generation Partnership Project</td>
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<td>ANR</td>
<td>Automatic Neighbour Relation</td>
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<td>BSCW</td>
<td>Be Smart – Cooperate Worldwide</td>
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<td>CN</td>
<td>Core Network</td>
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<td>DL</td>
<td>DownLink</td>
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<td>E-UTRAN</td>
<td>Evolved Universal Terrestrial Radio Access Network</td>
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<td>eNB / eNodeB</td>
<td>LTE NodeB (Radio Base Station)</td>
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<td>EPC</td>
<td>Evolved Packet Core</td>
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<td>FP7</td>
<td>Seventh Framework Programme</td>
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<td>IMS</td>
<td>Internet Multimedia Subsystem</td>
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<td>IP</td>
<td>Internet Protocol</td>
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<tr>
<td>LTE</td>
<td>3rd Generation Long Term Evolution</td>
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<td>MCM</td>
<td>Management Committee Meeting</td>
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<td>NGMN</td>
<td>Next Generation Mobile Networks</td>
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<td>NoE</td>
<td>Network of Excellence</td>
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<td>PCI</td>
<td>Physical Cell Identity</td>
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<td>RAN</td>
<td>Radio Access Network</td>
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<td>SA</td>
<td>Service Aspects</td>
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<td>SON</td>
<td>Self-Organisation Network</td>
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<td>UE</td>
<td>User Equipment</td>
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<td>URL</td>
<td>Uniform Resource Locator</td>
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<td>UMTS</td>
<td>Universal Mobile Telecommunications System</td>
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<td>UTRAN</td>
<td>UMTS Terrestrial Radio Access Network</td>
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<td>WP</td>
<td>Work Package</td>
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<td>WWRF</td>
<td>Wireless World Research Forum</td>
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1 Introduction
Dissemination is a particularly important aspect of joint research projects as SOCRATES. Dissemination takes place during the whole life cycle of such a project. Besides making results available to the ‘outside world’, providing input to other projects and pushing results into standardisation, it also enables the evaluation and advancement of project plan and project objectives by using the feedback and opinions received from external parties, especially during the initial project phase.

Dissemination within SOCRATES draws upon the results in all technical work packages and all partners are contributing to its achievements. The dissemination activity (Activity 5.6), which is part of Work Package 5 (‘Integration, demonstration and dissemination’) and which runs over the total duration of the project, consists of the following sub-activities:

- Development of a dissemination plan (deliverable D5.3 [6])
- Construction and maintenance of a project website
- Presentation of results to the scientific community
- Preparation and realisation of workshops
- Contribution to standardisation and other fora
- Monitoring of the project achievements

This deliverable provides an overview of the dissemination results achieved within the first year (Month 1-12) of the project runtime. Some topics (e.g., dissemination instruments and dissemination amongst project partners) have already been presented in D5.3 [6] and are only shortly described in the current document. Further, the document concentrates on the achievements made in dissemination to the scientific community, to other European projects, and to standardisation and other fora. It also gives an update regarding the workshops that SOCRATES plans to organise.

The document is structured as follows. Chapter 2 provides information about the SOCRATES dissemination instruments. Chapter 3 lists the contributions to research conferences, workshops and meetings, and explains the information exchange with other European research projects. Chapter 4 gives an update regarding the planned SOCRATES workshops, especially the joint workshop with the FP7 project E³. Chapter 5 gives information about the contributions to and information exchange with 3GPP standardisation and related fora, namely NGMN and WWRF. Chapter 6 describes the means of project achievement monitoring and quality assurance. The document is concluded in Chapter 7.
2 SOCRATES dissemination instruments

2.1 Website and BSCW document server

The SOCRATES project website is accessible at the following URLs:

- www.fp7-socrates.eu
- www.fp7-socrates.org.

The website of the project is the main dissemination channel towards anyone interested in the SOCRATES project. The website serves the “outside” world, e.g., with the latest SOCRATES publications, public deliverables and presentations, but is also used as means for project internal communication by linking to the BSCW document server [1] that has been set up for SOCRATES, and which is accessible only by authorised project members. The BSCW server is, besides communication via e-mail and phone, the major collaboration instrument between the project partners. The document server provides a folder and document structure which is closely oriented at the structure of the whole project, and is used for the exchange and collaborative work on documents, and as repository for finalised documents, publications, and presentations. For the simplification of e-mail communication between the project partners a mailing list has been created.

Figure 1 shows a screenshot of the home page of the SOCRATES website.

![Figure 1: Home page of the SOCRATES website.](image)

To have an idea of how well the website fulfils its dissemination role, statistics about the visits to the website are collected. From these statistics it is learned that in the period 01/03/2008 - 31/10/2008 (8 months), the website was visited 1844 times, by 999 unique visitors, which spent on average 3:17 minutes on the site. There were 8289 page views and the two most visited pages are the first page of the website (21.74 %) and the page containing the publications, presentations and public deliverables (13.64 %). 42.79 % of the traffic that comes to the website is direct traffic (i.e., visits from people who clicked a bookmark or typed the URL directly in their browser), 33.35 % comes from a search engine results page, which is in almost all of the cases (92.85 %) the Google search engine, and the remaining 23.86 % of the traffic comes from referring sites. When looking into the geographic regions from which the visits originate, it is seen that 77.17 % of the visits come from Europe, 12.42 % from Asia and 9.49 % from the American continent.
2.2 SOCRATES leaflet and fact sheet

A project leaflet has been created to introduce the SOCRATES project and to disseminate its main objectives. The leaflet is available for download on the SOCRATES website and printed copies are made available at events (e.g., conferences, workshops, etc.) where SOCRATES participates. The information provided in the leaflet is high-level and addresses both experts and non-experts. The main intention of the leaflet is to direct the interested people towards the SOCRATES website, where more in-depth information can be found, and where the latest achievements and public deliverables of the project are available.

As for all FP7 projects, also for SOCRATES a fact sheet has been produced. This fact sheet presents the SOCRATES project in a nutshell and is available for download on the SOCRATES website, as well as on the EU Cordis website on FP7 ICT projects:


2.3 SOCRATES logo

An important item to establish the project’s identity is the project’s logo. This logo is included in all presentations (including a Powerpoint template), documents, etc., of the project. The logo is shown in Figure 2. It contains the head of the ancient Greek philosopher Socrates and one of his quotes (‘Wisdom begins in wonder’), together with the main picture that expresses our view on self-organisation as background. This picture consists of a cycle and two ‘arms’. The cycle represents the continuous process in a future operational radio access network of collecting measurements, and (self-)optimising the system parameter settings based on these measurements. The two external arms depict the self-configuration and self-healing phases, which are triggered by incidental events. For a more extensive explanation about this picture and the SOCRATES view on self-organisation, we refer to the SOCRATES website.

Figure 2: The SOCRATES logo.
3 Dissemination to the scientific community

This chapter provides information about the dissemination activities of SOCRATES towards the scientific community, including the participation in meetings, conferences and workshops, and the corresponding publications. Furthermore information is given about the activities that have been undertaken regarding the cooperation and information exchange with other European research projects.

3.1 Participation in scientific meetings, conferences and workshops

During the first year, SOCRATES members have presented the SOCRATES project, the project's vision on self-organisation, the drivers, expected gains and challenges of the use of self-organising methods in wireless networks, and results obtained in WP2 on 'Use cases and framework for self-organisation', at scientific meetings, conferences and workshops. A list of the presentations that have been given and that are already planned for the future is shown below:

- 06.02.2008 - 08.02.2008: COST 2100 SWG 3.1 Meeting, Wroclaw, Poland
  Presentation: "SOCRATES: Self-Optimisation and self-ConfiguRATion in wirelESs networks"

  Presentation: "Self-configuration, -optimisation and -healing in wireless networks"

  Presentation: "Self-organisation in future mobile communication networks"

- 02.10.2008: E³ and Friends Workshop, Brussels, Belgium
  Presentation: "Building a framework for the development of self-organisation methods in wireless networks"

- 06.10.2008 - 08.10.2008: COST 2100 SWG 3.1 Meeting, Lille, France
  Presentation: "Use cases, requirements and assessment criteria for future self-organising radio access networks"

- 09.10.2008 - 10.10.2008: NGMN Workshop on SON and Multi-vendor RAN
  Presentation: "Self-optimisation and self-configuration in wireless networks"

- 03.11.2008 - 06.11.2008: Mobile Network Optimisation 2008 and Radio Planning Forum, Cannes, France
  Presentation: "Self-optimisation in future mobile access networks"

  Presentation: "Use Cases, Requirements and Assessment Criteria for Future Self-organising Radio Access Networks"

- 18.02.2009: Joint SOCRATES / COST 2100 SWG 3.1 meeting, Braunschweig, Germany
  During this meeting, SOCRATES plans to give 3 technical talks.

3.2 List of publications

Below is a list of the SOCRATES publications of the first project year:


3.3 Contacts and co-operation with other European projects

3.3.1 Other FP7 projects

Within the ‘Future Networks’ project portfolio, SOCRATES participates in the clusters ‘Future Internet Technologies’ and ‘Ubiquitous Radio Access and Spectrum Management’. There are several other projects in these clusters (in particular the first one) addressing self-organisation or related issues, e.g., EFIPSANS, AUTOI, 4WARD, E³, CARMEN, EURONF (NoE), but mostly within a much broader scope. Closely related to the work in SOCRATES is the work on self-organisation in (multi access) wireless networks in the E³ project. Some other projects are of particular interest to SOCRATES because of their planned work on radio access technologies, including LTE, e.g., NEWCOMB++ (NoE).

Contacts with related projects have been established via the FP7 concertation meetings in:

- Brussels (11-12 March 2008)
- Bled (1-2 April 2008)
- Stockholm (10-12 June 2008)
- Brussels (30 September - 1 October 2008).

In particular, together with several other projects, SOCRATES has organised a panel discussion on ‘self-management’ at the Bled meeting. The contacts established with the E³ project are currently leading to closer cooperation: SOCRATES has given a presentation at the “E³ and Friends” workshop on October 2 in Brussels, SOCRATES and E³ have prepared a proposal for a joint workshop on “Self-organisation for Beyond 3G Wireless Networks” at the ICT Mobile Summit 2009, and there are plans for writing a joint paper on performance evaluation and assessment of self-organisation methods for wireless access networks. The possibilities and needs for cooperation with other projects will be further explored and, where appropriate, be established.

Besides contacts within FP7, we have also established contacts with research groups at universities working on self-organisation in wireless networks or related topics, see also below (in the framework of COST 2100). In particular, there are promising contacts with the Communications Engineering Department of the University of Malaga, which has been active in the related Celtic project GANDALF (2005-2007).

3.3.2 COST 2100

A liaison has been set up to the COST 2100 action “Pervasive Mobile and Ambient Communications”. Three SOCRATES partners (ATE, TNO, TUBS) are also participating in COST 2100. Within the COST 2100 action the sub working group 3.1 “Measurement based optimisation” also focuses on self-organisation methods for wireless networks. In order to facilitate the information exchange between SOCRATES and COST 2100 the following measures have been implemented:

- Thomas Kürner (TUBS) has been appointed as a liaison person and reports regularly to the plenary meetings of both SOCRATES and COST 2100 about the status of the action and the project, respectively.
- Apart from these status reports, SOCRATES provided detailed input documents to the COST 2100 Management Committee Meetings (MCM) in Wroclaw and Lille (COST 2100 TD(08)422, COST 2100 TD(08)616, see section 3.2). Input from SOCRATES is also planned for the upcoming MCMs of COST 2100.
- In order to further intensify the information exchange, at the next COST 2100 MCM taking place in Braunschweig, a joint SOCRATES / COST 2100 SWG 3.1 workshop will be organised.
on February 18, 2009. It is planned to have a session with 3 contributions originating from COST 2100 and 3 contributions from SOCRATES.
4 SOCRATES workshops

The SOCRATES project will organise two public dissemination workshops. The goal of these workshops is to inform other parties (including operators, manufacturers and academia) about the project’s results and to get feedback from these parties not involved in the project. At the second workshop (planned for the end of the project) also demonstrations of methods and algorithms for self-organisation of wireless networks to be developed in WP 3 and WP 4 will be given.

The first workshop, to be organised jointly with the FP7 E3 project, will take place on June 9th, 2009 as a pre-conference workshop of the ICT Mobile Summit 2009 conference in Santander, Spain. A workshop proposal was worked out, together with the partners of the E3 project, and accepted by the ICT Mobile Summit 2009 at the end of November 2008. The scope of the workshop is "Self-organisation for Beyond 3G Wireless Networks". The program comprises presentations on the results of the SOCRATES and E3 projects, three invited external talks, and a presentation from the FP7 project EFIPSANS that will place the topic self-organisation in a broader networking perspective. The complete submitted proposal can be found in Appendix A.

The workshops will be reported on in the future deliverables D5.5 (‘Report on dissemination and standardisation activities including report on 1st workshop’) and D5.8 (‘Final report on dissemination and standardisation activities including report on 2nd workshop and demonstration results’), which are due in December 2009 and 2010 respectively.
5 3GPP standardisation and related activities

Standardisation bodies like 3GPP and related fora like NGMN also cover the topic of self-organisation in communication networks. The exchange of information between SOCRATES and 3GPP and NGMN is primarily established by the industrial partners in the SOCRATES consortium, via liaison persons.

In September 2008, a conference call was held between SOCRATES and the 3GPP delegates (liaisons) from Vodafone, Ericsson and NSN. After a general overview from SOCRATES side on what SOCRATES can contribute to standardisation and on the challenges for standardisation contributions out of SOCRATES, the 3GPP delegates provided information on the Release 8 work currently going on in 3GPP RAN2, RAN3 and SA5. For Release 9, the 3GPP groups have no clear plans yet. It has been indicated that the 3GPP delegates would appreciate input from SOCRATES on self-organising use cases and views on which parameters are needed to support the use cases, but it was also stressed that in order to succeed in bringing a topic into 3GPP, ideas should be backed up by solution suggestions. As it is important to maintain regular contacts with the 3GPP delegates and to have a good information flow, the plan is to have a follow-up call in February 2009, for discussing Release 9 issues.

From the current point of view, there are several points where SOCRATES can contribute to 3GPP standardisation:

• Evaluation methodology & parameters to enable a common analysis and evaluation of the benefits of SON use cases.
• Standardisation of “Measures” for SON use cases;
• Providing the framework and interfaces according to the definition in SOCRATES for SON, at least for self-optimisation.
• Supporting activities for Release 9 and 10 version of 3GPP TR 36.902 (Self-configuring and self-optimizing network use cases and solutions, maintained by RAN3); Enhancement and completion of use cases:
  • Coverage and capacity optimisation;
  • Interference reduction;
  • Mobility load balancing optimisation;
  • Coverage hole management and Cell outage management (Mobility robustness);
  • Handover optimisation.

5.1 3GPP RAN2

A first contribution towards 3GPP RAN2 was made by Vodafone. The contribution is based on work done for the SOCRATES deliverable D2.1 [2] and is entitled Measurements for Self-optimisation of DL Physical Channel Parameters. The document with 3GPP number R2-081780 was submitted to the 3GPP RAN2 meeting in Shenzhen, China, March 31 – April 04, 2008. Unfortunately, due to time limitations, the contribution was not considered. This happened again at the next 3GPP RAN2 meeting, so the contribution was withdrawn.

The unsuccessful submission of the above contribution to 3GPP illustrated the fact that work in SOCRATES should be aligned with the agenda in 3GPP. There was no agenda item for UE measurements for SON in RAN2, and there was only time to consider topics for which there was an agenda item.

SOCRATES has contact to RAN2 through a liaison contact person from Vodafone, Assen Golaup.

5.2 3GPP RAN3

Up to now there has been no contribution made to 3GPP RAN3 out of the SOCRATES project. During the phone conference with 3GPP delegates from Ericsson, Vodafone and NSN (see introduction to this chapter) it turned out that there are currently only few use cases in RAN3 remaining that are to be finalised for Release 8: Automatic Neighbour Relation (ANR, including transport addresses), Physical Cell Identity (PCI), (initial) self-configuration, load balancing, and some work on interference indicators. However, there is currently a stop for introducing new work in Release 8, which shall actually be finalised in December 2008. Another problem with contributions to RAN3 in general is that the work split...
between SA5 and RAN3 is not always clear regarding SON, making in-time contributions somewhat difficult for SOCRATES.

SOCRATES has contact to RAN3 through a liaison contact person from NSN, Alex Vesely.

5.3 3GPP SA5 - "Telecom Management"

The purpose of SA5 is to provide charging and operations and management solutions. The scope is UTRAN (3G), E-UTRAN (LTE), Core Network (CN + EPC) and IP Multimedia System (IMS). In SA5 a number of activities are directed towards Self-Organising Networks (SON), such as:

**Management of SON - work item 32.500**

The purpose of this work item is to capture overall SON requirements. Detailed work is expected to be handled by sub-Work Items. Examples of recent work are:

- Use Cases for EUTRAN network sharing between many Core Network operators (S5-081377)
- Meta Use Cases: Overall architectural Use Cases which try to encompass all detailed SON functions (S5-081318, S5-081363)

This work item has mainly interfaces with SOCRATES work package 2. However, the requirements, criteria and architecture defined there (deliverables D2.2 [3], D2.3 [4] and D2.4 [5]) are currently not at a degree of maturity allowing direct influence or definition of requirements towards 3GPP. It is expected that with deliverables D2.5 (March 2009) and D2.6 (December 2009) there will be the opportunity coming.

**Self-Establishment - work item 32.50x**

The purpose is to minimise the manual effort needed when a new eNB is established in the network. Important aspects are:

- Multi-vendor support.
- Operator control over the self-establishment process vs. automatic self-establishment.
- Monitoring of self-establishment.

Self-establishment is not in the major focus of SOCRATES. However, there are potential interfaces to self-optimisation, especially for triggering the start of corresponding algorithms, and to the SOCRATES self-configuration use cases. Therefore the work item is monitored further on.

**ANR - work item 32.511**

Automatic Neighbour Relation work is the oldest SON related topic in SA5. The architecture is quite stable. The description of the functionality has been completed on a general basis but some topics still need more detailed work. It is questionable if SOCRATES will be able to contribute here in time, also since ANR is not in the main focus of the project.

**Self-Optimisation and Self-Healing - work item 32.521**

This is a new work item and is still very immature with only initial high level requirements suggested. Here SOCRATES has an opportunity to influence since this is in an initial stage.

**Study on Self-healing and SON - work item 32.822**

This is also a new work item were SOCRATES has the opportunity to influence the work. An example of current work is automatic PCI allocation.

SOCRATES has connection to SA5 through a liaison person at Ericsson, Per Elmdahl. Reporting from the liaison person to SOCRATES, informing about status and on-going work, is done frequently (after each SA5 meeting).

So far no contributions originating in SOCRATES have been submitted to SA5, but corresponding activities will start as soon as results from Work Packages 3 and 4 become available.

5.4 NGMN

In September 2008, a conference call was held to present some of the SOCRATES results to the NGMN SON project. During the call, SOCRATES participants gave a number of presentations about the SOCRATES project, including an overview of the project, selected results from WP2, and an overview of how SOCRATES plans to contribute to standards.
Topics covered were:

- Introduction to the SOCRATES project
- SON requirements
- Assessment criteria for SON
- Interactions and parameters groups
- Standardisation issues

NGMN participants from T-Mobile, Telefónica, Telecom Italia and Vodafone participated in the call, including the leader of the NGMN SON project Frank Lehser (T-Mobile). The presentations were well received by the NGMN participants. They also appreciated the fact that SOCRATES was well aligned with the objectives and scope of the NGMN SON project. On that basis, it was agreed to further define the cooperation between NGMN and SOCRATES.

In October, NGMN organised a workshop on Multi-vendor RAN and SON. ‘Multi-vendor RAN’ is a separate project in NGMN, but due to the overlap with the SON project a combined meeting was held. The workshop consisted of two days: the first day was an NGMN operator only preparation day; the second day was attended by both operators and vendors.

An overview presentation of SOCRATES was given on both days. Operators taking part in this meeting were KPN, Orange, T-Mobile, Telefónica, Telecom Italia, Vodafone, NTT Docomo, MSV and Bell Canada. Vendors attending were Alcatel-Lucent, Huawei, Nokia Siemens, Nortel, Ericsson, Qualcomm, Motorola, Samsung and Rohde & Schwarz.

On the operator only day, cooperation between NGMN and EU-funded projects was discussed, and the conclusion was that EU projects can provide a useful contribution to the NGMN work on SON. It was agreed that SOCRATES should provide solution proposals to NGMN for the use cases that SOCRATES is working on.
6 Monitoring of project achievements and quality assurance

Besides receiving feedback on the project results from external parties, it is also important to monitor the progress of the project internally and assure the quality of the project results. Internal project monitoring includes, for example:

- A periodic internal progress and problem reporting by the different work packages
- Regular comparison of the project plan with the actual achievements and results, and, if necessary, an update of the project plan or corrections in the project management and execution
- Co-ordination between the work packages to prevent from work being done twice, or betimes consolidation and integration of results

The internal project reporting and monitoring is performed as part of the monthly project board meetings. In addition, there is an extensive semi-annual internal review, which was held in September 2008 covering the first six months of the project.

Assurance of the quality of the project results is a responsibility of all project participants, and is controlled by the project board. For every project deliverable, the project board appoints at least two internal reviewers. At least one of these reviewers has not worked himself on the deliverable, and is thus able to judge the deliverable on its clarity and coherence. As the technical deliverables that are foreseen in year 2 and year 3 of the project will cover larger time periods than the deliverables of year 1, and as they are anticipated to form the basis of the most significant publications of the project, it has been decided in the project board meeting of September 2008 that for these future deliverables we will have two review rounds.
7 Concluding remarks

In this deliverable we have first provided an overview of the instruments that have been and will be used for dissemination of project results, including the means for internal information exchange.

Furthermore, we have described the dissemination results that have been achieved during the first year of the SOCRATES project runtime (Month 1-12). Therefore a list of contributions to conferences and workshops has been given, together with a list of publications (Chapter 3). The dissemination results include also meetings and co-operation with other research projects (related European FP7 projects and COST 2100) and other fora such as WWRF. In Chapter 4 an outlook has been given about the planned SOCRATES public workshops. In particular, the first workshop will be organised (jointly with the FP7 E³ project) as a pre-conference workshop of the ICT Mobile Summit 2009 in Santander, Spain, 9 June 2009.

Regarding standardisation, although no concrete and successful contributions to 3GPP have been made up to now, contacts have been established and plans and opportunities for future collaboration and input from SOCRATES have been presented in Chapter 5. SOCRATES thereby mainly focuses on 3GPP RAN2, RAN3 and SA5 and has organised a conference call with representatives from all three groups to evaluate potential areas for contribution. A follow-up call with focus on 3GPP Release 9 topics is planned for the beginning of 2009. This chapter describes also results from the collaboration set up with the NGMN forum.

In Chapter 6 we briefly addressed the regular activities within the project on monitoring project achievements and quality assurance.

Up to now, most of the dissemination activities have focused on presenting the SOCRATES vision and solution approach on self-optimisation. As the project matures, this will move towards presenting and demonstrating technical results.
8 References

Appendix A. Submitted workshop proposal

This appendix shows the workshop proposal that was submitted to the ICT Mobile Summit 2009 call for workshops, in November 2008 (in the meantime the proposal has been accepted).

Workshop Title
Self-organisation for Beyond 3G Wireless Networks

Abstract
Short summary of problem domain being addressed and clear definition of the purpose of the proposed discussion workshop

The goal of this open workshop on self-organisation for beyond 3G wireless networks is to disseminate the first results of the FP7 projects SOCRATES and E3. The program comprises presentations on the results of both projects, three invited talks and a presentation from the FP7 project EFIPSANS that will place the topic self-organisation in a broader networking perspective. The aim of the workshop is to stimulate discussions and feedback. Through interactions with the participants and the invited speakers, the consortia want to validate their views and approaches on self-organising methods for beyond 3G wireless networks.

The SOCRATES (Self-Optimisation and self-ConfiguRATion in wirelEss networkS) project aims at the development of self-organisation methods. These methods should enhance the operations of wireless access networks, by integrating network planning, configuration and optimisation into a single, mostly automated process requiring minimal manual intervention. SOCRATES concentrates on 3GPP LTE (3rd Generation Partnership Project, Long Term Evolution) access networks, being the natural, highly promising and widely supported evolution of the world’s most popular cellular networking technologies (GSM/EDGE, UMTS/HSPA).

The E3 (End-to-End Efficiency) project is aiming at integrating cognitive wireless systems in the Beyond 3G (B3G) world, evolving current and future heterogeneous wireless system infrastructures into an integrated, scalable and efficiently managed B3G cognitive system framework from a technical, regulatory, standardisation and business perspective. One of the key issues addressed by E3 covers the development of collaborative and autonomous distributed decision-making related algorithms targeting an efficient operation by self-organising principles in terms of fast reactivity to any context change.

The EFIPSANS project aims at exposing the features in IPv6 protocols that can be exploited / extended for the purpose of designing/building autonomic networks and systems. EFIPSANS envisions that the current IPv6 and the extensibility of the IPv6 protocol framework opens the door to engineering autonomy (self-managing properties) in systems, services and networks, and should be seen as a starting point towards the long-term evolution of networks towards fully self-managing networks.

Description
Short summary of who will organise the workshop and the type of discussion focus.

This workshop is organised by the SOCRATES (www.fp7-socrates.eu) and E3 (www.ict-e3.eu) consortia, with input from the EFIPSANS (www.efipsans.org) project. The format of this workshop consists of presentations by project members on the results of the projects, their visions and future work, alternated by invited external talks.

Enough time will be provided for discussions and feedback.

Objectives
What will the workshop achieve by taking place - what is the projected impact?

With this workshop, the SOCRATES and E3 teams aim at disseminating their project results and presenting their vision on self-organisation for beyond 3G networks. The EFIPSANS project will place the topic self-organisation in a broader networking perspective. An objective of the workshop is to stimulate discussions and feedback. Through interactions with the participants and the invited speakers, the consortia want to validate their views and approaches on self-organising methods.

Target Audience
Please outline the target audience and how you will mobilise participation.

This event addresses both academic and industrial researchers and engineers.
It mainly aims at research responsible persons, R&D engineers and technical developers within telecom operators, telecom vendors and SMEs and large companies active in the telecom sector. More specifically, the workshop addresses people involved in planning, deployment or operations & maintenance of beyond 3G networks.

Participation to the workshop will be mobilised by announcing the event on the SOCRATES, E³ and EFIPSANS project websites, and by sending out email invitations.

**Workshop Duration**

Full day

**Programme**

Provide list of presentations, name of affiliation of each speaker, and short summary of content of proposed presentation

The program consists of a well-balanced mix of technical/scientific presentations and more visionary talks:

- **08:45 - 09:15: Registration and coffee**
- **09:15 - 09:30: SOCRATES project overview**
  Speaker: Hans van den Berg - TNO ICT, The Netherlands
  Summary: In this talk the SOCRATES vision on self-organisation, the main objectives and technical approach of the project will be presented.
- **09:30 - 09:45: E³ project overview**
  Speaker: Wolfgang König - Alcatel Lucent, Germany
  Summary: Main focus of this presentation will be on the approach that has been taken up by the project to increase operational efficiency of future radio networks by introducing cognition/self-x functions.
- **09:45 - 10:45: Session 1: Framework for self-organisation**
  - Talk 1: *Assessment criteria*
    Speaker: Neil Scully - Vodafone R&D, UK
    Summary: In this talk assessment criteria and methodologies for evaluating self-organisation methods and algorithms will be discussed.
  - Talk 2: *Requirements and architecture*
    Speaker: Klaus Nolte - Alcatel Lucent, Germany
    Summary: In this talk the E³ system and functional architecture are presented with special emphasis on cognitive control loop and self-x capabilities.
- **10:45 - 12:05: Invited Talks 1: (visionary talks)**
  Format: Two talks of 30 min. + 20 min. discussion
  - Talk 1: *An operator's view on self-organisation*
    Speaker: Trevor Gill - Head of Networks, Vodafone Group R&D, UK
    Summary: In this talk, self-organisation for beyond 3G networks will be approached from an operator's viewpoint.
  - Talk 2: *A vendor's view on self-organisation*
    Speaker: Werner Mohr - Head of Research Alliances, Nokia Siemens Networks, Research Technology & Platforms, Munich, Germany
    Summary: In this talk, self-organisation for beyond 3G networks will be approached from a vendor's viewpoint.
- **12:05 - 13:20: Lunch**
- **13:20 - 15:00: Session 2: Self-organisation in beyond 3G networks**
  - Talk 1: *Algorithms for self-optimisation*
    Speaker: Ove Linnell, Ericsson Research, Sweden
    Summary: SOCRATES has identified several self-optimisation use cases. New concepts, methods and algorithms for some of these self-optimisation uses cases will be discussed.
  - Talk 2: *Algorithms for self-configuration and self-healing*
    Speaker: Christophe Schmelz, Nokia Siemens Networks, Germany
    Summary: SOCRATES has identified several self-configuration and self-healing use
cases. New concepts, methods and algorithms for some of these self-configuration and self-healing use cases will be discussed.

- Talk 3: *Autonomous self-x functionalities and operation*
  Speaker: Kari Kalliojarvi - Nokia, Finland
  Summary: E³ is studying autonomous functionalities and algorithms. Various self-x operations are important in autonomously operating system nodes and functionalities. This talk provides an overview of self-x operations utilised in this manner.

- Talk 4: *Simulation of self-x algorithms*
  Speaker: Ingo Gaspard - Deutsche Telekom Laboratories, Germany
  Summary: Within E³ self-x algorithms are investigated mainly by means of simulation. This talk will address and discuss different simulation results for self-x based radio resource management methods.

- 16:30 - 16:30: Invited Talk 2 (technical talk)
  Talk: *Design and evaluation of self-optimisation algorithms for radio access networks*
  Speaker: Zwi Altman, Orange Labs, France
  Summary: The presentation will focus on learning and optimisation techniques for the design of self-optimisation functionalities including the Reinforcement Learning method with dynamic programming and temporal difference implementations. Use cases illustrating the self-optimisation functionalities in 3G, LTE and heterogeneous networks will be presented.
  Format: 45 min. talk + 15 min. discussion

- 16:30 - 17:00: *Creating a viable evolution path towards self-managing future internet via a standardisable reference model for autonomic network engineering*
  Speaker: Ranganai Chaparadza - EFIPSANS Technical Manager - Fraunhofer Fokus, Germany
  Summary: This talk presents the Generic Autonomic Network Architecture (GANA) reference model for autonomic network engineering that can be used as a guide for creating a viable evolution path towards the self-managing future internet.

- 17:00: Wrapping up & closing

**Target Audience**
Expert Focused

**Core Conference Themes**
4G and Beyond