Collaborative Large-scale Integrating Project

Open Platform for EvolutioNary Certification Of Safety-critical Systems

Second Report of Dissemination, Training, and Exploitation Activities
D9.5

Work Package:	WP9: Dissemination, Training, and Exploitation
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Document History

Version	Date	Remarks
V0.1	2013-11-08	ToC
V0.2	2013-12-12	Added training and exploitation reports provided by Atego FR and Intecs.
V0.3	2013-12-16	Draft initial version of introduction and conclusion.
V0.4	2013-12-20	Updated academic training.
V0.5	2013-12-30	Added dissemination report.
V1.0	2013-12-31	Final revision by Intecs.
V1.1	2014-01-06	Updates to executive summary and conclusions.

TABLE OF CONTENTS

List of Figures

List of Tables

Executive Summary

This is the second OPENCOSS report on dissemination, training, and exploitation activities, as covered by WP9 and detailed in specific plans (dissemination, training and exploitation plan). It covers the dissemination, training, and exploitation activities during the period of 01 January 2013 till end of December 2013. All necessary revisions of exploitation, training, and dissemination plans are handled separately through new issues of those plans.

Dissemination: The statistics on activities in internal/external dissemination show good progress compared to the original plans. In general the achieved dissemination matches the planned dissemination. For external dissemination, more publications have been generated than planned. In addition to papers presented at conferences and workshops, two workshops have been organised by OPENCOSS (SASSUR 2013 and ICSR 2013). OPENCOSS results have been presented to external companies and research institutions. A workshop was held with the External Advisory Board. Finally a special issue of the IEEE Software magazine addressing Safety-Critical Software was published which included a section on OPENCOSS.

Training: Following the internal training the second phase of the training activities is dedicated to external training for the OPENCOSS results. 2013 has been a pivotal period is which the training objectives for the next period have been defined. These objectives have been defined in relation with Task T8.2 - Adoption outreach program and are presented in deliverable the D8.2 Adoption Outreach Plan.

Exploitation: During this period, the Exploitation Plan has been revised in order to strengthen the common and synergic exploitations actions in addition to individual partners' strategy. Exploitation is dependent on project results, and the first 27 months have seen a significant effort for achieving them. These results, although quite advanced, are not yet complete enough to immediately offer concrete exploitation possibilities.

Abbreviations and Definitions

Table 1: List of terms

Term	Definition
Automotive SPIN Italy	*Software Process Improvement Network for the Automotive domain in Italy*
Dissemination	*Publication or presentation of project expected results and projects actual results to a target group with the intention to promote the use of project results.*
Exploitation	*Taking industrial advantage of projects results by the project partners as a whole consortium or individually. Exploitation will be addressed in Deliverable 9.3 of the OPENCOSS project.*
Network building	*Any dissemination activity (not related to a publication or a web site) that aims to involve people outside the OPENCOSS network to introduce to the OPENCOSS community, its activities, and/or its products.*
Publication	*The act of publication means any information or result disseminated to third parties in writing and/or multimedia.*
Target Group	*The target group concerns those who will be directly, or indirectly, positively affected by the project, its activities, and/or its results.*
Teacher	*A person qualified to provide formal training*
Technology transfer	*Dissemination activities to transfer specific technological knowledge from the OPENCOSS activities to people outside the OPENCOSS community.*
Training	*Knowledge transfer of project results internally with the consortium partners and/or to a target group, as part of dissemination and/or exploitation. Training supports familiarization with project results, internally within the consortium partners, and toward a target group.*
Training Activity	*An activity with the purpose of training, be it a course, a seminar, a video, etc.*
Training Event	*The execution of a training activity at a given date, time and location, and with given participants.*
Training Material	*Any information used to support a training activity.*
Training Target Group	*Those who will be positively affected, directly or indirectly, by the project through its activities and its results.*
Web Site	*Dissemination activities related to publications in an electronic form at a certain URL (Uniform Resource Locator – or web address).*

Table 2: List of abbreviations and acronyms

Term	Definition	Explanation
DoW	Description of Work	The main and agreed document describing the project activities.
ERTS	Embedded Real Time Systems	
IEEE RESAFE Workshop	Workshop	Workshop on Software Reuse and Safety for the Institute of Electrical and Electronics Engineers
INCOSE	Conference	International Council on Systems Engineering
SAFECOMP	Conference	International Conference on Computer Safety, Reliability and Security

Table 3: OPENCOSS partners, including official abbreviations, and their beneficiary number

Beneficiary ID	Abbreviation	Partner name
1	TEC	TECNALIA Research & Innovation
2	ALS	ALSTOM Transport
3	RIN	RINA Services SpA
4	ADA	AdaCore
5	TU/e	Eindhoven University of Technology
6	PSF	Parasoft SA
7	INT	Intecs
8	ATU	ATEGO UK
9	SIM	Simula Research Laboratory
10	IKV	ikv++ technologies ag
11	ATF	ATEGO France
12	INS	Inspearit (former DNV ITGS)
13	ALT	ALTREONIC
14	HPD	HPDahle
15	UOY	University of York
16	CRF	Centro Ricerche Fiat S.C.p.A.
17	TAV	THALES Avionics

1 Introduction

The OPENCOSS project aims at having a substantial impact on the safety critical systems community reducing costs and time for certification and reuse of certified subsystems within and across multiple application domains (e.g. avionics, railway, automotive). It also aims at supporting fast evolution.

Dissemination, training, and exploitation play a crucial role in creating awareness of projects results and its benefits, and for supporting faster and widespread adoption. This document reports the progress of OPENCOSS dissemination, training, and exploitation for the period from January 2013 till December 2013 (month 16 to 27). Although the activities have large overlaps and mutual influences, and also affect WP8 activities – standardisation and community building, the results will be presented as much as possible in the separate WP9 tasks (dissemination, training, and exploitation).

The project aims to put a cornerstone in the safety culture by collecting the certification best practices, from different application domains, and stressing their common conceptual framework. This will be the basis for common approaches and support tools leading to safe systems certification. The explicit activities to transfer the knowledge internally and externally and establish this knowledge, as performed in the concerned reporting period, are described in this document.

Based on the strategies and plans described in the OPENCOSS deliverables of Work package 9 (D9.1 Collaboration Platform, D9.2A Dissemination Plan, D9.2B Training Plan, and D9.3 Exploitation Plan) this report shows how these strategies and plans are realised in practice and what their results are.

The document is structured as follows: After this introduction, this document describes the results of dissemination in Chapter 2, training in Chapter 3, and exploitation in Chapter 4. This document ends with Chapter 5, the conclusion. In the appendices, dissemination and training events are listed showing the planned and performed activities for the reporting period (01 January 2013 to 31 December 2013). A description of the dissemination categories and dissemination assessment ranking is also provided.

2 Dissemination Actions Report

2.1 Introduction

The basis for the dissemination action report is in the Dissemination Plan (D9.2A). This plan has been elaborated to coordinate and discipline the dissemination activities. It has revised in a second issue, in order to include EC recommendations (e.g. organize an annual meeting).

In the second year of the project the focus of dissemination activities has been on raising awareness of the project, publicising key challenges addressed by the project and its preliminary results/selected approaches as well as collecting feedback from the relevant (external) stakeholders. The target audience for these activities is the wider industrial community (with the focus on equipment suppliers and platform integrators) as well as scientific and research community. The External Advisory Board (EAB) and a number of engineering and safety related (IEEE) conferences have been targeted for this reason.

2.2 Dissemination Objectives

2.2.1 Objectives

During month 16 to 27 the dissemination activities have focussed on the following areas:

- Raising awareness of the project.
- Publicising key challenges addressed by the project and its preliminary results/selected approaches as well as collecting feedback from the relevant (external) stakeholders. The target audience for these activities is the wider industrial community (with focus on equipment suppliers and platform integrators) as well as scientific and research community.

To these ends, OPENCOSS has:

- Organised public workshops on compositional certification and cross-domain reuse of certification artefacts. A one day workshop for the EAB was co-located with SAFECOMP 2013, a prominent conference in the area of dependable systems engineering.
- Published papers in international conferences and workshops (see Table 5). Each core work package of OPENCOSS has published papers to raise awareness of the project for both industrial as well as the academic target audience (for example: publication 15 and 21 for WP4, publication 3 and 14 for WP5, publication 4, 5, and 10 for WP6).

The consortium has, in an informal way, also brought the project to the attention of relevant active standardisation working groups. All dissemination materials have been uploaded onto the internal collaboration platform and, where permissible by the copyright and non-disclosure agreements, onto the project's public website. If not permissible, a link to the publication has been added instead. A number of dissemination milestones have been reached. These are listed in Table 4.

Table 4: Dissemination milestones

Period	Dissemination milestones results - [Month]	Project Milestones	Target stakeholders	Lead partners
Year 2	[M20] – **Detailed Designs and Outreach program**	MS3	OPENCOSS partners	**ATF**, TEC, UOY, INT
	[M24]- **Publication of intermediate OPENCOSS results (WP2 to WP6)**	-	Related projects, external industry partners	**UOY**, SIM, TUE
Year 3	[M28] **– Intermediate Module**	MS4	Safety critical systems community	**ADA**, ATF,

Period	Dissemination milestones results - [Month]	Project Milestones	Target stakeholders	Lead partners
	Prototypes		(main conferences)	PSF
	[M36]- **Proposal for standardization of OPENCOSS assets**	-	Domain-specific communities, standardization bodies	**TEC**, UOY
	[M36] – **Public workshops to show OPENCOSS framework in industrial cases - Final Prototypes and Integrated Platform**	MS5	Safety critical systems community	**ALT**, ATF, ADA

2.2.2 Aggregated Dissemination Activity Counts

The number of dissemination activities is compared with those planned, as provided in the D9.2A document. Dissemination activities are grouped into categories as described in Appendix D: Dissemination Categories.

The aggregated overview shows that in general the achieved dissemination match the planned dissemination. For external dissemination, especially the publications, more output has been generated than planned. There is again, as can be expected, a small shift between partners (See Figure 1.). Note that the numbers are activities per partner, so that it is unavoidable that, for example, one publication where two partners participated is counted twice in this overview per partner.

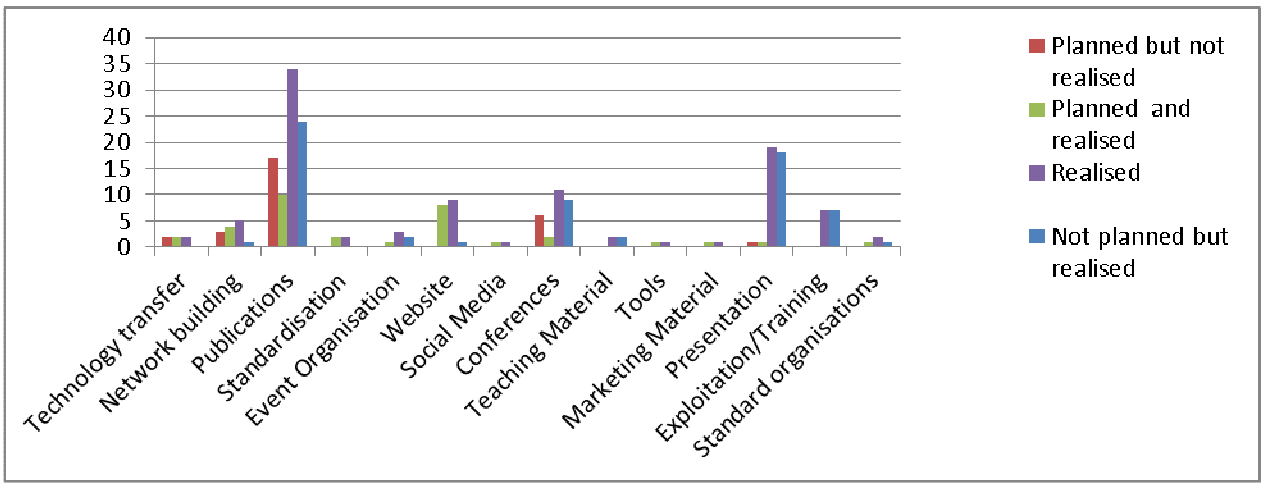


Figure 1: Counts of dissemination activities per partner, compared with planned

The dissemination results per partner, and aggregated in the exploitation groups (Universities and Research institutes, Industrial Prime Contractors/OEM's, Suppliers, Certification Bodies, Consultancy Organizations, Tool Vendors), are shown in Figure 2.

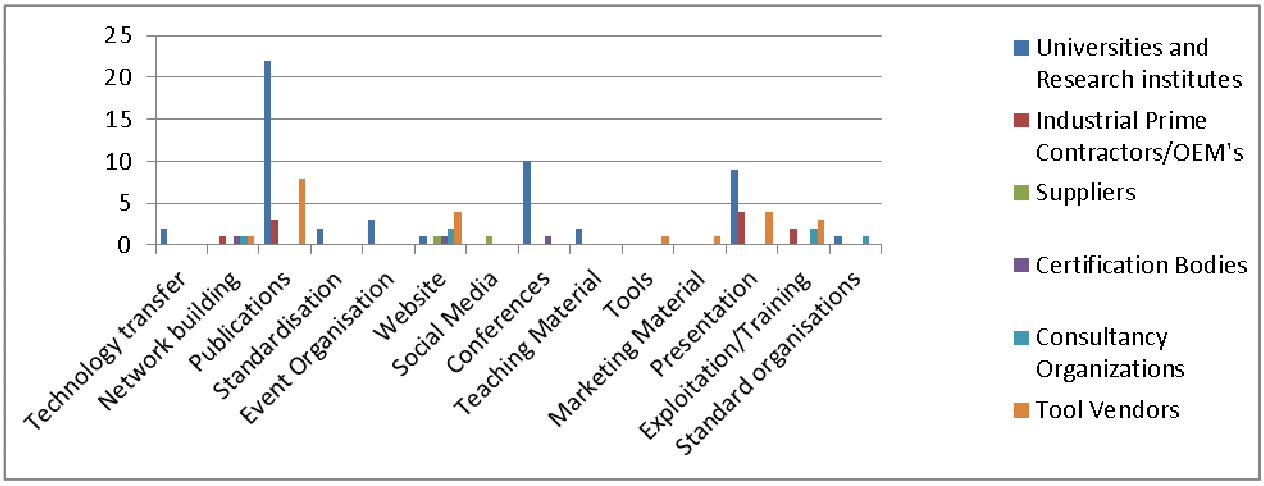


Figure 2: Count of dissemination activities per group (based on per partner numbers)

2.3 External Dissemination Report

In more detail we look at the results of the dissemination; in this section we discuss the external and most important results.

2.3.1 Published Papers in International Conferences and Workshops

Table 5 shows all papers that have been published or accepted by prestigious international events (also beyond Europe). In this table, the contributing partners, the main location for the presentation of the paper or workshop, and a description and link are provided. The h5-index, both average and median, has also been added for the journals and proceedings for which they are relevant and applicable. The papers in Table 5 have all been subject to an official peer reviewed and accepted. Therefore, their ratings are high, except for paper 5, which because of the journal's average and median h5-index exceeds 40, is rated excellent.

The papers often include multiple partners which demonstrate the good cooperation between partners. In order to increase awareness, a number of external parties have also been involved in writing these papers, and the subjects of OPENCOSS. This increases involvement and also creates a larger group of companies and people that want to advocate the goals and objectives of OPENCOSS.

Table 5: Publications of OPENCOSS partners in 2013

Id	Partners	Location	Description and link	h5-index
1/2	ALT	Brussels, Oostende	Cross-domain systems and safety engineering: is it feasible?, Eric Verhulst, presented at the Flanders Drive seminar: Functional Safety in the Vehicle Industry, Brussels /Belgium), 17 January 2013, http://www.flandersdrive.be/en/about-us/events/functional-safetyvehicle-industry-0 and also at the Flanders' Mechatronics Engineering Centre, Oostende (Belgium), 06 February 2013 http://fmec.khbo.be/events/2013/including-functional-safety-designmechatronics-and-ict	
3	TEC, CRF	Bristol	A Preliminary Study towards a Quantitative Approach for Compositional Safety Assurance, A. Ruiz, H. Espinoza, F. Tagliabo, Sandra Torchiaro, Alberto Melzi, presented at the 21st Safety-critical Systems Symposium, 05-07 February	

Id	Partners	Location	Description and link	h5-index
			2013, Bristol (UK), www.safetyclub.org.uk/e210 and http://scpro.streamuk.com/uk/player/Default.aspx?wid=16017&ptid=1060&t=0	
4	SIM	Luxembourg	Structuring, and Assessment of Evidence for Safety: a Systematic Literature Review, Sunil Nair, Jose Luis de la Vara, Mehrdad Sabetzadeh, Lionel Briand, presented at the 6th IEEE International Conference on Software Testing, Verification and Validation (ICST 2013), 18-22 March 2013, Luxembourg, www.icst.lu,http://simula.no/publications/Simula.simula.1656	28/41
5	SIM		Supporting the Verification of Compliance to Safety Standards via Model-Driven Engineering: Approach, Tool-Support and Empirical Validation, Rajwinder Kaur Panesar-Walawege, Mehrdad Sabetzadeh, Lionel Briand, Journal of Information and Software Technology, Volume 55, Issue 05, May 2013 http://www.sciencedirect.com/science/article/pii/S0950584912002352	41/61
6	UOY	San Francisco	Nuanced term-matching to assist in compositional safety assurance, Katrina Attwood, Philippa Conmy, 1st International Workshop on Assurance Cases for Software-intensive Systems (ASSURE 2013), www.cs.york.ac.uk/assure2013/Preliminary_Program.html	
7	TUE, INT	Pisa	Extracting Models from ISO 26262 for Reusable Safety Assurance, Yaping Luo, Mark van den Brand, Luc Engelen, John Favaro, Martijn Klabbers, and Giovanni Sartori, accepted to 13th International Conference on Software Reuse, Pisa (Italy), 12-13 June 2013, http://softeng.polito.it/ICSR13/schedule.html	
8	TEC	Dundalk	Making Software Safety Assessable and Transparent, Risto Nevalainen, Alejandra Ruiz, and Timo Varkoi, accepted at the 20th EuroSPI2 Conference 2013, Dundalk, Ireland, 25-27 June 2013, http://2013.eurospi.net/images/EuroSPI2013/PROGRAM/eurospi2013-program-v1.pdf	
9	SIM	Valencia	On the Use of Goal Models and Business Process Models for Elicitation of System Requirements, Jose Luis de la Vara, Juan Sánchez, Oscar Pastor, accepted at the 14th Working Conference on Business Process Modeling, Development, and Support (BPMDS'13), 17-18 June 2013, Valencia (Spain), www.bpmds.org/program	
10	SIM	Rio de Janeiro	A Review of Traceability Research at the Requirements Engineering Conference, Sunil Nair, Jose Luis de la Vara, Sagar Sen, accepted at the 21st IEEE International Requirements Engineering Conference, 15-19 July 2013, Rio de Janeiro (Brasil), http://www.re2013.inf.puc-rio.br/pages/main.php?id=page_welcome	23/29

Id	Partners	Location	Description and link	h5-index
11	SIM, ALT	Rio de Janeiro	Specifying a Framework for Evaluating Requirements Engineering Technology: Challenges and Lessons Learned. J.L. de la Vara, D. Falessi, and E. Verhulst, 3rd IEEE International Workshop on Empirical Requirements Engineering (Empire 2013), July 15, 2013, Rio de Janeiro (Brazil) http://ieeexplore.ieee.org/xpl/articleDetails.jsp?arnumber=6615209&sortType%3Dasc_p_Sequence%26filter%3DAND%28p_IS_Number%3A6615205%29	
12	SIM, TEC	Nanjing	Dealing with Software Model Quality in Practice: Experience in a Research Project, J.L. de la Vara and H. Espinoza, 1st International Workshop on Quality and Measurement of Software Model- Driven Developments (QUAMES 2013), July 29-30 2013, Nanjing (China), http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=6605958	
13	ALT, SIM	Toulouse	A Criterion for Composable Safety and Systems Engineering, Eric Verhulst, Bernhard Sputh (Altreonic), Jose Luis de la Vara (Simula), Vincenzo de Florio (Uni Antwerp), to be presented at the 2013 Workshop on Next Generation of System Assurance Approaches for Safety-Critical Systems (SASSUR), part of the 32nd International Conference on Computer Safety, Reliability and Security (Safecomp), which will be held in Toulouse (France), on 24-27 September 2013, http://conf.laas.fr/SAFECOMP2013/?q=node/26	
14	TEC, UOY	Toulouse	Towards a multi-view point safety contract, Alejandra Ruiz, Tim Kelly, Huascar Espinoza, Proceedings of Workshop SASSUR (Next Generation of System Assurance Approaches for Safety-Critical Systems) of the 32nd International Conference on Computer Safety, Reliability and Security, Toulouse (France), 24-27 September 2013, http://hal.inria.fr/docs/00/84/84/96/PDF/5_-_20130042.pdf	
15	SIM	Miami	SafetyMet: A Metamodel for Safety Standards, J.L. de la Vara and R.K. Panesar-Walawege, presented at ACM/IEEE 16th International Conference on Model Driven Engineering Languages and Systems (MODELS 2013), September 29 - October 04, 2013, Miami (FLO, USA), www.researchgate.net/publication/257757633_SafetyMet_A_Metamodel_for_Safety_Standards	28/39
16	TEC, CRF	Cardiff	A Preliminary Study towards a Quantitative Approach for Compositional Safety Assurance, A. Ruiz, H. Espinoza, F. Tagliabo, Sandra Torchiaro, Alberto Melzi, accepted at the 8th IET International System Safety Conference incorporating the Cyber Security Conference 2013, 15-17 October 2013, Radisson Blu, Cardiff (UK), http://tv.theiet.org/technology/manu/16017.cfm	
17	TEC, UOY	Toulouse	Adequacy of contract grammars for component certification, Alejandra Ruiz, Huascar Espinoza, Tim Kelly, Fast Abstract at the 32nd International Conference on Computer Safety,	

Id	Partners	Location	Description and link	h5-index
			Reliability and Security, Toulouse (France), 24-27 September 2013, http://conf.laas.fr/SAFECOMP2013/?q=node/10	
18	ALT, SIM	Paris	From Safety Integrity Level to Assured Reliability and Resilience Level for composable safety critical systems, Eric Verhulst, Bernhard Sputh, Jose Luis de la Vara, Vincenzo de Florio, ICSSEA, Paris, November 2013, http://www.pats.ua.ac.be/publications/content/publications/2013/ICSSEA_2013_ARRL_final_08102013.pdf	
19	ALT	Pasadena CA (USA)	ARRL, A criterion for compositional safety and systems engineering. A normative approach to specifying components, Eric Verhulst, Bernhard Sputh, Industry session, IEEE International Symposium on Software Reliability Engineering, IEEE ISRRE2013, Pasedena (CA, USA), November 2013, http://2013.issre.net/industry_papers#paper5_3	17/22
20	UOY, ALS	Paris	Conceptualisation of Industrial Safety Assurance Activities: Towards Computer-Aided Certification, Katrina Attwood, Fabien Belmonte, Laurent de la Beaujardière and Andrea Palermo, presented at International Workshop on Model-Based Safety Assurance 2013, Paris, March 2013, http://wwwusers.cs.york.ac.uk/~katrina/publications.html	
21	UOY	London	The role of the safety-case lexicon in cross-domain translation: the OPENCOSS project, Katrina Attwood, presented at the Independent Safety Assurance Group/Safety-Critical Systems Club Workshop 'Transferable Safety - fact or fiction?', London, 5th December 2013, http://scsc.org.uk/file/262/protect_reg_Attwood.pdf	

In addition to these papers the consortium was successful in organizing a special issue of IEEE Software Magazine dedicated to safety critical software. An internal section (a side box) was dedicated to OPENCOSS. IEEE Software is likely the most prestigious magazine for software professionals.

2.3.2 Participation to Public Workshops and Conferences

A number of workshops and conferences have been held, and these are geographically displayed below in Figure 3.

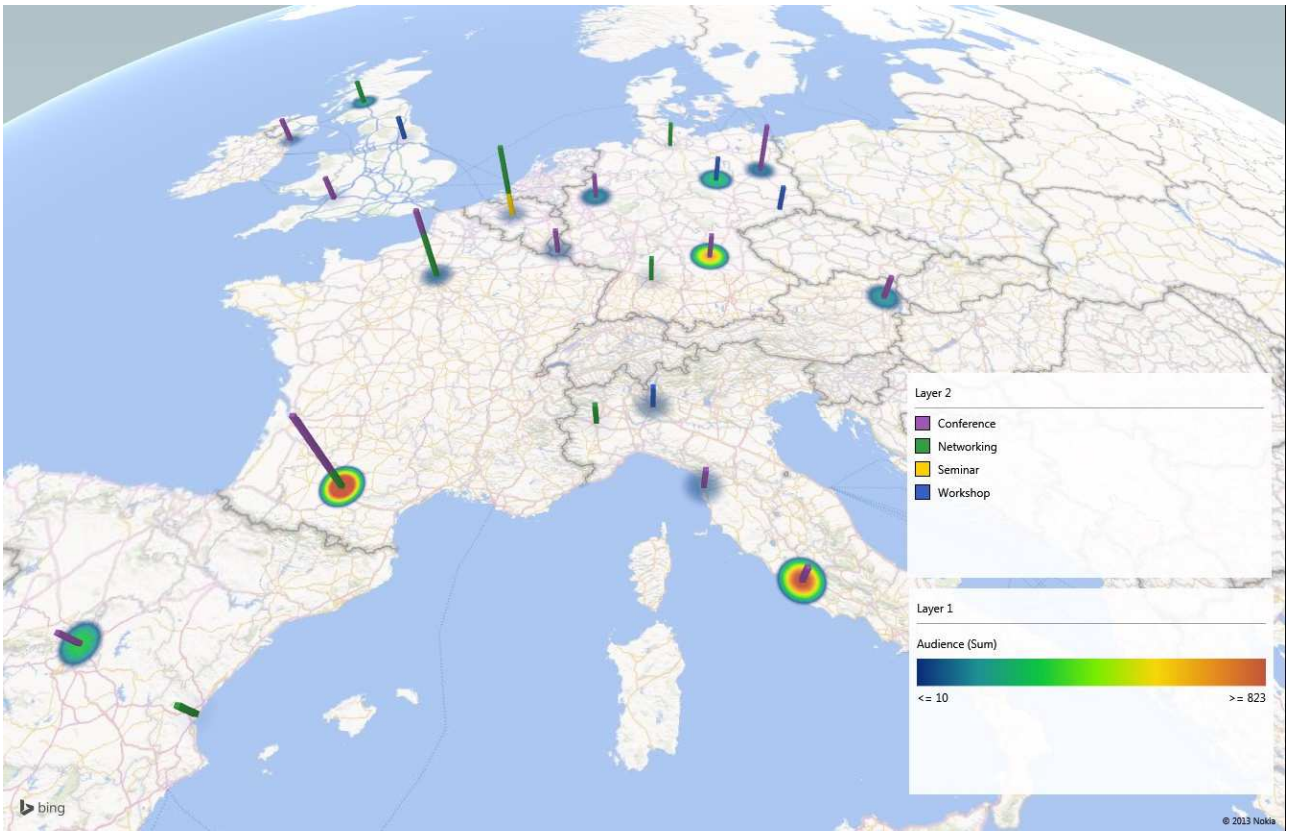


Figure 3: Geographical distribution of OPENCOSS dissemination events in 2013

Figure 3 shows the location and impact of the dissemination events (except out of Europe). The number of events is represented by the height of the vertical bars, while its impact is displayed in the size of circles around the vertical bars. For more details refer to Appendix B: Dissemination Events in Europe, and Deliverable D9.2A.

Two workshops are worth citing separately, as specifically organized by OPENCOSS:

SASSUR 2013

It was organized as satellite event of SAFECOMP 2013, in Toulouse 24 September, System Assurance Approaches for Safety-Critical Systems. **Title: Next Generation of System Assurance Approaches for Safety-Critical Systems**. Chairs:

- Alejandra Ruiz - Tecnalia Research & Innovation, Spain
- Tim Kelly – University of York, UK
- Jose Luis de la Vara – Simula Research Laboratory, Norway

ICSR 2013 – International Conference on Software Reuse

It was held in Pisa 18-21 June 2013 with a special focus on «Safe and Secure Reuse». **Title: Critical Software Component Reusability and Certification across Domains.** Program Chair:

- John Favaro - Intecs, Italy

2.3.3 OPENCOSS Presentations to External Parties

In addition to the companies and persons involved in writing publications, and those that have been invited to the EAB, more companies have been exposed to the OPENCOSS goals and progress. Again, to raise awareness, the OPENCOSS ideas have been shared in a number of presentations.

To demonstrate the dissemination outreach to external companies, we mention a small number of examples, like the achievements of Simula, Eindhoven University of Technology, and IKV++, which have presented the OPENCOSS goals and ideas to the companies that they have close relationships with. Simula has been in contact with many practitioners because of the surveys in which they have collaborated, on safety evidence management and on change impact analysis of safety evidence. Other partners have done so as well in the light of their main contributions to OPENCOSS. These results have not been included in the aggregate dissemination activity counts in Section 2.2.2.

A small excerpt from the list of companies that have received an OPENCOSS presentation:

- FMC Technologies (Norway)
- Kongsberg Maritime (Norway)
- DNV (Norway)
- DAF Trucks (Netherlands)
- Toyota (Japan)

Research institutions at which partners have presented OPENCOSS:

- Lund University (Sweden)
- Technical University of Valencia (Spain)
- Bournemouth University (UK)
- Diego Portales University (Chile)
- Andres Bello University (Chile)

Other companies with which partners have discussed about OPENCOSS:

- Daimler (Germany)
- Autronica (Norway)
- Siemens (Germany)
- High Tech Automotive Campus Helmond (Netherlands)

Other research institutions with which partners have discussed about OPENCOSS:

- University of Kentucky (USA)
- High Tech Automotive Campus Helmond (Netherlands)
- DePaul University (USA)
- Carnegie Mellon (USA)
- University of Trento (Italy)
- INRIA (France)
- University of Ottawa (Canada)
- Paluno - Ruhr Institute for Software Technology (Germany)
- Ilmenau Technical University (Germany)

From the publications, it also shows that there are many research institutions with which partners have or have had concrete scientific collaborations related to OPENCOSS:

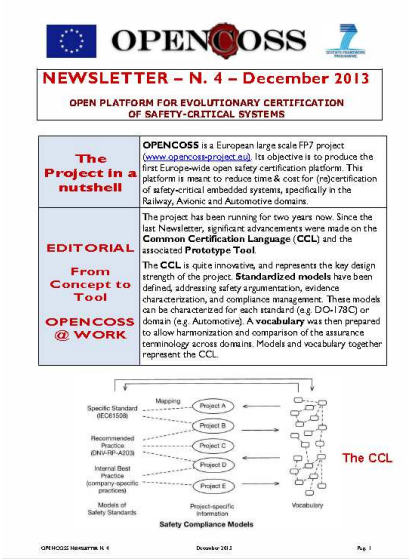
- University of Luxembourg (Luxembourg)
- Fraunhofer CESE (USA)
- Lund University (Sweden)

- Technical University of Valencia (Spain)
- University of Antwerp (Belgium)
- Diego Portales University (Chile)
- Andres Bello University (Chile)
- Bournemouth University (UK)

2.3.4 Media Support

As presented in the last deliverable, the basic dissemination infrastructure is in place and is used. This includes:

- Project logo.
- Project website: is kept up to date with the newly produced deliverables.
- LinkedIn: members keep the discussions alive, though the activity is lower than before.
- Twitter: installed and used.
- Facebook: installed. Though LinkedIn, as a professional network seems to be more suitable.
- Fact sheets.
- Newsletters: The fourth newsletter has been published in December 2013, as usual collating all the relevant project facts in the semester, plus a technical insight on a project-related subject (Prescriptive vs. Goal oriented Standards).
- General presentations (5 to 10 minutes and 20 to 30 minutes).
- Position paper (OPENCOSS position paper).
- Press releases.
- A roll-up poster.


OPENCOSS

NEWSLETTER – N. 4 – December 2013

OPEN PLATFORM FOR EVOLUTIONARY CERTIFICATION OF SAFETY-CRITICAL SYSTEMS

The Project in a nutshell

OPENCOSS is a European large scale FP7 project (www.opencoss-project.eu). Its objective is to produce the first Europe-wide open safety certification platform. This platform is meant to reduce time & cost for (re)certification of safety-critical embedded systems, specifically in the Railway, Avionic and Automotive domains.

EDITORIAL

From Concept to Tool

OPENCOSS @ WORK

The project has been running for two years now. Since the last Newsletter, significant advancements were made on the **Common Certification Language** (**CCL**) and the associated **Prototype Tool**.

The **CCL** is quite innovative, and represents the key design strength of the project. **Standardized models** have been defined, addressing safety argumentation, evidence characterization, and compliance management. These models can be characterized for each standard (e.g. DO-178C) or domain (e.g. Automotive). A **vocabulary** was then prepared to allow harmonization and comparison of the assurance terminology across domains. Models and vocabulary together represent the CCL.

The CCL

2.3.5 R&D Deliverables

A number of OPENCOSS deliverables produced in the reporting period are publicly available. Table 6 shows the public deliverables that have been produced in the period. This also includes deliverables that have been updated and are of use for the next review round. The information is also included in the OPENCOSS project website: http://www.opencoss-project.eu/node/10.

Table 6: Public deliverables

Deliverable	Description	Delivered at
D2.4	Detailed specification of usage scenarios	M15
D3.2	Integration requirements and test plan	M18
D4.3	Intermediate common certification language: Conceptual…	M14

Deliverable	Description	Delivered at
D4.4	Common Certification Language: Conceptual Model	M20
D4.5	Common Certification Language: Implementation	M20
D4.6	Editor of Common Certification: Language	M24
D5.3	Compositional certification conceptual framework	M24
D6.3	Specification of the evidence management service infrastructure	M20
D6.4	Specification of adapters to development and safety assurance	M20
D7.3	Specification of the compliance-aware service infrastructure	M20
D7.4	Specification of the transparent certification service infrastructure	M20
D8.2	Plan for the adoption outreach program	M20
D9.4	First report on dissemination, training and exploitation activities	M15
D10.2	First annual progress report including explanation of major cost items (to be formally approved in review 3)	M10
D10.3	Second annual progress report	M25

2.3.6 External Advisory Board

The EAB consists of relevant and influential persons from the aerospace/avionics, railway, and automotive domains, also including persons from regulatory authorities in these domains. Its members are international experts from regulatory companies, standardization committees, and open source initiatives. The EAB is the key instrument for the OPENCOSS project for external guidance, discovering strong and weak points, for linking to other research initiatives, and to promote the exposure of OPENCOSS activities to industry.

EAB members (see Table 7) have agreed to give OPENCOSS meaningful help on a regular basis in many different areas, including safety critical certification regulations, technological development, European policies, and outreach. EAB advises the OPENCOSS technical coordinator in its strategic technical decision-making process and the standardization & community building activities. It promotes the framework towards certification authorities and other important players in the certification domain.

The most recent EAB Workshop was held on 23 – 24 September 2013, one day before the SAFECOMP 2013 conference, in Toulouse. Here, the project received important input from the EAB. Topics on the agenda were:

- Expectations from Industry (Automotive, Avionics, Railway).
- Community building.
- Level and nature of safety certification reuse (cross domain, cross country, artefact classification).
- Need for tool support.

Table 7: Persons and Companies included in the EAB

Company	Contact Point	Role
EADS/Eurocopter, France	Ronald Blanrue & Louis Fabre	Helicopter Manufacturer
ERA, Europe	Christopher Carr	Railway Regulatory Agency
Eclipse, Europe	Ralph Muller	Open Source Ecosystem
EADS/IW, UK & Germany	Andreas Keis	Aerospace Manufacturer
Flanders Drive, Belgium	Bert Dexter	Consulting on Automotive Dom.
SafeTrans (Germany)	Jurgen Niehaus	Cluster on Safety Critical S. Transport
CAF, Spain	Eluska Sukia, Head of Signaling	Railway manufacturer
NASA (US)	Michael Holloway	Aviation Regulatory Agency
Verocel (US)	George Romanski	Aviation Regulatory Agency
AIST (Japan)	Kenji Taguchi	Research
BAE Systems	Janne Fenn	Avionics manufacturer
Airbus, France	Herve Delseny	Aviation Manuf.
Thalès Railway (Austria)	Christoph Scherrer	Railway manufacturer
TÜV Rheinland, Germany	Jens Wolff	Assessment & Certification (Railway)
Deutsche Bahn (DB-Netz)	Klaus-Rüdiger Hase	Railway Operator & Infrastructure Manager
RFI	Attilio Ciancabilla	Railway Infrastructure Manager
Ricardo-UK	Antonio Priore	multi-industry consultancy for engineering, technology, project innovation and strategy
Volvo	Cecilia Ekelin	Car manufacturer
Renault	Javier Ibanez-Guzman	Car manufacturer

3 Training Actions Report

3.1 Introduction

The main objective of the training activities is to ease the adoption of the OPENCOSS results in standardization bodies, academic, and industrial communities. A secondary objective of training activities is to provide a common knowledge base for internal communication and stimulate the OPENCOSS consortium through the mutual exchange of knowledge experience and working methods. It is obvious that the internal training should precede the external in most cases. The internal training activities have been performed during the first year of the project. Now that the partners have the same knowledge level on a given subject, they can jointly set up external dissemination, training, and exploitation.

In order to achieve both training objectives, two different activities are performed:

- Internal training - to support knowledge exchange within the project (described in Section 3.3)
- External training - to support adoption of OPENCOSS results (described in Section 3.4)

Internal and external trainings use various types of electronic documents, such as presentations, tutorials and videos. OPENCOSS is centred on “openness”, for example, open-platform, open-source and open-documentation. To pursue the OPENCOSS strategy towards the “openness”, the training material should be accessible to other communities where possible.

There are many ways to deal with promotional events and training; OPENCOSS partners plan to exploit mailing lists, websites (the OPENCOSS website and websites of the OPENCOSS consortium partners) and social networks, such as LinkedIn.

3.2 Training Target Groups and Material

The following groups, within the consortium, the EU, and worldwide, represent specific targets for training activities:

- Project partners
- Industrial community
- Prime contractors, OEM
- Suppliers
- Tool Vendors
- Consultancy/Training providers
- Scientific community, including students
- Academic Institutions, including students
- Standardization Bodies and Organizations
- Agencies (e.g. ESA, ERA, etc.)

Many different training materials are required to support the OPENCOSS training. The identified training material is listed below:

- Training Presentation
- Training Leaflet
- Teacher Profile
- Training Satisfaction Survey (one per participant). OPENCOSS Deliverable D9.2B provides details.

- Training Participants List
- Training Announcement
- Training Plan
- Training Calendar
- Training Reports

3.3 Internal Training

As the internal training activities have been performed during the first year of the project no internal training was necessary during the period January 2013 till December 2013.

3.4 External Training

Following the internal training the second phase of the training activities is dedicated to external training for the OPENCOSS results. 2013 has been a pivotal period is which the training objectives for the next period have been defined. These objectives have been defined in relation with Task T8.2 - Adoption outreach program and are presented in deliverable the D8.2 Adoption Outreach Plan.

3.4.1 Identification of Stakeholders Interest

The different stakeholders and their interest have been identified as shown in Figure 4.

		Prescriptive knowledge	Evidence management	Safety Argumentation	Transparent Process and certification	Compositional certification
End User Interest (COS, ISP, CSP, ASC)	Concepts (CCF)	• Reference assurance framework concepts • Ability to capture of industry and company standards	• Evidence concepts • Ability to capture concrete example with OPENCOSS	• Arguments concepts • Ability to capture concrete examples with OPENCOSS	• Process and process execution concepts • Mapping possibilities • Ability to capture process and execution data	• Composition concepts • CCL argument writing • Impacts comp. changes • Argumentation impact analysis • Unexpected emerging
	Authoring (SCMI)	• Standards and mapping editor	• Evidence characterization and traceability editor	• Modular argumentation editor	• Process specification and standard mapping editor	
	CCL	• Reference assurance framework metamodel • *Vocabulary metamodel*	• Evidence metamodel	• Argumentation metamodel • *Vocabulary metamodel* • *Artefact metamodel*	• Process metamodel • Assurance project metamodel • *Artefact metamodel* • *Vocabulary metamodel* • *Mappings metamodel*	• Manageable Assurance Asset Metamodel
Tool developers Interest (TOV, OSC)	Infrastructure (SCMI)		• Evidence analysis manager • External tool integration manager	• Component integration analysis manager	• Compliance agreement negociation manager • Process analysis manager • Process execution and compliance monitoring manager	

Scientific Community Interest (SRC)

Figure 4: Map of stakeholders' interest

Based on stakeholder interest the OPENCOSS results (concepts and tooling) for which external training should be provided have been identified together with priorities and the intended audience for the training.

3.4.2 Target Groups

The following target groups have been identified for the external training.

- Industrial organisations including safety critical component suppliers, integrator of safety critical platforms, consultancy providers, assessor companies and standardization and regulation bodies.
- Scientific and Research Community.
- Development organisations including tool vendors, the open source community and developers from the scientific and research community.

Different external training modules will be developed for each of these target groups. The objectives and the content of the training for each target group are summarised in sections 3.4.2.1 - 3.4.2.3. The training will be developed in collaboration with the relevant technical work packages (WP4 – WP7).

3.4.2.1 Industrial Organisations

Objective

The objective of the training is to present the OPENCOSS concepts, explicitly showing which concepts are fulfilling the previously identified expectations. Technology details shall not be addressed. Rather, focus shall be put on the possibility to demonstrate through prototypes the operational aspects.

Content

The following OPENCOSS concepts will be presented:

- Reference assurance framework
- Evidences and arguments
- Composition
- Process definition and execution

A strong emphasis shall be devoted to illustrating these concepts by using real industrial examples to show how:

- How an industry standard (such as DO178) or company generic process can be captured.
- How a specific project process can be derived and monitored during execution.
- What evidences OPENCOSS can handle and how to capture them.
- How arguments can be formalized and captured.
- How mappings can been identified between project artefacts and standards to justify project compliance.
- How existing assets can be reused from previous projects to optimize compliance demonstration.

To demonstrate the operational aspects of OPENCOSS the following OPENCOSS tools will be presented:

- Standards, process and mapping editors
- Evidence characterization and traceability editor
- Argumentation editor

3.4.2.2 Scientific and Research Community

Objective

The objective of the training is to promote theoretical concepts formalized through meta-models and related open source tooling to allow scientific community to work with underlying concepts and prototype theoretical extensions**.**

Content

The following OPENCOSS concepts will be presented:

- Reference assurance framework meta-model
- Evidences and arguments meta-models

- Manageable assurance asset and project meta-models
- Vocabulary, artefact and mapping meta-model

A strong emphasis shall be devoted to the theoretical consistency of the meta-models between them and how they cope with the compliance issues using flexible mappings.

Platform access through editors will be demonstrated in order to allow scientific community to operate the platform and possibly extend it towards formal checks or any relevant research-related topic.

3.4.2.3 Development Organisations

Objective
The objective of the training is to provide all infrastructure information required to integrate with or to develop OPENCOSS platform.

Content
The following OPENCOSS concepts will be presented:

- Reference assurance framework meta-model
- Evidences and arguments meta-models
- Manageable assurance asset and project meta-models
- Vocabulary, artefact and mapping meta-model

A strong emphasis shall be devoted to the theoretical consistency of the meta-models between them and how they cope with the compliance issues using flexible mappings. The relations between meta-model are a key point as it ensures consistency of editors and needs for bridges.

Use of the OPENCOSS platform will be presented in order to allow developers to understand the overall usage scenario. In addition, the OPENCOSS platform infrastructure shall be presented:

- Framework and related architectures for each area including components
- Evidence analysis manager
- External tool integration manager
- Component integration analysis manager
- Compliance agreement negotiation manager
- Process analysis manager

3.4.3 Next steps

The training plan will be updated in accordance with the external training objectives identified in sections 3.4.2.1 - 3.4.2.3. As the technical work packages have now released sufficient technical material, the development of the external training modules will start in 2014. The development will be done in collaboration with technical experts from the different work packages (WP4 – WP7) and validated by WP9.

3.4.4 Academic Training

As identified in previous period objectives, an academic course on automotive standards has been developed by the University of Eindhoven “Standards in Automotive Software Engineering”. This course addresses IEC61508, ISO26262 and MISRA-C. This is a 2 hour course, which is part of a series of courses on automotive engineering. The audience was around 20 Master Students, mainly with a computer science or mechanical engineering Bachelor degree. At the end of the series, students were tested on their knowledge on standards in automotive and how to apply them though an exam. The course can also be used for doctoral students.

4 Exploitation Actions Report

Partners have been encouraged to perform exploitation activities as far as these were aligned with the OPENCOSS exploitation strategy, as specified in the Exploitation Plan (D9.3). Partners have been invited to inform in advance, to better coordinate exploitation efforts, but more important to report about such activities. Note that dissemination and training activities create a suitable background for exploitation.

During this period, the Exploitation Plan has been revised in order to strengthen the common and synergic exploitations actions in addition to individual partners' strategy. Exploitation is dependent on project results, and the first 27 months have seen a significant effort for achieving them. These results, although quite advanced, are not yet complete enough to immediately offer concrete exploitation possibilities.

4.1 Growing Influence on Safety Domain

During this period OPENCOSS has prepared a suitable background for exploitation, by achieving a more influential position in the safety experts' domain. In fact the OPENCOSS influence has grown, as measured by a number of indicators:

- Growth in the number of experts that have shown interest in the OPENCOSS results, either via LinkedIn or by subscribing to the RSS feed of the OPENCOSS website.
- Significant growth of the EAB, and their confirmed commitment and interest as shown during the last safety conference in Toulouse (http://conf.laas.fr/SAFECOMP2013).
- The influential position in relevant interest groups that some partners have gained.
- The dedicated, special issue of IEEE Software Magazine
- 2 Workshops organized by OPENCOSS (SASSUR in Toulouse, and ICSR in Pisa)

OPENCOSS has also prepared a suitable background for exploitation via external dissemination and training activities.

4.2 Consortium-level Activities

The Exploitation Plan has been updated in early 2013 to reflect the recommendations of the EC review team. The ideas in the plan have been positively confirmed further to the industrial panel held during the SASSUR workshop in Toulouse, September 2013 (http://conf.laas.fr/SAFECOMP2013/?q=node/26) where members of the EAB and participants of the workshop had the opportunity to discuss about the future of the Safety Critical Systems.

Collaboration has been pursued and strengthened with Open Source initiatives, such as Topcased/Polarsys. The latter covers not only the avionic market, but also the automotive market (e.g. Continental is a member). Note that Intecs is founding member of Topcased/Polarsys, and it is already contributing the results of the recently-completed project CHESS (www.chess-project.org). Intecs has organized a joint event initiative with Topcased/Polarsys, at the 2014 Embedded Real Time Software and Systems (ERTS) event (http://www.erts2014.org/). This is expected to be held on 05-07 Feb 2014 in Toulouse.

Collaboration has been pursued with the OpenETCS initiative (http://openetcs.org). Focussed on the railway domain, OpenETCS is member of the OPENCOSS Exploitation Advisory Board. OpenETCS has been invited at the ERTS 2014 event.

As a background initiative, the OPENCOSS Consortium has continued to develop a cross-domain best practice on the safety of Electrical, Electronic, and Programmable Electronic systems (E/E/PE). Equally

advancements have been made on the Safety BOK (Body of Knowledge), currently led by the University of York. The ultimate purpose is to remove the subtle, but artificial differences between domains, sometimes only lexical, and rather to highlight the substantial commonalities and/or to encourage the cross fertilization of those differences (domain X endorsing a practice from domain Y).

4.3 Summary of Partners Activities

Apart from the shared contribution to the general consortium-wide activities, below is a summary of partners' own activities.

Alstom (ALS) has contributed to several conferences and international workshops in order to support and strengthen the OPENCOSS approach and methodology. Internal presentations have been performed of the first OPENCOSS prototype. The OPENCOSS approach will be used in several Alstom's R&D (internal or collaborative) projects to perform preliminary certification activities of the R&D outcomes. To support this, several coordination meetings have been held.

Altreonic (ALT) has started work, at requirements and conceptual level, for the integration of OPENCOSS into its own product GoedelWorks (http://www.altreonic.com/category/products/goedelworks).

Atego has started to investigate the integration of Atego Process Director (www.atego.com/products/atego-process-director) with OPENCOSS. Both technical feasibility and related business model have been concurrently evaluated.

The activities of **Centro Ricerche Fiat** (CRF) concern the diffusion of the project outcomes and objectives to the operating industrial sectors (Fiat Group Automobiles, Magneti Marelli, Powertrain, Iveco, and CNH Industrial) through the annual roadmaps that are the basis for the definition of the incoming operating activities. This type of reference puts the information of the research activities in evidence and at disposal of management, for making decisions about the possible involvement in the medium/long term of the innovation in progress.

IKV has continued the activities along the IKV-own part of the Exploitation Plan. With selected customers of own product *medini analyze* (www.ikv.de/index.php/en/products/functional-safety), IKV has held workshops to discuss on the potential usage of OPENCOSS results, as extension of *medini analyze* itself. Such potential results are especially structured argumentation of safety case, safety case modelling in general, as well as composition of safety cases and exchange of data across the supply chain. Workshops have been held with 2 OEMs, 1 tier, 1 supplier and an engineering service provider. All of them belong to the Automotive domain, as *medini analyze* is targeting this domain. Follow-up is planned, once the OPENCOSS software is available, and IKV aims at letting OPENCOSS be tested in these contexts. It will also help to understand the currently-applied best practices in order to customize OPENCOSS software exactly to the needs.

In the period, **Intecs** has engaged in enlarging the internal, cross-domain certification competence, in order to enable its safety consultants to be able to operate in a number of different domains. Intecs has taken the lead of the effort for contributing OPENCOSS results in Topcased/Polarsys (see above). Moreover it has further enforced the technological partnership with both IKV and CRF, already started before project commencement. Equally with French Partners, via own subsidiary Intecs France SARL.

Lastly, a couple of promising exploitation threads. Further to some recent DO-178C training sessions held in Asia by Intecs, the differences and similarities with safety standards in other domains, and already known by participants, has revealed didactically winning. Besides being obvious, this revealed also commercially promising, because it manifested a true user expectation for having common concepts for handling any safety project. Intecs is promoting the adoption of model-driven technologies by an existing customer, an international transportation leader. This adoption reveals itself synergic with OPENCOSS.

5 Conclusion

Dissemination, training, and exploitation play a crucial role in creating awareness of OPENCOSS project results and their benefits, and for supporting faster and widespread adoption of the OPENCOSS ideas. The evaluation of dissemination, training, and exploitation for the period from January 2012 till December 2013 (month 16 to 27) shows good progress. In comparison to the plans, as described in D9.2A (dissemination), D9.2B (training), and D9.3 (exploitation) respectively, it shows that the OPENCOSS consortium has achieved a high level of dissemination. Objectives for the external training have been defined and good progress has been made on actions necessary to support future exploitation.

Appendix A: Dissemination Events

OPENCOSS Dissemination Events – Calendar 2013/2014

When	What	Where	Who	Action
Year 2013				
17 Jan DONE	Flanders Drive seminar: Functional Safety in the Vehicle Industry	Brussels	ALT	Made a presentation
5-7 Feb DONE	21st Safety-critical Systems Symposium	Bristol	TEC, CRF	Successfully submitted a paper. A Preliminary Study towards a Quantitative Approach for Compositional Safety Assurance.
18-22 Mar DONE	IEEE International Conference on Software Testing, Verification and Validation	Luxembourg	SIM	Successfully submitted a paper
14 May	EXCROSS *EXCROSS is a Supporting Action of the European Commission to enhance cross-fertilization and synergies between safety research initiatives in the different transportation modes (e.g. road transportation, aviation, etc.*). http://www.excross.eu/index.htm	Glasgow	RIN	To present OPENCOSS in the framework of many projects addressing multi transportation modes.
18-20 Jun DONE	ICSR International Conference on Software Reuse Safety and Security	Pisa	INT, TU/e, TEC, UOY	Investigating the possibility for a dedicated workshop, a paper submitted by TU/e, invited TEC and UOY

When	What	Where	Who	Action
19 May DONE	ASSURE 2013 The 1st International Workshop on Assurance Cases for Software-intensive Systems in conjunction with ICSE 2013	San Francisco (US)	TEC, UOY	Internal CfP, Tim Kelly has chaired the event
25-27 June DONE	EUROSPI 2013	Dundalk, Ireland	TEC	Paper submitted
29-31 June DONE	11th IEEE International Conference on Industrial Informatics (INDIN'2013)	Bochum (G)	IKV	Special Session on Ensuring Safety in Industrial Critical Systems (ESICS)
15 Jul DONE	EmpiRE 2013 IEEE Workshop http://selab.fbk.eu/empire2013	Rio de Janeiro	SIM	Paper submitted
24 Sept DONE	SASSUR 2013 In conjunction with SAFECEOMP 2013	Toulouse	TEC, INT	External CfP One paper submitted Altreonic
18 Oct DONE	EXCROSS *EXCROSS is a Supporting Action of the European Commission to enhance cross-fertilization and synergies between safety research initiatives in the different transportation modes (e.g. road transportation, aviation, etc.*).	Turin	RIN, CRF	Provide an OPENCOSS presentation
4-6 Dec DONE	4th International conference on complex systems design & management (CSD&M 2013)	Paris	ALS	Liaising with attendants and promoting OPENCOSS via leaflets.
Year 2014				
5-7 Feb PLANNED	ERTS Embedded Real Time Systems Conference	Toulouse	INT	TBD

When	What	Where	Who	Action
13 May PLANNED	AESSCS 2014 Workshop Planning the Unplanned Experiment: Assessing the Efficacy of Standards for Safety Critical Software Satellite event of European Dependable Computing Conference (EDCC)	Newcastle	UOY	Submitted a paper by Katrina Attwood
23-27 June PLANNED	Ada Europe, Reliable Software Technologies	Paris	INT	

Appendix B: Dissemination Events in Europe

Table 8 indicates all dissemination outreach events in the OPENCOSS project, so far. It includes the date of the event, its type, its name, number of people in the audience. Furthermore, the lead partners is identified and the location where the event took place. These figures are also shown in Figure 3, where for each location, the vertical bar indicates how many events took place, and the width of the circle on the location gives an indication of the size of the audience.

Table 8: Dissemination outreach for all OPENCOSS activities

ID	Date	Type	Event	People	Lead Partner	Location
1	22-sep-11	Net-working	OPEES - Open Platform for the Engineering of Embedded Systems	50	Intecs	Paris
2	27-sep-11	Workshop	Workshop on Software Assessment and Certification for Railway Applications	20	Atego UK	York
3	8-nov-11	Net-working	SafeTRANS - Safety in Transportation Systems	10	Alstom	Hamburg
4	15-nov-11	Net-working	European Union Strategy 2020 on Advanced Systems Engineering	20	Intecs	Brussels
5	29-nov-11	Conference	Certification Together International Conference 2011	100	AdaCore	Toulouse
6	29-nov-11	Workshop	International Workshop on Software Certification	50	Simula	Hiroshima
7	1-dec-11	Workshop	Automotive SPIN	45	Intecs	Milan
8	6-dec-11	Net-working	UNIFE Working Group	12	Alstom	Brussels
9	31-jan-12	Net-working	CESAR and SafeCer Rendez-vous Meeting	200	Thales	Toulouse
10	1-feb-12	Conference	ERTS 2012 - Embedded Real Time Systems Conference	400	Intecs	Toulouse
11	20-mar-12	Net-working	Solutions Critique: Solutions de Modélisation	10	Atego FR	Paris
12	28-mar-12	Conference	Embedded World 2012	500	Thales	Nuremberg
13	28-mar-12	Conference	International Conference on Applying ISO 26262	34	Fiat	Berlin
14	5-jun-12	Conference	SEPG Europe 2012	230	Tecnalia	Madrid
15	25-jun-12	Conference	EuroSPI 2012	120	Tecnalia	Vienna
16	9-jul-12	Conference	International INCOSE Conference 2012	650	Intecs	Rome
17	15-jul-12	Net-working	Technical University of Valencia	12	Simula	Valencia
18	12-jul-12	Net-working	Automotive Testing EXPO	20	Parasoft	Stuttgart
19	25-sep-12	Workshop	SAFECOMP 2012 & SASSUR	200	Tecnalia	Magdeburg
20	25-sep-12	Workshop	ITSLE 2012 Industrial Track of Software Language Engineering	10	Atego FR	Dresden

ID	Date	Type	Event	People	Lead Partner	Location
21	17-oct-12	Conference	Symposium Achieving Functional Safety in Avionics & Automotive	50	IKV	Berlin
22	17-jan-13	Seminar	Functional Safety in the Vehicle Industry	40	Altreonic	Brussels
23	5-feb-13	Seminar	Functional Safety in the Vehicle Industry	30	Altreonic	Oostende
24	5-feb-13	Conference	21st Safety-critical Systems Symposium	140	Tecnalia	Bristol
25	16-mar-13	Conference	IEEE International Conference on Software Testing, Verification and Validation	30	Simula	Luxembourg
26	27-mar-13	Workshop	IWMBSA 2013	20	York	Versailles
27	14-may-13	Net-working	EXCROSS 2013	20	Rina	Glasgow
28	19-may-13	Workshop	ASSURE 2013	50	York	San Francisco
29	18-jun-13	Conference	ICSR2013	50	TU/e	Pisa
30	18-jun-13	Workshop	ICSR2013	20	TU/e	Pisa
31	25-jun-13	Conference	EuroSPI 2013 - European System, Software & Service Process Improvement & Innovation	80	Tecnalia	Dundalk
32	29-jun-13	Conference	11th International Conference on Industrial Informatics (INDIN 2013)	30	IKV	Bochum
33	15-jul-13	Workshop	3rd Int. Workshop on Empirical Requirements Engineering (EmpiRE 2013)	30	Simula	Rio de Janeiro
34	29-jul-13	Workshop	1st Int. Workshop on Quality and Measurement of Software Model-Driven Dev.	10	Simula	Nanjing
35	24-sep-13	Conference	SAFECOMP 20123	40	Tecnalia	Toulouse
36	24-sep-13	Conference	Workshop SASSUR	20	Tecnalia	Toulouse
37	29-sep-13	Conference	16th Int. Conference on Model Driven Engineering Languages and Systems	20	Simula	Miami
38	15-oct-13	Conference	8th IET Int. System Safety Conference inc. the Cyber Security Conference 2013	20	Tecnalia	Cardiff
39	18-oct-13	Net-working	EXCROSS EXploiting safety results aCROSS transportation modes	30	Rina	Turin
40	4-nov-13	Conference	ICSSEA, int. Conference on systems and software engineering	20	Altreonic	Paris
41	7-nov-13	Symposium	IEEE International Symposium on Software Reliability Engineering	20	Altreonic	Pasadena
42	4-dec-13	Conference	4th Int. Conference on Complex Systems Design & Management (CSDM 2013)	50	Alstom	Paris

ID	Date	Type	Event	People	Lead Partner	Location
43	5-dec-13	Workshop	Independent Safety Assurance Group/Safety-Critical Systems Club Workshop	20	York	London

Appendix C: Training Events

When	What	Where	Organizer	Purpose, Subject, Rationale	Type (Internal, External, Facility)	Target Group
Year 2013						
June	Standards in Automotive Software Engineering	Eindhoven	Technical University of Eindhoven	IEC61508, ISO26262 and MISRA-C	Academic, External	20 Master Students, mainly with a computer science or mechanical engineering Bachelor degree

Appendix D: Dissemination Categories

Table 9 describes the dissemination categories that are using in Figure 1 and Figure 2.

Table 9: Description of dissemination categories

Dissemination category	Description
Technology transfer	Transfer of technological insights of OPENCOSS to relevant target groups like partner's customers and prospect users of the OPENCOSS platform.
Network building activity	Creating awareness and interest in the OPENCOSS results, partners will involve their contacts and customers. This is the start of building an OPENCOSS community.
Publication (participation)	Publications in journals and proceedings that report on the OPENCOSS results so far.
Interaction standard org's.	Partners will provide input to standardisation organisations from OPENCOSS activities and results and receive feedback from these organisations to improve their results.
Organise event	Partners will organise events for disseminating OPENCOSS knowledge and results.
Partner's website	Partners will provide OPENCOSS information on their website, including OPENCOSS marketing material, results, calendar events, workshops, etc.
Social media activities	Partners will setup dissemination activities, like discussions, through social media like LinkedIn, Facebook, and Twitter.
Conferences visited	Partners will visit relevant conferences in the area of safety critical systems or certification.
Teaching material	Partners will create training material
Tools manuals	Tool vendor partners will provide additional information to their tool manuals to explain how OPENCOSS results
Marketing material	Partners will create marketing material to promote the OPENCOSS results, events, and the use of the OPNCOSS platform.
Presentation	Partners will create and present OPENCOSS results in presentations for relevant target groups.
Exploitation/training	Partners will create and present OPENCOSS knowledge in training material for relevant target groups and exploit the OPENCOSS results.

Appendix E: Dissemination Assessment Ranking

The identified dissemination assessment ranking is described in Table 10. As far as possible, each dissemination activity has been evaluated according to these levels.

Table 10: Qualitative ranking levels of dissemination actions

Rating	Presentation	Publication	Web site
Zero	marginal interest, no questions, severe objections	No impact, no references, only technical publication	No site visits, no external links to this site, no comments (if applicable)
Low	some interest, some questions	Few(er) references to this work from other publications. Journal, but not reviewed.	Few site visits, one external link, no or one comment/ Facebook like (if applicable)
Medium	interest, questions	Few references to this work from other publications (outside OPENCOSS group, if applicable) Minimally reviewed paper.	Some site visits, some external links, some comments/ Facebook likes (if applicable)
High	good interest, many questions, new contacts (exchange of business cards)	Some references to this work from other publications (outside OPENCOSS group, if applicable) Official peer reviewed journal.	Many site visits, many external links, many comments/ Facebook likes (if applicable)
Excellent	high interest, many questions and appreciations, contacts (business cards) and following actions	Many references to this work from other publications (outside OPENCOSS group, if applicable) Renowned journal/conference (Journals/conferences that have an h5-index [1] of more than 20)	Many site visits, many external links, many comments/ Facebook likes (if applicable) and following actions.

[1] The h5-index is the h-index (Hirsch index) of a group of publications over the last 5 years. The h-index gives an indication about the productivity and impact of the published work of an expert or scientist. The h5-index is computed by, for example, Google Scholar. Note that this index is not available for all journals or conferences.