INTERACT – Interactive Manual Assembly Operations for the Human-Centered Workplaces of the Future

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		ELECTROLUX ITALIA S.P.A. (ELECTROLUX)
		INTRASOFT INTERNATIONAL SA (INTRASOFT)
		IMK AUTOMOTIVE GMBH (IMK)
		EMPHASIS TELEMATICS AE (EMPHASIS)
		HADATAP SP ZOO (HADATAP)
		UNIVERSITY OF PATRAS (LMS)
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Summary:
This is the second (intermediate) version of the INTERACT project Dissemination Report.

Contents

List of Figures

List of tables

EXECUTIVE SUMMARY

The content of this document is the outcome of INTERACT Task 7.1 - "Dissemination.". The main purpose of this document is to:

- Define the dissemination approach within INTERACT.
- Provide the plan of identified dissemination activities up to the end of the project month 12.
- Report the dissemination activities executed so far.

1. INTERACT DISSEMINATION STRATEGY

1.1. INTERACT dissemination approach

The main steps that constitute the dissemination approach of INTERACT are presented in the following figure.

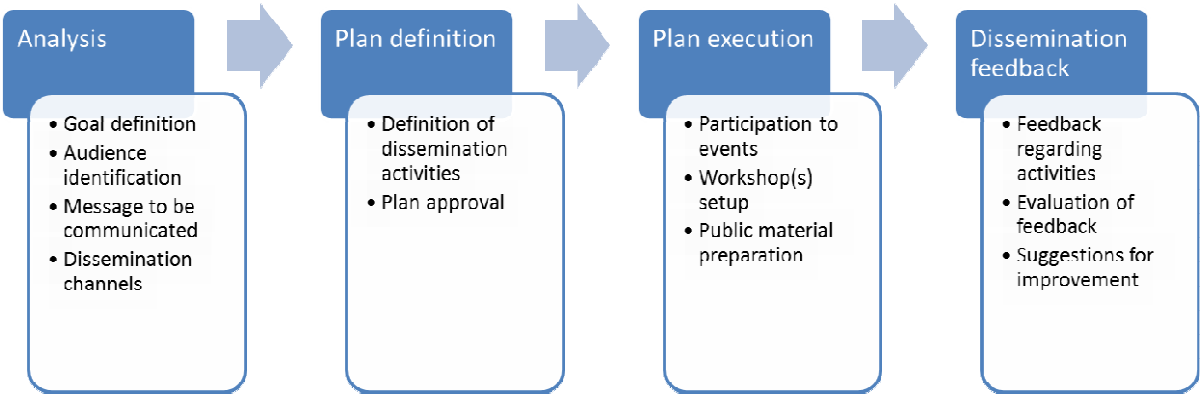


Figure 1: INTERACT dissemination steps

Dissemination Analysis

- ***Goal definition***: In order to establish a successful dissemination plan the definition of the consortium goals must be carried out defining the consortium objectives and the mission.
- ***Audience identification***: After the goals have been defined it is important to identify the audience that should be targeted with dissemination activities. This is highly important since it will guide the selection of the appropriate means to communicate with the audience. There are different types of audience or groups of interest that could be interested in the developments of INTERACT. External (to the project) audience may include academia members and industry while internal (to the project) audience may include students or teams/units of the INTERACT companies.
- ***Message to be communicated***: The messages to be communicated are closely related to the project's goal and objectives. They should be designed taking into account the different groups of interest identified and the phase of the project.
- ***Dissemination channels***: Dissemination activities will focus on the use of websites, publication of papers, newsletters, and face to face contacts through meetings and targeted dissemination events, conferences and exhibitions. These events should be public and timely advertised to convey a large audience.

In previous version of this report D7.1.1 "Dissemination report first version" more details regarding the main steps of the dissemination analysis are provided. Since the goals, audience, messages and dissemination channels remain the same as the ones described in the previous report in the sections below only updates are reported.

1.2. INTERACT dissemination tools/channels

Dissemination activities will focus on the use of websites, publication of papers, newsletters, and face to face contacts through meetings and targeted dissemination events, conferences and exhibitions. These events will be public and timely advertised to attract a large audience. Selected channels of communication can be summed up in following:

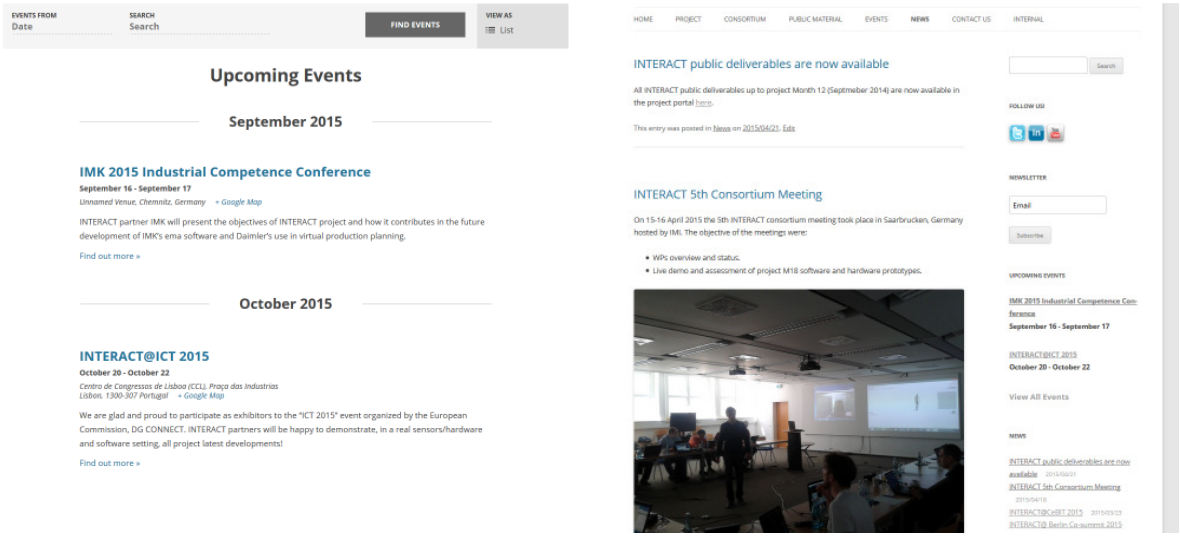
- INTERACT project's website and intranet to show INTERACT developments

- Social Media Networking (LinkedIn, Twitter)
- E-mails/newsletters/leaflets to specialized stakeholders.
- Press releases/articles published in both the INTERACT´s web site and the specialized channels/media.
- Events primarily targeted to specialized stakeholders, and also to the public at large.
- Scientific publications to journals and conferences.
- Open workshop and industrial workshops

Project portal

The INTERACT public Web Portal has been primarily developed and is available online since project M01 for all people around the globe that are interested in the project and also to facilitate some of the project dissemination needs, for publishing news and information about that and communication between the project coordinator with everyone who is interested in the project. Access to the public and private web portal is provided by the link: http://www.interact-fp7.eu/.

In the portal as well as in Twitter the events that INTERACT partner plan to participate are announced (see Figure 2). Moreover, in the "News" part of the portal feedback from several INTERACT activities is provided to the wider audience.



(a) (b)

Figure 2: Snapshots: a) from Upcoming Events announcing page on the portal Events and b) from project News

A non-exhaustive list of international exhibitions and conferences, which have been identified through previous efforts, and which INTERACT will try to attend for dissemination is given below.

Event	Type of event	Date	Place	Site	INTERACT benefits
CEBIT 2016	Exhibition /Congress		Hannover	www.cebit.de/home	Representatives from companies within the

					consortium present results to potential customers
SPS IPC Drives 2016	Exhibition /Congress		Nuremberg	http://www.mesago.de/en/SPS/	Partners attendance for project's dissemination (e.g. poster session) and present results to potential customers
Hannover Messe Industrie HMI	Exhibition /Congress		Hannover	http://www.hannovermesse.de/home	Partners attendance for project's dissemination (e.g. poster session)
Baika Jahreskongress: Zulieferer Innovativ 2016	Exhibition /Congress		Munich	http://www.bayern-innovativ.de/zulieferer2014?	Partners attendance for project's dissemination (possibility for one-to-one meetings)
Polski Kongres Logistyczny LOGISTICS 2016	Exhibition /Congress	TBD	Poland	http://www.logistics.pl/en/	Partners attendance for project's dissemination (e.g. poster session, leaflets) and present results to potential customers
International Exhibition Supply Chain & Logistics 2016	Exhibition /Congress		Athens	http://www.supplychainexpo.gr/	Partners attendance for project's dissemination (e.g. poster session,leaflet)
ICT 2015	Exhibition	20-22 October 2015	Lisbon	https://ec.europa.eu/digital-agenda/en/ict2015-innovate-connect-transform-lisbon-20-22-october-2015	Demonstration of INTERACT activities in large audience

Open Workshop: One open workshop will be organised at the end of the project to disseminate internationally the project results and main conclusions.
Industrial workshops: Series of workshops will be organised at the industrial partners premises to transfer the knowledge produced in this project and most importantly to capture the industrial

feedback on the project developments. These workshops will involve external experts and production specialists.

INTERACT Video: Since December 2014 the project's video that presents in an intuitive way the key objectives and approach of the project has been prepared and uploaded in the portal as well as in INTERACT YouTube channel.

Figure 3: Video snapshot in YouTube

INTERACT poster: The first version of the INTERACT poster has been prepared and is available to INTERACT partners for dissemination purposes (see here for example: http://www.interact-fp7.eu/?p=383)

Figure 4: INTERACT poster

2. DETAILED DISSEMINATION PLAN

Type of activity[1]	Main leader[2]	Title	Planned Date / Period	Place	Type of target audience[3]	Countries addressed[4]
Leaflet	LMS	Project leaflet v2	1/4/2016	Portal	All	All
Poster	LMS	Project poster v2	1/4/2016	Portal	All	All
Newsletter	LMS	Newsletter issue 2	1/9/2015	Portal	All	All
Newsletter	LMS	Newsletter issue 3	30/10/2015	Portal	All	All
Newsletter	LMS	Newsletter issue 4	1/1/2016	Portal	All	All
Newsletter	LMS	Newsletter issue 5	1/4/2016	Portal	All	All
Newsletter	LMS	Newsletter issue 6	1/10/2016	Portal	All	All
Workshop	All	INTERACT open industrial workshop	1/9/2016	TBD	Industry	Europe (mainly), international
Report	LMS	Report to European Technology Platform (ETP) Manufuture platform	1/8/2016	N/A	Manufuture community, industry, academia	Europe (mainly), international
Exhibition/Poster	INTRASOFT, EMPHASIS	CEBIT 2016	TBD	Hannover	Industry	International
Exhibition/Poster	IMK, INTRASOFT	Hannover Messe Industrie 2016	TBD	Hannover	Industry	International
Conference/Poster	INTRASOFT	BAIKA Jahreskongress 2016	TBD	Germany	Industry	International
Exhibition/Poster	HADATAP	Polski Kongres Logistyczny LOGIGISTICS 2016	TBD	Poland	Industry	International
Exhibition/Poster	EMPHASIS	International Exchibition Supply Chain & Logistics	TBD	Greece	Industry	International

Workshop	All	Industrial Interest Group info day 1	TBD	TBD	Industry	Europe (mainly), international
Workshop	All	Industrial Interest Group info day 2	TBD	TBD	Industry	Europe (mainly), international
Prototype	INTRASOFT	Deliverables D5.3.3	30/4/2016	Portal	All	International
Report	INTRASOFT	Deliverables D5.4.1	30/4/2016	Portal	All	International
Report	INTRASOFT	Deliverables D5.4.2	1/1/2017	Portal	All	International
Report	LMS	Deliverable D7.1.2	1/1/2016	Portal	All	International
Report	LMS	Deliverable D7.1.3	1/1/2017	Portal	All	International
Presentation	DAIMLER	Interaktive 3D-Werkersimulation für eine effektive Montageabsicherung (Industrie 4.0: Praxis)	1/12/2015	Saarbrücken	Industry	International
Exhibition/Demo	LMS, INTRASOFT, imi, HADATAP	ICT 2015 Lisbon	20/10/2015	Lisbon	Industry, academia	International
Paper Presentation	DAIMLER	CATS 2016	16/5/2016	Göteborg	Scientific audience	World wide

Table 1: Dissemination plan

In the following Table 2 the list of the research publications that have already (by September 2015) been planned are presented.

Responsible Partner(s)	Title	Title of the journal or the conference	Abstract	Expected date or year of publication
IMI	Methods for Skeletal fusion in Multi-Depth-Camera Systems: Analysis and Evaluation	ICCV Conference 2015, http://pamitc.org/iccv15/	When building multi-depth-camera systems with the intent to enable 360 degrees skeletal tracking with extended tracking spaces, besides registration and system architecture, the fusion of skeletal data plays a major role. Mostly, this process is split into a two-stage sequence, with the first step being a quality rating mechanism for the incoming raw data, and the second step being the actual fusion method, which combines data from different sensors weighted by the quality rating values. Previous works already proposed a range of different methods for implementing both of those steps, which range from sensor-based to skeleton-based weighting functions for quality rating and from best-skeleton approaches to joint-based fusion. In this context, we present a range of new quality metrics tailored for skeletal data from Kinect v2 ToF cameras, as well as various new and extended fusion methods. We evaluate the fusion methods regarding their precision and performance, and propose a comprehensive toolbox for running quality rating and fusion with the goal of gaining a coherent scene view derived from a multiple depth camera setup.	13.12.2015

Daimler (lead), IMI, imk, DFKI (contribute)	Generating Realistic Human Motions from Natural Language Assembly Work Task Descriptions	IJPR	The paper shall give an overview of the INTERACT motion synthesis approach from controlled natural language	2016
DAIMLER	Experimental effort of data driven human motion simulation in automotive assembly	CATS 2016	Simulating human motions in industrial environments is costly, manual effort. Available solutions that automate modeling suffer from lacking naturalness. Data driven motion synthesis may solve this issue. However, it requires a large number of previously recorded motions as input. Since shop floor recording of motions is difficult, laboratory experiments are considered. This work investigates experimental effort for covering motion variability of picking actions observed on an actual automotive assembly shop floor. Types of picking motions are identified and analyzed for their occurrence frequency. Considering an existing data driven human motion simulation, possibilities to minimize the number of experiments are discussed.	16.05.2016

Table 2: List of planned publications

3. DISSEMINATION ACTIVITIES UNDERTAKEN

In Table 3 below a list with all project dissemination activities is reported. This list is cumulative starting from the beginning of the project.

No	Type of activity[1]	Main leader[2]	Title	Date / Period	Place	Type of audience[3]	Size of audience	Countries addressed[4]
1	Project web portal	LMS	INTERACT project web portal	1/11/2013 – 30/09/2014	Internet	All types	1000	Worldwide
2	Presentation of INTERACT project	LMS	Brainstorming Workshop "Towards 2030 InterNet Business Innovation	20 March 2014	Athens, Greece	Research community	50	Europe
3	Newsletter	LMS	INTERACT Newletter Issue 1	5 May 2014	Internet	All types	200	Worldwide
4	INTERACT Twitter account	LMS	INTERACT Twitter	1/10/2013 - TBD	Internet	All types	300	Worldwide
5	INTERACT LinkedIn	LMS	INTERACT LinkedIn	1/10/2013 - TBD	Internet	Professionals	100	Europe (mainly)
6	Brochure	LMS/Daimler	INTERACT brochure	1/9/2014	Internet	All types	300 (print outs)	Europe (mainly)
7	Paper presentation	Daimler	Automatic proposal of assembly work plans with a controlled natural language	24/7/2014	Naples	Scientific, international,	30	Worldwide

[1] Possible dissemination activity: workshops, web, press releases, flyers, articles published in the popular press, videos, media briefings, presentations, exhibitions, thesis, interviews, films, TV clips, posters, Other.

[2] INTERACT partner: Daimler, Electrolux etc.

[3] Type of audience: Scientific Community (higher education, Research), Industry, Civil Society, Policy makers, Medias ('multiple choices' is possible).

[4] Countries addressed: countries' name, Europe, Worldwide, regions

						production engineering background		
8	Paper presentation	Daimler	Improving A* walk trajectories with B-splines and motion capture for manual assembly verification	24/7/2014	Naples	Scientific, international, production engineering background	30	Worldwide
9	Presentation	Daimler	Das EU-Projekt INTERACT – Montageabsicherung mit statistisch erzeugten Werkerbewegungen	11/9/2014	Aachen	Automotive industry + Research + Standardizatio n societies	100	German
10	Presentation	Daimler, IMK	Automatisiert zur 3D-abgesicherten Montageplanung, Fachkongress: Digitale Fabrik@Produktion	4/11/2014	Braunschweig , Germany	Automotive +Aerospace + PLM industry	200	German (mainly)/Europea n
11	Video	LMS	INTERACT video	18/12/201 4	Internet	All types	1000	Worldwide
12	Poster/Booth/Leafl et	LMS	INTERACT booth co-Summit 2015	10/3/2015	Berlin	All types	500	Europe (mainly)
13	Poster/Booth/Leafl et	DFKI	CEBIT 2015	16/3/2015	Hannover	All types	1000	Worldwide
14	Deliverables upload	LMS	Public deliverables upload	20/4/2015	Internet	All types	1000	Worldwide
15	Paper presentation	Daimler	Measuring motion capture data quality for statistical human motion synthesis	26/6/2015	Naples	Scientific, international, production engineering background	30	Worldwide
16	Paper presentation	Electrolux	Ergonomic analysis in manufacturing process. A real time approach	26/6/2015	Naples	Scientific, international, production engineering background	30	Worldwide

17	Paper presentation	DFKI	Joint Angle Data Representation for Data Driven Human Motion Synthesis	26/6/2015	Naples	Scientific, international, production engineering background	30	Worldwide
18	Paper presentation	DFKI	Interactive planning of manual assembly operations: From language to motion	26/6/2015	Naples	Scientific, international, production engineering background	30	Worldwide
19	Paper presentation	HADATAP	Light-responsive RFID tags for precise locating of objects in manual assembly verification workshops	26/6/2015	Naples	Scientific, international, production engineering background	30	Worldwide
20	Paper presentation	IMI	On the use of Multi-Depth-Camera based Motion Tracking Systems in Production Planning Environment	26/6/2015	Naples	Scientific, international, production engineering background	30	Worldwide
21	Paper presentation	imk	Ergonomic assessment for DHM simulations facilitated by sensor data	26/6/2015	Naples	Scientific, international, production engineering background	30	Worldwide
22	Paper presentation	LMS	Motion parameters identification on shopfloor environment for the authoring of manual tasks in digital human simulations	26/6/2015	Naples	Scientific, international, production engineering background	30	Worldwide
23	Presentation	imk	IMK 2015 Industrial Competence Conference (ICC)	16/09/2015	Chemnitz	Industrial	100	Germany, Europe
24	Internet link	LMS	FutureEnterprize community (http://www.futureenterprise.eu/groups/interactive-manual-assembly-operations-human-centered-workplaces-future)	01/05/2015	Internet	All types	1000	Worldwide

Table 3: Dissemination activities log

In Table 4 the list of project scientific publications is reported.

No	Title	Main Author	Title of the journal or the conference	Number, date.	Publisher	Place of publication	Year of publication	Relevant pages	Permanent identifiers[5] (if available)	Is open access provided to this publication[6]
1	Automatic proposal of assembly work plans with a controlled natural language	Manns, M.	9th CIRP Conference on Intelligent Computation in Manufacturing Engineering - CIRP ICME '14				2014			
2	Improving A* walk trajectories with B-splines and motion capture for manual assembly verification	Manns, M.	9th CIRP Conference on Intelligent Computation in Manufacturing Engineering - CIRP ICME '14				2014			
3	Measuring motion capture data quality for statistical human motion synthesis	Manns, M.	48th CIRP Conference on MANUFACTURING SYSTEMS - CIRP CMS 2015				2015			
4	Ergonomic analysis in manufacturing process. A real time approach	Del Fabbro, E.	48th CIRP Conference on MANUFACTURING SYSTEMS - CIRP CMS 2015				2015			

[5] A permanent identifier should be a persistent link to the published version full text if open access or abstract if article is pay per view) or to the final manuscript accepted for publication (link to article in repository)

[6] Open Access is defined as free of charge access for anyone via Internet. Please answer "yes" if the open access to the publication is already established and also if the embargo period for open access is not yet over but you intend to establish open access afterwards.

5	Joint Angle Data Representation for Data Driven Human Motion Synthesis	Du, H.	48th CIRP Conference on MANUFACTURING SYSTEMS - CIRP CMS 2015				2015			
6	Light-responsive RFID tags for precise locating of objects in manual assembly verification workshops	B. Gladysz	48th CIRP Conference on MANUFACTURING SYSTEMS - CIRP CMS 2015				2015			
7	On the use of Multi-Depth-Camera based Motion Tracking Systems in Production Planning Environment	F. Geiselhart	48th CIRP Conference on MANUFACTURING SYSTEMS - CIRP CMS 2015				2015			
8	Ergonomic assessment for DHM simulations facilitated by sensor data	D. Gläser	48th CIRP Conference on MANUFACTURING SYSTEMS - CIRP CMS 2015				2015			
9	Motion parameters identification on shopfloor environment for the authoring of manual tasks in digital human simulations	Pintzos, G.	48th CIRP Conference on MANUFACTURING SYSTEMS - CIRP CMS 2015				2015			

Table 4: List of scientific publications

INTERACT Portal Activity (for period 2/09/2014 to 1/9/2015)

Google Analytics has been used to monitor the activity in INTERACT public portal[7]. Using Google Analytics the following numbers have been recorded:

Performance measure	Value
Sessions	5,103
Users	4,399
Pageviews	7,266
Avg. Session Duration	00:00:51
Bounce Rate	79%
New visitors	86.8%
Countries/Location	1. United States 1,295 25.38% 2. (not set) 769 15.07% 3. Germany 542 10.62% 4. Greece 475 9.31% 5. Brazil 328 6.43% 6. China 176 3.45% 7. Italy 129 2.53% 8. Japan 127 2.49% 9. United Kingdom 91 1.78% 10. Poland 91 1.78%

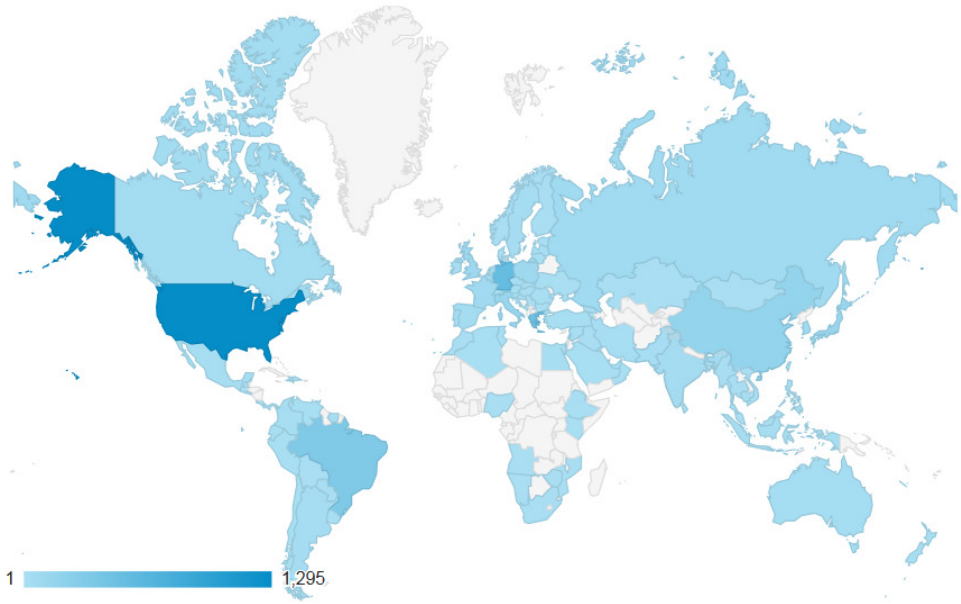


Figure 5: Map of countries (in blue) that have visited INTERACT portal

[7] The activity reported involves only the INTERACT public portal however it does not exclude the activity of INTERACT partners when the visit the public portal.

4. CONCLUSIONS

This document describes the activities undertaken and the plan for spreading excellence of INTERACT main achievements and results. Publication of the project results, their dissemination through the INTERACT portal and other appropriate scientific media channels, along with the organization of the four INTERACT workshop events with the Industrial Interest Group help us reach a wide spectrum of audience, and spread the word about INTERACT. The version of this report will be presented in the next WP7 deliverables.