

SIFEM

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Semantic Infostructure interlinking an open source Finite Element tool and libraries with a model repository for the multi-scale Modelling and 3d visualization of the inner-ear

Deliverable D1.4.2 Updated Dissemination Plans

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Abstract:	This report updated the dissemination plans that have been applied to the SIFEM project including dissemination achievements done by project partners and impacts to various stakeholders and key target audiences. In this respect, this updated dissemination plans summarized the dissemination activities, publications and tools that have been used by the consortium.
Keyword List:	Updated dissemination plan, dissemination activities, dissemination impacts, communication, dissemination tools

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EXECUTIVE SUMMARY

This deliverable (D1.4.2) presents updated dissemination plans of the SIFEM project, which was executed in past 12 months (M13 to M24). Specifically there is a description of the updates for project dissemination and a summary of the project dissemination activities and achievements since M13.

Initially the overall progress of the SIFEM dissemination is described. The updated dissemination plans including dissemination tools are presented in details. The dissemination tools that defined in D1.4.1 are presented, which includes updates, achievements and executive summary. Scientific research publications and dissemination activities are summarized and analysed, which demonstrates the great scientific impact the SIFEM project has achieved in the second year. Generally, the SIFEM dissemination plans are executed well and all defined disseminations tools work well and meet the target goals set by dissemination quality assurance which can be found in D1.4.1. Finally a summary of the consortium's dissemination activities and planned dissemination plans for the final year are presented.

1 INTRODUCTION

The updated dissemination plans are to present updates on project dissemination plans, tools and summary of dissemination progress, technologies and results outside the scope of the SIFEM consortium and project reviewers. Such activities ensure large awareness of the academic, clinic, public, healthcare, industry and education community through scientific and research publications (journal transactions, conference proceedings and newsletters) and participations to relative events (conferences, workshops, symposiums and exhibitions).

The dissemination of the project results includes written and electronic publications, presentation/poster of the project and its results for the second year in symposiums, meetings, congresses, technical magazines, workshop, University teaching course, and popular social media.

Dissemination has also been carried out through the presentation and demonstration of SIFEM's objectives, framework, concepts, platforms, tools and results at key sector technology related events addressed to the potential target organizations. Communication channels have been maintained with various press releases and media channels.

In this deliverable the dissemination tools and activities performed so far are summarized. Specifically Section 2 summarises updates of dissemination tools and Section 3 lists and summarises the publications and actives related to the project since M13. A list of publications that are under preparation can also be found in Section 3.

2 UPDATED DISSEMINATION PLANS

2.1 OBJECTIVES

The main aim of the SIFEM project with regards to dissemination is raising public, scientific and clinical awareness on project achievements to ensure proper knowledge exchange and collaboration among the SIFEM consortium and other related European initiatives, through a set of predefined tools and publications.

The dissemination activities of the SIFEM project for the period M13 to M24 are part of Stage 2 defined in D1.4.1: *“Stage 2 will be executed during the rest of the project, namely from M13, when the SIFEM results will have been developed, until M36. The dissemination activities during this stage will aim at attracting potential users and collaborators of the SIFEM results. The main output to be disseminated will consist of the project’s concrete results and the pilot demonstrations. The project’s results will be disseminated via more focused activities which will also assist in the exploitation activities, since it will aim at the attraction of new audiences and users”.*

During M13 to M24, the predefined dissemination tools (D1.4.1) were well used to present SIFEM progress, technologies and outcomes throughout the project period to outside of the SIFEM consortium.

Scientific publications (journals, books and conferences) were used to ensure large awareness from relevant academic, clinic, education communities. Dissemination activities (conferences, workshops, symposiums and exhibitions) provided valuable feedback to relative standardization bodies and consortiums with regard to the integration of the respective technologies, their applicability, their completeness, their optimization and their future development.

2.2 DISSEMINATIONS TOOLS

2.2.1 Project Website

SIFEM web site is periodically updated for publications, public deliverables and dissemination events (e.g., workshops, seminars). It also provides links to project social network accounts (LinkedIn, Twitter, ResearchGate, BiomedTown), which are the basis for publishing the latest project updates and for collecting feedback from the community. More details can be found by visiting <http://www.sifem-project.eu/>. The website has been visited 29607 times since 19 March 2014

2.2.2 Project Questionnaires

A questionnaire for defining the basic principles of the final SIFEM outcomes was prepared and circulated to different communities. The questionnaire was in practice used as a basis for an open exchange of views, a brainstorming procedure, through which the user needs were acquired and further analyzed. The questionnaire consisted of a common body and three different parts, dedicated to clinicians, educational staff and software developers and technicians respectively. The questionnaire was sent to memberships of all these expert communities, in order to record all potential needs, remarks and feedback. The questionnaire was also sent to mail lists of the Politzer Society, the biggest and most prestigious international community for otologic surgery and science.

Useful feedback was received from engineering, clinical and biomedical experts for the project outcomes including using interface, function, added value and models. A detailed summary and description about the questionnaire contents and feedback can be found in Deliverable 2.3.

2.2.3 Project Brochure / Poster/ Press Release

The project brochure and poster, which contains a general description of the project, suitable both to a general and to scientific audiences, have been designed and distributed in different events including workshops, conferences.

The press release has been designed and updated aiming towards journalists and focuses on a discourse which concentrates on the motivation and the impact of the project. The press release was distributed to newspapers and university public relations by each project partner.

2.2.4 Media

A project innovation video is scheduled for the first quarter of Year 3. The aim of the proposed video is to reach wider audiences/stakeholders in the hearing loss realm as well as raising awareness of this project internationally. The video will highlight the project innovations disseminating through social media channels (YouTube, Twitter, Linked, etc.) along with country specific press releases.

2.2.5 Social Network

Biomed Town

Biomed Town is a meeting place where Biomedical Research & Technology, Biomedical Industry and Clinical Practice develop their shared vision called Integrative Research. Some of the members of the SIFEM project are full citizens of the Biomed Town, having access to several public portal resources (those made available to everyone) as well as to private resources according to the permissions granted by the resource owner. Besides the citizens' membership, the SIFEM project has also been authorized its own Building "SIFEM project".

https://www.biomedtown.org/biomed_town

Researchgate

ResearchGate is a social networking site for scientists and researchers to share papers, ask and answer questions, and find collaborators. The SIFEM project was initiated into the Researchgate in order to facilitate collaboration between project members and sharing scientific publications originated from the project to researchers outside the consortium.

<https://www.researchgate.net/project/SIFEM/>

Twitter

Twitter has been set up with name: @sifemprojecteu. Currently there are 14 followers and 16 tweets, and it will gradually grow with the project evolution.

Linkedin

A group for the SIFEM project has been created in LinkedIn which is a social networking website for people in professional occupations. Founded in December 2002 and launched on May 5, 2003. It is mainly used for professional networking. In June 2013, LinkedIn reports more than 259 million acquired users in more than 200 countries and territories.

<http://www.linkedin.com/groups/Sifem-Project-7440702?home=&gid=7440702&trk=anet ug hm>

2.3 LIAISON WITH OTHER PROJECTS

SIFEM is a project that falls under the umbrella term of VPH project, and as such shares common with other similar projects of the field. In the last few years the domain of such projects has changed a lot, however there are still prominent projects that have been produced.

The SIFEM consortium will focus in the future in creating liaisons with other such projects, more specifically VPH Network-of-Excellence¹ and VPH-Share². The first one is a project which aims to help support and progress European research in biomedical modeling and simulation of the human body. This will improve our ability to predict, diagnose and treat disease, and have a dramatic impact on the future of healthcare, the pharmaceutical and medical device industries.

VPH-Share on the other hand, is building a safe, online facility in which medical simulation developers can produce workflows - chains of processing tasks - to allow raw medical data to be refined into meaningful diagnostic and therapeutic information. Via an easy to use graphical interface, all the functions needed by workflow developers will be provided, including design, construction, data-access and storage, high-speed computations, sensitivity analyses and results presentations.

In the following months, the SIFEM consortium will investigate and consider options of liaison, contributing either with tools and methods for semantic and technical interoperability among the data and the models. Another way is of liaison is providing tools of data conversion (for ETL processes) as well as services of publishing such data.

¹ <http://vph-portal.eu/vph-noe-home>

² <http://www.vph-share.eu/>

3 DISSEMINATION SUMMARY

3.1 PUBLICATIONS

Scientific publication is an efficient way for project dissemination and adding impact to the scientific quality of the project outcomes. Attending conference and presenting project outcome are also helpful in attracting awareness from different societies and communities. In the first year, we have successfully published 2 Journal papers and 9 conferences papers, which is more than most other project. In the second year, each project partner made a lot more efforts not only on the number of publication, but also the quality and impact of the papers. We have published **8** journal papers and **24** conferences papers, which is far beyond the object set for the second year (4 journal papers and 15 conference papers). Five of the published journal papers are open access with impact factor of 2.7, one paper is a review paper about the modelling work in cochlear mechanics and one is published in Hearing Research which is of high impact in the hearing community.

Most of the conferences are quite high profile in the areas of cochlear mechanics (e.g. Mechanics of hearing), semantic web since (e.g. ESWC, SWAT4LS), inner ear (e.g. Inner ear biology) and engineering (e.g. ICSV). Among these conference papers, there are two invited lectures (SWAT4LS and IEB) and two prestigious best awards (The Sir James Lighthill Best Student Paper Award at ICSV2014 and The Spöndlin Junior Award at IEB2014). These achievements greatly increase the impact of the project and also demonstrate the excellence of work done by each partners.

The other feature of project publications is that many papers are not published by a sole partner but in a collaborating way with participants from several partners, which showing a tight connection between each project partner and a highly integrated way of work.

A series of papers (19), but not only, are under preparing for publishing in journals (8) and conferences (11) and more papers are expected with project progress for the final year.

3.1.1 Journal Publications

Table 1 List of Journal publications

NO.	Title	Authors	Journal	Volume(Issue)	Year	Pages	Open access	Impact factor
1	Review: Modelling Cochlear Mechanics	Guangjian Ni, Stephen J. Elliott, Mohammad Ayat and Paul D. Teal	BioMed Research International	150637	2014	42	Yes	2.706
2	Reconstruction of Cochlea based on micro-CT and histological images of the human inner-ear	Bellos C, Rigas G, Spiridon IF, Bibas A, Iliopoulou D, Böhnke F, Koutsouris D, Fotiadis DI.	BioMed Research International	485783	2014	7	Yes	2.706
3	An Integrated Electromechanical Model for the Cochlear	M. Ayat, P.D. Teal and M McGuinness	Biocybernetics and Biomedical Engineering	34(4)	2014	206-219	No	0.157

4	Microphonic A 3D finite element model of a human dry skull for a bone- conducted hearing A clinically oriented	Kim, N, Chang, Y, Stenfelt, S	BioMed Research International	519429	2014	9	Yes	2.706
5	introduction and review on finite element models of the human cochlea	D. Kikidis and A Bibas	BioMed Research International	975070	2014	8	Yes	2.706
6	Mechanical and Electro– Mechanical Box Cochlea Model	Milica Nikolic, Velibor Isailovic, Dalibor Nikolic, Igor Saveljic, Zarko Milosevic, Milos Radovic, S.Semmelbauer, F. Bohnke, N. Filipovic	Journal of the Serbian Society for Computational Mechanics	8(2)	2014	29-37	Yes	
7	Comparing Methods of Modelling Near Field Fluid Coupling in the Cochlea Inner ear	Guangjian Ni and Stephen Elliott	The Journal of the Acoustical Society of America	In press	2015		No	1.555
8	contribution to bone conduction hearing in the human	Stenfelt S.	Hearing Research	In press	2015		No	2.848

3.1.2 Conference Publications

Table 2 List of conference publications

NO.	Title	Authors	Conference	Presentation/ Poster	Year	Venue	Comments
1	Modelling Cochlear Micromechanics	Guangjian Ni, Stephen J. Elliott and Johannes Baumgart	21st International Congress on Sound and Vibration (ICSV)	Presentation	July 2014	Beijing China	The Sir James Lighthill Best Student Paper Award The Spoendlin Junior Award, Invited Lecture
2	Prediction of Mechanical Effect Due to a Cochlear implant	Guangjian Ni and Stephen J. Elliott	51st Inner Ear Biology Workshop (IBE)	Presentation	September 2014	Sheffield, UK	
3	Modelling	Guangjian Ni,	12th Mechanics	Presentation	June 2014	Cape	

	Motions within the Organ of Corti	Stephen Elliott and Johannes Baumgart	of Hearing			Sounio, Greece
4	Near Field Fluid Coupling between Internal Motion of the Organ of Corti and the Basilar Membrane	Stephen J. Elliott and Guangjian Ni	12th Mechanics of Hearing	Presentation	June 2014	Cape Sounio, Greece
5	A Tapered Box Model of the Cochlea	Luyang Sun, Guangjian Ni and Stephen Elliott	12th Mechanics of Hearing	Poster	June 2014	Cape Sounio, Greece
6	Prediction of the inertial effects due to bone conduction in a 2D box model of the cochlea	Alice Halpin, Stephen Elliott and Guangjian Ni	12th Mechanics of Hearing	Presentation	June 2014	Cape Sounio, Greece
7	Model Based Prediction of the existence of Spontaneous Cochlea Microphonic Cochlea	M. Ayat and P.D. Teal	12th Mechanics of Hearing	Poster	June 2014	Cape Sounio, Greece
8	Microphonic Broad Tuning Curves Cochlear	M. Ayat and P.D. Teal	12th Mechanics of Hearing	Presentation	June 2014	Cape Sounio, Greece
9	boundary motion during bone conduction stimulation: Implications for inertial and compressional excitation of the cochlea	Stenfelt, S	12th Mechanics of Hearing	Presentation	June 2014	Cape Sounio, Greece
10	Simulation of bone-conducted sound transmission in a three-dimensional finite-element model of a human skull	Chang, Y, Kim, N, and Stenfelt, S	12th Mechanics of Hearing	Poster	June 2014	Cape Sounio, Greece
11	A Possible third window for bone conducted hearing: Cochlear aqueduct vs. vestibular aqueduct	Kim, N, and Stenfelt, S	12th Mechanics of Hearing	Poster	June 2014	Cape Sounio, Greece

12	Influence of Young's moduli in 3D fluid-structure coupled models of the human cochlea	F. Böhnke, S. Semmelbauer and T. Marquardt	12th Mechanics of Hearing	Poster	June 2014	Cape Sounio, Greece	
13	Mechanisms of bone conduction hearing: Experiments, models, and simulations	Stenfelt, S	37th MidWinter Research Meeting of Association for Research in Otolaryngology	Presentation	2014	San Diego, USA	
14	SIFEM Project: Finite Element Modeling of the Cochlea	Velibor Isailovic, Milica Obradovic, Dalibor Nikolic, Igor Saveljic and Nenad Filipovic	13th IEEE International Conference on BioInformatics and BioEngineering (BIBE)	Presentation	2013	Chania, Greece	
15	Modelling of the 3D Coiled Cochlea	Velibor Isailovic, Milica Nikolic, Igor Saveljic, Dalibor Nikolic, Nenad Filipovic	IEEE – EMBS International Conferences on Biomedical and Health Informatics	Presentation	2014	Valencia, Spain	
16	Finite Element Cochlea Box Model – Mechanical and Electrical Analysis	Milica Nikolic, Paul Teal, Velibor Isailovic, Nenad Filipovic	12th Mechanics of Hearing	Poster	June 2014	Cape Sounio, Greece	
17	Finite Element Coiled Cochlea Model	Velibor Isailovic, Milica Nikolic, Zarko Milosevic, Igor Saveljic, Dalibor Nikolic, Milos Radovic, Nenad Filipovic	12th Mechanics of Hearing	Poster	June 2014	Cape Sounio, Greece	
18	Development of the Software Tool for Generation and Visualization of the Finite Element Head Model with Bone Conduction Sounds	Dalibor Nikolic, Zarko Milosevic, Igor Saveljic and Nenad Filipovic	12th Mechanics of Hearing	Poster	June 2014	Cape Sounio, Greece	
19	A Semantic Web Platform for Improving the Automation and Reproducibility of Finite Element Bio-simulation	André Freitas, Kartik Asooja, Joao Jares, Stefan Decker and Ratnesh Sahay	Semantic Web Applications and Tools for the Life Sciences (SWAT4LS)	Presentation	2014	Berlin, Germany	Invited talk
20	Towards a	Andre Freitas,	11th European	Presentation	2014	Crete,	

	Semantic Web Platform for Finite Element Simulations	Kartik Asooja, Swapnil Soni, Marggie Jones, Panagiotis Hasapis, and Ratnesh Sahay	Semantic Web Conference (ESWC), Springer LNCS Notes			Greece
21	Cochlea Models Validation	Dimitris Kikidis	40th Panhellenic Medical Congress	Presentation	May 2014	Athens, Greece
22	Distribution of intra-cranial sound pressure during bone conduction stimulation	Sim, JH, Röösl, C, Gerig, R, Dalbert, A, Fausch, C, Stenfelt, S, Huber, A	37th MidWinter Research Meeting of Association for Research in Otolaryngology	Presentation	2014	San Diego, USA
23	Wave propagation in the skull bone during bone conduction stimulation	Röösl, C, Sim, JH, Gerig, R, Dalbert, A, Fausch, C, Stenfelt, S, Huber, A	37th MidWinter Research Meeting of Association for Research in Otolaryngology The Annual National	Presentation	2014	San Diego, USA
24	Talks	Stenfelt, S	Congress of the Belgian ORL Society	Talks	2014	Bruges, Belgium

3.1.3 Under Preparation

Table 3 List of potential publications

NO.	Title	Authors	Target Journal/Conference	Status
1	Basilar membrane and pressure response due to different types of excitation in a two-dimensional cochlear model	ISVR	The Journal of the Acoustical Society of America	Under Review
2	Acoustic Wave Propagation in Box Models of the Human Cochlea with Rectangular and Tapered Dimensions	BIOIRC/TUM	The Journal of the Acoustical Society of America	Under Review
3	A Tapered Box Model of the Cochlea	ISVR	The Journal of the Acoustical Society of America	Preparation
4	Modelling Cochlear Micromechanics	ISVR	The Journal of the Acoustical Society of America	Preparation
5	Predicting cochlear implant mechanical effect	ISVR	The Journal of the Acoustical Society of America	Preparation
6	Motion of cochlear periphery in bone-conduction hearing	LiU	Hearing Research	Preparation
7	Cochlear responses within a human head in bone-	LiU	Hearing Research	Preparation

8	conducted hearing The validation and application in a finite-element model of a human head for the transmission of bone-conducted sound	LiU	The Journal of the Acoustical Society of America	Preparation
9	Detection of Germane Datasets in Life Sciences LOD Cloud	NUI-DERI	28th IEEE International Symposium on Computer-Based Medical Systems	Conference
10	A Hopping Approach for Discovering Datasets within Life Sciences Linked Open Data (LOD) Cloud	NUI-DERI	The 2015 IEEE/WIC/ACM International Conference on Web Intelligence (WI'15)	Conference
11	A Semantic Web Oriented Architecture for Integrating Simulation Solvers	NUI-DERI	5th International Conference on Simulation and Modeling Methodologies, Technologies and Applications (SIMULTECH)	Conference
12	Indexing Life Sciences Linked Open Data (LOD) Cloud	NUI-DERI	19th International Database Engineering & Applications Symposium IDEAS '15	Conference
13	Clinical Validation of a finite element model of the cochlea using a fast method for estimating Psychoacoustic Tuning Curves	UoA	3rd Congress of European ORL-NHS	conference
14	Finite Element Model: Preliminary Validation Results	UoA	3rd Congress of European ORL-NHS	conference
15	Fitting Pole-zero Micromechanical Models to Coupled Cochlear Responses by Direct Optimization	ISVR	22 nd International Congress on Sound and Vibration	conference
16	The Effect of the "Third Window" on the Response of a 2D Model of the Cochlea	ISVR	22 nd International Congress on Sound and Vibration	conference
17	Modelling the Effect of Low Frequency Bias Tones on Spontaneous Otoacoustic Emissions	ISVR	22 nd International Congress on Sound and Vibration	conference
18	Cochlear responses within a human head in bone-conducted hearing	LiU	7th International Symposium on Middle Ear Mechanics In Research and Otology	conference
19	The validation and application in a finite-element model of a human head for the transmission of bone-conducted sound	LiU	7th International Symposium on Middle Ear Mechanics In Research and Otology	conference

3.2 DISSEMINATION ACTIVITIES

All partners have taken a very positive attitude in disseminating the SIFEM project. Besides those dissemination tools and publications, several special actives have also been performed in the second year to spread SIFEM results and attract awareness outside, as listed in Table 4. In these two workshops/seminars, SIFEM results were demonstrated with special reference to cochlear modelling. Many participants expressed willing of using the final SIFEM product in their research and teaching work.

Table 4 List of dissemination activities

Number	Dissemination Activity	Partner Responsible	Activity type	Achievement	Time	Venue
1	Workshop: Modelling Cochlear Mechanics	ISVR LiU UCL UOA BIOIRC	Workshop	20 attendees from England, Greece, Germany, Serbia, China	8-9 October 2014	ISVR, University of Southampton
2	Hearing Sciences Course	UoA	SIFEM project was disseminated and with special reference to cochlear modelling	54 attendants from the otolaryngology and the hearing aid community	14/10/2014 – 25/11/2014	UoA

4 CONCLUSION (ISVR)

This deliverable has presented the updated dissemination plans that have been applied for the SIFEM project during period M13 to M24. Based on the Awareness and Dissemination plan defined in D1.4.1, different dissemination tools have been applied to spread the overall picture and the outcomes of the SIFEM project during the course of the project. This updated plan is based on defined objective and summarises the dissemination activities carried out by the consortium partners.

The SIFEM partners have used a variety of dissemination tools/activities to reach target audiences. These include attending conferences, events, workshops, project website, leaflets, and publishing research papers. Among M13 and M24, our stance regarding dissemination kept in a dynamic and effective way, in which dissemination tools and activities are subject to changes based on newly available project outcomes. In this respect, as soon as the PAK cochlear model was ready and validated internally, it was used in the workshop “Modelling cochlear mechanics” as a demonstrator for explaining modelling principles, methodology and results. Adequate feedbacks and suggestions were obtained from workshop participants who are willing to spread the package and apply in their research, teaching and clinical work. The PAK model was also used in Hearing Sciences Course (UoA) with special reference to cochlear modelling.

The dissemination events, organized so far, have already resulted in a lot of interests from scientific and clinical communities. A total of **32** scientific publications (8 journal papers and 24 conference papers) have already been published and further **19** papers are under preparing for Journals and conferences. Two works supported by the SIFEM won the Sir James Lighthill award at the ICSV21 Beijing China and the Spoendlin Junior Award at the 51st IEB Sheffield UK.