Remote Accessibility to Diabetes Management and Therapy in Operational Healthcare Networks

REACTION (FP7 248590)

ID12-4 Dissemination and Exploitation Strategy

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Abstract	This deliverable contains a dissemination strategy for the REACTION project covering the last two years of the project and including a dissemination plan with measurable targets and a section on exploitation.
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0.1	Louise Birch Riley	2012-06-08	Draft
0.2	Louise Birch Riley	2012-06-20	Updated document after review comments and partner input, added appendices
1.0	Louise Birch Riley		Final version submitted

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Lydia Montandon	2012-06-20	Fine, corrected minor issues

1 Executive summary

This document is an update of the existing dissemination strategy and covers the last two years of the project. Its main purpose is to set out an agreed approach to dissemination throughout the project to ensure that dissemination objectives are met in a form agreeable to the consortium and beneficial for the business interests of individual participants. It is also meant as a working document, highlighting to partners the responsibilities and agreed targets for dissemination and exploitation of project results.

The main focus of the project has now moved from disseminating project objectives towards disseminating project results with a subsequent increase in the production of papers, demonstrations and integrations of the REACTION platform and its features.

In the first part of the document, the foundation for dissemination is laid out by outlining the dissemination approach, objectives and methods, followed by a list of responsibilities for partners in carrying out dissemination. Target groups and targeted conferences are also defined.

Then a dissemination plan with measurable targets is described, based on the plan from the earlier dissemination strategy but slightly modified to suit current developments. Measurable targets are set for marketing activities, paper production, event organisation and website usage with the purpose to reach the objectives of dissemination and in order to define a targeted approach to selected strategy elements. Under each target, actual results and main achievements are described and commented on.

The dissemination strategy also includes a section on exploitation to promote early exploitation of the REACTION platform and its individual components. Based on a questionnaire to all partners, expectations for exploitation and likely exploitable items have been recorded for those partners planning to market REACTION components. One of the main results of the questionnaire and following discussions is that joint exploitation involving the whole of the consortium might not be the most likely option for exploitation. Exploitation will most likely be driven by individual partners, in particular the technology partners, with the possibility of involving or becoming joint service providers with other partners.

Finally, a summary of completed activities is presented, highlighting the main achievements and listing dissemination activities that have taken place since the start of the project.

This document will not be updated for the remaining project period; however, it will feed into the D12-3 Plan for Dissemination and Exploitation of Knowledge due in M48.

2 Introduction

2.1 Purpose, context and scope of this deliverable

This document is an update of the existing dissemination strategy for the REACTION project and covers the last two years of the project. Its main purpose is to support the ongoing dissemination of the project and to set out an agreed approach to dissemination throughout the project to ensure that dissemination objectives are met in a form agreeable to the consortium and beneficial for the business interests of individual participants. It is intended to optimise dissemination of project knowledge and results to scientific and medical communities, companies and healthcare organisations. This document is part of task T12.1 Dissemination, which is to define a comprehensive dissemination strategy with measurable goals.

The main focus of the project has now moved from the dissemination of project objectives towards the dissemination of project results with a subsequent increase of papers, demonstrations and integrations of the REACTION platform and its features.

Since the project is getting close to the last stages of dissemination, focus will also be on the early exploitation of the REACTION platform and individual components and therefore a section on exploitation has been added to the dissemination strategy. It is based on a questionnaire to all partners, distributed in January 2011, recording expectations for exploitation and likely exploitable items. This section is part of task T12-3 Exploitation which is to ensure the best possible foundation for an appropriate academic and commercial joint exploitation of the project results after the project has finished and facilitate that all results of the project are fully exploited through development of exploitation plans. This section is linked with D12-2 Market and Competitor Analysis (M24).

The sections on dissemination and exploitation will feed into the plan for dissemination and exploitation of knowledge (D12-3) which is planned for M48.

3 Dissemination strategy

3.1 Approach

The dissemination strategy for REACTION is to progressively increase dissemination efforts as project results are obtained. The dissemination strategy is intended to optimise dissemination of project knowledge and results to companies and organisations, which share an interest in the scientific results and the applications or are potential service providers of REACTION. This is done by setting measureable goals for dissemination activities such as scientific papers, organised events, marketing activities and website visits.

All partners will actively engage in dissemination activities within their areas of expertise. Partners will work together for identifying and carrying out dissemination activities within specific areas, such as conferences and workshops, exhibitions, and policy conferences. The partners will create strong liaisons with health authorities and establish powerful scientific standing in professional clusters. The members of the project will also write academic and technical papers to be presented at conferences and trade shows, and published in leading academic and technical journals.

The dissemination of the project and its results will take several forms and use a variety of media. There will be clear acknowledgement of EC funding in all disseminations activities, at any media or event. To coordinate the dissemination efforts and facilitate cooperation in the best possible way, all activities are reported to a central wiki repository (http://twiki.in-jet.dk).

3.2 Objectives and methods

The overall objective of the REACTION dissemination activities is to provide an active and professional dissemination to the appropriate target audiences and standardisation bodies and facilitate that all the results are fully exploited. Strong coordination and a targeted approach to selected strategy elements are crucial in order to maximise the transfer of knowledge to the outside world, as well as within the project consortium itself.

How REACTION plans to realise the dissemination strategic objectives is described in table 1. The main objectives for the last stages of the project are to start integrating REACTION in existing health environments and promoting early exploitation of the REACTION platform and components by take-up of components and demonstrations of the platform.

Time	Objective	Methods
Year 1	Create awareness about the REACTION project Dissemination in strategic boards of participants Prepare powerful scientific standing in professional clusters	• Publication of support material, flyer and the website • Attendance in seminars and congresses • Organise European conference on Remote Accessibility • Press releases and liaison with health authorities
Year 2	Continue to build awareness of the REACTION results in academic and scientific circles, both within ICT and within healthcare. Verify opportunities to apply the REACTION components in various healthcare environments and involve other stakeholders	• Aligning events with similar EU or national projects • Preparation of pre-commercial brochures • Visit to healthcare communities. • Website enrichment • Peer reviewed papers in international journals • Conference and workshop papers

Time	Objective	Methods
Now Be-yond	Prepare to integrate REACTION in existing health environments Promote the early exploitation of a REACTION platform and individual components	• Preparation of a commercial brochure • Newsletter to potential users • Take-up of ePatch components • Take-up of CGM sensor components • Take-up of semantic services components • Demonstration of the REACTION platform

Table 1: Dissemination objectives and methods

3.3 Dissemination responsibilities

Dissemination activities will be undertaken by the consortium as a whole and by each partner on an individual basis. As stated in the DOW, partners participate in dissemination as part of their project work and work packages (i.e. paper preparation, prototype development). This means that only activities for the actual dissemination have been budgeted in WP12 Dissemination (i.e. presentation of papers at events, demonstration of prototypes at events, preparation of press releases and news about results on websites).

All partners will engage in dissemination activities within their areas of expertise. The following table highlights the main dissemination responsibilities for each partner:

Partner	Responsibility
ATOS	Complement other partners with their expertise in security analysis and distributed security and trust models As project coordinator, general dissemination, and in particular dissemination through the EU channels: Cordis news, Cordis wire, Cordis express, European News Room.
CNET	Disseminate technical results related to ICT technologies and infrastructures
DELTA	Disseminate advancements in sensor technology
IMM	Disseminate advancements in sensor technology
FORTH-ICS	Disseminate technical results related to ICT technologies and infrastructures. Will organise Clustering event: *Ambient Intelligence in the Support of Healthcare.*
FHG-SIT	Complement other partners with their expertise in security analysis and distributed security and trust models
FORTHNET	Disseminate technical results related to ICT technologies and infrastructures.
IN-JET	Dissemination manager. Responsible for coordinating the dissemination activities. Disseminate technical results related to ICT technologies and infrastructures and ethical, legal and regulatory matters. Organiser of Training Seminars
ALL	Disseminate biomedical modelling
MUG	Disseminate clinical and medical results
MSG	Disseminate biomedical modelling and clinical and medical results, as well as advancements in sensor technology
CHC	Disseminate clinical and medical results

Partner	Responsibility
UBRUN	Disseminate clinical and medical results. Organiser of Training Seminars and two sessions at IEEE/EMBS.
VUB	Disseminate ethical, legal and regulatory matters
BAYER	Disseminate biomedical modelling

Table 2: Dissemination responsibilities for each partner

3.3.1 Acknowledgement of EU funds

When disseminating the project, partners should ensure that acknowledgement of the source of funding is clearly displayed. This includes the following:

- Acknowledgement of EU funds in all reports and publicity material (including the ones produced by every partner in the name of its company within the framework of the project) Example: The REACTION project is a 4-year project which started in 2010. It is partly funded by the European Commission under the 7th Framework Programme in the area of Personal Health Systems under Grant Agreement No. 248590.
- Use of logos. The new eHealth logo (June 2012) and the EU emblem must be used on all publications and promotional material. In case of power point presentations you can use the EU logo and/or the FP7 logo available at: http://ec.europa.eu/information_society/activities/health/promotion/index_en.htm

EU logos:

Project logo:

- Disclaimer. When a partner mentions the REACTION project (in any publication, report, article, etc.) the following disclaimer must be added:
  - *Possible inaccuracies of information are under the responsibility of the project. This report reflects solely the views of its authors. The European Commission is not liable for any use that may be made of the information contained therein.*
- Project deliverables for the Commission should also have the following legal notice:
  - *The information in this document is subject to change without notice. The Members of the REACTION Consortium make no warranty of any kind with regard to this document, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. The Members of the REACTION Consortium shall not be held liable for errors contained herein or direct, indirect, special, incidental or*

consequential damages in connection with the furnishing, performance, or use of this material.

Partners can consult the EC communication guidelines for more information at the following link (updated June 2012):

http://ec.europa.eu/information_society/activities/health/docs/guidelines/fp7eHealth-communication_guidelines_projects.pdf

3.3.2 Managing dissemination

The overall dissemination coordination will be performed by IN-JET. Partners coming from the same region can coordinate their dissemination by nominating a partner who is responsible for dissemination.

A wiki repository (http://twiki.in-jet.dk) has been established for coordination purposes. All partners are requested to enter information about national and international events (workshops, conferences, etc.) and journals that they are contributing to with information originating from REACTION funded work. Partners can also enter proposed events that they seek partners for. To ensure that the twiki is used, only entries listed here will go into the activity reports.

In order to register the amount of press coverage on the project, each partner will closely monitor the web and written press for any coverage of the project and add articles/links on the bscw in the folder: Work in Progress, WP 12 under Dissemination activities: https://bscw.in-jet.dk/bscw/bscw.cgi/13594. Press releases produced by the partners should also be published here (See section 4.1.1 for more information on press releases). Press coverage will feature on the website on a page dedicated to media coverage.

3.3.3 Protection of intellectual property rights

Representing both academic and commercial interests, the project partners will have different traditions when it comes to publicising results. Hence, specific rules for dissemination and publication of knowledge from the project are set out in the Grant Agreement (Article II.30) and the Consortium Agreement (sec. 8.4).

In particular, the following guidelines will have to be followed in all publication of results:

The consortium participants may publish information on knowledge arising from the project provided this does not affect the protection of that knowledge or other partners' knowledge.

Prior notice of any planned publication shall be made 45 days before the publication. Any objection to the planned publication shall be made in accordance with the Grant Agreement in writing to the Coordinator and to any partner concerned within 30 days after receipt of the notice. The objection has to have the form described in the Consortium Agreement section 8.4.1. If no objection is made within the time limit stated above, the publication is permitted.

A partner may not publish foreground or background knowledge of another partner, even if such foreground or background knowledge is amalgamated with the partner's own foreground, knowledge without the other partners' prior written approval.

Before any knowledge dissemination takes place that may impact on the exploitation potential of one or more partners, the matter should be agreed with the Project Board.

Methodologies and market research studies can be disseminated without prior consent.

In case of conflict, the Project Board will have the final say, and any conflicts will be resolved using the specific voting mechanisms defined in the Consortium Agreement.

3.4 Target audiences

Two major groups of target audiences have been identified and analysed: The research and scientific community in ICT and the medical community. However, the consortium will not only target events within the relevant research communities but also events that are likely to attract a wider interest from the European Community of citizens. One of the main channels for communication is the project website, which is being regularly updated as progress is made, deliverables produced and milestones achieved.

3.5 Dissemination forms and channels

The dissemination of REACTION takes several forms and uses a variety of media; from a rich project website to various printed and electronic brochures, newsletters and press information. Partners also establish valuable contacts by attending conferences and events, presenting the project and its results within different research domains, including sensor technology, software and ICT technology, medical and clinical research and legal, ethic and economic research.

The following lists the main dissemination methods and channels which REACTION uses and plans to use for the remaining two years of the project.

The website

The website is one of the main tools of dissemination, containing all information about the project: Objectives, work plan, technological and clinical progress, partner descriptions, event calendar, papers and presentations given by consortium members, newsletters and deliverables. It will be continuously updated with news and information about the project and with material from participation at events (e.g., slides of presentations, keynote speeches and conference proceedings). It will also feature online demonstrators and videos produced by partners.

Due to the fact that the copyright of scientific papers often pass to the publisher/journal, scientific papers in the download section on the website will only feature with an abstract description and a statement that the full paper can be requested by contacting the authors or by subscription.

Press and communication material

Press releases about the project start will be sent to relevant audiences in order to raise awareness of the project and its results.

Newsletters will be prepared from partner input and distributed to relevant audiences by the individual partners. The newsletter will describe results obtained and planned activities for release every six months.

A general flyer was created at the beginning of the project and has later been updated to fit project progress. The flyer is supplemented by posters, one for the primary care domain; the other for the in-hospital scenario. Also, a commercial brochure will be prepared for the final stages of the project to support partners in the exploitation of project results. It will focus on the technical and medical aspects of diabetes management.

Videos and online demonstrators will be made to demonstrate REACTION results.

Conferences and seminars

The REACTION project originally planned to arrange an annual European event on “Remote Accessibility to Diabetes Management and Therapy”, which targeted healthcare providers, health professionals, service providers and pharmaceutical companies. However, early on in the project it was decided that it would be more appropriate to merge the conference with existing ones and organise workshops or sessions within already acclaimed conferences such as ATTD, IEE/EMBS and MobiHealth.

On top of this REACTION will organise a number of seminars, aimed at healthcare officials, healthcare providers and the European healthcare industry and partners will continue to disseminate the project through their internal bulletins and by presentations at internal and external meetings and events.

Papers

Partners will write academic and technical papers to be presented at conferences and trade shows and published in leading academic and technical journals. The results of the scientific research work will be submitted continuously for publication in international, peer-reviewed journals and conference proceedings.

Activities in this area are expected to increase considerably in the last two years of the project.

Each partner will continuously monitor the published conferences within their field and report it to the wiki. Any attendance at conferences and events will also be reported. Joint papers will be sought whenever possible and feasible.

Conferences

Dissemination will be targeted at important medical and computer science conferences, both recurrent and ad hoc. As a minimum, the following annual conferences and events will be targeted (entries marked with * show where REACTION has been (re)presented in the first part of the project):

Medical conferences

- *ATTD Diabetes Conference, Advanced Technologies & Treatments for Diabetes (http://www2.kenes.com/attd/Pages/home.aspx)
- European Association for Study of Diabetes (EASD) annual meeting (www.easd.org)
- *American Diabetes Association annual meeting (www.diabetes.org)
- *Diabetes Technology Meeting (www.diabetestechnology.org)
- *MIE (Medical Informatics Europe) conferences (http://www.mie2011.org/)
- *International Hospital Diabetes Meeting (http://hospitaldiabetes.org/)
- World Health Summit (http://www.worldhealthsummit.org)

Computer science conferences

- UBICOMM (http://www.iaria.org/conferences2008/UBICOMM08.html)
- IEEE SECON (http://www.ieee-secon.org/2009/index.html/)
- WSEAS International Conference on Computers (http://www.wseas.org/conferences/2008/greece/iccomp/)
- International Conference on Health Informatics HEALTHINF (http://www.healthinf.org/Healthinf2009)
- *eHealth Week, World of Health IT (http://www.worldofhealthit.org)
- *MobiHealth conference (http://www.mobihealth.name/)

Trade shows

CeBIT (www.cebit.de)

*Sensor and Test Fair, Nuremberg (http://www.sensor-test.de)

Other events

- *IEEE/EMBS events

Journals

The results will be disseminated to the academic computer science and healthcare communities through academic publication and conference/workshop participation. Important media for publications are (entries marked with * show where REACTION has been (re)presented in the first part of the project):

Medical journals

- Diabetes (diabetes.diabetesjournals.org)
- Diabetes Care (care.diabetesjournals.org)
- Diabetologia (www.diabetologia-journal.org)
- Diabetes, Obesity and Metabolism (http://www.wiley.com/bw/journal.asp?ref=1462-8902)
- Diabetic Medicine (http://www.wiley.com/bw/journal.asp?ref=0742-3071)

- Diabetes/Metabolism Research and Reviews (http://www3.interscience.wiley.com/journal/122459774/grouphome/home.html)
- Diabetes technology and therapeutics (http://www.liebertpub.com/products/product.aspx?pid=11)
- *Journal of Diabetes Science and Technology (http://www.journalofdst.org/)
- *Journal of Pharmaceutical Sciences

Computer science and software journals

- IEEE Pervasive Computing (http://www2.computer.org/portal/web/pervasive/home)
- Pervasive and Mobile Computing journal (http://www.elsevier.com/wps/find/journaldescription.cws_home/704220/description#description)
- Ubiquitous Computing and Communication Journal (http://www.ubicc.org/)
- IEEE Computer (http://www.computer.org/computer/)

Demonstrations

Experience and best practice will be disseminated to the healthcare community and policy makers through membership of the whole site demonstrator action network (WSDAN) and the Telecare Action Network (TAN) and through existing links with DoH and CfH, and including close links with the Oxford Research Hospital.

Demonstrations and site visits will inform policy makers and other NHS organisations planning implementation. Financial and service benefits will be disseminated by the commissioners. Where appropriate, findings will be disseminated through membership of standards bodies (ISO, CEN, IEEE, HL7), professional and trade bodies, including the American Telemedicine Association (ATA), the Telecare Services Association (TSA), and the Continua Alliance.

Results of ethical and social studies will be disseminated to relevant communities active in eInclusion policies, patient organisations and special social interest groups. Likewise, legal and regulatory considerations will be disseminated through policy and position papers. Business modelling strategies and cases will be disseminated to the business community.

Concertation

The project partners will actively participate in concertation activities with other ICT funded projects related to the area of the project and organised by the European Commission. The project will be involved in info days, expert groups, IST conferences and other events organised by the EC when relevant. The project may also represent the Commission at some international events as required.

A clustering event titled "Ambient Intelligence in the Support of Healthcare" will be organised at FORTH in project year 4 (either April 2013 or October 2013) with the participation of other EU projects operating in the healthcare domain which make use of the ambient intelligence. The REACTION platform prototype integrated in the AmI facility of FORTH-ICS will be demonstrated and a round table will be set up in order to discuss the benefits which AmI can provide in delivering healthcare in different environments.

4 Dissemination plan

Dissemination and exploitation activities are completely embedded in the different work packages of the project reflecting the fast transfer of knowledge from the projects research results to public dissemination and commercial exploitation. The following section outlines measureable goals for dissemination which have been established as a tool to reach the objectives of dissemination and to define a targeted approach to selected strategy elements.

4.1 Measureable targets for dissemination activities

Annual targets were set for marketing activities, events organised by partners, scientific papers and website usage at the beginning of the project. The targets for dissemination which were established for project year 1 and 2 have more or less been achieved. However, a few adjustments have taken place for the remaining part of the project which will be explained under the different targets. The main changes concern the planning of a commercial brochure and an annual conference on remote accessibility to diabetes management and therapy.

4.1.1 Annual targets for marketing activities per project year

Type of activity	Project year 1	2	3	4	Partners involved
Newsletter	1	2	2	2	IN-JET/All
Press release	1	2	2	4	All
Flyer	1			1	IN-JET
Commercial brochure		~~1~~		1	IN-JET
Website enrichment	1	1	1	1	IN-JET
Prototype demonstrator	1	1	1	1	UBRUN/CNET/MSG

Table 3: Annual targets for marketing activities (numbers marked with red are new targets)

4.1.1.1 Results by the end of year 2

Newsletters

3 newsletters have been produced since the start of the project:

http://www.reaction-project.eu/newsletters/November2010.html

http://www.reaction-project.eu/newsletters/April2011.html

http://www.reaction-project.eu/newsletters/August2011.html

The last newsletter has been downloaded almost 400 times from the website. The next newsletter is planned for release at the end of June 2012.

Press releases

1 press release has been issued on project level followed by press releases issued at partner level. The targets for press releases have not been met for year 2, partly due to the fact that emerging results have been covered by other dissemination tools such as the website, newsletter, video and demonstrator.

In regards to launching press releases, the following guidelines should be followed:

- News about one partner and the project can be released to the local and national press in the language of the partner at the sole discretion of the partner.
- News about the partners in general, project events, etc. can be released to the international press by one partner, if it is sensible and objective and pays due credit to the project and the other partners[1].

[1] See the EC Communications guidelines on http://ec.europa.eu/information_society/activities/health/docs/guidelines/fp7eHealth-communication_guidelines_projects.pdf

- A copy of such release should be circulated and placed on the bscw in the folder: Work in Progress, WP 12, Dissemination activities as soon as the release has taken place.
- News about significant project results should be cleared with the project coordinator before release by any one partner. This applies to releases in both national and international media. See section 3.6 for dissemination and protection of intellectual property rights.

In order to register the amount of press coverage on the project, each partner will closely monitor the web and written press for any coverage of the project and add articles/links on the bscw in the folder: Work in Progress, WP 12, Dissemination activities: https://bscw.in-jet.dk/bscw/bscw.cgi/13594

Flyer
A general flyer has been developed in year 1 and refined in year 2.

Commercial brochure

Initially a commercial brochure was planned for year 2, however, it has been further postponed to year 3 and possibly 4 in order to better facilitate early exploitation since it will be clearer as to what can be exploited and how.

Website enrichment
The website has been updated continuously with news, deliverables, papers and events and enriched with new features: 'Reaction in the press', 'Scientific papers', 'Online demonstrators', 'Advisory boards', 'Video archive' and newsletter panel.

Prototype demonstrators
One prototype has been planned per project year:

- End of year 1: Rapid prototype of closed-loop system to be used in general ward (including some software mock-ups)
- End of year 2: Prototype of outpatient closed-loop system and improved closed-loop system used in general ward (including sensor prototypes)
- End of year 3: Partly/fully functional prototypes of in-hospital and outpatient prototypes including multi-parametric monitoring, risk analysis and full backend interoperability (demonstrators)
- End of year 4: Automatic glycaemic control with closed-loop feedback directly to insulin dosage pumps and field trials with final prototypes

So far the first two prototypes have been produced and disseminated through newsletters, articles, a video and an online demonstrator on pattern management in diabetes care.

4.1.2 Annual targets for conferences, events and seminars organised by partners per project year

Type of activity	Year 1	2	3	4	Organised by
Annual event/session/workshop on "Remote Accessibility in Diabetes Management and Therapy"		1 (~~UBRUN SESSIONS~~)	1	1	Different partners
Clustering event: "Ambient Intelligence in the Support of Healthcare"			~~1~~	1	FORTH-ICS
Training seminars	1		1	2	UBRUN IN-JET
Seminars/workshops, aimed at healthcare officials, healthcare providers and the European healthcare industry		1	1	1	PARTNERS
Session at IEEE/EMBS on continuous glucose monitoring techniques		~~1~~	1		UBRUN
Session at IEEE/EMBS on feedback control of blood glucose		~~1~~	1		UBRUN

Table 4 Annual targets for number of events (numbers marked with red are new targets)

4.1.2.1 Results by the end of year 2

Annual event/session/workshop

An annual conference on "Remote Accessibility to Diabetes Management and Therapy" was originally set as a target with the first one planned for September 2010. This was then postponed until October 2011 where it should have been incorporated with sessions at the IEEE/EMBS. However, with the demise of Solianis, partners were unable to undertake these commitments. As a result partners have suggested that it is far more appropriate for REACTION to organise sessions or workshops within existing conferences such as the ATTD, IEE/EMBS and MobiHealth. Therefore the event has changed from being a conference to becoming an event. As a consequence the target for year 2 has not been met.

Training seminars

A training seminar was held on Hydra Middleware in Bonn in October 2010. IN-JET participated.

Seminars/workshops

Partner FORTH-ICS organised a special session "ICT Platforms and Technologies for the Daily Management of Chronic Diseases and the Support of the Ageing Population" at the 2nd International ICST Conference on Wireless Mobile Communication and Healthcare (Mobihealth 2011), 5-7 October 2011, Kos Island, Greece (http://www.mobihealth.name/specialsessions.shtml). The organisation included the session logistic, the management of the review process, the review of some papers for the special session, the creation of the acceptance list and the chairing of the special session. The efforts resulted in 6 paper contributions from REACTION partners.

Sessions at IEE/EMBS

Two IEEE/EMBS sessions (one on continuous glucose monitoring techniques and one on feedback control of blood glucose) were planned for year 2 but have been postponed to year 3. Here UBRUN is arranging special sessions at IEEE/EMBS in San Diego, September 2012 including training for 11073 standards and an invited session on uses of the IEEE PHD standards.

4.1.3 Targets for accepted scientific papers per project year

The targets set for accepted scientific papers have previously been determined in relation to work packages for easier estimation as to the amount of papers. However, since the work packages overlap, the actual papers are hard to place in a single work package. Therefore targets are now set in relation to the total amount of papers per project year

The following outlines the amount of scientific papers:

- In year 1: 1 paper
- In year 2: 9 papers
- In year 3: 14 papers
- In year 4: 19 papers

4.1.3.1 Results by the end of year 2

By the end of project year 2, the target was 10 accepted papers. Partners have produced 8 accepted papers, 2 peer-reviewed abstracts and 1 peer-reviewed journal article.

- *Design einer mobilen Anwendung für das stationäre Glukosemanagment*, presented at eHealth2011 in Vienna, Austria on 26-27 May 2011. Partners/authors: MSG, MUG, FORTH
- *Design of a mobile, safety-critical in-hospital Glucose Management System*, presented at the International Conference of the European Federation for Medical Informatics: MIE2011, Oslo, Norway, 28-31 August 2011. Partners/authors: MSG, MUG, FORTH-ICS
- *Exploring new Care Models in Diabetes Management and Therapy with a Wireless Mobile eHealth Platform*, MobiHealth 2011, 5-7 October, Kos, Greece. Partners/authors: IN-JET, ALL, MSG

- *A Mobile Android-based Application for in-hospital Glucose Management in compliance with the Medical Device Directive for Software*, MobiHealth 2011, 5-7 October, Kos Greece. Accepted for oral presentation. Partners/authors: FORTH-ICS, MSG, MUG
- *Diabetes Management: Devices, ICT Technologies and Future Perspectives*, MobiHealth 2011, 5-7 October, Kos Greece. Authors: FORTH-ICS
- *Developing advanced technology services for diabetes management: User preferences in Europe*, MobiHealth 2011, 5-7 October, Kos Greece. Authors: FORTH-ICS
- *Risk assessment models for diabetes complications: a survey of available online tools*, MobiHealth 2011, 5-7 October, Kos, Greece. Authors: FORTH-ICS
- *Service-Oriented Middleware Architecture for Mobile Personal Health Monitoring,* MobiHealth 2011, 5-7 October 2011, Kos, Greece. The paper was presented in the session "ICT Platforms and Technologies for the Daily Management of Chronic Diseases and the Support of the Ageing Population". Partners/authors: CNET, IN-JET

Additionally, two peer-reviewed abstracts were submitted, accepted and presented as well as one peer-reviewed journal article:

- Abstract: *Erhebung des stationären Blutzuckermanagements bei nicht-kritisch kranken PatientInnen*, Wiener Klinische Wochenschrift. 2011; -39. Jahrestagung der ÖDG (Austrian Diabetes Association), Salzburg Austria, 17-19 November 2011. Partners/authors: MUG, MSG
- Abstract: *Assessment of In-Hospital Glycaemic Management*, in Journal of Diabetes Science and Technology. Published as proceeding to the International Hospital Diabetes Meeting, where the abstract was presented, Barcelona, Spain 17-19 November 2011. Partners/authors: MUG
- Journal Article*: Evolution of a Detailed Physiological Model to Simulate the Gastrointestinal Transit and Absorption Process in Humans, Part 1: Oral Solutions*, in JOURNAL OF PHARMACEUTICAL SCIENCES, Vol. 100(12), December 2011. Partners/authors: BTS

REACTION was also present at ATTD 2012 (Advanced Technologies and Treatments for Diabetes) conference in Barcelona in June 2011. MSG, MUG and FORTH-ICS had an abstract accepted for oral presentation on the mobile in-hospital application and BTS and MUG made a poster presentation on closed-loop insulin delivery using a physiology-based pharmacokinetic /pharmacodynamic model kernel. A comprehensive list of activities can be found in Section 6.

4.1.4 Targets for visits to the website per project year

One of the main channels of communication is the project website, which has been established in order to attract a wider interest.

In order to measure the general interest in the REACTION project, the following targets have been set for the website:

Type of activity	Year 1	Year 2	Year 3	Year 4
Downloads of documents (accumulated number)	100 (889)	300 (5959)	1000	2000
Total number of unique visitors per month	100 (300)	150 (305)	200	250
Number of registered users (members)	20 (90)	50 (96)	100	150
Number of countries	-	10 (11)	20	30

Table 5 Targets for website usage. The numbers in brackets show the actual numbers)

4.1.4.1 Results by the end of year 2

The website has had a considerable amount of traffic with 3.5 million unique visits since the start of the project and almost 6000 downloads of documents (numbers are based on the download numbers

which are visible on the REACTION website). The total number of unique visitors per month which has reached 305 for year 2 is derived from website statistics (webalizer) providing the average amount of unique urls per month.

5 Exploitation

5.1 Background

Exploitation of REACTION results is part of task T12-3 Exploitation. The main objectives are to:

- Develop an effective and realistic exploitation strategy for the project results
- Ensure the best possible foundation for an appropriate academic and commercial joint exploitation of the project results after the project has finished
- Facilitate that all results of the project are fully exploited through development of effective exploitation plans

The major outcomes of the exploitation work package are D12-2 Market and Competitor Analysis - which was submitted in M24 - and D12-3 Plan for Dissemination and Exploitation of Knowledge to be released in M48.

5.2 Intermediate exploitation report

At the first review meeting in June 2011, the European Commission requested that REACTION should produce a coherent vision and strategy on exploitation needs by the end of year two. The report should indicate what the likely exploitable items are and how each partner may drive their exploitation.

Based on a questionnaire to all partners circulated in January 2012, expectations for exploitation and likely exploitable items were recorded for those partners planning to market REACTION components. The results have subsequently been discussed at the project meeting 20-21 March 2012 in Madrid. The completed questionnaires can be viewed in appendix 1. The results will serve as a starting point for the final plan for dissemination and exploitation of knowledge (D12-3) which is due in M48.

5.3 Exploitation vision and strategy

As stated in the DOW the main objectives of exploitation in REACTION are to

- Identify and describe the innovative components of the REACTION results
- Assess the exploitation potential of these “products”.
- Produce a realistic exploitation plan, solidly anchored in the partners’ own strategies.

As documented in the DOW, partners have a priori defined some joint exploitation targets for bringing the REACTION platform and services to the market within 24 month of project completion. These are supplemented by individual exploitation objectives.

For the **technology providers** (such as ATOS, CNET, FORTHNET, FORTH-ICS, IN-JET) the main principle for exploitation of the REACTION platform will be to create and operate the platform as PaaS (Platform as a Service) including setting up data centres, developing applications, delivering sensors and devices. Possible business models will be licensing of software components, service development, consulting, training and sensors. Potential clients include hospitals, healthcare authorities and care centres. Exploitation can take place individually, jointly or involve part of, or the whole, consortium.

The **healthcare providers** (CHC, MUG, UBRUN, MSG) will use REACTION to improve existing care structures. Clinical partner CHC is planning to upgrade their remote monitoring base using REACTION and improve their clinical success rates. MUG is expecting to introduce Strict Glycaemic Control (SGC) in their patient wards and benefit from improved patient recovery and reduced mortality. Both partners will work very closely with their technical partners UBRUN and MSG and will in-source the relevant technology providers from the REACTION project to install REACTION platforms in their own facilities and in those influenced by them.

Furthermore, the academic partners will increase joint publications and presentations of the clinical results in refereed journals, at international and national conferences and workshops and integrate the project results into their educational activities carried out at the universities (postgraduate courses, further professional education courses).

Knowledge providers (such as VUB, IMM, DELTA) have varying objectives. VUB will cross fertilise their research (in particular in the project SENIOR, Social Ethical and Privacy Needs in ICT for Older People) with results from REACTION.

IMM and DELTA will use the knowledge from the project to improve their respective design of CGM sensors and ePatch technologies.

Although joint exploitation is seen as a promising way to exploit REACTION results, the partners have a priori only identified individual exploitation objectives. This is to secure that there will be a realistic exploitation plan for each partner regardless of the success or failure of joint exploitation plans.

For the individual partners the focus in on using REACTION results to enhance existing services and products or creating new ones. These products and services will lead to a competitive advantage and will create substantial benefits for existing customers.

5.4 The questionnaire

In order to follow up on the expectations for exploitation and refine them, a questionnaire was made and distributed to partners in January 2012. The questionnaire focuses on the exploitable products and services which are likely to be delivered by the REACTION project and on how REACTION partners plan to cooperate in terms of strategic partnership, ownership and licensing. It also deals with questions on the market in terms of market segments, market size, competitors and the strength, weaknesses, opportunities and threats for REACTION services.

5.5 Main results

The following summarises which products and services partners aim to exploit based on the results of the questionnaire. The focus is on REACTION as a platform, the individual components in REACTION and knowledge and experience derived from the project. Also it lists the ways in which partners will drive their exploitation; individually, jointly with other project partners or as a consortium. Finally market potentials for REACTION are listed.

<u>Exploitable items</u>

- The platform as a whole
    - The integrated REACTION platform for in-hospital and primary care including software and sensors: Platform as a Service (PaaS)
- Individual modules
    - Physiological glucose-insulin-glucagon PK / PD model that can be used for automatic glucose control in combination with measurement and application device
    - Knowledge intelligence, algorithms, middleware, the patient portal, in-hospital glucose management system, glucose sensors, epatch technologies and applications, alarm management components, event management, risk assessment, security service app, access control component
- Developed knowledge and research
    - Learning workshops, publications, conference proceedings on technical results, service redesign, new care models

<u>Exploitation models</u>

- Consortium level
    - The consortium will need to reach a common agreement on the exploitation share for the whole result when applicable
    - At the moment, it seems unlikely that the consortium as a whole can exploit the results as a whole. It will most likely be the single partners, who delivered components to the development, who will be interested in joint exploitation, thus in making bi-lateral or multilateral agreements with other interested partners
- Individual partners
    - Strategic partnerships and joint service providers

  - License agreement between partners involved
  - Industrial partners, thanks to their marketing channels, must lead the exploitation, involving partners with the right expertise and finding external collaborators to fill missing roles

- Patents and licenses
  - Granting of licences to partners
  - Investigate the IPR situation and submit patent applications
  - Licensing fees for the software components
  - Commercial licenses for the whole system, as well as for the different components developed

Market potentials

- How will the market look (drivers and inhibitors)
  - Patients will be much more involved in their care and will demand much more direct services. Cost pressure will increase, as well as the competition between providers
  - For the IT provider the environment (technical and social) will be more complex
  - In the future customers/users will be much more familiar with ICTs and demand services that are robust, easy to use and deliver the promised benefits
- Market segments
  - The professional healthcare market
  - Medical groups in the health application sector
  - Healthcare professionals
  - Regional healthcare authorities and local healthcare authorities
- Commercial partners
  - Pharma companies and other commercial partners such as mobile technology companies and healthcare operators (health insurance providers)
  - REACTION market potential
  - REACTION value proposition should be based on its uniqueness. If the complete solution is properly deployed, it will mean a clear evolution in the diabetes daily treatment and therefore it will have a clear advantage against its potential competitors.
  - The REACTION services will have to be antagonistic to all the modular applications that are appearing on the market and facilitate diabetes management. It is important to offer an integrated platform that will deliver an overall service that is not otherwise available

5.6 Conclusion

The most significant result of the questionnaire and following discussions is that joint exploitation involving the whole of the consortium might not be the most likely option for exploitation. Exploitation will most likely be driven by individual partners, in particular the technology partners, with the possibility of involving or becoming joint service providers with other partners.

6 Completed dissemination activities M01-M24

The following list highlights the dissemination activities which REACTION has undertaken for the first two years of the project:

- Setting-up an internal knowledge management system and coordination tool for dissemination activities such as papers, conferences and events and reporting on dissemination activities.
- Developing a dissemination strategy based on measurable targets for dissemination activities from marketing, conferences to papers and website visits.
- Creating a project website as a main dissemination channel with project activities, news and events, papers and deliverables and submitting the deliverable D12-1 Project Website. The website has been continuously updated throughout the project and more features were added as the project matured.
- Creating a project logo and different project templates to maintain a strong, coherent, visual project identity.
- Distributing press releases about the start of the project and creating a general flyer and poster to support partners at conferences and exhibitions as well as distributing three newsletters about the project progress and results.
- Producing an ID card/factsheet about REACTION for the EU eHealth unit and adding REACTION to Wikipedia.
- Producing papers, organising workshops and attending conferences and events. Since the beginning of the project, partners have submitted several papers, organised and attended a wide range of events related to REACTION work.
- Contributing to the work on standards through ongoing meetings and exchanges of expertise and development.
- Preparing exploitation by producing the deliverable D12-2 Market and Competitor analysis and gathering initial input from all partners via a questionnaire on exploitation plans. Some partners have also begun to define exploitation plans, short-term as well as long-term.

As mentioned the targets for dissemination for project year 1 and 2 have more or less been achieved. Especially the website has had a considerable amount of traffic with 3.5 million unique visits since the start of the project and almost 6000 downloads of documents. It shows that the website is actively used.

The main results (extending into year 3) include:

- Scientific papers and conferences
    - Partners have participated at several workshops, conferences and exhibitions, making presentations, organising sessions, presenting papers and disseminating REACTION through different channels. So far the activities have resulted in the submission of 8 scientific papers, 1 journal article and three abstracts all of which have been accepted and presented at various conferences. The target foreseen by partners for year 1 and 2 was 10 scientific papers.
    - REACTION has also organised a special session at the "2nd International ICST Conference on Wireless Mobile Communication and Healthcare - MobiHealth 2011“, producing a total of six conference papers.
- Website
    - The website has had a considerable amount of visitors with almost 3.5 million unique visits and almost 6000 document downloads, with deliverables being the most popular download. The average number of unique visitors per month in year 2 is 305 which surpass the estimated target of 150 visitors per month.

- Demonstrators
    - A video showing safe glycaemic control in the hospital ward as part of the first year's prototype demonstrator was produced and published on the REACTION website
    - A demonstrator on pattern management in diabetes care - online risk assessment and decision support was published
- Marketing
    - Dissemination material was developed at the beginning of the project to create awareness of the project and support dissemination. Press releases have been distributed at project level as well as partner level, generating press coverage nationally as well as in Europe. A list of press coverage can be viewed at http://www.reaction-project.eu/articles.php?article_id=11
    - Three newsletters have been produced and distributed by partners and added to the website where they can be downloaded. The newsletter from August 2011 has been downloaded almost 400 times from the website.
    - A flyer has been created and is currently revised to fit project progress. The flyer has been downloaded more than 600 times from the website.
- Exploitation
    - Partners have begun to define their plans for exploitation and have filled out a questionnaire on expectations for exploitation. The result is documented in D1-4-2. Also a market analysis was done in regard to REACTION as a platform service which has resulted in the deliverable D12-2 Market and Competitor Analysis submitted in M24.

A summary of the dissemination activities carried out are presented below. The list of activities will be continuously updated and inserted into the activity reports.

6.1 List of completed dissemination activities M01-M24 (non-exhaustive)

Partner dissemination activities M01-M24 – March 2010 through February 2012			
When	**Where**	**Type of dissemination activity and audience**	**Name of Partner Persons involved**
Project year 1			
13/04/10	Online	Press release circulated and distributed for the start of the project	All partners
April 2010	Germany	Presentation of REACTION, published in Fraunhofer SIT's quarterly newsletter (2/2010)	FHG-SIT
13/04/10	Denmark	Press release in Danish to all relevant audiences	IN-JET
22/04/10	Denmark	Website article mentioning the project on www.elek-data.dk	IN-JET
16-23/05/10	Institute for Information Transmission Problems of the Russian Academy of Sciences, Dept. of the Medical Partner Systems,	Presentation: Medical informatics in chronic care. ALL presented REACTION and discussed the possible use of REACTION application system in diabetes care of the Russian healthcare. Moreover ALL also discussed several subject which are important for the REACTION project such as (i) methodology of model- and knowledge-based decision preparation and decision support, (ii) the descriptive modelling methods to represent individual health status	ALL

Partner dissemination activities M01-M24 – March 2010 through February 2012			
When	**Where**	**Type of dissemination activity and audience**	**Name of Partner Persons involved**
	Moscow, Russia	using the functional information from measuring vital parameters, and (iii) model-based interpretation and evaluation of various medical parameters.	
25/05/10	Germany	Press release and article in German on website	IMM
11-12/06/10	Graz, Austria	Exhibition: RESEARCH 2010 www.researchaustria.at/ National exhibition on research undertaken by universities, institutes and companies in Graz. MUG exhibited and presented the REACTION project	MUG
May 2010	Madrid, Spain	Note in ATOS Spain internal bulletin	ATOS
7/07/10		Note on ATOS corporate website about the start of the project	ATOS
2-4/07/10		Website articles on webwire.com and consultant-news.com about the project	ATOS
16/09/10	London	Royal Soc of Medicine: GP Forum, presented aspects of the Reaction Platform	CHC
27/09/10	Brussels	ICT 2010: Digitally driven	CNET
4-7/10/10		Project Fact Sheet and ID card sent to the EU eHealth unit (Corinne Wenner)	ATOS & IN-JET
26/10/10	Nottingham	East Midlands Clinical Commissioning Group presented aspects of the Reaction Platform	CHC
5-6/11/10	Graz, Austria	Joint ZMF & Doctoral Days, a local conference at the Medical University of Graz: http://www.meduni-graz.at/3372 MUG and MSG did an abstract and a poster presentation on REACTION in relation to improving in-hospital glycaemic control.	MUG MSG
1-13/11/10	Bethesda, MD, USA	Participation in the Diabetes Technology Meeting	SOLIANIS
16/11/10		TSA Conference - workshop	CHC
13/12/10	London	Royal Soc Medicine: Telehealth Conf	CHC
13/01/11	Copenhagen	Rapid Innovation Seminar, organised by the Capital Region Healthcare Innovation Centre	IN-JET
17-18/01/11	Brussels, Belgium	Poster Presentation at Continua European Symposium 2011 http://www.continuaalliance.org/events/continuaeusymposium.html	CNET
Project year 2			
10-13/05/11	eHealth Week 2011, Budapest, Hungary	REACTION sessions on standards	UBRUN
10-13/05/11	eHealth Week 2011, Budapest,	Speech on Integrated care space for chronic diseases	ALL

Partner dissemination activities M01-M24 – March 2010 through February 2012			
When	**Where**	**Type of dissemination activity and audience**	**Name of Partner Persons involved**
	Hungary		
26/05/11	eHealth 2011, Vienna, Austria	Paper: *Design einer mobilen Anwendung für das stationäre Glukosemanagment*	MSG, MUG, FORTH-ICS
7-9/06/11	Sensor&Test Fair 2011, Nuremberg, Germany	Exhibition with REACTION poster	IMM
28-31/08/11	Medical Informatics Europe (MIE2011), Oslo, Norway	Paper: *Design of a mobile, safety-critical in-hospital Glucose Management System*	MSG, MUG, FORTH-ICS
26/08/11	Örebro and Stockholm, Sverige	Presentation of Reaction at Örebro University and Karolinska Institute, Stockholm	CNET
5-7/10/11	MobiHealth 2011, Kos, Greece	Paper: *A Mobile Android-based Application for in-hospital Glucose Management in compliance with the Medical Device Directive for Software*	FORTH-ICS, MUG, MSG
5-7/10/11	MobiHealth 2011, Kos, Greece	Paper: *Exploring new Care Models in Diabetes Management and Therapy with a Wireless Mobile eHealth Platform*	IN-JET, ALL, MSG
5-7/10/11	MobiHealth 2011, Kos, Greece	Paper: *Diabetes Management: Devices, ICT Technologies and Future Perspectives*	FORTH-ICS
5-7/10/11	MobiHealth 2011, Kos, Greece	Paper: *Developing advanced technology services for diabetes management: User preferences in Europe*	FORTH-ICS
5-7/10/11	MobiHealth 2011, Kos, Greece	Paper: *Risk assessment models for diabetes complications: a survey of available online tools*	FORTH-ICS
5-7/10/11	MobiHealth 2011, Kos, Greece	Paper: *Service-Oriented Middleware Architecture for Mobile Personal Health Monitoring*	CNET, IN-JET
6-7/10/11	International Scientific Committee of the Third European Conference on Health Law	Oral presentation: PRIVACY IN E-HEALTH PUT TO PRACTICE: THE CONCEPT OF CONCIERGE AS A PHYSICAL AND TECHNICAL INTERFACE. The paper discussed and presented REACTION as a research programme	VUB, FHG-SIT
17-19/11/11	Wiener Klinische Wochenschrift. 2011; -39. Jahrestagung der ÖDG (Austrian Diabetes Association),	Peer-reviewed abstract: *Erhebung des stationären Blutzuckermanagements bei nicht-kritisch kranken PatientInnen*	MUG, MSG

Partner dissemination activities M01-M24 – March 2010 through February 2012			
When	**Where**	**Type of dissemination activity and audience**	**Name of Partner Persons involved**
	Salzburg Austria		
17-19/11/11	International Hospital Diabetes Meeting, Barcelona, Spain	Poster presentation: *Assessment of In-Hospital Glycaemic Management in Non-Critically Ill Patients*	MSG, MUG
17-19/11/11	Journal of Diabetes Science and Technology, Barcelona, Spain	Peer-*reviewed abstract: Assessment of In-Hospital Glycaemic Management*, Published as proceeding to the International Hospital Diabetes Meeting, where the abstract was presented	MUG
30/11/11	The Dynamics of Disease Workshop 2011, Manchester, UK	Conference talk: *Multi-Scale Modeling in Medicine and Pharmacology*	BTS
December 2011	JOURNAL OF PHARMACEUTICAL SCIENCES, Vol. 100(12)	Peer-reviewed journal paper: *Evolution of a Detailed Physiological Model to Simulate the Gastrointestinal Transit and Absorption Process in Humans, Part 1: Oral Solutions*	BTS
8-11/02/12	ATTD 2012: Advanced Technologies and Treatments for Diabetes, Barcelona, Spain	Poster presentation: *Closed-loop insulin delivery using a physiology-based pharmacokinetic /pharmacodynamic model kernel*	BTS, MUG
8-11/02/12	ATTD 2012: Advanced Technologies and Treatments for Diabetes, Barcelona, Spain	Abstract for oral presentation: *A mobile in-hospital application supporting insulin dosing for patients with diabetes type 2*	MSG, FORTH-ICS

7 List of planned activities for project year 3 and 4 (non-exhaustive)

Partner dissemination activities planned from March 2012 – Project year 3 and 4			
16-19/04/12	Photonics Europe Conference 2012, Brussels	Conference paper: *A minimally invasive chip based near infrared sensor for continuous glucose monitoring*	IMM
24-26/04/12	Bio-IT World Conference & Expo 2012, Boston, USA	A Computational Systems Biology Software Platform for Multiscale Modeling and Simulation: Integrating Whole-Body Physiology, Disease Biology, and Molecular Reaction Networks	BTS
28-31/05/12	SETN 2012, Lamia, Greece:The 7th Hellenic Conference on Artificial Intelligence	Conference paper V. Lagani, I. Tsamardinos, S. Triantafillou, "Learning from mixture of experimental data: a constraint–based approach" This paper presents novel methods for co – analysing data collected under different experimental condition, as it is the case for the DCCT/EDIC studies. Paper is accepted for oral presentation	FORTH-ICS
5-8/06/12	PAGE2012, Venice, Italy	A physiologically-based PK/PD model to capture population variability for diabetes research and automatic blood glucose control	BTS
8-12/06/12	72nd American Diabetes Association scientific sessions, Philadelphia	Conference paper: *Persistent Hyperglycemia in Hospitalized Patients with Diabetes Despite Considerable Operating Expense*	MUG, MSG
26/06/12 – 1/07/12	In proceedings of the 29th International Conference on Machine Learning, (ICML), 2012, Edinburgh, Scotland	Conference paper: Giorgos Borboudakis, Ioannis Tsamardinos, "Incorporating Causal Prior Knowledge as Path-Constraints in Bayesian Networks and Maximal Ancestral Graphs",	FORTH-ICS
29-31/08/12	8th IFAC Symposium on Biological and Medical Systems, Budapest Hungary	Conference paper: A new Perspective on Closed-Loop Glucose Control using a Physiology-Based Pharmacokinetic / Pharmacodynamic Model Kernel	BTS, MUG
27/02/13-02/03/13	ATTD 2013 Advanced Technologies & Treatments for Diabetes	Planning a special session on REACTION activities and results	UBRUN/Others
April or October 2013	Clustering Event titled Ambient Intelligence in the Support of	The event will include other EU projects operating in the healthcare domain which make use of the ambient intelligence. During this event each project will perform demonstration and/or presentation of the implemented solutions. The	FORTH

	Healthcare	REACTION platform prototype integrated in the AmI facility of FORTH-ICS will be demonstrated and a round table will be set-up in order to discuss the benefits which AmI can provide in delivering healthcare in different environments starting from home to primary and secondary healthcare settings. The event will be largely promoted and mass media will be invited to attend this clustering event.	

8 Appendix 1 Partner questionnaires on exploitation

Partner name: ATOS
Date completed: 07/02/2012

Exploitable products	List exploitable products and services that will be delivered by the REACTION project. Indicate if it is jointly owned or individually owned. In case it is jointly owned, please indicate which other partner/s is/are involved. Also indicate your plans to protect this ownership (patent, license, etc.), which kind of Intellectual Property Rights (IPR) will be applied.	Atos develops the **Alarm Management Component**, which provides signals visualization while managing communication with the data base of events. The component presents a proper interface to health professionals and patients' relatives, allowing them to visualize alarms and follow the alarms flow. The alarms are notification of events depending on identified parameters, provided by other components of the REACTION platform. The system works in connection with the DSS and consequently Atos cannot provide the whole service alone. In the context of REACTION, the component is mainly an informative tool, as it does not provide additional functionality that could allow further intervention in the process. Developed in .net technology. Provided under commercial license with an additional plus for customization. Within REACTION Atos can reach an agreement with CNET for further exploitation.
Market opportunity	For each product or service, describe what are the high level potential market segments, customers, market size and income that can be generated from such target markets. What are the risks and barriers to entry? (References to data sources are welcome)	Main customers are medical groups. Considering the current economical situation, as well as the decision making structure in the public systems, at this moment targeting the private sector seems to be much more appropriate. Another potential market is the oil and gas industry, e.g. for high risk platforms, where alarm systems are needed for the control certain types of situations.
Partner business	Describe your business and its core competences relevant to the exploitation of REACTION results	ATOS has among its target markets the Health application sector. Since the merging with part of Siemens (SIEMENS IS) the Health sector is gaining importance. Currently ATOS is integrating new innovative solutions to its Healthcare portfolio.
Consortium level	How might the Consortium work at a collective level to exploit	It is necessary to conceive the solution as a whole and define

exploitation	the REACTION results? Can you describe a commercial model? Would you, as partner, take part in this and how? Would additional stakeholders be needed to operate this model?	commercial strategies for it. In principle the model we think more appropriate is the use of commercial licenses for the whole system as well as for the different components developed. The consortium will need to reach a common agreement on the exploitation share for the whole result when applicable. ATOS is interested in being part of this commercial agreement. The consortium may think about integrating a service provider (mobile service provider for instance).
Competitive position	How do you think the market will change over the next 5 years? Describe what you see as the likely competition to the REACTION proposition. Describe implications and risks and how REACTION can maintain its competitive position (Taking into account the external context, describe the strengths, the weaknesses, the opportunities and the threats of the REACTION product/service)	The market will evolve in the following directions: patients will be much more involved in their care and will demand much more direct services. Cost pressure will increase as well as the competition between providers. For the IT provider the environment (technical and social) will be more complex. REACTION value proposition should be based on its uniqueness. If the complete solution is properly deployed, it will mean a clear evolution in the diabetes daily treatment and therefore it will have a clear advantage against its potential competitors.
Partner level exploitation	What are your exploitation objectives as a partner? Describe how you plan to meet the objectives, which products, market segments and countries you will deal with	Atos individual objectives are to commercialize at least its own components improving them and launching them to the market in combination with other proprietary developments. Atos is planning to integrate the component with other existing solutions and its current Healthcare offer portfolio. Always understood as an added value and not as a stand alone service.

Partner name: FORTH-ICS
Date completed: 31 Jan. 2012

Exploitable products	List exploitable products and services that will be delivered by the REACTION project. Indicate if it is jointly owned or individually owned. In case it is jointly owned, please indicate which other partner/s is/are involved. Also indicate your plans to protect this ownership (patent, license, etc.), which kind of Intellectual Property Rights (IPR) will be applied.	The products include the integrated REACTION platform for in-hospital and primary care including software and sensors. Within the platform there are several modules that could be exploited individually as needed, for example the knowledge intelligence, the algorithms, the middleware, the patient portal, the sensors, etc. In case of FORTH, being a research centre, probably we are not going to exploit directly the developed (only by ourselves or joined with other partners) knowledge but we will consider different forms as e.g. royalties on license, fully maintaining our full or partial ownership for maintenance and reusability, and eventual future independent exploitation.
Market opportunity	For each product or service, describe what are the high level potential market segments, customers, market size and income that can be generated from such target markets. What are the risks and barriers to entry? (References to data sources are welcome)	The main customers of REACTION services include health care professionals and people with diabetes. Health care professionals can separate into two groups, in-hospital and primary care. The REACTION services will tailor individually for both of these groups, encompassing the entirety of the professionals' market segment. People with diabetes are the primary customer group. It is important to consider the risks and barriers of entry; these include a large portion of the diabetic population remains in denial about their disease and are not willing to take any steps about improving management of diabetes. Therefore, it is important to consider marketing and educational services for promoting REACTION products. In addition, the REACTION services should be supplied at an affordable cost with the necessary human and material infrastructure to support them. This will be best achieved through integration of the REACTION services with the existing national care models throughout Europe where purchase of the services could be reimbursed or through the promotion of new care models taking advantage of the progresses in technology. As REACTION services are being developed, it is important to identify the relative advantage of new ICT compared to existing care models in order to facilitate their integration to mainstream diabetes care.
Partner business	Describe your business and its core competences relevant to the exploitation of REACTION results	As a research centre, which in the REACTION project is mostly in charge of integration of platform components, the exploitation of REACTION results is not our main objective while dissemination is. However, whenever a clear interest for exploiting our developed (only by ourselves or joined with other partners) knowledge exists we will consider the most appropriate ways to do it saving our IPRs.
Consortium level exploitation	How might the Consortium work at a collective level to exploit the REACTION results? Can you describe a commercial model? Would you, as partner, take part in this and how? Would additional stakeholders be needed to operate this	It is important to identify the relative advantage of the REACTION services to existing diabetic care. Individual modules, or the platform as a whole, can then be integrated in everyday care in order to facilitate the activities of health care professionals and improve the wellbeing of people with diabetes. As people with diabetes become more informed about their disease and are willing to be involved in its effective management, REACTION services will become more

	model?	attractive. The leadership for exploitation has to be taken by industrial partners with a consolidate sales network. Roles of the involved partners (sharing the developed knowledge) have to be targeted based on each expertise profile and missing roles have to be promptly identified and eventually filled with additional partners expert in the specific field (on-line support, marketing, etc.).
Competitive position	How do you think the market will change over the next 5 years? Describe what you see as the likely competition to the REACTION proposition. Describe implications and risks and how REACTION can maintain its competitive position (Taking into account the external context, describe the strengths, the weaknesses, the opportunities and the threats of the REACTION product/service)	The market in the future will be much more familiar with ICTs and demand services that are robust, easy to use and deliver the promised benefits. The REACTION services will have to be antagonistic to all the modular applications that are appearing on the market and facilitate diabetes management. It is important to offer an integrated platform that will deliver an overall service that is not otherwise available.
Partner level exploitation	What are your exploitation objectives as a partner? Describe how you plan to meet the objectives, which products, market segments and countries you will deal with	FORTH-ICS is directly involved in the dissemination activities to promote the REACTION technical results related to ICT. At this moment we can see the in-hospital glucose management system and the patient portal as major candidates for our eventual exploitation interest.

Partner name: FORTHNET
Date completed: 1. February 2012

Exploitable products	List exploitable products and services that will be delivered by the REACTION project. Indicate if it is jointly owned or individually owned. In case it is jointly owned, please indicate which other partner/s is/are involved. Also indicate your plans to protect this ownership (patent, license, etc.), which kind of Intellectual Property Rights (IPR) will be applied.	Forthnet's exploitation plan with regards to the REACTION project involves the following components: 1. The SMS notification component; 2. The Network Monitoring component; 3. The REACTION system as a whole. The first two components are developed by Forthnet and are thus individually owned by Forthnet. There is already an exploitation plan in place for the SMS notification component and the development that is being carried out in the project constitutes the first step towards its commercialization by Forthnet. No patent or license is currently planned for the Network Monitoring component. Forthnet is also interested in exploiting the REACTION system as a whole, jointly with the other partners in the project, to address management of chronic diseases in healthcare. Forthnet's customers include many large hospitals and care centres in Greece which will be contacted to participate in establishing the necessary infrastructure for operating the REACTION solutions and services.
Market opportunity	For each product or service, describe what are the high level potential market segments, customers, market size and income that can be generated from such target markets. What are the risks and barriers to entry? (References to data sources are welcome)	**Market segments**: *For the REACTION platform:* Professional health care market in Greece. *For the SMS component:* Mobile telecommunications. **Customers**: *For the REACTION platform:* Public and private hospitals and outpatient clinics as well as national and regional healthcare authorities. *For the SMS component:* Mobile services subscribers. **Market size and income**: *For the REACTION platform:* In Greece there is lack of large epidemiological studies regarding morbidity and mortality in primary health care. According to a recent study there are more than 4 million chronically ill patients in Greece (almost 40% of the current population). The National Strategic Plan for Health Care in Greece for the period 2000-2006 concluded at the end of 2009, having funded more than 995 projects with a total public expenditure of more than 513 million euros. The Health Care Plan

		for the period 2007-2013 involves a total funding of 1.4 billion euros. *For the SMS component:* The average number of SMS messages sent in 2009 in Greece, according to eurostat, was 800 per inhabitant. So on average every Greek citizen is sending 2.2 SMS messages per day. According to eurostat, in 2009 Greece had the larger number of mobile phone subscriptions in the EU (180 per 100 inhabitants). According to the same report, the turnover from mobile services in 2009 in Greece was 4.3 billion euros, exceeding that from fixed network services (3.4 billion euros).
Partner business	Describe your business and its core competences relevant to the exploitation of REACTION results	Forthnet S.A. is a leading provider of broadband network services in Greece. Forthnet has entered both the telecommunications and network services business, being a convergent services provider offering from voice telephony to Internet and value-added services over its private broadband network. The company has more than 270.000 enterprise customers using leased lines and broadband access services; more than 320.000 voice telephony lines and 500 data centre customers.
Consortium level exploitation	How might the Consortium work at a collective level to exploit the REACTION results? Can you describe a commercial model? Would you, as partner, take part in this and how? Would additional stakeholders be needed to operate this model?	**Collective exploitation:** Creating and operating the REACTION platform as PAAS by setting up the necessary data centres, deploying the software applications, sensors and devices, and offering consulting services.
Competitive position	How do you think the market will change over the next 5 years? Describe what you see as the likely competition to the REACTION proposition. Describe implications and risks and how REACTION can maintain its competitive position (Taking into account the external context, describe the strengths, the weaknesses, the opportunities and the threats of the REACTION product/service)	**The market:** *For the REACTION platform:* The market for health care in Greece is expected to grow significantly in the coming years due to the problems faced by the public health care system. Indicative of the situation in the healthcare sector, is the increasing preference of citizens of private health care services, which in the last 10 years has played an increasingly important role in national health care. The emergence of large multi-shareholder organizations, which have replaced the small private clinics, demonstrates the potential of the industry. The investments made in the last fifteen years, however, focused on building infrastructure and equipment with little to no importance to the organization, operations, information systems and human resources (programming needs, adequacy, evaluation). In the next few years, the contribution of Public-Private Partnerships (PPP) is expected to turn in these areas and invest on

		the use of telecommunication and information technologies. *For the SMS component:* With smartphones being so prevalent the rate at which people will continue to use SMS services for person-to-person communication is expected to decrease as more and more people will start favoring smartphone apps, which offer a much richer experience. On the other hand, a shift from person to person (P2P) messaging to application to person (A2P) messaging (also called IP based SMS), with regards to the use of SMS, is being recorded. The biggest driver of this trend is the proliferation of group messaging applications, low cost VOIP clients and the adoption of social networks. More specifically, this trend shows that smartphones apps that let users bypass their carriers to send and receive SMS are shifting the SMS traffic growth from P2P to A2P. This is exactly the market sector that Forthnet's exploitation plan for the SMS notification service is targeted. Revenue from A2P SMS will cross $70 billion by 2016, according to a recent Juniper Research report. A2P SMS revenue will overtake P2P SMS during that year as the strategic focus for players within the mobile messaging ecosystem shifts from communication between individuals, to sending and receiving service-enabling messages.
Partner level exploitation	What are your exploitation objectives as a partner? Describe how you plan to meet the objectives, which products, market segments and countries you will deal with	Forthnet possesses a large customer base, including hospitals and health care clinics, and therefore has the ability to provide critical dissemination of the project's results as well as to solicit contribution from health-care organizations and regional authorities for the future exploitation of the project results in Greece. With regards to the SMS notification system, taking advantage of its customer base and long experience in the telecommunications sector, Forthnet will utilize SMS services, in particular A2P SMS, to address needs in marketing, advertising, financial services, business administration, ticketing, television voting and any other service where information needs to be sent to, or received from a large number of users in text form.

Partner name: IN-JET
Date completed: 25. January 2012

Exploitable products	List exploitable products and services that will be delivered by the REACTION project. Indicate if it is jointly owned or individually owned. In case it is jointly owned, please indicate which other partner/s is/are involved. Also indicate your plans to protect this ownership (patent, license, etc.), which kind of Intellectual Property Rights (IPR) will be applied.	The REACTION platform as PAAS (Platform as a Service) Supplier of front-end solutions to health care systems for data collection and patient end-point. Joint service provider with CNET and others for PAAS platform. Revenues will be derived as licensing fees for the software components that constitute the platform, development and customization of services and applications as well as consulting and training activities
Market opportunity	For each product or service, describe what are the high level potential market segments, customers, market size and income that can be generated from such target markets. What are the risks and barriers to entry? (References to data sources are welcome)	Market segments: Professional health care market in Denmark, in particular the market for care management for the chronically ill. Customers: Health care providers including hospitals and outpatient clinics, regional healthcare authorities, local and municipal authorities responsible for home care and social care, and care centres and private service providers, all dealing with chronically ill patients or citizens in need of monitoring. Also industry providing health care services. Market size and income: 1.8 million chronically ill patients in Denmark, The Danish regional health authorities together the Danish Public Welfare Technology Fund are investing almost 9 million Euros in a telemedicine project, with 2000 patients, running in 2012- 2013 Market opportunities: In Denmark, a national strategy for telemedicine has been proposed and will shortly be implemented. The strategy calls for introduction of cross-sectoral telemedicine solutions at all levels and involving all actors. Regional and local strategies to complement the national strategy. A preliminary fund of 10 m€ has been allocated to short demonstration projects in 2012.
Partner business	Describe your business and its core competences relevant to the exploitation of REACTION results	IN-JET has as its core business to market concepts for ICT platforms for internet based applications such as healthcare, citizen engagement and energy efficiency. The eHealth diabetes solution offered by REACTION is completely in the

		focus of our company strategy.
Consortium level exploitation	How might the Consortium work at a collective level to exploit the REACTION results? Can you describe a commercial model? Would you, as partner, take part in this and how? Would additional stakeholders be needed to operate this model?	Collective exploitation: The exploitation will mostly be done with own resources in combination with strategic partnerships with e.g. CNET and DELTA for Scandinavia. Other partnerships will be considered when the technical solution is more mature.
Competitive position	How do you think the market will change over the next 5 years? Describe what you see as the likely competition to the REACTION proposition. Describe implications and risks and how REACTION can maintain its competitive position (Taking into account the external context, describe the strengths, the weaknesses, the opportunities and the threats of the REACTION product/service)	The market: The market for telemedicine in Denmark is expected to grow very significantly in the coming years fuelled by: 1) the national strategy, 2) the need for cost containment in healthcare, 3) the decreasing number of professionals (longer term) and 4) the emergence of more and more reimbursement schedules for telemedicine (the short term). The technological focus will be on interoperability between many different systems and devices with new applications being added. Investments in telemedicine are growing. IN-JET will be extremely well positioned in this area. Competition: Many pilot projects that have not made it to commercial success due to lack of holistic view and proprietary nature. Most telemedicine services offered in Denmark today are either proprietary (which is counter to the national strategy) or inferior in what it provides (mainly only video conferences). IN-JET has already entered into partnership with IBM and Cisco as front-end suppliers for diabetes telemedicine solutions. SWOT: S: Interoperability and flexibility W: small company; partnerships must be developed O: see above T: national standards to lock out competition from other than preferred vendors
Partner level	What are your exploitation objectives as a partner? Describe	Objectives: The objective is to deliver the REACTION service

exploitation	how you plan to meet the objectives, which products, market segments and countries you will deal with	platform in Denmark as a front end data collection and patient communication front end and further to develop the unique features (sensors, event management, risk assessment) into a real diabetes management platform together with existing (IBM, DELTA) and new partners. Products: The REACTION platform as PAAS Plan: IN-JET markets the service platform in Denmark on a regional as well as at the local level. Market segments and countries: Regional health care authorities and local health care authorities predominantly in Denmark.

8.1 Completed questionnaires, healthcare providers

Partner name: CHC
Date completed: 09/02/2012

Exploitable products	List exploitable products and services that will be delivered by the REACTION project. Indicate if it is jointly owned or individually owned. In case it is jointly owned, please indicate which other partner/s is/are involved. Also indicate your plans to protect this ownership (patent, license, etc.), which kind of Intellectual Property Rights (IPR) will be applied.	*We have used existing clinical remote patient monitoring protocols and algorithms which are the IP of CHC / Brunel and will be developing further automated feedback loop protocols which will be the IPR of CHC.*
Market opportunity	For each product or service, describe what are the high level potential market segments, customers, market size and income that can be generated from such target markets. What are the risks and barriers to entry? (References to data sources are welcome)	*We are continually looking for new ways in which to deliver health care and provide new services. The Reaction platform may provide new ways to redesign Diabetes service delivery.*
Partner	Describe your business and its core	We are not a business. We would use the Reaction results to feed into service redesign and

business	competences relevant to the exploitation of REACTION results	improvement for the management of diabetes within a primary care setting. This could help inform national policy making and local and national service design considerations.
Consortium level exploitation	How might the Consortium work at a collective level to exploit the REACTION results? Can you describe a commercial model? Would you, as partner, take part in this and how? Would additional stakeholders be needed to operate this model?	
Competitive position	How do you think the market will change over the next 5 years? Describe what you see as the likely competition to the REACTION proposition. Describe implications and risks and how REACTION can maintain its competitive position (Taking into account the external context, describe the strengths, the weaknesses, the opportunities and the threats of the REACTION product/service)	The main risk to a Reaction platform within the UK is the current uncertainty of the structure of the NHS and how and where health care will be delivered. Without a national strategy to move ahead with such applications the local stakeholders and service providers such as GPs will not pay for the solution.
Partner level exploitation	What are your exploitation objectives as a partner? Describe how you plan to meet the objectives, which products, market segments and countries you will deal with	We are disseminating learning gained during the Reaction project via workshops within the UK and the USA, publications and conferences in the UK, Europe and the USA. We plan to focus on service redesign and the benefits of such a tool as Reaction to support this.

Partner name: MUG
Date completed: 30.January 2012

Exploitable products	List exploitable products and services that will be delivered by the REACTION project. Indicate if it is jointly owned or individually owned. In case it is jointly owned, please indicate which other partner/s is/are involved. Also indicate your plans to protect this ownership (patent, license, etc.), which kind of Intellectual Property Rights (IPR) will be applied.	In hospital glucose management tool: this tool is being developed for in-hospital glucose management. Once the system is working and shows its usability in a clinical environment (clinical study will be available) commercial partners will be approached to integrate the system in a larger environment. There will be joined activities for exploitation with the developers of the core of the software. In addition the platform could be developed further for general practitioners (outside hospital environment) but could be the basis for decision support in primary care or for other diseases. It will be rather the knowledge which will be exploited rather than IPRs.
Market opportunity	For each product or service, describe what are the high level potential market segments, customers, market size and income that can be generated from such target markets. What are the risks and barriers to entry? (References to data sources are welcome)	It has been shown by publications and surveys that in hospital glycaemic management is not optimal. We are aware of several hospitals and physicians who would like to work with such a system once it has proven its usability. Gerry Rayman (member of the medical advisory board and coordinator of the National Diabetes Inpatient Audit (NaDIA) 2010 in England) is opinion leader in this field and would be willing to introduce the system in UK. In parallel there are activities to test the REACTION system at the Nuffield Department of Surgical Sciences at Oxford University. There are other activities in this field but it is necessary to know the needs of the end-user from the beginning and integrate them into the device. Having technical as well as clinical partners involved in the development of the system we believe that the usability of our system is tailored to the user needs hence the system has advantages compared with other systems. However to bring the system on the market (medical device with all its regulatory issues) a commercial partner (e.g. Infineon, Siemens,…) will be needed which is experienced in this medical field.
Partner business	Describe your business and its core competences relevant to the exploitation of REACTION results	Our core competence is patient care – we know the needs of the users (physicians, nurses, patients). These needs are essential for the development of any medical device. Joanneum Research is experienced in translating the medical needs into technical solutions. Therefore we will offer the developed system together with our expertise to a partner who is going to commercialise the device.
Consortium level	How might the Consortium work at a collective level to exploit the REACTION results? Can you describe a commercial model?	It is very unlikely that the consortium as a whole can exploit the results. It will be the single partners who delivered to the development who will

exploitation	Would you, as partner, take part in this and how? Would additional stakeholders be needed to operate this model?	offer a joined exploitation.
Competitive position	How do you think the market will change over the next 5 years? Describe what you see as the likely competition to the REACTION proposition. Describe implications and risks and how REACTION can maintain its competitive position (Taking into account the external context, describe the strengths, the weaknesses, the opportunities and the threats of the REACTION product/service)	See Market opportunity
Partner level exploitation	What are your exploitation objectives as a partner? Describe how you plan to meet the objectives, which products, market segments and countries you will deal with	The Medical University as health care provider will be one of the end-users of the system – therefore there will be immediate benefit for the patients as well as physicians and nurses. MUG as a University is keen in making findings available outside the University (e.g. publications, conference attendances,..). We would like to work together with commercial partners to bring the system on the market.

Partner name: MSG
Date completed: 31.January 2012

Exploitable products	List exploitable products and services that will be delivered by the REACTION project. Indicate if it is jointly owned or individually owned. In case it is jointly owned, please indicate which other partner/s is/are involved. Also indicate your plans to protect this ownership (patent, license, etc.), which kind of Intellectual Property Rights (IPR) will be applied.	In hospital glucose management tool: this tool is being developed for in-hospital glucose management. Once the system is working and shows its usability in the clinical environment (clinical study will be available) commercial partners will be approached to integrate the system in a larger environment. There will be joined activities for exploitation with the clinical partner MUG. In addition the platform could be developed further for general practitioners (outside hospital environment) but could be the basis for decision support in primary care or for other diseases. The REACTION algorithm as core part of the inpatient glucose management system as well as the design and the usability of the frontend application has been developed by MUG and JR. We don't assume that REACTION algorithm or software can be patented but we intend to licence the inpatient glucose management system and especially the REACTION algorithm to exploitation partners.

Market opportunity	For each product or service, describe what are the high level potential market segments, customers, market size and income that can be generated from such target markets. What are the risks and barriers to entry? (References to data sources are welcome)	It has been shown by publications and surveys that in hospital glycaemic management is not optimal. We are aware of several hospitals and physicians who would like to work with such a system once it has proven its usability. Gerry Rayman (member of the medical advisory board and coordinator of the National Diabetes Inpatient Audit (NaDIA) 2010 in England) is opinion leader in this field and would be willing to introduce the system in UK. In parallel there are activities to test the REACTION system at the Nuffield Department of Surgical Sciences at Oxford University. There are other activities in this field but it is necessary to know the needs of the end-user from the beginning and integrate them into the device. Having technical as well as clinical partners involved in the development of the system we believe that the usability of our system is tailored to the user needs hence the system has advantages compared with other systems. However to bring the system on the market (medical device with all its regulatory issues) a powerful commercial partner is required. Possible exploitation partners are pharmaceutical companies (e.g. Novo Nordisc, Sanofi Aventis), diagnostic companies (e.g. Roche, BBraun), or companies with focus on medical technologies (e.g. Infineon, Siemens) will be needed which is experienced in this medical field.
Partner business	Describe your business and its core competences relevant to the exploitation of REACTION results	JOANNEUM RESEARCH is a professional innovation and technology provider with a track record of 30 years in cutting-edge research at the international level. JOANNEUM RESEARCH actively cooperates with business and public sectors to generate new innovations and carries out application-oriented research and development to promote technology transfer to industry. The Institute HEALTH (former MSG) – Institute of Biomedicine and Health Sciences links basic medical research to industrial medical and health technology applications. In cooperation with health authorities and small, medium and large business oriented enterprises, we work on the improvement of administrative and clinical processes in medical care, the optimisation of data management and patient-oriented care. HEALTH has experience in the development of mobile clinical decision support systems at the point of care,

		and currently establishes a software quality management system in order to meet the demands of the medical device directive for software. JOANNEUM RESEARCH is experienced in translating the medical needs into technical solutions. Therefore we will offer the developed system together with MUG expertise to a partner who is going to commercialise the device.
Consortium level exploitation	How might the Consortium work at a collective level to exploit the REACTION results? Can you describe a commercial model? Would you, as partner, take part in this and how? Would additional stakeholders be needed to operate this model?	It is very unlikely that the consortium as a whole can exploit the results. It will be the single partners who delivered to the development who will offer a joined exploitation.
Competitive position	How do you think the market will change over the next 5 years? Describe what you see as the likely competition to the REACTION proposition. Describe implications and risks and how REACTION can maintain its competitive position (Taking into account the external context, describe the strengths, the weaknesses, the opportunities and the threats of the REACTION product/service)	See Market opportunity
Partner level exploitation	What are your exploitation objectives as a partner? Describe how you plan to meet the objectives, which products, market segments and countries you will deal with	We would like to work together with commercial partners to bring the system on the market: 1) To sell the in-hospital glucose management software system as a whole to an exploitation partner, and if possible establish an on-going cooperation to further be involved in the development of the system. or 2) To license the software components which implement the REACTION algorithm together with the specification of its usage in an integrated system. JR as a research company is keen in making findings available in the scientific community (e.g. publications, conference attendances).

8.2 Completed questionnaire, knowledge providers

Partner name: BTS
Date completed: 31.1.2012

Exploitable products	List exploitable products and services that will be delivered by the REACTION project. Indicate if it is jointly owned or individually owned. In case it is jointly owned, please indicate which other partner/s is/are involved. Also indicate your plans to protect this ownership (patent, license, etc.), which kind of Intellectual Property Rights (IPR) will be applied.	1. Physiological glucose-insulin-glucagon PK / PD model that can be used for automatic glucose control in combination with measurement and application device. 2. Certain model aspects will also be evaluated for use in model-based drug development (MBDD).
Market opportunity	For each product or service, describe what are the high level potential market segments, customers, market size and income that can be generated from such target markets. What are the risks and barriers to entry? (References to data sources are welcome)	1. Automatic glucose control holds potential, but is for various reasons not the standard of care (yet). 2. A pharma company needed as customer here. BTS is supporting MBDD for pharma companies in other indications. Acceptance/demand of MBDD for diabetes likely, but not definite.
Partner business	Describe your business and its core competences relevant to the exploitation of REACTION results	BTS Computational Systems Biology is acting like a CRO and providing MBDD services and consulting to the pharma industry.
Consortium level exploitation	How might the Consortium work at a collective level to exploit the REACTION results? Can you describe a commercial model? Would you, as partner, take part in this and how? Would additional stakeholders be needed to operate this model?	Our model could be used as part of a device for automatic glucose control or dose recommendation. Commercial model needs to be discussed with other key component providers (measurement and delivery).
Competitive position	How do you think the market will change over the next 5 years? Describe what you see as the likely competition to the REACTION proposition. Describe implications and risks and how REACTION can maintain its competitive position (Taking into account the external context, describe the strengths, the weaknesses, the opportunities and the threats of the REACTION product/service)	The project provides a good consortium input for model development. We are leading in MBDD for other indications/processes and intend the same position for diabetes.
Partner level exploitation	What are your exploitation objectives as a partner? Describe how you plan to meet the objectives, which products, market segments and countries you will deal with	Based on the output/exploitation, we will in addition approach pharma companies (existing and new costumers) and explore their interest in not yet exploited parts.

Partner name: DELTA
Date completed: 2. February 2012

Exploitable products	List exploitable products and services that will be delivered by the REACTION project. Indicate if it is jointly owned or individually owned. In case it is jointly owned, please indicate which other partner/s is/are involved. Also indicate your plans to protect this ownership (patent, license, etc.), which kind of Intellectual Property Rights (IPR) will be applied.	DELTA will exploit a wireless sensor (ePatch) for Heart Rate monitoring. This will be owned by DELTA. Another, version of the ePatch with more sensors and software based on the work of other partners will also be developed in the project as prototypes. In the last part of the project product concepts will be presented for commercial exploitation by companies outside the consortium. The rights to the technologies for this new ePatch product will be co-owned by the project partners involved in the specific invention and a license agreement will be made.
Market opportunity	For each product or service, describe what are the high level potential market segments, customers, market size and income that can be generated from such target markets. What are the risks and barriers to entry? (References to data sources are welcome)	Sell to providers of diabetes systems and services
Partner business	Describe your business and its core competences relevant to the exploitation of REACTION results	DELTA develops, produce and sell customer specific solutions and products. DELTA will sell projects based on the knowledge and IPR gained in REACTTION on ePatch technologies and applications.
Consortium level exploitation	How might the Consortium work at a collective level to exploit the REACTION results? Can you describe a commercial model? Would you, as partner, take part in this and how? Would additional stakeholders be needed to operate this model?	The project partners could demonstrate working technologies and solutions to important demands for possible commercial exploitation partners. Further, the partners should investigate the IPR situation and submit patent applications.
Competitive position	How do you think the market will change over the next 5 years? Describe what you see as the likely competition to the REACTION proposition. Describe implications and risks and how REACTION can maintain its competitive position (Taking into account the external context, describe the strengths, the weaknesses, the opportunities and the threats of the REACTION product/service)	The market for monitoring diabetes patients and providing them feedback solutions are developing strongly along with the progress in REACTION. The results of REACTION must be protected as patents to compete on the commercial market. The strength of the consortium is its big pool of knowledge, and the long time of collaboration among the partners in the project.

Partner level exploitation	What are your exploitation objectives as a partner? Describe how you plan to meet the objectives, which products, market segments and countries you will deal with	DELTA will develop, produce and sell ePatch-products based on the results of REACTION. DELTA will sell to business partners that can integrate the ePatch product in a system solution or a service which this company will sell to the end-byers in the health care sector.

Partner name: IMM
Date completed: 27.01.12

Exploitable products	List exploitable products and services that will be delivered by the REACTION project. Indicate if it is jointly owned or individually owned. In case it is jointly owned, please indicate which other partner/s is/are involved. Also indicate your plans to protect this ownership (patent, license, etc.), which kind of Intellectual Property Rights (IPR) will be applied.	• Chip-based glucose sensor with IR-transmission spectroscopy as the measuring method, combined with micro-dialysis → owned by IMM; as long as the sensor is considered stand alone and not integrated into an e-patch, there is already an older IMM patent that covers the underlying measuring principle & method: DE 10 2005 062174 B3 2007-05-31 (applied), EP1963821, 2008-09-03 (disclosed), US2009161108, 2009-06-25 (applied) • Fibre-based glucose sensor with integrated IR-transmission spectroscopy and embedded into a micro-needle to be implanted subcutaneously → owned by IMM; depending on the evaluation of the sensor, IMM is aiming for a patent for this specific configuration • The integration of one of the above described sensors into an e-patch, with electronics embedded in the e-patch → owned by IMM and DELTA; the transfer of one the sensor concepts into a miniaturised, wearable component and with integrated algorithms can be patented jointly by IMM, DELTA, BTS and others, if involved
Market opportunity	For each product or service, describe what are the high level potential market segments, customers, market size and income that can be generated from such target markets. What are the risks and barriers to entry? (References to data sources are welcome)	
Partner business	Describe your business and its core competences relevant to the exploitation of REACTION results	IMM is a scientific research organisation working, among others, in the field of miniaturised sensors. Typically developments of IMM are made up to demonstrator or prototype status. IMM can exploit results via publications in journals and conference proceedings to increase its scientific reputation as well as on fairs where demonstrators and prototypes of the developed sensors are presented to the industrial community. Besides that IMM uses the instrument of transferring technologies developed by its own to third party commercial fabrications partners

		(including but not limited to spin-off companies initiated by IMM in the past already) based on license and collaboration agreements. Any such technology transfer agreements may be supported by a pilot-lot stage at IMM to build a bridge towards application.
Consortium level exploitation	How might the Consortium work at a collective level to exploit the REACTION results? Can you describe a commercial model? Would you, as partner, take part in this and how? Would additional stakeholders be needed to operate this model?	In general IMM prefers granting of licenses to its partners. IMM itself may not act as a stakeholder (owner) of a new company if it would be intended to found such company for the purpose of exploitation of the results of the project.
Competitive position	How do you think the market will change over the next 5 years? Describe what you see as the likely competition to the REACTION proposition. Describe implications and risks and how REACTION can maintain its competitive position (Taking into account the external context, describe the strengths, the weaknesses, the opportunities and the threats of the REACTION product/service)	It is known that all large companies involved in the development and marketing of glucose monitoring devices (Roche, Bayer, etc.), are currently working on closed loop or automatic glucose control systems, where an accurate sensor is to be combined with an insulin pump and appropriate algorithms. None of these strong players are involved in REACTION which means that competition from sensor point of view is strong. However, REACTION goes beyond pure sensor development, it implements a data platform in the background that can be connected to a wide variety of sensor types, allowing a more profound glycaemic control and gives the physicians involved a powerful tool at hand. It is expected that the REACTION platform can be used with any sensor on the market, if standardised communication (e.g. via Continua IEEE11073) is used. This means that the REACTION platform can be given at hand to all interested sensor users that are aiming at a closed loop control system.
Partner level exploitation	What are your exploitation objectives as a partner? Describe how you plan to meet the objectives, which products, market segments and countries you will deal with	IMM is interested to licence its developments to industrial partners involved in the public projects these developments are made or to third parties from industry, in case that such a partner can be found. Additionally, IMM is going to publish its scientific results in in journals and conference proceedings. Usually, IMM is presenting demonstrators or components, developed within the REACTION project, on national and international fairs (e.g. Sensor&Test, Analytica, Medica etc.).

Partner name: FHG-SIT
Date completed: 1.2.2012

Exploitable products	List exploitable products and services that will be delivered by the REACTION project. Indicate if it is jointly owned or individually owned. In case it is jointly owned, please indicate which other partner/s is/are involved. Also indicate your plans to protect this ownership (patent, license, etc.), which kind of Intellectual Property Rights (IPR) will be applied.	Security Service App (SSA) for Android Devices, Access Control Component (ACC) – both individually owned Currently no plans exist to file patents for these developments as their value comes from the combination and adaption of existing technologies. Emphasis has been laid on the components' usability with respect to the ease of integration and deployment in existing environments, which is not patentable.
Market opportunity	For each product or service, describe what are the high level potential market segments, customers, market size and income that can be generated from such target markets. What are the risks and barriers to entry? (References to data sources are welcome)	According to the Gartner Group, "smartphone sales to end users reached 115 million units in the third quarter of 2011, up 42 percent from the third quarter of 2010" with Android reaching a market share of 52.5% in the Mobile Operating System market. [1] Smartphones are becoming more popular and ubiquitous and companies are using them already as mobile clients for internal services. For mobile Apps it will be necessary to secure access and communication to such services, which can be delivered by the SSA and ACC. Thus, in principle, for any company building special purpose mobile Apps that communicate via Web Services, SSA and ACC could be of interest. [1]http://www.gartner.com/it/page.jsp?id=1848514
Partner business	Describe your business and its core competences relevant to the exploitation of REACTION results	Fraunhofer SIT (FHG-SIT) is a research institution specialised in security research and development, security testing, and providing consulting services to industry and government agencies. Exploitation will largely be done in terms of publishing articles, teaching, and education of students.
Consortium level exploitation	How might the Consortium work at a collective level to exploit the REACTION results? Can you describe a commercial model? Would you, as partner, take part in this and how? Would additional stakeholders be needed to operate this model?	As a research institution, FHG-SIT is typically not developing market-ready products but prototypes. If developments from REACTION are mature enough and partners would want to market them, FHG-SIT may license its results to partners. It may also aid in the preparation of promotional material or technical documentation. However, since FHG-SIT is not a

		software manufacturer but a publicly held non-profit organisation, its engagement in active marketing and sales activities can only be limited.
Competitive position	How do you think the market will change over the next 5 years? Describe what you see as the likely competition to the REACTION proposition. Describe implications and risks and how REACTION can maintain its competitive position (Taking into account the external context, describe the strengths, the weaknesses, the opportunities and the threats of the REACTION product/service)	S: SSA is universally applicable for any Android Device and open for other kinds of mobile Apps requiring an easy-to-use, customisable secure communication layer W: Security technology typically sells only if it is bundled with an application for which a demand exists O: The Glucose Management System developed in REACTION is an application for which a demand exists in the medical context. Thus the bundling with the SSA/ACC is an opportunity for FHG-SIT to position its development as an enabler for mobile medical applications. T: Although, choosing Google's Android as a technological platform was a sensible choice, competing operating systems like Apple's iOS or Microsoft's Windows Phone may become the dominant mobile platform. Therefore, the demand for a technical solution like the one offered by the SSA may still exist but for a different platform.
Partner level exploitation	What are your exploitation objectives as a partner? Describe how you plan to meet the objectives, which products, market segments and countries you will deal with	For FHG-SIT, exploiting the results of REACTION would be to publish these results and, possibly, use and adapt the technology developed in REACTION within future national or international projects. Since most of SIT's foreseen technical results are not specific to health care, the results are not tied to a specific market segment.