



**Enhanced visibility and awareness in eHealth, Active Ageing and Independent Living projects**

*D2.4. Communications and Synergies  
Action strategy*

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### ***D2.4. Communications and Synergies Action strategy***

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## Revision history

## Executive Summary

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The aim of this deliverable has been to offer a method for building an HAIVISIO communication strategy for projects to increase the impact of their communications, and highlight those factors that make for successful communications in the current EU healthcare technology and policy environment. In meeting this aim, an analysis of projects extant communications is conducted based on social science research methods. The focus is on how projects choose to communicate important features of their work - namely their aims and objectives, their vision, chosen therapeutic area, proposed intervention, outputs, results and impact, stakeholders and exploitation plans.

The analysis reveals commonalities and complementary aspects in extant project communications. Commonalities are suggestive of improvements in the means and content used by projects to communicate. A significant improvement for projects would be the inclusion of the service innovation dimension in their communications, and the manner in which project outputs meet this important end goal of EU policy. Other related improvements include clarity on evidence base generation for their outputs, business planning and dissemination engaging appropriate stakeholders.

To address the service innovation dimension and using the same methodology, this report constructs common, overarching visions for projects including service innovation. These visions connect project work with well known service innovation paradigms or 'journeys', e.g. joined up care, extension of health technology and infrastructure use, higher productivity in health research and care. In the same vein, potential synergies among projects are identified that projects may choose to exploit, based on our analysis of complementary aspects in their communications.

The deliverable concludes with a set of recommendations on those actions that might help enhance the communication content and methods of projects, enabling them to identify and reach their target audiences through appropriate channels, and address some of the identified improvements. It also discusses the utility of the method offered here in assessing extant communications, and suggests further steps for projects to develop and implement a successful communications strategy.

Projects are invited to make use of the method and recommendations on an individual or group basis and assess their current communications, benchmark those against other projects or initiatives, and design appropriate strategies. They are particularly encouraged to identify and include in these further service innovation paradigms matching aims, objectives and outputs of project consortia, their members and external partners more closely.

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## 1 Extant Project Communications Analysis

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As a first step from where to design a communications strategy for projects and put forward recommendations, extant communications and key messages of the 17 (seventeen) projects in our sample were analysed.

### 1.1 Methodology

This analysis was based on three research tasks:

- (i) content from existing communications media and materials of projects in our sample was elicited and analysed.
- (ii) interview transcripts with sample project teams reported in HAIVISIO deliverable D2.2 were analysed; and
- (iii) project asset data included in HAIVISIO deliverables D2.2 and D2.3 were analysed.

Content from project web sites, factsheets, flyers, deliverables, newsletters, and interviews and project asset data were classified in the areas below corresponding to each project's **salient** or **important features**. This classification followed each consortium own presentation and projected perception of their communications content under (or within):

- Aims and objectives;
- Vision;
- Scope incl. therapeutic area, intervention, technology used, geography, and EU policy addressed;
- Outputs;
- Results & impact;
- Stakeholders;
- Exploitation plans (content from deliverable D.2.2 only);
- Barriers (content from deliverable D.2.2 only).

The method followed in the three research tasks has been that of qualitative content analysis (Flick, 2002:190-192).<sup>1</sup> The following steps were undertaken:

- identification of the relevant material to answering the research question;
- analysis of the data collection situation;
- composition of the research question(s);
- definition of the analytical technique;
- definition of analytic units;

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<sup>1</sup> Flick, U (2002) *An Introduction to Qualitative Research*. London, Sage.

- conduct of the analysis;
- interpretation of results.

The following research questions were formulated towards the objectives of this step:

- (a) what are the communicated salient features of sample projects in terms of their aims and objectives, vision, scope (therapeutic area; intervention; technology; geography; policy), stakeholders (users; non-users; other stakeholders), outputs?
- (b) which are the areas of commonality (shared aspects or qualities) emerging from an examination of salient features communicated in our sample projects?
- (c) which are the areas of complementarity (complementary aspects or qualities) emerging from an examination of project salient features communicated?
- (d) where do projects find themselves in the R&D continuum?
- (e) are there any 'communication gaps' emerging in this projects salient features' examination, in terms of activities or other information that could be improved?

Prior to their analysis, data elicited in all three research tasks were assembled in short project summaries; these are included in Appendix 1. Data collection was solely based on capturing and classifying project messages as these are included in specific sections of communications materials or worded to reflect salient features outlined. No attempt was made to bring about consistency, condition or otherwise prepare the data for analysis.

## 1.2 Commonalities in Project Communications

Commonalities in project communications **form a resource space that is readily available to projects to use and either individually or collaboratively reinforce the impact of their communications.** In what follows we have identified areas where commonalities emerge, which are useful for serving the purpose of enhanced and improved communications.

These commonalities are outlined below in bullet point format. However, they are often supported with less than half of our projects' sample. Beyond these common themes, a plurality is observed among the messages projects have chosen to communicate their salient features with, especially their aims and objectives, certain scope dimensions (intervention, technologies used), outputs and stakeholders.

Commonalities are outlined together with projects shown in numbers. The table below lists numbered projects in our sample to enhance readability of sections that follow.

**Table 1: Numbered Projects in the Project Sample**

Number	Project Name	Number	Project Name
1	DEM@CARE	10	USEFIL
2	REWIRE	11	SOFTCARE
3	LINKED2SAFETY	12	GIRRAF+
4	PALANTE	13	FATE
5	REACTION	14	CONTRAST
6	ACCOMPANY	15	GRANATUM
7	MY HEALTH AVATAR	16	SALUS
8	INTERSTRESS	17	EPSOS
9	DALI		

### 1.2.1 Aims & Objectives

Three common aims and objectives emerge among extant project communications. These are:

- developing, integrating, field testing, evaluating a technology intervention {projects **1, 2, 5, 8, 11, 12, 17**}.
- using multiple data sources {**1, 3, 7, 8, 12, 15, 16**}.
- using assistive, robot technologies and ICTs for providing assistance to the elderly and patient groups {**6, 7, 9, 10, 11, 13, 14**}.

These are identified in three groupings of seven projects with limited overlap (i.e. sample is quite distinct in each grouping).

One can observe that the content and messages used is much more technology- than service-oriented. Our analysis did not lead us to identify any service-oriented terms.

Four projects {**5, 10, 12, 17**} have a stated objective of bringing their intervention to different health systems.

Three aim at investigating different technology options to address the healthcare challenges chosen to work upon – whether clinical or management {**1, 5, 13**}.

### 1.2.2 Visions

One common health management vision across seven (7) projects is promoting self independence of patients, including continuity of care at home and complete supervision, by providing adaptable, low cost services {**1, 2, 10, 11, 12, 13, 14**}.

Two further distinct visions, a clinical and a health management one, are identified among specific projects of similar scope (see further):

- advancing clinical practice and accelerating medical research {**3, 15, 16**}.
- providing “empowerment” (understood as assistance) to patients through robot or assistive technology {**6, 7, 8**}.

Two further health management visions, and one technology vision, are identified:

- a European view on health management, implementation of cross-border eHealth services {**9, 17**}.
- patient empowerment & shared disease management decisions {**4**}.
- end user-driven, requirements-based specifications for system architecture design {**5**}.

### 1.2.3 Scope

#### 1.2.3.1 Therapeutic Area

Five projects in our sample state their therapeutic area of intervention is that of ageing {**6, 9, 10, 12, 13**}.

Another four projects’ communications are suggestive that their intervention is relevant to multiple care areas, or clinical trials addressing multiple care areas {**3, 7, 16, 17**}.

The rest of the projects are classified in the table below:

**Table 2: Therapeutic Areas & Projects**

Therapeutic Area	Project(s)
Ankylotic Spondylitis	4 - PALANTE
Cancer	15 - GRANATUM
Chronic Diseases	4 – PALANTE; 11- SOFTCARE
COPD	4 - PALANTE
Dementia	1 – DEM@CARE
Diabetes	4 – PALANTE; 5 - REACTION
Healthcare Coordination/other	4 - PALANTE
Mental Care	8 - INTERSTRESS
Paediatrics	4 - PALANTE
Radiology	4 - PALANTE
Stroke rehabilitation	2 – REWIRE; 14 - CONTRAST

### 1.2.3.2 Intervention

Despite similarities among projects identified through other criteria (see e.g. 1.2.3.3 *Technology*), there is one single, unique reference for every intervention in our sample: seventeen unique messages about what each project introduces in the healthcare environment. Nearly all projects also include evaluation of their proposed interventions.

### 1.2.3.3 Technology

Several common uses of technologies are identified in the communications of our sample projects analysed. These include:

- Sensors: {1, 2, 5, 8, 11, 12, 13}.
- Data fusion, integration, linkage, visualisation: {1, 3, 4, 7, 8, 12}.
- Algorithms, software applications, operating system: {8, 9, 12, 13, 16, 17}.
- User-facing web application development: {2, 4, 5, 15, 17}.
- Semantics: {3, 5, 7, 16}.
- Wearable technology: {1, 9, 10, 11}.

### 1.2.3.4 Geography

Geography of project activity is an important feature regarding the generation of evidence through evaluation of pilots and trials. The importance of locally generated evidence for health technology adoption and diffusion has been highlighted in the NHS (see Kyratsis, Ahmad, Hatzaras, 2014).<sup>2</sup> Moreover and looking at potential synergies among projects, meaningfully combining hitherto disparate evidence already generated in specific regional and national health systems is likely to be a contributing factor to sustainable synergies.

Member states that have seen the most pilots in our projects sample include:

<sup>2</sup> Kyratsis Y, Ahmad R, Hatzaras KS et al (2014) [Making sense of evidence in management decisions: the role of research-based knowledge in innovation adoption and implementation in healthcare](#). *Health Services and Delivery Research*, Vol2 (6), National Institute of Health Research, Southampton UK. DOI: 10.3310/hsdr02060. Accessed 24.09.2014.

- Italy: {4, 8, 12, 13, 16, 17}.
- Spain: {2, 4, 9, 12, 13, 17}.
- UK: {3, 5, 6, 9, 10}.
- Austria: {4, 5, 14, 11}.
- France: {1, 4, 6}.
- Germany: {3, 14, 16}.
- Greece: {3, 10, 17}.
- Ireland: {1, 3, 13}.
- Sweden: {1, 12, 17}.

#### 1.2.3.5 EU Policy

Each of the projects in the scope of HAIVISIO is aiming at providing input to EU policies. Irrespective of the call for proposals process these projects came from, one can identify five EU policy lines that will benefit from their input:

- Remote management of patients, through personal health systems for prevention, diagnostic, care and rehabilitation {1, 2, 5, 8, 10, 11, 12, 13, 14}.
- Patient empowerment, through self-engagement or other means such as access to personal health data {4, 7}.
- Technology-intensive services for ageing well, through robotics or digital patient systems (VPH) {6, 7, 9}.
- Technology for supporting clinical research, through secondary use of medical data or simulation (VPH) {3, 15, 16}.
- Interoperability of eHealth infrastructures {17}.

#### 1.2.4 Outputs

For the purposes of this deliverable, a project 'output' is defined as a specific product or service developed through the course of a project. All communicated project outcomes appear to meet this definition. The majority tend to converge around the concept of a '**platform**', or '**complex platform**'. Project platforms typically support collection of heterogeneous data from different sources. They offer data integration, user applications for data access and analysis, and platform management services such as data management, security management, workflow management. Nine projects communicate their outputs as platforms with these characteristics – these are: {3, 5, 7, 8, 9, 12, 15, 16, 17}.

One three-project group communicate their outcomes as semantic EHR models with clinical research showcases, online demonstrators and high potential use cases {3, 15, 16}. Interoperable EHR solutions are outcomes put forward by {3, 16, 17}.

The remainder of our data collected in terms of project communicated outcomes has similarities with our intervention data: unique messages have been developed per project. In certain cases some common ground with another project exists.

### 1.2.5 Results & Impact

Based on the definition given on 'project output' in 1.2.4 above, it is suggested that a 'project result' is defined as the outcome of deploying a particular project output in the care environment. For example, deploying an EHR analysis IT application may reduce the time taken by a health professional to identify their patient's personal health information by several minutes.

It follows that 'project impact' may be defined as the aggregate effect of a project outcome over time. In the example given, the EHR analysis app may have raised productivity of health professionals by 20% within one month of deployment - i.e. 20% more patients were seen by healthcare professionals using this intervention.

Based on these definitions, our analysis on communicated results and impact of projects reveals that:

- (i) project results are currently communicated in a similar manner to interventions: despite similarities in project scope, policy or geography, communications tend to emphasise the uniqueness of individual project results;
- (ii) a conceptual lack of clarity is recurrently apparent between project 'aims', 'results' and 'impact' in communications.

Only some projects have explicitly included impact messages or other statements conforming to our definition of impact in their communications. Few convergent impact themes are discernible among projects: strengthening the evidence base on clinical efficacy and economic benefits {2, 5, 8}; enhancing usability of home monitoring systems and reducing the cost of care {11, 12, 14}; improved quality of care {1, 9}; a more sustainable European healthcare system {2, 9}.

As section 1.4 shows most projects find themselves in the earlier stages of the R&D continuum and could not therefore meaningfully demonstrate impact of their interventions based on generated and documented evidence. Evidence is therefore treated as an area for improvement in communications in section 1.3. The recommendations section of this deliverable includes suggestions on how projects could manage communications on evidence, expected results and impact.

### 1.2.6 Stakeholders

The stakeholder conceptualisation used here includes **users** and **non-users** of proposed interventions as direct participants in care delivery in each project context (care environment), and other stakeholders active within the system where care is delivered.

Projects communicate the following groups as **users** of their interventions:

- **Patients:** {1, 2, 3, 4, 5, 7, 8, 14, 17}
- **The Elderly:** {6, 9, 10, 11, 12, 13}
- **Clinicians:** {1, 2, 3, 4, 7, 8, 14}
- **Other Health professionals:** {3, 5, 12, 6, 17}

Some projects also include unique references to other user groups e.g. relatives, caregivers, pharmaceutical industry experts, researchers, or the public.

Most projects do not include any **non-users** in their communications {2, 3, 4, 6, 7, 8, 9, 11, 12, 13, 15, 17}.

Five projects {1, 5, 14, 10, 16} include references to caregivers, relatives, hospitals, national information systems and application developers as individuals, groups and organisations that won't use their services but will be impacted by them.

A large number of unique references to other individuals, groups and organisations are identified in project communications to include other stakeholders within health systems that may be impacted by their offering. Among these we identify 'elderly care' as a stakeholder group {6, 9, 11, 12, 13}, regional health councils/organisations/services {1, 2, 10, 14}, patients {1, 5, 7, 14}, and industry {11, 13, 14}.

### 1.2.7 Exploitation Plans and Barriers

The specific interview questions examined here are on project exploitation plans and barriers reported in deliverable D2.2. Analysis of responses to these questions reveals four interrelated themes emerging across our sample of projects. These are:

- (i) the requirement for further clinical trials and evaluation to establish a stronger clinical case and the evidence base for further exploitation {1, 2, 5, 6, 8, 10, 11, 12, 13, 14};
- (ii) no clear route to market or a need for a business model, or business partner identified {1, 3, 11, 12, 13, 14, 15};
- (iii) issues encountered in projects RTD efforts to date regarding acceptance of their technological solutions developed {1, 4, 6, 7, 9, 10, 12};
- (iv) the approach towards exploiting individual component parts of the technological solutions developed in projects {2, 5, 8, 9, 10}.

## 1.3 Projects in the R&D Continuum

In order to start putting the above information in perspective and prepare the ground for section 2, a more detailed understanding of where each project finds itself along the innovation journey – from idea generation to diffusion.

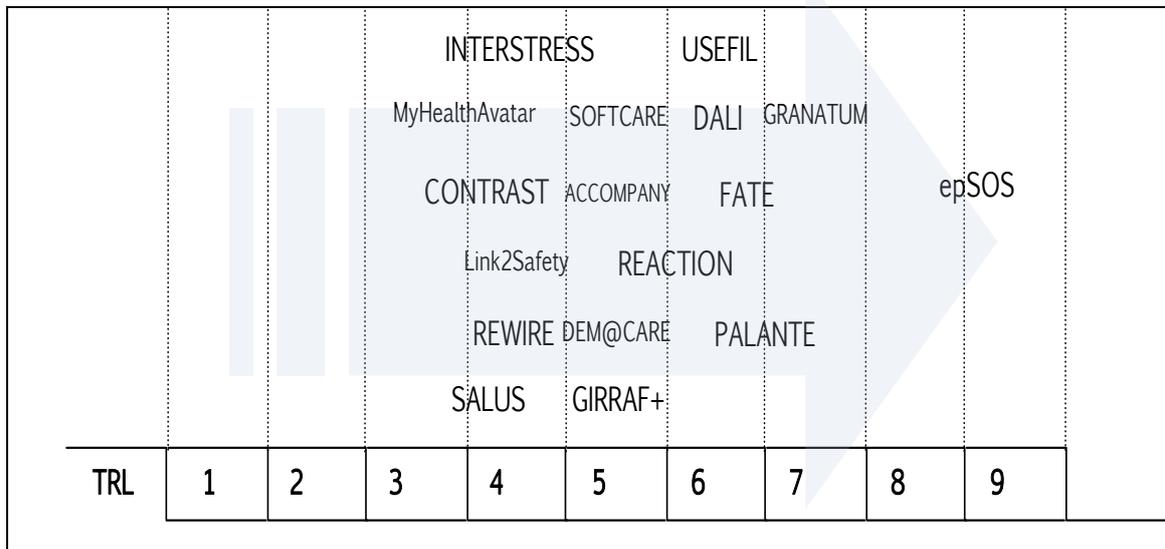
As a starting point, use the concept of Technology Readiness Level (TRL)<sup>3</sup> as included in the Horizon 2020 programme terminology, including nine technology readiness levels:

- TRL 1 – basic principles observed
- TRL 2 – technology concept formulated
- TRL 3 – experimental proof of concept
- TRL 4 – technology validated in lab
- TRL 5 – technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies)
- TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies)
- TRL 7 – system prototype demonstration in operational environment
- TRL 8 – system complete and qualified
- TRL 9 – actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies; or in space

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<sup>3</sup> Source: [http://ec.europa.eu/research/participants/data/ref/h2020/wp/2014\\_2015/annexes/h2020-wp1415-annex-g-trl\\_en.pdf](http://ec.europa.eu/research/participants/data/ref/h2020/wp/2014_2015/annexes/h2020-wp1415-annex-g-trl_en.pdf), accessed 02.09.14

Based on interviews held with each project in our 17-project sample, the consortium has classified these accordingly, as the graphic below demonstrates.



**Figure 1: TRL Project Status Classification**

Here we identify two project groupings:

- (i) projects between TRL 3, proof of concept and TRL5, their technology is validated in a relevant care environment;
- (ii) projects that have progressed further, situated between TRL6 and TRL9, i.e. between the stages of solution demonstration in context to proven, operational solutions.

This exercise suggests that areas of commonality and synergy among projects would be better exploited within these two groupings. Projects that comprise each include:

**Grouping 1 – TRL3-5: DEM@CARE, REWIRE, Linked2Safety; CONTRAST, MyHealthAvatar, GIRRAF+, SOFTCARE, REACTION, ACCOMPANY, INTERSTRESS, SALUS.**

**Grouping 2 – TRL6-9: USEFIL, DALI, GRANATUM, FATE, PALANTE, epSOS**

However, this exercise also suggests that the classification above is merely useful in identifying and communicating the projects’ current state of technological development and progress with outputs. A question arises whether this may address the entire journey towards *service innovation* bringing benefits to citizens, the economy and/or society. It is when the service innovation end goal is reached that projects achieve more than providing outputs and contribute to meeting the policy vision(s) they serve through their results and impact. This point is further elaborated in section 1.5 “Areas for Communication Improvement”.

### 1.4 Complementarities in Project Communications

In order to identify and suggest potential synergies among projects, complementary aspects in communications in our project sample need be identified. To this end, we use the TRL classification above to examine complementary aspects among projects in the two afore-mentioned groupings – namely in:

**Grouping 1 – TRL3-5: DEM@CARE, REWIRE, Linked2Safety; CONTRAST, MyHealthAvatar, GIRRAF+, SOFTCARE, REACTION, ACCOMPANY, INTERSTRESS, SALUS.**

**Grouping 2 – TRL6-9: USEFIL, DALI, GRANATUM, FATE, PALANTE, epSOS**

In Grouping 1, a first subgroup emerges among **DEM@CARE {1}, ACCOMPANY {6}, SOFTCARE {11}, GIRRAF+ {12}**. Complementary therapeutic areas these projects address are ageing, chronic conditions of the elderly, and dementia. Their interventions and technologies suggest a potential complementarity between robotic technology and with home monitoring of patients with dementia and chronic conditions. Geography of project activities includes several countries - Ireland, France, Sweden, the UK and the Netherlands, Austria, Italy and Spain. Activities of both DEM@CARE, ACCOMPANY have taken place in France, whereas both DEM@CARE and GIRRAF+ have been active in Sweden. ACCOMPANY and GIRRAF+ outputs include prototypes, where clinical protocols and demonstration results achieved by DEM@CARE and SOFTCARE could add value. DEM@CARE (in particular) and GIRRAF+ bring a wider stakeholder viewpoint including actors in health services and systems. These projects all find themselves at TRL-5.

A subgroup is identified between **Linked2Safety {3}** and **SALUS {16}**, as these projects address clinical trials. The focus of the SALUS intervention on proactive post market safety studies and adverse drug events identification appears to address a special use case, relevant to the Linked2Safety intervention facilitating research based on accessing information in disparate EHR systems. SALUS complements Linked2Safety geographic spread with its presence in Germany, Italy and the Netherlands. It may also bring a sharper stakeholder focus by identifying healthcare professionals, pharmacovigilance centres, and national health information systems as key individuals and entities, all within European academia and industry communicated by Linked2Safety.

Another subgroup can be formed of the two projects addressing stroke rehabilitation, **REWIRE {2}** and **CONTRAST {14}**. In terms of their interventions both projects have used a similar set of technologies to design, build and validate monitoring systems with terminals in the patient home, hospital, and (in the case of REWIRE) regional health services site. REWIRE have thus specifically included the health services dimension in their work, and CONTRAST have reported progress with their clinical protocol definitions. REWIRE project activities have taken place in Spain and Switzerland, and in neighbouring Germany, Austria and Luxembourg in the CONTRAST case.

In Grouping 2, our analysis suggests **USEFIL {10}, DALI {9}** and **FATE {13}** to form a subgroup in terms of addressing ageing as their chosen therapeutic area. Their complementarities focus on their intervention type – patient monitoring in the home, external environment and fall detection, each addressing one of these. Technologies used in these projects include video monitoring, wearable technology, robotics, open source middleware and software, sensitive fall detector with accelerometers, wireless telecommunications and sensors. USEFIL and DALI have both generated evidence in the UK. DALI and FATE have both produced documented results in Spain; their full country set includes Israel, Greece, UK, Spain, Italy and Ireland. All three understand their users to be the elderly, and USEFIL includes healthcare services as a stakeholder group.

Another subgroup in Grouping 2 may be formed of **PALANTE {4}** and **epSOS {17}**. Both projects address multiple therapeutic areas and have seen activities completed in several EU member states and regions. Both have produced outputs in terms of web applications and EHR technologies, and view health system actors as key stakeholders.

## 1.5 Improvements in Project Communications

Based on the above analysis, one can identify certain gaps in project communications, as well as areas where greater clarity would be required. A key gap relates to the relative absence of the service innovation dimension in project communications. We address this in section 1.5.1 below, and identify further related areas in section 1.5.2.

### 1.5.1 Service Innovation

EU policy priorities in healthcare technology (incl. eHealth) and innovation suggest that the end goal of projects supported by EU programmes is a contribution to *service innovation*. This is of paramount importance given the current state of health systems in Europe and the world. Ageing populations, current epidemiological trends confirming growing demand for care in a number of therapeutic areas, and the rising cost of providing care in terms of facilities, equipment and specialists, all point towards specific innovation paradigms. “Joined up” care, increased efficiency in using healthcare resources, extending use of technology and infrastructure, and higher productivity in health research and care have emerged as different types of innovation journeys or paradigms, leading to or supporting service innovation.

This end goal implies that projects are advised to consider the manner in which their outputs will eventually be adopted within a healthcare organisation (whether provider, payer, or system) leading to *service innovation*.

Adoption by individuals and organisations is critical to reaching this goal benefitting citizens, the economy and/or the society. This covers several issues such as users and non-users accepting the technology, organisations integrating the technology in their work processes or taking advantage of the technology to redesign some of their work processes. It also implies that the necessary evidence on benefits has been documented and can support adoption decisions to be taken. One should furthermore also keep in mind that, when operational, these services need to be monitored and maintained, so that they can be fine-tuned towards benefit maximisation.

As indicated above, the TRL classification is seen as an excellent tool for communicating the position of projects on the technical part of the R&D continuum. Identifying a similar classification to address the service innovation part of the journey with sufficient detail is out of the scope of this deliverable and the HAIVISIO project.

### 1.5.2 Other Communication Improvements

Taken together, the results of sections 1.2.1-1.2.6 with those presented in section 1.2.7 are indicative of certain gaps between projects’ current communication media and messages and current exploitation plans. These gaps are identified at the present time; they may thus be temporary and planned to be addressed by projects at a later stage. Nonetheless they are considered important and are suggested here as improvements for the benefit for all projects - also for those projects where no relevant exploitation plan or route has been captured in D2.2.

The gaps identified between current project communications and exploitation plans are:

- most projects do not clearly detail their plans or roadmaps of evidence generation and collection, and any results obtained to date, in their communications.

- a business strategy or plan and an associated programme or schedule of appropriate events where project dissemination may take place also typically do not appear in project communications.
- an assessment/investigation of different technology propositions tackling healthcare challenges projects aim to address, and the reasons for selecting their approach, do not come to feature in communications.
- exploitation of individual component parts (as opposed to whole system solutions) developed by projects, and approaches on how to meet this aim are usually not included in project communications.

Some of these gaps may be treated in later project work but we recommend projects to provide information about these in their communications already at an early stage in the project. This could usefully be performed in connection with the assertion we made in the above section, namely that projects consider the manner in which their outputs will eventually be adopted within a healthcare organisation (whether provider, payer, or system) leading to service innovation.

Furthermore, there is confusion in project communications on the policy vision and the EU policy they serve. Projects in our sample are aiming at providing input to policies, but not at contributing to reach policy objectives, which is what the information provided under project visions, results and impact may suggest. We believe this confusion is damaging the credibility of their communications vis-à-vis future users of project outcomes.

## 1.6 End of Section 1: Extensibility of Method

Our method presented at the start of Section 1 has enabled us to systematically examine different facets of current project communications. In particular it has helped identify and focus on communications of project salient features: aims and objectives, visions, scope, outputs, results and impact, stakeholders – and communication improvements in terms of cohesion between projects' stated exploitation plans, barriers, and existing communications. It has combined the social science research qualitative content analysis method and TRL framework, and has prepared the ground for the identification of common visions among projects – whether clinical, technology or policy-oriented.

We therefore put forward that the method is extensible to the remaining 13 projects where data collection is currently ongoing, and indeed to other projects that may come under the scope of HAIVISIO. This is because the method is:

- (a) based on social science research methods, and is therefore policy, technology or project agnostic;
- (b) enables focus on individual projects as well as project groupings;
- (c) provides a baseline of the 'as-is' communications situation from where to suggest focused improvements;
- (d) enables mixing & matching of data collected per criterion to produce analytical outputs.

To illustrate the extensibility of this approach, and at the same time illustrate the need for a “service innovation maturity or readiness model”, we have identified certain other pilot projects funded by CIP

ICT-PSP. Their status can be classified as TRL7, 8 or 9 from a technology readiness and should also be considered for inclusion in “service innovation maturity or readiness model”:

**Table 3: Additional pilot projects with a focus on service innovation**

- SUSTAINS	<a href="http://www.sustainsproject.eu">www.sustainsproject.eu</a>
- Renewing Health (closed)	<a href="http://www.renewinghealth.eu">www.renewinghealth.eu</a>
- United4Health	<a href="http://www.united4health.eu">www.united4health.eu</a>
- CommonWell (closed)	<a href="http://www.commonwell.eu">www.commonwell.eu</a>
- Independent (closed)	<a href="http://www.independent-project.eu">www.independent-project.eu</a>
- InCasa (closed)	<a href="http://www.incasa-project.eu">www.incasa-project.eu</a>
- SmartCare	<a href="http://www.pilotsmartcare.eu">www.pilotsmartcare.eu</a>
- MasterMind	<a href="http://www.mastermind-project.eu">www.mastermind-project.eu</a>

In addition to that, one could consider that the below thematic networks could be included in “service innovation maturity or readiness model” without being included in the TRL classification since they do not develop technologies, but are aiming at spreading service innovation at a large scale:

**Table 4: Additional thematic network projects with a focus on service innovation**

- CALLIOPE (closed)	<a href="http://www.calliope-network.eu">www.calliope-network.eu</a>
- eHGI	<a href="http://www.ehgi.eu">www.ehgi.eu</a>
- eHealth Innovation (closed)	<a href="http://www.ehealth-innovation.eu">www.ehealth-innovation.eu</a>
- Momentum	<a href="http://www.telemedicine-momentum.eu">www.telemedicine-momentum.eu</a>
- Antilope	<a href="http://www.antilope-project.eu">www.antilope-project.eu</a>
- Engaged	<a href="http://www.engaged-innovation.eu">www.engaged-innovation.eu</a>

In Section 2 we will use the method further to identify common clinical, technology and policy visions among projects, and propose potential synergies in their communications.

## 2 Common Visions & Potential Synergies

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Common visions addressing the service innovation dimension by reflecting different innovation journey types (whether ‘joined up’ care, efficiency, productivity increases or other) is an integral part of an improved communications strategy for projects. This helps projects become part of common, wider, overarching and ultimately more compelling communication themes than those relating to their individual areas of work.

This section looks across our project sample, using the social science research methodology outlined earlier, to identify common service innovation-related visions – whether clinical, technology, or policy, that projects share and may choose to use in their communications. Projects may choose to either:

- (a) promote their individual outputs as part of a clinical, technology, or policy service innovation ‘umbrella’ vision;
- (b) identify synergies with other projects in the pursuit of service innovation and structure their communications accordingly, or;
- (c) use the method to analyse and benchmark their extant communications against those of other projects and come up with their own service innovation vision(s).

In what follows we present indicative such visions, and potential synergies. Different sections of our sample projects extant communications dataset are used to identify common clinical, technology and policy visions. Potential synergies are identified based on our analysis of complementarities. Visions and synergies are outlined below and are derived on the basis of social science research analytical methodology presented in section 1.1. The research question formulated to identify common visions is:

- What are the emerging service innovation visions when key features of project communications are examined in tandem?

There may be further visions of potential use to projects. Therefore project consortia are invited to use the method put forward to examine common visions, complementarities, and other pathways towards having their outputs feature in service innovation journeys within healthcare organisations.

### 2.1 Clinical Visions

Our identification of common clinical visions emerging among projects is based on an examination of data elicited on these communicated salient features of projects:

- *Aims & Objectives*
- *Project Vision*
- *Therapeutic Area*
- *Outputs*
- *Stakeholders*

The starting point for identifying clinical visions is the therapeutic area each project aims to contribute. Examining these contributions together allows for wider, more compelling visions that individual projects may refer to in their communications. This analysis reveals three examples of common, wider

and overarching clinical visions that are relevant to the service innovation goal described above. These are:

- (a) promoting self independence of elderly citizens and patients, including continuity of care at home and supervision with low cost solutions {1, 2, 6, 9, 10, 11, 12, 13, 14}.
- (b) advancing clinical practice and accelerating medical research with improved clinical trials in multiple care areas {3, 15, 16}.
- (c) stroke rehabilitation and healthcare management based on a service paradigm involving the patient and their home environment, the hospital, and the health service {2, 14}.

In the case of clinical vision (a), service innovation comes from serving the needs of both the elderly and of patients suffering from chronic diseases, or undergoing post-stroke rehabilitation, through an intervention. A cross comparison of projects whose communications support this vision also suggests that not all of them have identified and engaged with other potential stakeholders – including patients, clinicians, and other health professionals.

In (b) this wider vision emerges from an examination of three projects. **Linked2Safety {3}** aims to provide multi-care area clinical trial IT platform. **GRANATUM {15}** specialises in one therapeutic area (cancer/oncology), while **SALUS {16}** specialises in a distinct clinical trial functional area, that of (post-market) safety studies. All three projects base their outputs on technological solutions of semantically linked EHR data and associated tools. They could therefore seek to project one common, wider ‘umbrella’ vision and either (i) communicate individually how each project addresses their specialty area or (ii) collaborate in their communications to demonstrate how their contribution gives rise to service innovation in the clinical trials domain.

With (c) an ‘umbrella’ vision is represented that corresponds to both **REWIRE {2}** and **CONTRAST {14}** projects and their individual visions of home-based stroke rehabilitation and care management. The involvement of patients in their homes, the hospital and health services implies a level of ‘joined up care’ occurring between the hospital and home environment for the patient, which is monitored by health services.

## 2.2 Potential Clinical Synergies

Based on selected complementary aspects identified in section 1.4, two areas of potential synergy could be explored by projects:

- communications under a overarching, umbrella vision of their choice, and/or;
- deployment of their outputs in their chosen care environments, addressing key stakeholders with a view to generate more evidence towards service innovation.

One should underline here that these synergies could be particularly relevant when the target audience of the project communication is clinicians and other health care professionals as well as to some extent the payers of the health care system.

Examples include a potential clinical synergy among **ACCOMPANY {6}**, **GIRRAF+ {12}**, **DEM@CARE {1}** and **SOFTCARE {11}**. Their interventions and technologies suggest synergies based around the inclusion of robotic technology (ACCOMPANY, GIRRAF+) in tandem with home monitoring of patients with dementia and chronic conditions offered by DEM@CARE, SOFTCARE. The service innovation pursued

may be 'joined up care' or extending use of technology by offering enhanced support to ageing through assisted living, chronic disease symptom monitoring and fall prevention at home and outdoors.

Another clinical synergy example emerges between **Linked2Safety {3}** and **SALUS {16}**. The special focus of SALUS on post market safety studies and adverse drug even identification brings additional value to research acceleration pursued by Linked2Safety, directly relevant to the service innovation vision of increased productivity in research.

Finally, **USEFIL {10}**, **DALI {9}** and **FATE {13}** each address patient monitoring in the home, external environment, and fall detection. A potential clinical synergy would be based on the 'joined up care' or extending technology use paradigms. This would see their individual outputs used in tandem to monitor and proactively assist patients when at risk of a fall in and out of their homes.

## 2.3 Technology Visions

In order to identify examples of common technology visions among projects, we examined data collected across the following salient features communicated by projects:

- *Aims & Objectives*
- *Project Vision*
- *Intervention*
- *Technology*
- *Outputs*
- *Stakeholders*

Our starting point in looking for technology visions is the intervention and outputs of projects. This is because a technology vision may be useful in meeting requirements in different therapeutic areas. For example a system addressing one use case with low latency, high bandwidth requirements may be deemed appropriate for a use case in another therapeutic area having similar requirements.

The main technology vision in support of service innovation arising from examining project communications material is that of an integrated information platform, acquiring data through different media and/or sources, and offering analysis tools to support clinical decision-making and research. This vision is supported by projects **{1, 2, 3, 5, 6, 7, 8, 9, 11, 12, 13, 15, 16}**, where:

- sensors are use as data acquisition media in {1, 2, 8, 11, 12, 13, 14}
- wearable technology artefacts feature as communication media in {5, 9, 10, 11}
- middleware or SOA is mentioned as the data integration solution in {5, 9, 13}.

The service innovations mentioned in project communications as supported through the work of these projects include clinical decision support, patient assistance, and enhanced clinical research. Enhanced clinical research as a service innovation is also supported by a technology vision of semantic and/or functional EHR interoperability and applications designed to enable data mining {3, 15, 16}.

## 2.4 Potential Technology Synergies

Our analysis of complementary aspects in project communications in section 1.4 suggests two areas of potential technology synergy that could be explored by projects:

- communications under a overarching, umbrella vision of their choice (as per clinical synergies), and/or;
- research collaboration towards technological development addressing a more advanced technology vision communicated to key stakeholders, with a view to generate more research income or evidence required in service innovation.

One should underline here that these synergies could be particularly relevant when the target audience of the project communication is technology-oriented, e.g. ICT, the medical device or eHealth industries.

One example emerges from the work of **Linked2Safety {3}** and **SALUS {16}** on semantically linked EHR systems to facilitate medical research and clinical trial management. Semantic interoperability is a key development area in medical research with several applications in different component parts of health systems and cross-border healthcare. The work of **PALANTE {4}** in EHR access and **epSOS {17}** in cross-border EHR sharing may have also potential when viewed vis-a-vis the therapy validation and extension paradigm, where new clinical trial-based therapies are confirmed efficacious and can be extended to further patient groups based on use of datasets residing in health systems. PALANTE and epSOS address multiple therapeutic areas, have been active in several EU member states and regions, and view health system actors as key stakeholders.

The work on stroke rehabilitation technology of **REWIRE {2}** and **CONTRAST {14}** is also indicative of potential synergies around the integrated platform vision. These projects design, build and validate monitoring systems based on virtual reality, sensors, web 2.0 apps and data mining technologies.

## 2.5 Policy Visions

Lastly we examined data collected across project salient features outlined below in order to identify indicative common policy visions among projects in our sample:

- *Aims & Objectives*
- *Project Vision*
- *Therapeutic Area*
- *EU Policy*
- *Outputs*
- *Stakeholders*

To identify common policy visions, we started from the EU policy lines the projects are aiming to provide input to. Combining this information with the other set of data used in projects' communication, we have observed some common, wider and overarching policy visions that are relevant to the service innovation goal described above. These policy visions are leading to:

- (a) enabling health care system to use health care resources in a more efficient manner, while providing patients with a better quality of life and without taking clinical and safety risks, by
  - a. transferring, where possible or advisable, the place of care or rehabilitation from an acute to a residential or better a home environment in order to reserve the acute environment to conditions that require acute care **{1, 2, 5, 8, 10, 14}**
  - b. empowering citizens and patients to better take care of their health through self-engagement or other means such as access to personal health data **{4, 7}**.

- c. preparing homes to become a future place of care, e.g. in making assistive technology available to patients {6, 7, 9, 11, 12, 13}.
- (b) enabling secondary use personal medical data for clinical research {3, 15, 16}.
- (c) enabling ubiquitous access to personal medical data by health care professionals and/or patients or research {3, 4, 17}.

## 2.6 Potential Policy Synergies

Hereto, our analysis of complementary aspects in project communications in section 1.4 suggests two areas where potential policy synergies could be explored by projects:

- communications under a overarching, umbrella vision of their choice (as per clinical or technological synergies), emphasising how projects meet particular policy mandates, and/or;
- collaboration towards new policy development in consultations etc looking to advance the policy agenda and new service innovation visions through participation of key stakeholders.

One should underline here that these synergies could be particularly relevant when the target audience of the project communication is the public authorities in charge of health matters as well as the health economists and payers of the health care system as well.

Three examples can be identified from our analysis. Firstly the work of **DEM@CARE {1}**, **SOFTCARE {11}** and **GIRRAF+ {12}** all meet the policy vision of patient remote management, through personal health systems for illness prevention, diagnostic, care and rehabilitation. Furthermore, an interesting synergy emerges between **PALANTE {4}** and **MyHealthAvatar {7}** where 'next-generation' eHealth services promoting patient empowerment based on the VPH paradigm of integrative biomedicine could be designed. Lastly, the work of **Linked2Safety {3}**, **GRANATUM {15}**, **SALUS {16}** all point towards more specialised services and systems serving the policy vision of technology for supporting research through secondary use of medical data.

### 3 Strategy Recommendations

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The following recommendations are based on the preceding analysis, improvement areas and visions identified. They also stem from current examples of good practice and effectiveness with communications in the healthcare technology and policy environment. They can be taken up by individual projects, or groups of projects. Projects should endeavour to:

- A. address the service innovation dimension in their communications, by linking their outputs to more compelling visions that are understood (and can thus be communicated) and embraced by their stakeholders groups.
- B. include the manner in which user requirements were collected and analysed, including any ethical approval process completed. This is an influential piece of evidence when communicating with key stakeholders groups – notably users of project outputs, patients, healthcare professionals and the scientific community.
- C. offer clarity on the outputs, results and impact that have been achieved through their work. In earlier stages, *expected* results and impact can either be outlined or combined under one banner – that of ‘expected outcomes’.
- D. briefly investigate alternative technology propositions that could also meet the healthcare challenge they aim to address, document their investigations and include those in their communications. This helps justify their technology choices, and projects the uniqueness and added value of their intervention.
- E. document their evidence base generation plans, and reference their evidence outputs in terms of scientific publications, reports and conference papers, in their communications. Several projects list relevant publications in their web portals; including a plan for collection of evidence supporting their intervention towards service innovation, with material presented in appropriate (e.g. lay) language for different stakeholder groups would enhance their communications.
- F. identify and approach their stakeholders in a systematic way, by:
  - (a) thinking about their users, non-users, and other individuals and organisations that could possibly be impacted by their outputs;
  - (b) putting together a dissemination plan of attendance to events;
  - (c) including their outputs, (expected) results and impact in their communications with stakeholders.

The table below summarises these recommendations and highlights those projects that would particularly benefit by looking at each recommendation with a view to make improvements in their existing communications and related strategies.

By contrast, ‘n/a’ indicates a particular recommendation is not applicable as the project(s) have already made sufficient progress. Regarding the strength of evidence collection, ‘Good’ denotes substantial evidence communicated including peer review journal, conference and other publications; ‘Emergent’

denotes conference or related publications only, and 'No Plan' indicates absence of an evidence collection plan.

**Table 5: List of European-wide conference suitable for project communication**

Event date	Event name	Location	Audience
June 2015 and February 2017 (tbc)	<a href="#">ALEC</a>	County of Norrbotten (Sweden)	eHealth policy makers
April 2015, ... (yearly)	<a href="#">Med-e-Tel</a> (conference and exhibition)	Luxembourg	Telemedicine doers, ISFTeH members ...
May 2015, ... (yearly)	<a href="#">conhIT</a> (conference and exhibition)	Berlin (Germany)	eHealth ecosystem (mainly, but not only from Germany)
May 2015, ... (yearly)	<a href="#">eHealth Week</a> (conference and exhibition)	Riga (Latvia) (2015)	eHealth and EIP on AHA ecosystem, Hospitals CIO, HIMSS network
June 2015, ... (yearly)	<a href="#">MIHealth</a>	Barcelona (Spain)	eHealth ecosystem
September 2015, ... (yearly)	<a href="#">AAL Forum</a> (conference and exhibition)	Location of 2015 conference as yet unknown	AAL ecosystem
September 2015 (tbc), ... (yearly)	<a href="#">Kings' Fund International Conference</a>	London (UK)	Telemedicine doers
October 2015	<a href="#">European Telemedicine Conference</a>	Odense (Denmark)	Telemedicine doers from the EU and US
November 2015, ... (yearly)	<a href="#">Medica (Fair)</a>	Dusseldorf (Germany)	Medical device and IT industry
November/ December 2015, ... (yearly)	<a href="#">EHTEL Symposium</a>	Brussels (Belgium)	Multi-stakeholder eHealth ecosystem

Conferences and fairs exist also at national level in most Member States. Their role in a project communication strategy should not be underestimated.

## 4 Conclusions

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This deliverable has put forward a social science research methods-based approach for projects to analyse their extant communications, identify improvement areas, enhance their communications strategy and seek synergies with other projects. Examining projects' current communications in detail enables the identification of common attributes among projects, as well as gaps and improvement areas vis-a-vis good practice in the healthcare technology and innovation environment. Complementary aspects are also identified as a basis from where projects may collaborate in their communications.

The main improvement area identified is a relative absence of the service innovation dimension – an important EU policy goal in this field. In addition, for most projects in the sample studied other improvement areas emerge. Project communications would benefit from including the manner in which user requirements have been collected and analysed, reasons for their selection of technology intervention to address their chosen healthcare challenge and whether additional technology propositions may have been investigated. More clarity would also be required in projects communicating their outputs, results and impact, based on well understood definitions.

Inclusion of outputs in one or several potential innovation journeys presupposes a vision relating to healthcare service innovation paradigms, e.g. 'joined up care', extension of technology and infrastructure use, or higher productivity in medical care and research. The method presented in this deliverable enables the identification of building blocks for building distinctive such visions, unique to individual projects, as these include salient features of projects' research and technological development. These visions, and actions proposed towards making several other improvements also emerging from the analysis, may bring significant added value in the efforts of projects to communicate in the European healthcare technology and innovation environment.

The proposed approach is thus appropriate and can be extended to further projects, particularly as it captures:

- projects' therapeutic areas enabling identification of one key area, or complementary areas, where project teams may choose to focus their communications;
- project interventions enabling the identification of complementary project activities in hitherto discrete areas within the care environment and the health service, where project outputs may be deployed to offer 'joined up' care;
- technologies used which are an important feature, particularly where synergies are sought and economies of scale can be achieved in terms of avoiding overlaps in technology use;
- geography of project activities, important for exploitation of existing evidence in communications, defining the ground where a communications strategy with evidence as feature may be designed and implemented to individually and/or jointly promote project products and services;
- outputs, results and impact conveying important details about project deliverables and the added value from those in service innovation;

- stakeholder data enabling a focus on user, non-user and wider stakeholder groups that projects may choose to approach and include in their communications separately or collaboratively.

These results can be taken up by individual projects, or project groupings. The identification of common and complementary aspects, or commonalities and complementarities in communications has merely been a starting point in an approach which is otherwise anchored in social science research methodology. In using this method projects may choose to look at their communications more broadly, build more compelling visions either individually or in groups, address improvement areas identified, and design anew or enhance their existing communication strategies.