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Phase 3 (SIMPHS 3)

Report on the methodological set-up for the SIMPHS3 research

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Abstract
This report presents the methodological set-up for the SIMPHS3 study, whose overall objective is the analysis of how Health Information Technologies (HIT) may facilitate integration in the provision of health and social care services in specific European regions and settings. To this end, a number of integrated care and independent living initiatives will be selected for building case studies. The analysis of these cases should facilitate the definition of best practices in integrated care and independent living and should help identify the potential transferability of specific models to other regions or settings.

The scope of this methodological report is therefore to define:
a) The approach to the selection and development of the case studies on ICT enabled integrated care services and
b) A framework of analysis that facilitates the definition of best practice and takes into account transferability aspects.

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1 Introduction

1.1 Policy context

European Member States are confronted with an increasing ageing population which puts at risk the sustainability of health and social care systems, at a time when public budgets are under extreme pressure as a result of the economic crisis and the need to reduce budget deficits. Indeed the average EU27 old-age-dependency ratio which represents the weight of the 65 and over population on those in working age (from 15 to 64 years old) increased from a value of 23.2% in 2000 to almost 26% in 2010 (Eurostat 2011) and is forecasted to reach a value of 52.55% by 2060. This means that the EU would move from having 4 persons of working-age for every person aged over 65 to a ratio of only 2 to 1. This ageing population is likely to suffer from chronic diseases whose prevalence is on the rise in all developed countries, a trend which will continue in the coming decades.

In addition, the pool of care professionals is decreasing (doctors, nurses, social carers), a trend which will also continue in the future. As a result an increasing care demands will have to be met with depleting resources which prevention, the organisation of the health and social care systems and ICT for Active and Healthy Ageing can help cope with. In that context, improved adherence to treatment, integrated care and independent living solutions such as Remote Patient Monitoring or more widely telehealth and telecare represent an opportunity to reorganise care, increasing efficiency of care delivery, and improving health outcomes and quality of life. It is at the same time a major opportunity for growth through the creation of large scale markets for innovative products and services addressing the needs of an ageing population.

In this context, in 2011, the European Commission launched the European Innovation Partnership on Active and Healthy Ageing (EIP on AHA)[1], to address weaknesses in the European research and innovation system which prevent innovations from making it to the market stage. In the context of an ageing European population, active and healthy ageing has been identified by the EC as both a major societal challenge common to all European countries and an opportunity for Europe to take the lead in providing innovative solutions in this field which the pilot European Innovation Partnership on Active and Healthy Ageing seeks to address. More specifically, the EIP on AHA aims to increase by two healthy life years[2] (HLY) the average healthy life span of European citizens, by 2020 and contribute to a triple win (better quality of life, more sustainable care systems, innovation and growth).

1.2 SIMPHS3 research

The SIMPHS3 research focuses on the analysis of services of integrated care for older chronic patients, including telehealth, telecare and independent living solutions, with the objective of defining best practices and operational guidelines for further implementation in European regions. More particularly business models of integrated care services and independent living solutions will be investigated. Ultimately, the research should assess the role of ICT in facilitating the integration of healthcare and social care.

The SIMPHS3 research builds on findings of earlier phases of the SIMPHS project, namely SIMPHS1 and 2. SIMPHS1 dealt with the analysis of the market for Remote Patient Monitoring and

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[1] http://ec.europa.eu/research/innovation-union/index_en.cfm?section=active-healthy-ageing

[2] The EU structural indicator Healthy Life Years (HLY) is based on limitations in daily activities and is therefore a disability-free life expectancy, one of the most common health expectancies reported. Healthy Life Years at a particular age are the number of years spent free of activity limitations. They are calculated by Eurostat. The target of the Partnership is to increase, by 2020, by two healthy life years at birth.

Treatment (RMT) within Personal Health Systems (PHS). SIMPHS2 complemented this analysis with the investigation of the demand side, focusing on needs, demands and experiences made with PHS by healthcare producing units (e.g. hospitals, primary care centres), healthcare professionals, healthcare authorities and patients amongst others.

SIMPHS3 outcomes should contribute to the EIP on AHA initiative by supporting the stakeholders involved in their attempt to scale up good practices. In this sense, SIMPHS3 should help collect and analyse good operational practices and create a toolkit for transferability to other regions. More concretely, the focus of SIMPHS3 relates to the activities undertaken in Action Group B3 (Replicating and tutoring integrated care for chronic diseases, including remote monitoring at regional level) and those of C2 (Development of interoperable independent living solutions, including guidelines for business models). In addition, the SIMPHS3 research will as far as possible use Reference Sites as the starting point of case studies to be analysed.

1.3 Objective of this report

This report presents the methodological set-up for the SIMPHS3 study, whose overall objective is to analyse how Health Information Technologies (HIT) may facilitate integration in the provision of health and social care services in specific European regions and settings. To this end, a number of integrated care and independent living initiatives will be selected to build case studies. The analysis of these cases should facilitate the definition of best practices in integrated care and independent living and should help identify the potential transferability of specific models to other regions or settings.

The scope of this methodological report is therefore to define:

a) The approach to the selection and development of the case studies on ICT-enabled integrated care services and
b) A framework of analysis that facilitates the definition of best practice and takes into account transferability aspects.

More specifically, as highlighted in the SIMPHS3 Technical Specifications, this report should:

- Take into account the methodology used in SIMPHS2, and in particular the eight facilitators described in (Villalba et al., 2013);
- Take into account state-of-the-art developments, especially considering the initiatives under the EIP on Active and Healthy Ageing Action Groups and Reference Sites;
- Define criteria for the selection of cases for further study; and
- Define an approach for the analysis of the selected cases.

The methodology presented in this report is based on two separate but complementary pieces of research. The first one focused on the EIP on Active and Healthy Ageing initiatives and included a prior in-depth literature review on the field of integrated care (including independent living, telehealth and telecare) in which over 300 sources were checked. Based on the definitions of integrated care identified through this first literature review, a second review of the peer-reviewed scientific literature and the grey literature was undertaken, including publicly available information on all potentially relevant CIP and AAL projects. The aim of the second review was to identify any further deployed services of integrated care, beyond those involved in the EIP on Active and Healthy Ageing.

1.4 Scope of the study and definition of integrated care services

Because there is currently no clear and commonly accepted definition of integrated care, it is important to underline some general aspects which are instrumental in providing a context and background for the description of our methodological approach.

There are clear challenges which make the move towards integrated health and social care services highly relevant for policy making. They also explain why ICT-supported integrated care services play an important role. The demographic changes and the growing ageing population suffering from chronic diseases (often with co-morbidities) require health services to move away from the current specialisation of care. The latter is at the root of the fragmentation and disease-centred approach we witness in European healthcare systems, a focus which prevents the provision of a patient-centric care. This is further exacerbated by a strong focus on hospital care which diverts resources that could be used for more patient-centred home care and other innovative forms of care. Finally, patient expectations are rising but the possibilities that technology offers for a more patient-centred provision of services are not yet fully leveraged. In this context, the role of ICT is self-evident since most of the integrated care processes can only happen with the support of state-of-the-art information and communication technologies (ICT) that allow effective tracking of care utilisation and outcomes. The ageing phenomenon requires that the boundaries and silos within the healthcare system (such as those between primary and secondary care) and between healthcare and social/long-term care are torn down. ICT can help deliver integrated care services that can simultaneously address broadly-defined assistance and independent living needs, more strictly defined needs for remote monitoring of chronic diseases (Telehealth), and prevention and wellness/fitness needs for various segments including also some younger age groups.

The concept of integrated care has become an umbrella term that differs in terms of scope and values depending on the approaches and the context of application. As a result, there is no consensus about the definition of what integrated care is and, consequently, about the key dimensions along which the level and degree of integration should be measured. When looking at how integrated care has been implemented so far the picture is equally fragmented. Several perspectives are considered in the relevant literature and have informed the different ways in which integrated care has been implemented. These are presented in more detail in the main part of this report.

1.5 Structure of this report

This report is structured as follows: *Section 1* provides an introduction giving an overview of the policy context for integrated care services, the objectives and scope of the SIMPHS3 research as well as those of this report. *Section 2* deals with the methodological approach for the case selection, which includes outcomes of several literature reviews and the process followed for selecting cases. *Section 3* addresses the data gathering while *Section 4* gives some insights on the way the analysis will be carried out and outcomes reported. Finally in *Section 5,* we explain an additional activity that will address specific points of methodology later in the project.

2 Methodological approach and case selection

As specified in the SIMPHS3 Technical Specifications, the definition of the research methodology and research framework (Work Package 1) should allow the identification and analysis of best practices in integrated care (including independent living, telehealth, telecare and informal care), starting from a thorough literature review. It should also facilitate the definition of criteria for the selection of cases to be studied as well as an approach for the analysis of cases.

2.1 Literature review

The literature review has been organised in three steps which are presented below in more details:

a) In a first step we have sought to identify from the scientific literature some consensual definition of what integrated care is.[3]
b) A review of EIP on AHA reference sites has then been carried out with the aim of selecting potential best cases.
c) Following this search, another review has been undertaken in order to identify potential success cases from other sources, first scientific literature and then grey literature and EU funded project information.

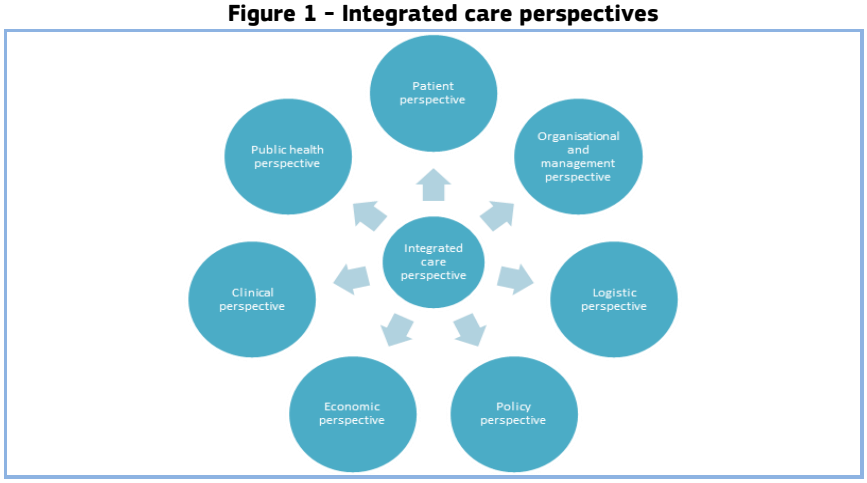
2.1.1 Step 1 - Scoping integrated care

In an attempt to define more clearly the scope and boundaries of the study we carried out a first literature review seeking to answer the question of what integrated care means for whom and how it is implemented in practice. We summarise below the various perspectives found in the scientific literature.

The concept of integrated care is an umbrella term that differs depending on the authors' approach and the context of application (Armitage, Suter, Oelke, & Adair, 2009; Kodner, 2009; Kodner & Spreeuwenberg, 2002; Nolte & McKee, 2008; Viktoria Stein & Rieder, 2009). During the last decades integrated care has been researched from different theories and perspective. Scholars from a wide range of disciplines have applied different theoretical approaches to study this phenomenon from applied theories of **organizational culture, change, strategy, performance, leadership, and design** (Friedman & Goes, 2001; Shortell, Gillies, Anderson, Erickson, & Mitchell, 2000); **networks** (Browne, Kingston, Grdisa, & Markle-Reid, 2007; Browne et al., 2004); **structure and agency** (Williams & Sullivan, 2009); institutionalism (Arndt & Bigelow, 1992; Burns & Pauly, 2002) to **organizational ecology** (Ahgren, 2010). The chart below shows a summary of all perspectives that can be extracted from the different approaches:

[3] It is worth noting that a separate, ongoing IPTS study called "Long-term care strategies for independent living of elderly people (ICT-AGE)", undertaken in cooperation with EC DG Employment, provides a typology of independent living services which is in line with the SIMPHS scope. It identifies telehealth, telecare and assistive technologies amongst others as solutions promoting independent living, quality of care and other impacts. The outcomes of that study will be duly taken into account in SIMPHS3.

Figure 1 - Integrated care perspectives

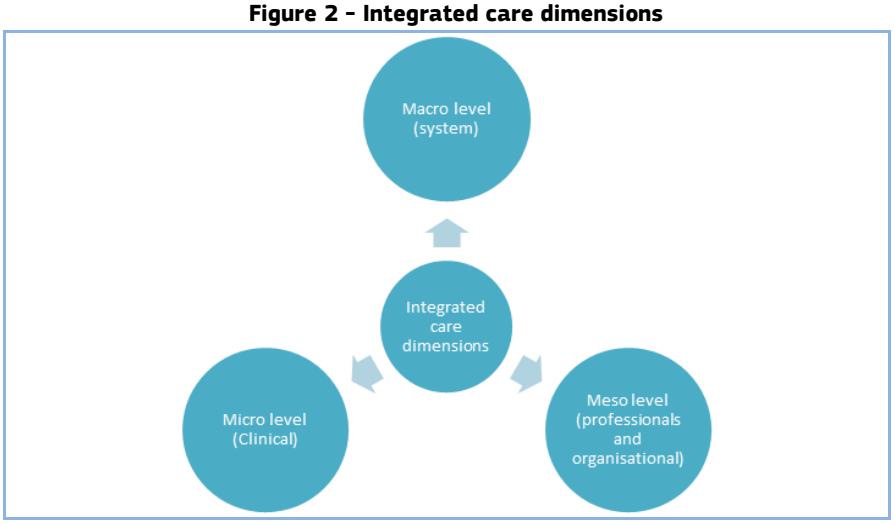


Source: adapted from (Strandberg-Larsen & Krasnik, 2009)

The **patient perspective** focuses on the patient's experience with a single provider or the journey of the patients through a system of providers. **The organisational and management perspective** covers strategic development and intra- and inter- organisational coordination, which comprises arrangements such as case management and multidisciplinary teams. The **logistic perspective** emphasises the recommended routes of patients through the system and the links between its component parts. As a **policy** concept integrated healthcare delivery refers to optimising the healthcare system as a "combined whole" through respective legislation, regulation systems and policy programmes. The **economic perspective** covers both the microeconomic focus on efficiency in terms of gaps and overlaps in service delivery, and the macroeconomic perspective covering the potential benefits of healthcare alliances created through mergers and acquisitions. The **clinical practice perspective** focuses on coordinating patient care services across people, functions, activities, and sites over time so as to maximize the value of services delivered to patients seen from a clinical viewpoint and finally the **public health perspective** provides the population and/or high-risk groups within the population with services needed for optimisation of population health. This perspective goes beyond the realm of healthcare, and coordination of services including social care services or similar.

To this complex mosaic of theoretical approaches and perspective we also need to add the dimensions where integrated care can take place: the macro (system) level, the meso (organisational and professional) level and the micro (clinical) level (Plochg & Klazinga, 2002).

Figure 2 - Integrated care dimensions



Source: adapted from (Plochg & Klazinga, 2002)

At the **macro** level the integration of a health system is a holistic approach that puts the people's needs at the heart of the system in order to meet the needs of the population served. System integration requires a tailor-made combination of structures, processes and techniques to fit the needs of people and populations across the continuum of care. At a **meso** level professional integration refers to partnerships between professionals both within (intra) and between (inter) organisations while organisational integration refers to the extent to which services are produced and delivered seamlessly. At a **micro** level, clinical integration refers to the extent to which patient care services are coordinated across various professional, institutional and sectorial boundaries in a system (Valentijn, Schepman, Opheij, & Bruijnzeels, 2013).

Despite over two decades of international experience and research there is no consensus about integrated care conceptualisation, which means that there is no single definition at least in the academic literature. A systematic review carried out by Armitage et al. (2009) identified more than 70 terms and phrases related to integration yielding about 175 definitions and concepts. As Kodner pointed out (2009) the term is often used by different people to mean different things and equated with terms such as managed care, continuity of care, care coordination, case/care management, extra-mural care, patient-centred care, shared care, transitional care and integrated delivery systems, to name the most widespread appellations (Kodner, 2009). In addition to this, a more recent systematic review performed by Van Houdt et al. (2013) identified 13 different frameworks related with care coordination / integrated care. These included the Andersen Behavioural Model (Andersen, 1995); Donabedian Quality Framework (Donabedian, 2005); the Organizational Design Framework (Nadler & Tushman, 1988); Wagner's Chronic Care Model (Wagner et al., 2001); Five phases of team coordination, 2001 (Klein, 2001); Interaction Model (Watzlawick, Beavin, & Jackson, 2000); Time, Interaction, and Performance Theory (Mcgrath, 1991); Inter-organisational Network Theory (Alter & Hage, 1993); Cognitive Workflow Model (Malhotra, Jordan, Shortliffe, & Patel, 2007); Framework of team performance (Reader, Flin, Mearns, & Cuthbertson, 2009) and Integrative model (Parker Oliver, Demiris, Wittenberg-Lyles, & Porock, 2010).

According to Nolte and McKee (2008), the lack of consensus reflects integrated care's polymorphous nature with several points of view. Different points of views have also been identified by Lloyd & Wait (2006) as summarised in Table 1 below.

Table 1 - Different views of integrated care (based on Kodner 2009: adapted from Lloyd and Wait 2006)

Stakeholders	Views
Patients	Easy access and navigation; seamless care
Providers	Interdisciplinary teamwork; coordination of tasks, services and care across professional and institutional boundaries
Managers	Oversight of combined funding streams; coordination of joint performance targets; supervision of enlarged and professionally diverse staff; management of complex organisational structures and inter-agency relationships; building and maintenance of shared culture
Policymakers	Design of integration-friendly policies, regulations and financing arrangements; evaluation of systems/programs on holistic basis

Even though some key definitions of integrated care and related concepts (see Table 2) have been widely accepted, the term is both a global buzzword in healthcare and a key concept that has helped to drive and shape major policy and practice-level changes in the health systems (Kodner, 2009).

Table 2 - Some key definitions of integrated care and related concepts

Original term (Authors)	Definition
Integrated care (Øvretveit, 1998)	The methods and type of organization that will provide the most cost-effective preventative and caring services to those with the greatest health needs and that will ensure continuity of care and co-ordination between different services
Integration (Leutz, 1999)	The search to connect the healthcare system (acute, primary medical and skilled) with other human service systems (e.g., long-term care, education and vocational and housing services) to improve outcomes (clinical, satisfaction and efficiency)
Integrated Care (Grone, Garcia-Barbero, & Services, 2001)	A concept bringing together inputs, delivery, management and organization of services related to diagnosis, treatment, care, rehabilitation and health promotion...[as] a means to improve the services in relation to access, quality, user satisfaction and efficiency.
Integrated Care (WHO Regional Office for Europe - Grone, 2001)	Integrated care provides comprehensive primary care, secondary and tertiary hospital services, through cost-effective systems of referral and feedback; allows cooperation between family health physicians, nurses, multi-professional teams from health, social and other sectors, involving local communities; ensures individuals' participation, recognizes and supports people as producers of health care.
Integrated Care (Kodner & Spreeuwenberg, 2002)	A coherent set of methods and models on the funding, administrative, organizational, service delivery and clinical levels designed to create connectivity, alignment and collaboration within and between the cure and care sectors...[to] enhance quality of care and quality of life, consumer satisfaction and system efficiency for patients with complex problems cutting across multiple services, providers and settings.
Patient centric care (Kodner, 2002)	Patient-centric integrated care requires a mix of services delivered sequentially or simultaneously by multiple providers, for individuals receiving both cure and care in home, community and institutional settings. Provision of health care, social care and related support (e.g. housing) must be available when and where needed.
Integrated care (Suter et al, 2007)	Integrated care from a clinical perspective (or clinical integration) involves organising functions and activities around patient care and services. The focus is on continuity and coordination of care, disease management, good communication among caregivers, smooth transfer of information, and the elimination of duplicate testing and procedures.
Integrated health services (PAHO, 2011)	The management and delivery of health services such that people receive a continuum of health promotion, disease prevention, diagnosis, treatment, disease-management, rehabilitation and palliative care services, through the different levels of care, and according to their needs throughout the life course.
Continuity of care (Haggerty et al., 2003; PAHO, 2011)	The degree to which a series of discrete health care events are experienced by people as coherent and interconnected over time, and are consistent with their health needs and preferences
People-centred care (WHO, 2010a)	Care that is focused and organized around the health needs and expectations of people and communities rather than on diseases.
Integrated health care networks (PAHO, 2011; Shortell, Gillies, Anderson, Mitchell, & Morgan, 1993)	A network of organizations that provides, or makes arrangements to provide equitable, comprehensive and integrated health services to a defined population and is willing to be held accountable for its clinical and economic outcomes and for the health status of the population that it serves

In addition to these definitions and key components, the review of systematic reviews carried out by Ouwens et al. (2005) allowed us to identify the following components of integrated care:

Table 3 - Some key definitions of integrated care and related concepts

Component	Description
Self-management support and patient education	Self-management support involves collaboratively helping patients and their families acquire the skills and knowledge to manage their own illness, providing self-management tools and routinely assessing problems and accomplishments. Education is giving the patients information (materials and/or instructions) regarding their condition and possible management.
Clinical follow-up	Follow-up is monitoring the patient after or during treatment on a close regular base. This is often done by a nurse case manager who uses a phone, mailings, or visits. Clinical follow-up can be seen as part of self-management support.
Case management	Case management is explicit allocation of coordination tasks to an appointed individual (a case manager) or a small team who may or may not be responsible for the direct provision of care. The case manager or team takes responsibility for guiding the patient through the complex care process in the most efficient, effective, and acceptable way.
Multidisciplinary patient care team	A multidisciplinary patient care team is composed of a group of professionals who communicate with each other regularly about the care of a defined group of patients and participate in that care.
Multidisciplinary clinical pathway	Clinical pathways or integrated care pathways are structured multidisciplinary care plans which detail essential steps in the care of patients with a specific clinical problem and describe the patient's expected clinical course. Clinical pathways should be derived from evidence-based guidelines translated into practice.
Feedback, reminders, and education for professionals	The aim of feedback, reminders, and education is to provide health care providers with information regarding appropriate care for patients. This information can come from clinical pathways, medical records, computerized databases, patients, or audits by colleagues. Feedback is given after the consultation; education is given before consultation; reminders are given before or during consultation.
Additional requirements	(i) Supportive clinical information system; (ii) specialized clinics or centres; (iii) shared mission on integrated care; (iv) leaders with a clear vision on integrated care; (v) finances for implementation and maintenance; (vi) management commitment and support; (vii) patients capable and motivated for self-management; (viii) culture of quality improvement.

Source: (Ouwens et al., 2005)

As mentioned earlier, to date no clear and precise definition of the concept has been proposed and no definition has been identified since the publication of the above reviews despite further attempts, including the definition of integrated in a recent review by the National Health Service in the UK:

> 'Integrated care' is a term that reflects a concern to improve patient experience and achieve greater efficiency and value from health delivery systems. The aim is to address fragmentation in patient services, and enable better coordinated and more continuous care, frequently for an ageing population which has increasing incidence of chronic disease.' (The Nuffield Trust, 2011)

Due to the lack of a widely accepted definition of integrated care, the concept could be identified for the purposes of this review through its practical implementation. For instance, Kodner (2009)

attempted to define the concept of integrated care through the different views of stakeholders (see Table 1 above) and the different approaches to integration:

Table 4 - Approaches to integration (based on Kodner, 2009)

Approaches	Levels
Foci of Integration	▪ entire communities or enrolled/rostered populations irrespective of health status; ▪ vulnerable client sub-groups (e.g., the frail elderly and persons with disabilities); ▪ patients with complex illnesses (e.g., chronic conditions, some cancers).
Types of Integration	▪ **functional** integration (the degree to which back-office and support functions are coordinated across all units); ▪ **organisational** integration (relationships between healthcare organisations); ▪ **professional** integration (provider relationships within and between organisations); ▪ **service** or clinical integration (coordination of services and the integration of care in a single process across time, place and discipline); ▪ **normative** integration (shared mission, work values and organisational/professional culture); ▪ **systemic** integration (alignment of policies and incentives at the organisational level)
Levels of Integration	▪ funding; ▪ administrative; ▪ organisational; ▪ service delivery; ▪ clinical.
Breadth of Integration	▪ **horizontal** integration, wherein similar organisations/units at the same level join together (e.g., two hospitals); ▪ **vertical** integration, which involves the combination of different organisations/units at different levels (e.g., hospital, community health centre, home care agency and nursing home)
Degree of Integration	▪ **linkage**, the least-change approach, entails providers working together on an ad hoc basis within major system constraints; ▪ **coordination** is a structured, inter-organisational response involving defined mechanisms to facilitate communication, information-sharing and collaboration while retaining separate eligibility criteria, service responsibilities and funding; ▪ **full integration**, the most transformative combination, refers to a "new" entity that consolidates responsibilities, resources and financing in a single organisation or system in order to deliver and pay for the entire continuum of care.

Without entering in the relative merits and weaknesses of different conceptualisation of integrated care and of different modalities of application, we have tried to take all relevant elements from the review summarised above and to integrate them with the eight facilitators and elements identified through the SIMPHS2 research (Lluch & Abadie 2013; Villalba et al, 2013). This work has shaped and informed our selection of key dimensions for data gathering and the corresponding blocks of the questionnaire for structured interview.

2.1.2 Step 2 – Selecting cases among the EIP on Active and Healthy Ageing Reference Sites

With the above perspectives in mind and a preference towards the various approaches on integration based on Kodner (See Table 3 above) we started by reviewing the data available on EIP on AHA reference sites and complemented it with a survey of experts in the field of integrated care. The rationale for this is presented in the sub-sections below.

2.1.2.1 Relevant sources

As described in the SIMPHS3 Technical Specifications, we proposed to use the Reference Sites of the EIP on Active and Healthy Ageing (EIP on AHA) as a starting point, for their relevance in terms of scope and excellence, meaning that being selected as a Reference Site is a strong indication that an initiative is being successful and intended to be further deployed. Indeed it is anticipated that the outcomes of SIMPHS3 may be of immediate value to the EIP on AHA action groups B3 and C2, in terms of helping them take forward the implementation of their Action Plans.

The good practices presented in the "European Innovation Partnership on Active and Healthy Ageing Reference Sites, Excellent innovation for ageing - A European Guide"[4] were therefore screened. The Reference Sites listed in this guide have been scored through a peer-reviewed self-assessment process based on key criteria such as EIP on AHA relevance, scale, number of specific EIP actions to which they are committed, evidence and replication potential. The 32 Reference Sites presented in this guide come from 12 Member States and obtained 1 to 3 stars (4 stars being the maximum possible). In addition the Good Practices compiled by EIP on AHA Action Group B3 were also screened for potential cases. B3 is the Action Group dealing with "Replicating and tutoring integrated care for chronic diseases, including remote monitoring at regional level". Action Group C2 which deals with "Development of interoperable independent living solutions, including guidelines for business models" is also within the scope of our research, but no compilation of good practices was available at the time of writing. This group aims to develop interoperable independent living solutions, including guidelines for business models.

2.1.2.2 Selection of cases

Although our goal in SIMPHS3 is the analysis of best cases for the definition of best operational practices, we cannot decide upfront what a success case is as this can only be revealed by the analysis of the data to be collected. In other terms, what constitutes a best practice will be the end point rather than the starting point of our research. Nevertheless, so as to ensure that our case selection yields as many potentially good cases as possible, we needed to follow certain principles.

From a theoretical point of view, since cases as unit of analysis are not like individuals, it is hardly possible to draw them randomly from the universe of reference following the standard practice in quantitative probabilistic survey research[5]. As a result, cases can only be selected using several forms of what is called 'theoretical' or 'purposive' sampling (Eisenhardt, 1989; Glaser & Strauss, 1967; Lincoln & Guba, 1985; Silverman, 2000; Stake, 1995; Yin, 2009) in qualitative research. In theoretical sampling design the decisions concerning the cases to be included in the sample are taken by the researcher following key conceptual and/or theoretical priors. In some case studies approach the cases are selected using 'convenience' (cases easy at hand) or snow-ball sampling (building up one case after the other as a result of progressive suggestions and networks). These approaches, however, would undermine the possibility to at least extract some form of generalised learning from the cases.

For this reason we initially followed the principles of representation and contrast, aiming to select cases that are representative of different geographic areas and institutional settings (principle of representation). In order to maximise the extraction of theory and generalisation, cases should be

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[4] See https://webgate.ec.europa.eu/eipaha/library/index/download/id/688

[5] In this practice first the universe (population) is defined, from which a sample is then extracted. Probabilistic sampling is the selection of a group of persons/organisations/cases from a population with each person/organisation having an equal chance of being selected. The objective is to draw a representative sample and the results obtained from the sample can be generalised to the population. In order to do this one should have the all universe at disposal to extract a random sample, but also the possibility to extract a large enough sample in order to have acceptable sampling errors.

chosen so as to represent contrasting and to some extent polarised situations (principle of contrast). With the objective of maximising the validity of the research design in mind, we carried out a first selection of cases based on these principles in order to a) make the cross-cases analysis meaningful and the deduction of causal links possible; and b) justify empirically at the end of the study why some cases can be considered operational best practices rather than arbitrarily decide *ex ante* what a best practice is; c) include cases showing some level of presence of the 8 facilitators which we intend to use in our analysis (see section 4). On the other hand, selecting cases among small pilots that are still at an early stage of development would reduce the level of realism of the analysis (ecological validity) and would not be fully in line with the policy objective of focusing on cases of Integrated care and independent living deployed services. We therefore undertook additional *ad hoc* activities for the final selection of cases (see Section 2.1.2.3) trying to respect as much as possible the principles of representation and contrast but relaxing them when needed[6].

To select a set of representative but contrasting cases, we followed a funnel approach comprising four steps:

1. Step 1: we performed a wide search to identify cases. At this stage we neither applied the principles of representation and contrast, nor did we filter through the presence of the 8 facilitators identified in Villalba et al. (2013) As a result we identified 18 cases in 13 regions (see Table 11);
2. Step 2: secondary sources were used for a preliminary analysis of these 18 cases and for the assessment of how they met the principles of representation and contrast (see Table 12);
3. Step 3: we analysed the cases to assess the extent to which the 8 facilitators were present. Two independent researchers scored the 18 cases with respect to the extent to which the facilitators were present. This step has facilitated a preliminary ranking of the cases as well as a first attempt to assess the degree of maturity of ICT usage in the delivery of integrated care;
4. Step 4: we checked regional coverage across Europe and classified cases according to the different typologies of health care systems (see Table 13). This served the purpose of selecting cases so as to match the principle of representation.

As a result, a preliminary proposal of 15 cases (in 9 region, see Table 14) balanced between the 8 facilitators as criteria to select cases and our general design principles.

2.1.2.3 Survey questionnaire for case selection

However as the outcomes of our approach led to retaining some small pilots or even concept test initiatives we deemed it useful to try and increase the number of cases that would qualify as deployed integrated care services according to our definition:
"ICT supported integrated care services are those that are offered as a standard service without the need for individuals to be enrolled into a pilot to benefit from the services. In other words any individual in any area (local, regional, national) where the service is provided can be offered that service. Moreover, a deployed service means also continuity of funding while a pilot would have an end date after which service provision is uncertain. Furthermore a deployed service does not have as the main objective testing like in a pilot but actual provision of care".

To this end we launched a survey among experts and undertook some additional desk research activities as reported below.

[6] As confirmed by the survey of experts conducted as part of these activities, there are currently not many cases of fully deployed integrated care services in Europe. Hence, given the scarcity of cases of deployed services we had to include some even if they did not fully reflected the principle of representation and contrast.

Survey characteristics

A survey among experts and stakeholders was carried out from 28 January to 14 February 2014 with the aim of supporting the selection and justification of cases. The survey was disseminated among a total of 130 experts and yielded 27 answers amounting to a 20.7% response rate, which is a good result for this kind of surveys.

The questionnaire aimed to explore experts' views on:

- The definition of deployed Integrated Care services
- The nature of large deployment pilots
- Current funding conditions for deployed services
- The number of cases of deployed services likely to currently exist in Europe.
- Suggestions about further cases
- Assessment of the preliminary list of cases selected (i.e. known or not, stage of deployment)

Two thirds of the respondents came from three countries (UK, Spain and Italy) where most cases of integrated care services are concentrated according to the secondary sources we collected and the most recent reports published by EIP-AHA Action Group B3. Despite this concentration the respondents provided clear indications about cases that are present in other European countries. Moreover, the respondents showed a clear knowledge about the preliminary list of cases that we had identified and listed in the questionnaire.

Case selection contextualisation

One of the objectives of the survey was to contextualise the final cases selection with respect to experts' views on issues around the definition of deployed integrated care services and to the current empirical realities of integrated care services in Europe. The following can be concluded from survey responses:

- The definition of *Deployed services* proposed in the questionnaire is accepted, though with different degree of agreement, by all of the respondents;
- On the other hand, the same level of agreement is registered about the fact that deployment pilots represent cases that are closer to deployed services than to RCT pilots
- Finally, most respondents agree with the fact that permanent and mainstreamed funding for integrated care services is rare.

As to the number of cases of fully deployed ICT supported integrated care services currently present in Europe, a fifth of the respondents think that there are no more than 10 examples in the EU. More than half of the respondents believe that there are no more than 50 deployed integrated care services which further confirms the gap between the strict definition of how deployed integrated care service should look like and reality. This justifies the inclusion in the final selection of cases of large deployment pilots.

Hence, we concluded from the above analysis that the criteria of continuity of funding should be relaxed and that cases of deployment pilot are a good enough second best solution when due to time constraints and lack of diffusion it is impossible to find strictly defined cases of deployed integrated care services.

Case selection gap analysis

Respondents were also asked if they knew about the cases we had preliminarily selected and if so whether they would assess them as deployed services (DEP), Large Pilots (LP), Small Pilot (SP), or Concept Test (CT). The table below compares the assessment of the preliminary cases based on secondary sources and the input produced by the survey's respondents. Please note that the table below contains more than the initial 15 cases we selected as we were able to expand our initial list through further analysis of secondary sources.

Table 5 – Integrated care cases selection: comparing secondary sources with survey's inputs (I)

			Results from the cases selection survey										
	1	2	3	4	5	6	7	8	9	10	11	12	
	Our List before the cases selection survey	B3 AG List	Direct knowledge and contacts	DEP	LP	SP	CT	known but not enough info	not known	Total respondents	Degree of visibility of the case	Match/Gap in the size of the case between our list and the interviewees' responses	
SPARRA (UK)	LP	LP	1	11	3		1	3	9	**27**	67%	GAP +	4
TDP (UK)	DEP	DEP	5	6	4			5	12	**27**	56%	✔	4
NEXES (ES)	LP	LP	1	1	3	4		6	13	**27**	52%	✔	3
ETXEAN ONDO (ES)	LP	LP	1		5		1	6	15	**27**	44%	✔	3
MECASS (ES)	LP	LP			1	2	4	4	16	**27**	41%	GAP -	2
ARIA (IT)	SP	SP	1		1	3	1	5	17	**27**	37%	✔	2
Oulu Self-Care (FI)	LP			2	1	1		5	18	**27**	33%	✔	3
SOLE/FSE (IT)	DEP	DEP	1	3	1			5	18	**27**	33%	✔	4
T4H (FR)	CT					1		7	19	**27**	30%	GAP +	2
CCMDP (DE)	LP	LP			2	1		5	20	**27**	29%	✔	3
INAA (NL)	SP				1	1		5	20	**27**	26%	GAP +	3
BLMSE (SE)	DEP				1	1		5	20	**27**	26%	GAP -	3
GC (DE)	LP	LP			1			6	20	**27**	26%	✔	3
CARTS (IE)	LP			1	1	1		4	20	**27**	26%	✔	3
TAHF (CZ)	CT				1		1	3	22	**27**	19%	GAP +	2
SAM:BO (DK)	DEP	DEP	2										
Apulia Telecare (IT)		DEP	1										
TreC (IT)		DEP	1										
eCare (IT)		DEP	1										
Norwegian center IC (NO)			1										
PDTA (IT)			1										
Saxony stroke remote monitoring			1										
Dossier Pharmaceutique (FR)		DEP											
Gesundes Kingzigtal (DE)	DEP												

Legend: DEP: Deployed service (equal 4 in the rank of column 12); LP: Large Pilot (equal 3 in the rank of column 12); SP: Small Pilot (equal 2 in the rank of column 12); CT: Concept Test (equal 1 in the rank of column 12).

The cases preliminarily identified so far are listed on the left-hand side of the above table, including the first 15 cases we identified in a first step and another 9 cases identified through additional desk research or suggested by the respondents (highlighted in red). The respondents were only presented the first 15 cases. The next 12 columns show respectively:

- Our classification of the cases with respect to the four stages of deployment using the secondary sources collected so far (1);
- The same classification extracted from the Booklet of Good Practices of the EIP-AHA AG B3, which is mostly aligned with our classification (2);
- In Columns (3) through (10) the results of the survey, in particular:
    - In column (3) the number of respondents pointing out this case;
    - In columns (4) through (7) respondents' classification of cases with respect to the four stages of deployment;
    - In columns (8) and (9), respectively, the number of respondents who are aware about a case but do not have enough information to classify it and the number of respondents that do not know the case
    - In column (10) the total number of respondents;
- In column (11) the "degree of visibility" of the cases. This is measured in relation to the number of respondents that have reported to know the case either because they provided a classification of the case (columns 4 through 7) or because of they have declared to at least be aware of the case (column 8);
- Finally, in column (12) evidence on the degree of correspondence between the case classification based on secondary sources and that based on respondents' answers. In particular, green cells with a "✔" show full correspondences amongst the classifications; "GAP+" means that the respondents have declared that the IC case is in an upper stage of development than the one identified through secondary sources; "GAP-" means the opposite.

2.1.2.4 Final selection of cases and rationale

The following table presents the final list of cases based on EIP on AHA data and literature review as well as additional knowledge gathered through expert consultation. These cases will be further considered in our research on integrated care.

Table 6 – Integrated care cases selection: comparing secondary sources with survey's inputs (II)

Initial selection of case studies		Survey Results	Proposed final list of cases studies	Respondents comments supporting this selection
1. SPARRA (UK)	LP	DEP	**1. SPARRA (UK)**	Survey's respondents agree in defining the case as an **IC deployed service**
2. TDP (UK)	DEP	DEP	**1. TDP (UK)**	Survey's respondents agree in defining the case as an **IC deployed service**
3. SOLE/FSE (IT)	DEP	DEP	**3. SOLE/FSE (IT)**	Survey's respondents agree in defining the case as an **IC deployed service**
4. ARIA (IT)	SP	SP	**4. Replaced by: PDTA (IT)**	Survey's respondents agree in defining the case as an **IC deployed service**
5. GC (DE)	LP	LP	**5. Replaced by: 5. Gesundes Kinzigtal (DE)**	Secondary sources collected during the first month of the project clearly provide evidence that it can be considered an **IC deployed service**
6. CCMDP (DE)	LP	LP	**6. Replaced by: SAM:BO (DK)**	Survey's respondents agree in defining the case as an **IC deployed service**
7. ETXEAN ONDO (ES)	LP	LP	**7. ETXEAN ONDO (ES)**	Survey's respondents agree in defining the case as an **IC Large Pilot**
8. BLMSE (SE)	DEP	LP	**8. BLMSE (SE)**	Survey's respondents agree in defining the case as an **IC Large Pilot**
9. TAHF (CZ)	CT	SP	**9. TAHF (CZ)**	Survey's respondents agree in defining the case as an **IC Small Pilot**
10. T4H (FR)	CT	SP	**10. Replaced by:**	EIP-AHA B3 Action Group in the second edition of "IC good practices" present the case as an **IC deployed**

			Dossier Pharmaceutique (FR)	**service**
11. NEXES (ES)	LP	LP	**11. NEXES (SP)**	Survey's respondents agree in defining the case as an **IC Large Pilot**
12. MECASS (ES)	LP	LP	**12. MECASS (SP)**	Survey's respondents agree in defining the case as an **IC Small Pilot.** A potential substitution of this case that is still based in Catalonia is under investigation. A final decision will be expected by the end of February**.**
13. CARTS (IE)	LP	LP	**13. CARTS (IE)**	Survey's respondents agree in defining the case as an **IC Large Pilot**
14. Oulu Self-Care (FI)	LP	LP	**14. Oulu Self-Care (FI)**	Survey's respondents agree in defining the case as an **IC Large Pilot**
15. INAA (NL)	SP	LP	**15. INAA (NL)**	Survey's respondents agree in defining the case as an **IC Large Pilot**
16. ARIA (IT)	SP	SP	**16. ARIA (IT)**	Survey's respondents agree in defining the case as an **IC Small Pilot.** We decided to maintain this case in the final list because it could be useful to understand why a fully tested IC small pilot with clear evidences of positive positive impacts on the health care system is not upscaling towards a deployed service

Legend: DEP Deployed service; LP Large Pilot; SP Small Pilot; CT Concept Test

We tried to increase the number of cases of deployed services while including cases not derived from EC funded projects (e.g. CIP or FP7 funded projects). Furthermore, we have also tried to balance the geographical distribution of countries as well as the coverage of the different typologies of health care systems existing in EU.

The new selection of 16 cases considers 7 Deployed Services, 6 Large Pilots and 3 Small Pilots. The larger share of deployed services in the final list of cases studies is mainly due to the feedback received from the respondents. The following key elements derived from the survey have driven our selection:

- The respondents confirmed that TDP (UK), SOLE/FSE (IT) and SAM:BO (DK) are integrated care deployed services;
- The respondents suggested that SPARRA (UK) is a deployed integrated care service and not a Large Pilot as we had found in secondary sources information;
- The respondents confirmed that ETXEAN ONDO (ES), NEXES (ES), CARTS (IE) and Oulu Self-Care (FI) are Large Pilots;
- The respondents suggested that INAA (NL) is a Large Pilot and not a Small Pilot as we had found in secondary sources information;
- The respondents suggested that BLMSE (SE) is a Large Pilot and not a Deployed services as we have found in the secondary sources information.
- The respondents suggested that TAHF (CZ) is a Small Pilot and not a Concept Test as we had found in the secondary sources information. Although it is a Small Pilot we decided to maintain the TAHF (CZ) case in the list in order to have one practice from an Eastern European country. According to our experiences and information already collected from secondary sources as well as direct insights provided by recent contacts that we had with Telecare solutions providers which are active in Eastern Europe and are also part of a recent CIP project (PilotSmartCare)[7] dealing with IC solutions in Croatia, Estonia and Serbia, integrated care solutions in Eastern European countries are in a very early stage of development and it would therefore be impossible to find deployed services in these Member States.

[7] See also: http://pilotsmartcare.eu/home/

In addition to this, the results from the survey pointed out two additional deployed services in Italy (Apulia Telecare and PDTA in Brescia), from which we have selected PDTA. We decided to also include ARIA in the list, even though we already have cases from Italy and it is a small pilot, because it could be interesting to understand why a small pilot that has been fully operational since 2008 and has already shown significant impact (in economic terms and for preventive care), has not been scaled up to a fully deployed service yet.

We also propose to replace the GC case emerging from the EIP on AHA review in Germany and which was considered a Large Pilot, with an interesting deployed service in the region of Baden-Württemberg (DE) which provides integrated care services to a population of about 60,000 inhabitants in the area of Kinzigtal. Finally, to maintain a balanced geographical coverage of the EU we decided to replace three cases from our initial selection:

- The substitution of the T4H concept test case located in France with Dossier Pharmaceutique, a deployed French integrated care service suggested by the EIP-AHA B3 Action Group;
- The substitution of GC Large Pilot in Germany with SAM:BO, a deployed Danish service of integrated care mentioned both in the EIP on AHA B3 Action Group and by the survey respondents as an important practice to be further investigated;
- We will check the possibility to substitute MECASS (SP) Small Pilot of integrated care with a new, more advanced practice of integrated care in Spain, also located in Catalonia.

2.1.3 Step 3 – Selecting cases from the scientific and grey literatures

With the aim to be as exhaustive as possible, and to complete our list of potential best cases, taking account of further sources than the EIP on Active and Healthy Ageing and a review of related literature, we decided to undertake a specific search of the scientific and grey literatures to identify further cases of deployed integrated care and independent living services, using a different approach. In spite of the complexity associated with the definition of integrated care and the variety of perspectives on the topic, we considered the four main criteria discussed at the kick-off as suitable for the search of further cases.

2.1.3.1 Criteria for case selection

The primary criteria for case selection are:

1. Healthcare as starting point: services must involve institutionalised care i.e. the patient is actually treated in the healthcare system
2. Integration between at least two of the following: primary care, secondary care and tertiary care and social care. IPTS will consider vertical integration (primary, secondary and tertiary); and horizontal integration (between healthcare and social care).
3. ICT facilitating the integration
4. Evidence of contribution to enhance quality of care, quality of life and system efficiency

Although the first criterion appears unambiguous, in certain situations related to ICT-based services, it is questionable whether the patient is actually treated in the healthcare system. For instance, telecare services are provided for informal carers who might not be connected to traditional healthcare services. Thus, for the purposes of this review, the first criterion (1) has been applied for all patients whose connection to the healthcare system can be assumed due to their age or medical diagnosis.

It was decided that cases would be selected if they fitted into one of the definitions of integrated care as identified in the above section; hence, the second criterion (2) is applied in a wider sense than the existence of horizontal and vertical integration.

The fourth criterion (4) is applied by pursuing initiatives that are deployed and have proven to be (cost-)effective.

An additional criteria for case selection was introduced as (5) initiatives that have been successfully deployed. This, based on previous experience within IPTS research, depends on three factors: (i) the project is beyond pilot stage; (ii) secure funding is available and provided; (iii) the service is delivered to the target population.

Independent living services would be considered when they are integrated into healthcare or social care systems, and these cases should therefore fulfil the same criteria as case studies from the area of integrated care (as described above). However, independent living initiatives would only be included in this review if their target population is the elderly, or a group that unambiguously includes the elderly population.

2.1.3.2 Search for relevant case studies

The literature review is based on the up to date peer-reviewed and grey literatures, as well as on the information publicly available about EU-funded initiatives on integrated care and independent living.

Two pragmatic searches were conducted in the peer-reviewed literature which amounted to checking about 150 sources.

The first search focused on the identification of recent developments in integrated care and independent living reported in relevant studies. The purpose of this research was to identify developments in the relevant literature rather than a systematic review, therefore only one database (Scopus) was searched which provides comprehensive coverage of the relevant medical, social and technological literature. The search terms focused on the definition of integrated care and independent living as described earlier (integrated care, patient-centred care, coordinated care, comprehensive care, integrated health, independent living); the description of successful deployment (deployed, implemented, success*, introduced); and the role of ICT in delivering the service (telehealth, telecare, telemedicine, telemonitoring). The review was limited to studies published in the last five years (after 2008) and only those papers were included that focused on a European country. The titles and abstracts of the studies yielded by the search strategy[8] including the above mentioned limitations were skimmed for relevant articles. Papers were excluded (1) if they did not describe an intervention related to integrated care or independent living; (2) if the intervention did not include ICT-based technology; (3) if their scope did not include a European country; (4) if sufficient information was not available in English or German language.

The second search of the peer-reviewed literature briefly explored the area of economic evaluations of integrated care[9].The search strategy and exclusion criteria were similar to the above described search strategy (database: Scopus, limited to Europe and to last 5 years), but the search terms focused on cost-effectiveness, rather than deployment.

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[8] ((TITLE-ABS-KEY(telemedicine OR telehealth OR telecare OR telemonitoring OR "independent living") AND TITLE-ABS-KEY(deployed OR implemented OR success* OR introduced))) AND ("integrated care" OR "patient-centered care" OR "coordinated care" OR "comprehensive care" OR "integrated health")

[9] ((TITLE-ABS-KEY(telemedicine OR telehealth OR telecare OR telemonitoring OR "independent living") AND TITLE-ABS-KEY("cost-effectiveness" OR "cost-utility" OR "cost-benefit" OR "cost-consequence" OR "cost-minimisation" OR "CEA" OR "CUA" OR "CBA" OR "CCA" OR "CMA" OR "economic evaluation"))) AND ("integrated care" OR "patient-centered care" OR "coordinated care" OR "comprehensive care" OR "integrated health")

The review of the grey literature was based on documents previously identified by IPTS and a pragmatic search in Google using a search strategy similar to the one developed for the peer-reviewed literature.

In addition to this check, the purpose of the Google search was to identify other sources beyond the documents identified by IPTS and the studies picked up by searching the peer-reviewed literature. These documents were searched for both relevant initiatives on integrated care and independent living, and any other information on recent developments in these fields.

ICT-related projects on integrated care and independent living were reviewed with the purpose of identifying initiatives that could be included.

The following data about the initiatives identified from each source was extracted: (i) name of the initiative; (ii) disease or intervention area; (iii) state of deployment; (iv) description of the initiative; (v) approach to integrated care or independent living (including description of care pathway if reported); (vi) country or countries where the initiative takes place; (vii) target population (size and demographic data); (viii) scope of implementation (local, regional, national, multinational); (ix) stakeholders involved (health provider, care provider, industry, patients/advocacy, EU organisations, academia, national administration, local administration, insurance company); (x) source(s) of funding (EU, government, health insurance company, industry, etc.); (xi) any other important notes; and (xii) reference to the initiative (author and year of publication, or web address).

Additionally, if information had been identified in the literature that could have an impact on the selection of best cases, this was noted and listed (see section 6.2 Annex 2).

2.1.3.3 Search results

The first search strategy, focusing on deployment, resulted in 53 peer-reviewed studies whose abstracts were skimmed leading to the identification of eight initiatives. The second search strategy, focusing on cost-effectiveness, resulted in 41 articles and provided seven potentially interesting initiatives.

An overview of initiatives identified from the peer-reviewed literature is available in section 6.3 Annex 3 (see Table 15).

The review of the grey literature included Empirica's study on ICT and ageing[10], and a pragmatic search into related agencies of some European countries where it was assumed that further data could be located, for instance, the Austrian Institute of Technology or the Norwegian Centre for Integrated Care and Telemedicine.

A review of CIP and AAL projects was also conducted, focusing on CIP projects[11] potentially relevant to integrated care and independent living and AAL projects, as follows: CIP (39 projects checked); AAL Call 1 (23 projects); AAL Call 2 (32 projects); AAL Call 3 (22 projects); AAL Call 4 (25 projects), Call 5 (29 projects). It should be noted that as we anticipated none of the projects in Calls 2 and Call 4 matched our case selection criteria while in Call 5 projects were too recent to allow concluding on the deployment potential of the integrated care services. These calls have therefore been excluded from further consideration.

[10] http://ec.europa.eu/information_society/activities/einclusion/library/studies/docs/ict_ageing_final_report.pdf
[11] http://ec.europa.eu/information_society/apps/projects/index.cfm?menu=secondary

As a result projects from Call 1 (ICT based solutions for Prevention and Management of Chronic Conditions of Elderly People)[12] and Call 3 (ICT-based Solutions for Advancement of Older Persons' Independence and Participation in the "Self-Serve Society") were considered.

2.1.3.4 Case selection

As explained earlier, the following criteria have been used for the selection of cases:

(1) Healthcare as starting point: services must involve institutionalised care i.e. the patient is actually treated in the healthcare system
(2) Integration between at least two of the following: primary care, secondary care and tertiary care and social care. IPTS will consider vertical integration (primary, secondary and tertiary); and horizontal integration (between healthcare and social care).
(3) ICT facilitating the integration
(4) Evidence of contribution to enhance quality of care, quality of life and system efficiency

The fourth criterion above, namely the "Evidence of contribution to enhance quality of care, quality of life and system efficiency" required the hunt for initiatives that were deployed and proved to be (cost-)effective; however, such information about the initiatives was seldom made available. This resulted in the adjustment of the (4) criterion as Evidence of one of the following:

a) the initiative is deployed;
b) it seems likely that deployment of the initiative could happen;
c) information is published about the effectiveness or cost-effectiveness of the initiative, and it is promising.

In practical terms, item b) on the list means that two types of initiatives were included for further consideration: (i) those in a pilot stage and (ii) those that recently completed the pilot stage, reported promising results and are still active (e.g. website has recently been updated). Item c) on the list means that smaller initiatives, for instance, Randomised Controlled Trials in local settings were also included.

The review has also identified some information relevant to the selection of best cases, and the most important quotations have been listed in section 6.2 Annex 2. The Nuffield Trust (2013) concluded that interventions related to integrated care take time to develop, and therefore evaluations starting at the beginning of the pilot phase might be immature. All relevant authors stated that there is scarce evidence on cost-effectiveness and patient satisfaction of telecare-related services. A recent review on patient satisfaction evaluation of telemedicine applications (Zhang, 2014) reported that the methods used for measurement are unsophisticated and poorly described; and there is an obvious need for standard methodologies to ensure comparability of information. Reviews on the economic evaluation of telemedicine interventions (Wootton, 2012; Mistry, 2012; Bergmo, 2009) concluded that there are few studies studies of cost-effectiveness and hardly any of those can be trusted to provide reliable information for decision-making, but a promising trend of improvement has also been identified. A paper (Vallespin, 2008) on the main factors modulating the success of integrated care has also been identified[13], but these factors have not been used in this review.

Based on the above described findings, the following seventeen, potentially interesting initiatives are suggested for case selection.

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[12] http://www.aal-europe.eu/call-1/

[13] a) the challenge of co-morbidities; b) articulation of healthcare and community services; c) organisational and educational issues; d) modularity, scalability and interoperability of the Information and Communication Technology platform, and, e) identification of business models ensuring service sustainability

Table 7 - Cases recommended for selection based on peer-reviewed and grey literature review

Name of initiative	Country	Source	Selection criteria met
ACTION	Sweden	Peer-reviewed literature	1,2,3,4
AGnES	Germany	Peer-reviewed literature	1,2,3,4
ATIS4all	Europe	CIP	1,2,3, 4(? - likely to be deployed)
Carer+	Europe	CIP	1,2,3,4 (? - likely to be deployed)
CommonWell	Europe	CIP	1,2,3,4
DIABMEMORY	Austria	Grey literature	1,2,3,4
ENDEA	Ireland	Peer-reviewed literature	1,2,3, 4(? - likely to be deployed)
inCASA	Europe	CIP	1,2,3, 4(? - likely to be deployed)
INDEPENDENT	Europe	CIP	1,2,3, 4(? - likely to be deployed)
IS-ACTIVE	Europe	AAL project, Call 1	1,2,3, 4(? - likely to be deployed)
ISISEMD	Europe	CIP	1,2,3,4
iStoppFalls	Europe and Australia	Grey literature	1,2,3, 4(? - likely to be deployed)
NEXES	Europe	Peer-reviewed literature / CIP	1,2,3,4
ReAAL	Europe	CIP	1,2,3, 4(? - likely to be deployed)
RENEWING HEALTH	Europe	CIP	1,2,3, 4(? - likely to be deployed)
RGS (Rehabilitation Gaming System)	Europe	AAL project, Call 1	1,2,3, 4(? - likely to be deployed)
Scottish Care Information—Diabetes Collaboration (SCI-DC)	Scotland	Peer-reviewed literature	1,2,3,4

The initiatives with remark '(? - likely to be deployed) appear to be promising, but need further confirmation.

Further details about the scope, stakeholder involvement and type of funding for the projects identified above are presented in section 6.3 Annex 3 (see Table 16 to Table 18).

A very preliminary check of the above initiatives against the eight facilitators described by Villalba et al. (2013) was done, but it was not possible to deepen the analysis at this stage. More work is therefore required to draw conclusions on the presence of the facilitators in the above cases.

2.1.4 Additional cases

Following discussions with the client a set of additional cases was reviewed and analysed according to the four criteria defined for case selection (healthcare as starting point, integration, role of ICT and deployment level). Further, considerations were made about the additional coverage of healthcare systems new cases would bring compared with cases identified and selected from the reviews presented earlier. The cases marked dark blue in the table below are considered for inclusion, the light blue ones are covered through already selected cases and the ones that are not marked will not be included for reasons provided in the last column of the table.

Table 8 – Review of additional cases

Name of initiative	Country	Source	Selection criteria met	Reasons for exclusion/selection
TK Integrated Care Contract for Back Pain	Germany	B3 Good Practice	1,2,3,4	All selection criteria met, enhances coverage of German system
Maccabi Center for Remote Chronic disease management	Israel	CIP network (Momentum)	1,2,3,4	All selection criteria met: coverage of additional, non-EU country
SISSI - Social and health information system	Italy	B3 Good Practice	1,2,3,?	Covered through SOLE case
Walcheren Integrated Care Model (WICM)	Netherlands	B3 Good Practice	1,2, 4 (under deployment)	No major role of ICT in integration
Chronic Care Programme in Catalonia	Catalonia	B3 Good Practice	1,2,3	Programme applying to Catalonia region, 2 cases already selected in the region so this programme is already covered.
Strategy to tackle the challenge of Chronicity	Basque Country	B3 Good Practice	1,2,3	Same as above. Programme will be addressed through the Basque country case already selected
Valcronic programme	Valencia	B3 Good Practice	1,2,3	Pilot; two Spanish regions already covered
Several initatives (KIS, SPARRA etc.)	Scotland	Several B3 Good Practices	1.,2,3,?	UK/Scotland already covered through two cases
Dreaming	Denmark, Estonia, Germany, Italy, Spain and Sweden	CIP pilot	1,2,3,?	Evidence of economic and clinical impact
Integration Pioneer Programme	Kent	Kent Integration Pioneer bid (June 2013)	1,2,3, 4 (some services, others being pilot)	UK already covered through two cases
Extending active and independent living through open and personalised solutions	Sweden	CIP / EIP on AHA Commitment (C2)	1,2,3, 4 (under deployment)	Sweden already covered with two cases
Puglia	Italy	National / Pre-Commercial Procurement	1,2,3	Although pre-pilot, considered for inclusion to analyse impact of Pre-commercial procurement
Veterans Health Administration	USA	National	1,2,3,4	All selection criteria met: coverage of additional, non-EU country

2.1.5 Conclusion – Cases selected for further study

We have decided to include in our analysis the 16 cases that emerged from our thorough review and analysis of the EIP on AHA reference sites and Action Group B3 good practices, including some field work with experts. These cases are listed from 1 to 16 in Table 9 below. The reason for retaining these projects is their strong relevance for the SIMPHS3 objectives and their fulfilling our search criteria which gives us a strong confidence in their potential to finally qualify as best practices.

We then decided to add to the above set of cases four more initiatives identified from the peer-reviewed literature and further sources, for which there is clear evidence of actual deployment

(cases 17 to 20)[14]. We also add five cases from a further set of initiatives suggested by the client for their relevance in terms of deployment and contribution to better coverage of healthcare systems in or outside Europe (cases 21 to 25). As a result, the SIMPHS3 study will investigate 25 cases of integrated care and independent living services as listed in Table 9 below.

Table 9 – Final case selection overview

Selected Cases studies	
1. SPARRA (UK)	14. Oulu Self-Care (FI)
1. TDP (UK)	15. INAA (NL)
3. SOLE/FSE (IT)	16. ARIA (IT)
4. PDTA (IT)	17. ACTION (SE, peer reviewed)
5. Gesundes Kinzigtal (DE)	18. CommonWell (EU, CIP)
6. SAM:BO (DK)	19. DIABMEMORY (AT, grey literature)
7. ETXEAN ONDO (ES)	20. RENEWING HEALTH (EU, CIP)
8. BLMSE (SE)	21. TK integrated care for back pain (DE, EIP on AHA GP)
9. TAHF (CZ)	22. Maccabi (Israel, EIP on AHA GP)
10. Dossier Pharmaceutique (FR)	23. Dreaming (EU, CIP)
11. NEXES (ES) (also CIP)	24. Ambient Assisted Living Puglia (IT)
12. MECASS (ES)	25. Veterans Health Administration (USA)
13. CARTS (IE)	

[14] It should be noted that case 17 (ACTION) is also being analysed in the ongoing IPTS study on "Long-term care strategies for independent living of elderly people (ICT-AGE)", undertaken in cooperation with EC DG Employment by another IPTS team. We will therefore benefit from the research already underway in this respect.

3 Data gathering

3.1 Methods

When aiming at explanation and using a 'multiple cases' rather than a 'single case' approach most scholars use a mixed method combining different secondary sources and/or instruments to gather primary sources. This mix implies above all a complementarity between qualitative and quantitative evidence. In such approaches the following possible sources of evidence are used:

- Statistics (e.g. official statistics on the geographical areas where the case study takes place; statistics gathered *ad hoc* on dimensions of the case study);
- Documentation (e.g. administrative documents, internal reports, evaluation studies commissioned by one or more organisations that form part of the case study);
- Archival records (i.e. computer files and/or paper records);
- Interviews (structured, semi-structured, unstructured);
- Direct observation (I observe but I am external to the case real world context);
- Participant observation (I observe but also take a role and participate in activities of the case study);
- Physical artefacts (for instance a tool or technological instrument used to measure activities).

Interviews in case studies can be of three kinds (Yin 2009, pp. 106-109):

- In depth and unstructured (lasting 2 or more hours);
- Semi-structured and focused (lasting about 1 hour);
- Structured.

We intend to characterise each case study with regard to seven dimensions[15] (*Dimensions of integration; Impacts; Policy and governance settings; Organisation and professionals; Patients; ICT; Transferability)* based on a mix of desk research and field work including interviews combining several but perhaps not all of the elements listed above because of resource constraints and depending on data availability. We will use a mixed methods approach combining qualitative and quantitative elements where applicable, and triangulate multiple sources.

In selecting the first 16 cases we have used as much as possible the principles of representation and contrast. Cases are selected to be representative of different geographic areas and institutional settings (principle of representation). In order to maximise the extraction of theory and generalisation cases were chosen as to represent contrasting and to some extent polarised situations (principle of contrast). As mentioned earlier, the decision that a case is a best practice could not be taken according to an arbitrary *ex ante* concept of 'best practice' rather rather it will be the end point of this study. The empirical evidence and its subsequent analysis will define, if any, cases of empirically documented best practices.

For each of the cases we will produce a 'case report' following the structure illustrated in Table 10 (see section 4.2). This will include some tables reporting background statistics, but for the most part will consist of a narrative along dimensions that will be common across cases.

[15] The seven dimension result from regrouping and reordering elements from the eight facilitators.

3.2 Data gathering procedure

First, we will gather secondary sources in addition to those already gathered so far. Among secondary sources we distinguish between two broad types: a) the general scientific literature; and b) all other kind of sources that for the sake of simplicity we call 'grey literature'[16], as well as scientific articles specifically reporting on some of the selected cases. A list of sources that have been gathered so far and details on the typology of grey sources used are presented in Annexes 6.4 and 6.5).

The gathering of secondary sources will produce a case level repository of evidence aimed at covering seven out of the eight relevant dimensions (possibly all will be addressed but naturally with some gaps to be filled by experts and through the interviews).

Second, we will perform a first gap analysis mapping the evidence collected against the seven relevant dimensions and will identify areas where more evidence is needed and/or where we want to double check the evidence available against what interviewees can tell us.

Third, on the basis of the results of the gap analysis we will customise a structured questionnaire to be filled in online (or alternatively on the phone, and in few cases face to face)[17]. The customisation concerns: a) the information needed on the case in view of the gap analysis; and b) the type of stakeholder to be interviewed. The gap analysis fulfils the purpose of maximising the information that can be extracted from the interviews while reducing load on respondents (i.e. not asking questions on topics where gathered evidence is exhaustive and robust).

Fourth, we will analyse the results from the structured questionnaire against the knowledge repository and against the results of the first gap analysis. This is the second gap analysis on the basis of which we will: a) identify those cases where additional semi-structured follow up interviews are needed; and b) customise the semi-structured questionnaire as a guide to conduct the focussed and qualitative semi-structured interviews. This will ensure we can gather unstructured and qualitative evidence on issues where neither the knowledge repository nor the first structured interview have produced exhaustive insights.

Finally, we will collaborate with relevant experts to run a consistency check on the evidence gathered through the interviews and wherever needed, we will 'clean' such evidence by adding their opinions wherever appropriate. After this final step the case will be closed and the evidence ready to be included in the case reporting template and later processed for cross-cases comparison.

As to the stakeholders potentially involved in and affected by integrated care whose views could be potentially relevant for this study we will endeavour to interview one respondent from policy making and/or funding bodies and two respondents from health and/ or social care professionals (one from healthcare and one from social care, where there is this kind of horizontal integration) per case study. As for the patient perspective, we will report about patients' surveys wherever these are available.

3.3 Dimensions to be covered

Revisiting the relevant sources mentioned in the SIMPHS3 Technical Annex, and thus building on the findings of SIMPHS2 (Lluch & Abadie, 2013; Villalba, et al., 2013) and further sources identified in our literature reviews we eventually selected and conceptually re-organised seven dimensions to be covered by data gathering through both secondary sources and interviews. The 8 facilitators

[16] Some of these sources may not strictly qualify as 'grey' if they are available online and anyone interested could easily retrieve them. They may be probably better termed as 'institutional and practitioners generated sources', but use nonetheless use the term 'grey' for the sake of simplification.

[17] In this case, however, the second part (semi-structured) will be done by phone or online.

(Villalba et al 2013) and the drivers and barriers (Lluch & Abadie, 2013) are all covered but re-organised conceptually into dimensions matching the framework of analysis presented in section 4.

The dimensions we propose, which correspond to the blocks of the structured questionnaire, are the following:

1. **Dimensions of integration** (foci, type, level, breadth, and degree of integration). This enables both to gather general descriptive parameters and to eventually construct a scale of deployment;
2. **Impacts.** Outcome indicators for assessing impact and other indicators of impact taken from the relevant literature (e.g. cost effectiveness, resource utilisation, patient satisfaction etc.);
3. **Policy and governance settings.** Mostly covering the corresponding elements within the 8 facilitators (governance, policy support, funding, incentives) and including items from the drivers and barriers identified by Lluch & Abadie (2013) ;
4. **Organisation and professionals.** Also covering the corresponding elements within the 8 facilitators (re-organisation of services, professionals engagement) and including items from the drivers and barriers identified by Lluch & Abadie (2013);
5. **Patients**. Also covering the corresponding elements within the 8 facilitators (patient focus) and including items from the drivers and barriers identified by Lluch & Abadie (2013)
6. **ICT.** Also covering the corresponding elements within the 8 facilitators (inter-operable systems) and including items from the drivers and barriers identified by Lluch & Abadie (2013);
7. **Transferability.**

On more complex and articulated items included under dimension/block 3 such as the business model, governance mechanisms, reimbursement models, money flows, and organisational processes we expect most of the information to come from secondary sources. Such aspects may be difficult to fully capture through interviews (especially structured ones). Some respondents (i.e. from policy or funding bodies) may be aware and know in details about such issues, but it is unlikely that professionals will have a full view on all of them. We nonetheless include questions on these aspects, although we expect to obtain information on them mostly through grey sources and through the insights of experts/key informants.

4 Analysis and reporting

4.1 Framework of analysis

The macro-context into which the cases are embedded will be addressed, as follows:

a) The **overall health and policy system** shaping priorities for care services and governance mechanisms, and well as funding and reimbursement arrangements. We can look at this level as representing the mix between the long-term institutional legacies and the changing short-term policy priorities. For instance NHS or Social Insurance institutional systems have "physiological" ways to respond to new priorities and cope with challenges that are built-in in their long-standing institutional functioning. It will be interesting to see whether or not such functionings are reflected in different approaches to new forms of reimbursement and to the governance mechanisms for integrated care service provision;

b) The **care practice** is an expression used to refer to the consolidated way of 'doing business', which is closely related to the institutional legacy. This can be seen as the care tradition for health and social care in each country that shape the organisational models and capabilities, as well as the mindset of health and social care professionals;

c) The **socio-demographic and cultural characteristics** of the population influence the type of segments and demands addressed, patients attitudes and expectations toward care in general and the provision of care mediated through or supported by ICT;

d) Finally the overall **eReadiness of a country/region** influence the ICT dimension and also the role industry may play in the delivery of ICT supported IC services. This dimension may be measured, for instance, using: the country level expenditure for ICT in the health sector (using the WITSA dataset); the country level composite index constructed in the latest two surveys funded by the Commission on Hospitals and GPs adoption of eHealth applications and functionalities; by country level percentage of citizens using Internet and ICT applications for health related purposes (e.g. from Eurostat statistics)

These variables will not be the object of specific case level data gathering and will be accounted for by our already cumulated evidence bases on such dimensions. By belonging to one country or another, cases will be assigned automatically a coded value with respect to these four macro-level dimensions.

The variables corresponding to the 7 dimensions/blocks illustrated earlier (see section 3.3) are those on which evidence will be gathered through secondary sources and interviews. This implies a very important distinction for the framework of analysis for it considers deployment (dimension/block 1) and impacts (dimension/block 2) as the dependent variables to be explained, and all other blocks (namely policy and governance settings; organisation and professionals; patients; and ICT) as comprising the independent variables in terms of which we aim to explain deployment and impact levels. By doing so we aim to analyse the causal effects of the facilitators, of drivers and barriers, and of other aspects on deployment and impact and, consequently, identify good practices. We do not include transferability (dimension/block 7) in the model for we consider it a separate dimension to be analysed in terms of policy implications only after the interaction between the dependent and independent variables has been analysed.

4.2 Qualitative case level and cross-cases reporting and analysis

We will combine different sources to characterise cases as wholes across the dimensions presented earlier and provide qualitative and narrative accounts of each of the studied cases (see case reporting structure in the next table).

Structured and semi-structured interviews, inputs from experts, statistics and other secondary sources, will all contribute to the qualitative accounts and characterisations of the cases and also to the formulation of narrative and qualitative cross-analysis of cases.

The table below provides a preliminary sketch of how we plan to structure the case reports that will be produced. We will as much as possible provide standardised information along the same structure symmetrically to all cases, which means using a common minimum denominator that may lead to loss of information for those cases where richer empirical evidence is available. This information will not be lost though and will be recorded. For this reason the preliminary structure reported below must be considered as 'maximalist' as to include all the evidence that would be desirable to gather. In our intention this case reporting structure will become a living document where all the information will be progressively included. It will be used by for the fieldwork activity as a common basis to collect and report evidence. Once the field work is concluded, we will have a case reporting template filled in with all information gathered and this will be retained. On the other hand, the final case reports that will form part of final deliverables will be streamlined and standardised in order to have symmetric accounts of all cases. It will be at this stage that some of the information for the richer cases will have to be cut out without being lost since it will be kept in the draft versions of the case templates filled in at the end of field-work.

Table 10 - Case study report structure

Headings	Short description of contents
1. Case outlook	• This is a sort of executive summary that should support the qualitative cross-case analysis • It contains a short qualitative characterisation of the cases with respect to the six (out of seven) dimensions/blocks illustrated in section 3.3
2. Contextualisation	• Short characterisation of the four dimensions related to macro level; • Short characterisation of how these dimensions vary in the case reference area (regional/local level)
3. Dimension of integration	• Description of the foci, type, level, breadth, and degree of integration, to provide general overview of the case study in terms of: objectives, size and relevance for the study; type of patients; treated pathologies; actors involved. It will also define the level of deployment; • The description will be based both on secondary sources and interviews;
4. Impacts	• Outcome indicators (e.g. cost effectiveness, resource utilisation, patient satisfaction etc.) • The description will be based both on secondary sources and interviews;
5. Policy and governance settings	• Description of governance, policy support, ecosystem governance value network, reimbursement, funding, incentives • The description will be based both on secondary sources and interviews;
6. Organisation and professionals	• Description of organisation/ re-organisation of service provision, and of professionals engagement; • The description will be based both on secondary sources and interviews;
7. Patients	• Description of patient focus and initiatives, delivery channels, patients attitudes and views (whenever available) • The description will be based both on secondary sources, interviews, and patient surveys (if available);
8. ICT	• ICT systems in place (e.g. data exchange, EHR etc.); • The description will be based both on secondary sources and interviews;
A. Structured questionnaire	• Micro-data produced by the questionnaire;
B. Semi-structured interviews	• One-pager summary of interviews;
C. Codification of variable	• Categorical codification of the six dimensions and their items.

The numbered items are those that could potentially become the sections of the case report (although they may be possibly re-aggregated in different ways: i.e. items 3 to 8 could be paragraphs of one single section) but this may change once the evidence is gathered for all cases depending on which will be the minimum common denominator. The items with capital letters would be supporting annexes.

5 Additional remarks

This report aims to cover the activities of SIMPHS3 Work Package 1 (WP1) which foresees a literature review for the identification of cases and the definition of a framework of analysis for best cases of integrated care. In addition, as the ultimate objective of the research is to help scaling up successful initiatives in European regions, an analysis of transferability will be needed. While a review of the literature in this field was foreseen in WP1, it has not been possible to carry out this review in parallel to the various resource-intensive reviews that have been reported here. Nevertheless, the topic can be investigated in parallel to the field activities going on in the project as the actual analysis of transferability will only be possible once data on the selected cases has been gathered and analysed. This is why postponing this specific literature review does not put the success of the project at risk. The outcomes of the literature review on transferability will therefore be presented separately, either as a stand-alone document or as a specific section of the report that will present the SIMPHS3 case studies findings on transferability.

Another point worth mentioning is that of interaction with stakeholders which had been envisaged through an advisory board in the SIMPHS3 Technical Specifications. This will be implemented, as agreed at the kick-off meeting, by consulting experts in an informal and flexible way, only when needed. Out of the panel of experts we consulted for the selection of cases for this study, 27 experts in the field of integrated care have provided their views and inputs about our initial selection of cases. Their knowledge and views have been used to make a final selection of cases. In addition, four experts/researchers have been directly contributing to the contents of the methodology presented in this report. As a result, at this stage of the research, no further expert consultation is deemed necessary.

6 Annexes

6.1 Annex 1 – Case selection procedure (EIP on AHA data)

Table 11 - First identification of cases (Step 1)

REGION	COUNTRY	LEVEL	COUNTRY	Acronym	Description	Integrated care	Tele health	Tele care	Independent living	HEALTH PROBLEMS
Andalusia	ES	NUTS 2	ES	**AeHS**	Disease prevention and early diagnosis integrated process	✓	✓	✓	✓	Diabetes, cardiovascular diseases, stroke, cancer, palliative care, mental health and pain
Catalonia	ES	NUTS 2	ES	**NEXES**	Early diagnostic process for wellbeing and independent living	✓		✓	✓	COPD, CHF, diabetes
Catalonia	ES	NUTS 2	ES	**MECASS**	Integrated care and social care collaborative model	✓		✓	✓	All chronic disease
Basque Country	ES	NUTS 2	ES	**ETXEAN ONDO**	Integrated care for fall prevention and reducing readmission	✓		✓	✓	Fall prevention
Cork-Kerry-Louth	IE	NUTS 2	IE	**CARTS**	Integrated approach to risk prevention for ageing	✓			✓	All chronic disease
Emilia-Romagna	IT	NUTS 2	IT	**SOLE/FSE**	Integrated care services in primary care	✓		✓	✓	Hearth failure, diabetes, COPD, falls prevention, cognitive and functional decline
Emilia-Romagna	IT	NUTS 2	IT	**ARIA**	Integrated preventive actions for reducing risk of hospitalisation in acute respiratory disease	✓			✓	Acute respiratory impairment in neuromuscular, neurological and rib cage disease (comorbidity)
Ile-de-France	FR	NUTS 2	FR	**T4H**	Integrated care services for preventing readmission	✓		✓	✓	All chronic disease
Olomouc	CZ	NUTS 2	CZ	**TAHF**	Telemonitoring of patient with advanced heart failure	✓	✓	✓	✓	Cardio Health Failure (CHF) disease
Oulu	FI	NUTS 2	FI	**ILHCS**	Independent living services	✓		✓	✓	All chronic disease
Oulu	FI	NUTS 2	FI	**Oulu Self-Care**	Disease prevention well-being services at home	✓		✓	✓	All chronic disease
Saxony	DE	NUTS 2	DE	**CCMPD**	Integrated care management diabetes	✓		✓	✓	All chronic disease
Saxony	DE	NUTS 2	DE	**GC**	Integrated care services for elderly	✓		✓	✓	Diabetes
Scania	SE	NUTS 2	SE	**BLMSE**	Integrated care and social care collaborative model, including co-production from patient and relatives	✓			✓	Aged person above 65 years with severe chronic disease
Scotland	UK	NUTS 2	UK	**SPARRA**	Integrated care pathways programme for reducing risk of readmission and admission	✓			✓	Multiple morbidity, frailty and cognitive impairment
Scotland	UK	NUTS 2	UK	**TDP**	Integrated Telecare services	✓		✓	✓	Dementia, learning and physical disabilities, mental health issues and frailty
Southern Denmark	DK	NUTS 2	DK	**SAM:BO**	Integrated care pathways programme	✓	✓	✓	✓	Cardiovascular diseases and related comorbidities
Twente	NL	NUTS 2	NL	**INAA**	Integrated neighbourhood approach for aging population	✓			✓	Physical, cognitive and nutritional issues

Table 12 - Regional contextual information as of 2012 (Step 2)

Region	Country	Area (km2)	Population (2012)	Density (2012)	GDP (billions €)	GDP per capita €	Regional budget for Health (billion €/year)	Regional Budget for health per capita (€/ inhab.)	Health Care Professionals per 100.000 hab.	GPs per 1.000 inhab.	Specialists per 1.000 inhab.	Hospital beds	Hospital beds per 1.000 hab.	Life expectancy at birth	
														Male (years)	Female (years)
Andalusia	ES	1.500	600.000	400	18,40	30.670	1,70	€ 2.800	288	0,72	2,17	2.800	4,50	77,00	81,80
Catalonia	ES	32.114	7.568.988	235	215,00	28.289	17,80	€ 2.345	317	0,72	2,17	23.600	3,10	77,30	83,80
Basque Country	ES	7.234	2.155.000	297	68,00	31.200	6,40	€ 2.964	304	0,74	2,30	7.900	3,60	74,80	81,70
Cork-Kerry-Louth	IE	13.071	785.300	60	20,20	25.625	1,85	€ 2.357	432	0,57	3,75	1.730	2,20	76,80	81,60
Emilia-Romagna	IT	22.445	4.500.000	200	137,00	30.444	8,50	€ 1.888	386	0,78	3,67	20.493	4,50	76,80	81,60
Ile-de-France	FR	12.012	11.914.812	990	607,00	51.118	42,00	€ 3.500	395	1,60	1,67	7.100	5,90	78,80	85,60
Olomouc	CZ	5.267	630.000	356	11,80	18.846	0,89	€ 1.404	356	0,05	2,86	4.467	7,10	75,00	81,10
Oulu	FI	61.582	446.000	289	15,20	34.074	1,35	€ 3.032	289	0,72	2,17	2.840	6,30	75,10	81,80
Saxony	DE	18.400	4.250.000	338	93,50	22.000	12,60	€ 2.960	338	0,65	2,98	20.105	8,30	76,10	82,40
Scania	SE	10.933	1.214.758	112	38,40	31.650	2,70	€ 2.239	410	0,62	3,10	3.400	2,80	78,10	83,30
Scotland	UK	78.387	5.254.800	67	166,00	31.590	10,00	€ 1.903	294	0,79	1,94	24.800	4,70	80,09	85,10
Southern Denmark	DK	12.206	1.201.419	98	45,90	38.200	2,40	€ 1.999	370	0,67	2,75	4.100	3,40	76,40	81,30
Twente	NL	1.500	600.000	400	18,40	30.670	1,70	€ 2.800	288	0,72	2,17	2.800	4,50	77,00	81,80

Table 13 - Regional health and social system characterisation (step 4)

Region	Country	Public system financing	Private insurance Role	Out of pocket rate on health yearly expenditures (*)	Caps on Out of Pocket expenses
Andalusia	ES	National health service	Employer/employee earmarked income and added value tax; regional tax revenue	10% of population buy for cost sharing	20%
Catalonia	ES	National health service	Employer/employee earmarked income and added value tax; regional tax revenue	10% of population buy for cost sharing	20%
Basque Country	ES	National health service	Employer/employee earmarked income and added value tax; regional tax revenue	10% of population buy for cost sharing	20%
Cork-Kerry-Louth	IE	National health service	General tax revenues	10% of population buy for cost sharing	12%
Emilia-Romagna	IT	National health service	Employer/employee earmarked income and added value tax; regional tax revenue	15% of population buy for private assistance	20%
Ile de France	FR	Statutory health insurance system, with all SHI insurer incorporated into single national union	Employer/employee earmarked income and payroll tax, general tax revenue	90% of population buy for cost-sharing	7%
Olomouc	CZ	Statutory health insurance system with a mix of public-private SHI insurers	Employer/employee earmarked income and payroll tax, general tax revenue	Almost all the population	14%
Oulu	FI	National health service	General tax revenues	10% of population buy for cost sharing	19%
Saxony	DE	Statutory health insurance system, with 180 competing SHI insurer ("sickness funds"); high income can opt out for private coverage	Employer/employee earmarked income and payroll tax, general tax revenue	Cost-sharing; 10% of population opt out of SHI system for private coverage	13%
Scania	SE	National health service	General tax revenues	5% of population buy for private assistance	17%
Scotland	UK	National health service	General tax revenues	10% of population buy for cost sharing	11%
Southern Denmark	DK	National health service	Earmarked income tax	40% of population buy for cost sharing	13%
Twente	NL	Statutory health insurance system, with universally -mandate private insurance (national exchange)	Earmarked payroll tax, community-related insurance premium, general tax revenues	Private plans provide universal care; 80% of population buy extra benefits	6%

Table 14 - Preliminary cases selected

Catalonia (ES) **NEXES** – the practice is related to promotion of early diagnosis and healthy lifestyles of clinically stable chronic patients. Enhanced Care. Prevention of unplanned hospitalisations in frail patients with high risk of admissions. **Disease/health problem:** Chronic Obstructive Pulmonary Disease (COPD), Chronic Heart Failure (CHF) and diabetes.	**Catalonia (ES)** **MECASS** – the practice is related to reengineer care process with and integrated point of view; improve the coordination and the continuity of care; improve the coordination amongst health and social care; increase efficiency and cost effectiveness in health and social health system. **Disease/health problem**: all chronic diseases.	**Basque Country (ES)** **ETXEAN ONDO** – the practice is a pilot project that aims at providing services to the patient for prevention, screening and early diagnosis to fall prevention. The specific aim of this project is to promote that older people who live in homes or nursing homes and their family and caregivers receive the support and care needed by means of the provision of an integrated model of attention. **Disease/health problem:** fall prevention.
Emilia-Romagna (IT) **SOLE/FSE** – the practice is related to create an integrated network of Local Health Trusts, Hospitals, General Practitioners and Paediatricians and provide, trough the Electronic health record (EHR) the clinical history of every citizen of the region. **Disease/health problem:** heart failure, diabetes, COPD, fall prevention, cognitive and functional decline.	**Emilia Romagna (IT)** **ARIA** – The practice is related to Home-based Telemonitoring, early integrated care and physiotherapy to cut down hospital admissions due to acute respiratory impairment in neuromuscular, neurological and rib cage diseases affected patients. **Disease/health problem:** diabetes, cardiovascular acute respiratory impairment in neuromuscular, neurological and rib cage diseases (comorbidity).	**Olomouc (CZ)** **TAHF** – the practice is related to detect of maximum possible amount of patients with given diagnose, deployment of TeleHealth services for optimisation and standardisation of new protocols for treatment, evaluation of results and selection of successful methods followed by submission of the practices conclusions to European medical societies (incl. ESC) in appropriate form.. **Disease/health problem:** Cardio Health Failure (CHF) disease
Cork-Kerry-Louth (IE) **CARTS** – the practices is related to a comprehensive screening, triage and treatment process to delay or prevent functional decline and frailty in older adult and to reduce three negative outcomes such as: institutionalisation, hospitalisation and death in aged population. **Disease/health problem:** all chronic diseases.	**Ile de France (FR)** **T4H** – the practices is related to reduce falls, particularly serious falls, as well as to improve the physical autonomy of frail elderly returning to their homes after hospitalisation. **Disease/health problem:** fall prevention.	**Twente (NL)** **INAA** – the practices is related to implement both effective screening services and effective support and treatments services for elderly persons in their own daily environments. It is an integrated approach to support independent living situation of ageing population focussing on support of elderly in physical, cognitive and nutrition aspects. **Disease/health problem:** chronic diseases in general focussing on support of elderly in physical, cognitive and nutrition aspects.
Oulu (FI) **Oulu Self-Care** – the practice is related to allow elderly to estimate their own well-being by using the web tool Wellness Profile Oulu. Users can log in the Oulu Self-Care Services using their bank credentials and book laboratory appointments, access their laboratory test results, send and receive messages, and enter measurements taken at home, such as blood pressure measurements, for example. Asking questions is free of charge and a health care professional will respond within three working days. **Disease/health problem:** all chronic disease.	**Saxony (DE)** **AeHS** – the practice is related to introduce a new approach for the care management of diabetes patients, more integrated and proactive that in the past. The central point of the process was the constituency of a Telediabetological competence centre. The scope of the centre is to coordinate the different actors involved in the care process providing the right feedback on the health status of the patient at the right time to the right person (e.g. the patient itself; the parents, the GP, the specialists). **Disease/health problem:** diabetes.	**Saxony (DE)** **GC** – the practice is related to develop the so to say mono-oriented structures to care nets for geriatric patients. The elderly patients get access near to their living places to high-quality and efficient care diagnosis, treatment and rehabilitation. Central point is the geriatric centres, coordinating and steering the different services. On basis of the geriatric assessment the personalized care need of the patients can be identified and treated. **Disease/health problem:** all chronic conditions including comorbidities

Scania (SE)	Scotland (UK)	Scotland (UK)
AeHS – the practice is related to improve pharmaceutical treatments; palliative care; care of people with dementia; coordination health and social health care for elderly; preventive care. The main areas of improvement are: new ways of working, structured and based on evidence; quality assured welfare; knowledge and skills of health care and social care workforce; leadership and management systems; senior citizens engagement. **Disease/health problem:** Aged persons above 65 years with severe chronic disease.	**TDP** – the practice is related to Increase the number of people receiving Telecare services and reduce avoidable admissions to care homes, as well as reduce unplanned admissions and readmissions to hospital and the need for more expensive forms of intervention;. **Disease/health problem:** Dementia, learning and physical disabilities, mental health issues, and frailties as a result of ageing or ill health.	**SPARRA** – the practice is related to enable better use of local data to design targeted interventions across the whole health and social care system. It is now being applied in every GP practice and in all 32 health and care partnerships in Scotland, just as both social care and housing sectors have expressed interest in using the tool to target their respective supports within the integrated system. **Disease/health problem:** Multiple morbidity, frailty and cognitive impairment.

6.2 Annex 2 – Additional information and statements about integrated care and independent living

Patient satisfaction evaluation of telemedicine applications:

"...patient satisfaction evaluation is insufficient. However, an increased trend has been detected, which was most evident in the major growth area of telecare. Evaluations are not as actively performed in the routine delivery stage as the pilot stage. Our qualitative analysis found that measuring methods used are usually unsophisticated, poorly described, and often fails to allow patients to communicate their experience in a useful manner. ... There is an obvious need to adopt standard methodologies for measuring satisfaction and ways of incorporating this into economic evaluation, to ensure comparability of data and applications, and not least to compel researchers to adopt an agreement on the dimensions of satisfaction to be evaluated." (Zhang, 2014)

Economic evaluation of telemedicine interventions:

"A literature review was conducted to obtain a high-level view of the value of telemedicine in the management of five common chronic diseases (asthma, COPD, diabetes, heart failure, hypertension). A total of 141 randomised controlled trials (RCTs) were identified, in which 148 telemedicine interventions of various kinds had been tested in a total of 37,695 patients. ... there have been very few studies of cost-effectiveness. Thus the evidence base for the value of telemedicine in managing chronic diseases is on the whole weak and contradictory." (Wootton, 2012)

"This paper provides a review of the quality, validity and generalisability of economic evaluations in telemedicine. ... As this paper demonstrates, few economic evaluations of telemedicine can be trusted to provide reliable information for decision-making. The majority of the evaluations reviewed were not in accordance with standard evaluation techniques and still have a long way to go before decision-makers can rely on them to produce valid and reliable cost-effectiveness data. Such improvement refers primarily to technical aspects and reporting of results. Given the differences in decision problems, local settings and the range of analytical choices, it is not surprising that there is considerable variation in economic evaluations of telemedicine." (Bergmo, 2009)

"In the period January 2004 until September 2010, there were 47 studies on the cost-effectiveness of telemedicine interventions. Eleven studies were CEA and seven were CUA; six studies used discounting; 23 studies undertook sensitivity analyses; and 14 studies reported incremental cost-effectiveness ratios (ICERs). This demonstrates that economic tools are increasingly being used for evaluations of telemedicine." (Mistry, 2012)

Success of integrated care:

"the main factors modulating the success of an integrated care approach in delivering the services, namely: a) the challenge of co-morbidities; b) articulation of healthcare and community services; c) organisational and educational issues; d) modularity, scalability and interoperability of the Information and Communication Technology platform, and, e) identification of business models ensuring service sustainability" (Vallespin, 2008)

Points to consider, which may be helpful to those developing and implementing innovations and thinking about how to assess impact or commission a formal evaluations (The Nuffield Trust, 2013):

- Recognise that planning and implementing large-scale service changes takes time
- Define the intervention clearly and what it is meant to achieve and how, and implement it well
- Be explicit about how desired outcomes will arise, and use interim markers of success
- Generalisability and context are important
- If you want to demonstrate statistically significant change, size and time matters
- Hospital use and costs are not the only impact measures
- Carefully consider the best models for evaluation
- Work with what you have: organisation and structural change may not deliver outcomes

6.3 Annex 3 - Full list of initiatives identified in the peer-reviewed literature by the deployment criteria

Table 15 - Full list of initiatives identified in the peer-reviewed literature by the deployment criteria (including non-selected ones)

Name of initiative	Disease or intervention area	Deployed	Description of concept	Country	Target population	Stakeholders	Funding	Author / Year
AGNES	Dementia	Yes	The AGnES concept (GP-supporting, community-based, e-health assisted systemic intervention) is based on the delegation of GP-home visits to qualified GP practice assistants .	Germany	Federal level	Health insurance funds; Patients, Medical professionals	"GPs in regions with an imminent medical care undersupply receive reimbursement from the statutory health insurances for their delegated home visits."	Thyrian, 2013
SERVANDO	COPD	No	develops a set of configurable medical services at home through the definition and implementation of follow-up protocols, that is, an adaption of the notion of clinical practice guidelines to the scope of home supervision	Spain				Teijeiro, 2013
[Sandwell]	COPD	No	a new telehealth intervention was introduced within a nurse-led community respiratory service	UK	Community			Gale, 2013
ACTION	Independent living	Yes	The overall aim of the ACTION service is to maintain or enhance the autonomy, independence and quality of life of frail older people living at home and their carers. It consists of ICT based information, education and support to enable them to make informed decisions about their situation in order to make their daily lives easier to manage. ACTION consists of four major integrated components: 1. Multimedia educational programs 2. ACTION station 3. ACTION call centre 4. Education and supervision	Sweden	Some municipalities of Sweden	Users, Care practitioners, Designers, Telecommunications company, University coordinator, Local politicians, Government	Swedish state (cross-border pilot was originally funded by EU, and the Swedish principle investigators secured national funding)	Magnusson, 2012

TELESCOT COPD	COPD	No	Telemonitoring service	Scotland	Community			Fairbrother, 2012
ENDEA	Independent living	?	home-based assisted living technologies that focus on mitigating falls, keeping socially connected and maintaining or improving cognitive function	Ireland	National	Industry and academic partners (Teams of clinicians, physical and social scientists, technologists, engineers, designers and ethnographers); Patients; Government	National research programme	Bailey, 2011 (only abstract available)
SINERGIA	Diabetes	Yes	[does not include ICT]	Italy				Mussachio, 2011
Scottish Care Information—Diabetes Collaboration (SCI-DC) network system	Diabetes	Yes	Web-based information system that supported direct patient care, population-based monitoring, audit, and clinical governance for the multidisciplinary team members of a managed clinical network	Scotland	National	Multidisciplinary, linked groups of health professionals and organisations from primary, secondary and tertiary care; Patients; Designers; Government	Funded through national health service	Cunningham, 2011
TeleDiaPre T, TeleMed, DRWeb, TeleDiaFoS	Diabetes	No	ICT support of different diabetic patient groups	Poland				Ładyzyński, 2010 (abstract only)
[integrated care pathway]	Hip fractures		[does not include ICT]	Sweden				Olsson, 2009
TELEMACO	CHF or COPD	No	Telemedicine service for rural regions	Italy	Regional	Involvement of companies operating in small regions		Bernochi, 2012
NEXES	Chronic conditions	Yes	The platform consists of a web-based application addressed to the management of chronic patients and the elderly, facilitating organisational interoperability following a distributed model.	13 partners from Spain, Greece, Norway, Italy				Vallespin, 2008 (only abstract)

SAPHE	Chronic diseases	Yes	novel pervasive computing architecture for supporting the provision of care to individuals with chronic diseases	UK	Regional		UK Government	Barnes, 2008

Table 16 – Stakeholders' involvement in cases selected from peer-reviewed and grey literature (including CIP & AAL)

STAKEHOLDERS	health provider	care provider	Patients	industry	EU organisation	academia	national administration	local administration	insurance provider	TOTAL
ACTION		x	X	x			x	x		5
AGnES	x		X				x			3
ATIS4all			X	x	x	x				4
Carer+		x	X	x	x	x				5
CommonWell	x		X	x	x			x		5
DIABMEMORY	x		X	x					x	4
ENDEA	x		X	x			x	x		5
inCASA	x		X	x	x	x		x		6
INDEPENDENT		x	X	x	x	x		x		6
IS-ACTIVE	x		X	x	x	x				5
ISISEMD		x	X	x	x	x		x		6
iStoppFalls			X	x	x	x				4
NEXES	x		X	x	x	x		x		6
ReAAL		x	X	x	x	x				5
RENEWING HEALTH		x	X	x	x	x		x		6
RGS (Rehabilitation Gaming System)	x		X	x	x	x				5
Scottish Care Information—Diabetes Collaboration (SCI-DC) network system	x		X	x			x			4
TOTAL	9	6	17	16	12	11	4	8	1	

Table 17 – Scope of implementation in cases selected from peer-reviewed and grey literature (incl. CIP & AAL)

INITIATIVES	SCOPE OF IMPLEMENTATION	local	regional	national	multinational
ACTION	local	x			
AGnES	national			x	
ATIS4all	multinational				x
Carer+	multinational				x
CommonWell	multinational				x
DIABMEMORY	regional		x		
ENDEA	national			x	
inCASA	multinational				x
INDEPENDENT	multinational				x
IS-ACTIVE	multinational				x
ISISEMD	multinational				x
iStoppFalls	multinational				x
NEXES	multinational				x
ReAAL	multinational				x
RENEWING HEALTH	multinational				x
RGS (Rehabilitation Gaming System)	multinational				x
Scottish Care Information—Diabetes Collaboration (SCI-DC) network system	national			x	
TOTAL		1	1	3	12

Table 18 – Funding in cases selected from peer-reviewed and grey literature (including CIP & AAL)

INITIATIVES	FUNDING	EU	Government	Public insurer	Unclear
ACTION	government		x		
AGnES	government		x		
ATIS4all	EU	x			
Carer+	EU	x			
CommonWell	EU	x			
DIABMEMORY	public insurer			x	
ENDEA	government		x		
inCASA	EU	x			
INDEPENDENT	EU	x			
IS-ACTIVE	?				x
ISISEMD	EU	x			
iStoppFalls	EU and Australian government	x			
NEXES	EU	x			
ReAAL	EU	x			
RENEWING HEALTH	EU	x			
RGS (Rehabilitation Gaming System)	?				x
Scottish Care Information—Diabetes Collaboration (SCI-DC) network system	government		x		
TOTAL		10	4	1	2

Table 19 – Review of additional cases suggested by the client

Name of initiative	Disease or Intervention area	Deployment level	Description of concept	Country	Target population	Stakeholders	Source
TK Integrated Care Contract for Back Pain	Integrated care for back pain	3.000 patients / 32 locations in 15 federal states	Integrated care models implemented together with doctors, hospitals and outpatient care facilities to improve the treatment of pain.	Germany	10% of TK's pain patients suffering longer than six weeks.	Techniker Krankenkasse (TK, Insurance) Integrative Managed Care (IMC, care management company)	B3 Good Practice
Maccabi Center for Remote Chronic disease management	Integrated chronic disease management	Mainstreamed. 10,000 patients	The Maccabi Multidisciplinary Chronic Disease Telemedicine Centre is a routine service (1/7/12) operated by trained nurses providing coordinated care solution.	Israel	CHF patients COPD patients Home care patients Patients with new stoma, Diabetes patients, Patients with chronic wounds, Heart rehabilitation patients.	Maccabi Healthcare Services	CIP network (Momentum)
SISSI - Social and health information system	Integration between healthcare professionals and social operators	Under experimentation	Management of elderly who are at home. The actors of the system are the GPs, nurses and other healthcare operators, equipped with a tablet with which it is possible to update the different health and social data concerning the elderly they care.	Italy	3.239 patients per year.	AUSL Cesena & Cup2000_ASSRRERIT	B3 Good Practice
Walcheren Integrated Care Model (WICM)	Preventive integrated care model for the frail elderly	Concept tests evaluated through a RCT with about 250 patients and 6 GPs. The model is currently being disseminated in Walcheren and parts of Brabant.	The Walcheren Integrated Care Model ((WICM) is a comprehensive integrated model for the detection and assessment of needs and the assignment and evaluation of care for independently living frail elderly. The model focuses on the entire chain, from detection to the provision of care, in the fields of prevention, cure, care, welfare and residence, in primary, secondary and tertiary care.	Netherlands	Frail older population (75+) 22.000 older adults	Zorggroep Walcheren Veersche Huisartsen Coöperatie Stichting Werkt Voor Ouderen Stichting Zorgstroom Stichting Voor Regionale Zorgverlening POSO ADZR	B3 Good Practice
Chronic Care Programme in Catalonia	Development of a model for IC to be implemented in the whole Region	To be implemented in the whole region	Integrated care initiative for complex chronic patients or advanced chronic patients with social needs or dependency.	Catalonia	All population	Department of Health CatSalut	B3 Good Practice

Name of initiative	Disease or Intervention area	Deployment level	Description of concept	Country	Target population	Stakeholders	Source
Strategy to tackle the challenge of Chronicity	Integration of healthcare services and social welfare resources.	Some integrated care solutions deployed.	Transformation in the health system designed to bring about a proactive, highly patient-centred system, providing patients with all the necessary support for optimum self-management of their illness and to prevent other ailments	Basque Country	2,500,000	Department of Health of the Basque Country	B3 Good Practice
Valcronic programme	Management of chronic patients through the use of new technologies	Pilot	Valcronic is a programme whose aim is to improve the management of chronic patients from Valencian Region through the use of new technologies, empowering them in their daily self-monitoring and facilitating availability of updated clinical patient data to GPs and nurses.	Valencia	12,000 chronic patients (500 high risks, 1,500 medium risk and 10,000 low risks), of which 2,928 old patients (+65) (project started in 2012 still on going, not clear how many patients are involved)	Polibienestar Research Institute – University of Valencia, Valencian Ministry of Health, and Telefónica.	B3 Good Practice
Several initatives (KIS, SPARRA etc.)	Integrated care pathways		Integrated care pathways for mental health, chronic pain patients, falls prevention and management, and fracture prevention for older people	Scotland	Regional population	Various (NHS Scotland, NHS Lancashire, JIT etc.)	Several B3 Good Practices
Renewing Health	Telemedecine services validation	Integration of the service solutions at regional level. In the 9 regions the service solutions are already operational at local level for the telemonitoring and treatment of chronic patients	Implementing large-scale real-life test beds for the validation and subsequent evaluation of innovative telemedicine services using a patient-centred approach and a common rigorous assessment methodology	Italy, Denmark, Sweden, Norway, Spain, Finland, Greece, Austria, Germany	Chronic patients suffering from diabetes, COPD and CVD.	Regional Authorities or regional healthcare providers	CIP pilot
Dreaming	Independent living services (including telehealth and remote patient monitoring)	RCT completed in 2012. Some services continue through the SmartCare project. Evidence of economic and clinical	Enabling elderly people to continue to live in their home. Providing elderly people with the simple though effective way of staying in touch. Increasing the appropriateness and the timeliness of	Denmark, Estonia, Germany, Italy, Spain,	Older people with chronic conditions (COPD, diabetes or CHD)		CIP pilot

Name of initiative	Disease or Intervention area	Deployment level	Description of concept	Country	Target population	Stakeholders	Source
		impact.	interventions by health and social care professionals. Containing health and social care expenditure.	Sweden			
Integration Pioneer Programme	Integrated care commissioning and provision.	Some services deployed following WSD (e.g. 2000 telecare users; proactive care mode being rolled out), others are pilot.	Provision of integrated services, improving the coordination of care for patients, service users and their families.	Kent	1,500,000 people	NHS, Kent County Council	Kent Integration Pioneer bid (June 2013)
Extending active and independent living through open and personalised solutions	The national initiative in Sweden for procurement of national roll-out of internet-based social alarms	Pilot	Develop IP based interoperable open protocols for social care alarms in Europe; manage a technological shift of 200.000 analogue social care alarm units into fully IP based units.	Sweden	200,000 users of social alarms until end 2015; 200 users during testing phase	Swedish Institute of Assistive Technology	CIP / EIP on AHA Commitment (C2)
Puglia	Ambient Assisted Living (Pre Commercial Procurement initiative): - assistance and inclusion - health and safety	Pre-pilot stage	The main purpose of the PCP call was to increase and improve the existing services, devices and organisational systems from a public administration perspective	Italy		Regional Government of Apulia	National / Pre-Commercial Procurement
Veterans Health Administration	United States' largest integrated health care system	Deployed	Provision of health services including telehealth	USA	Veterans	US Department of Veterans Affairs	National

6.4 Annex 4 - Relevant scientific sources on integrated care

Ahgren, B. (2010). Mutualism and antagonism within organisations of integrated health care. *J Health Organ Manag, 24*(4), 396-411.

Ahgren, B., & Axelsson, R. (2005). Evaluating integrated health care: a model for measurement. *Int J Integr Care, 5*, e01; discussion e03, e09.

Alter, C., & Hage, J. (1993). *Organizations working together*. Newbury Park, California: Sage Publications.

Andersen, R. M. (1995). Revisiting the behavioral model and access to medical care: does it matter? *J Health Soc Behav, 36*(1), 1-10.

Armitage, G. D., Suter, E., Oelke, N. D., & Adair, C. E. (2009). Health systems integration: state of the evidence. *Int J Integr Care, 9*, e82.

Arndt, M., & Bigelow, B. (1992). Vertical integration in hospitals: a framework for analysis. *Med Care Rev, 49*(1), 93-115.

Atun R. (2004). What are the advantages and disadvantages of restructuring a health care system to be more focused on primary care services? Geneva: WHO Regional Office for Europe's Health Evidence Network (HEN).

Atun, R., de Jongh, T., Secci, F., Ohiri, K., & Adeyi, O. (2010). A systematic review of the evidence on integration of targeted health interventions into health systems. *Health Policy Plan, 25*(1), 1-14. doi: 10.1093/heapol/czp053

Bahale, T., (2003). "The changing instituzionalization of social services in England and Wales, France and Germany: is the welfare state on the retreat?". *Journal of European Social Policy.* 13:5, pp: 5-20.

Bailey, C.; Doyle, J.; Squires, S.; Scanaill, C.; Fan, C.W.; Sheehan, C.; Cunningham, C.; Dromey, B. (2011) ""ENDEA": a case study of multidisciplinary practice in the development of assisted technologies for older adults in Ireland", *Journal of Assistive Technologies, Vol. 5 Iss: 3*, pp.101 – 111.

Barnes, N.M.; Reeves, A.A. (2008) Holistic monitoring to support integrated care provision Experiences from Telecare trials and an introduction to SAPHE*. Pervasive Computing Technologies for Healthcare.* Jan-Feb 2008:293-296.

Bergmo, T.S. (2009) Can economic evaluation in telemedicine be trusted? A systematic review of the literature. *Cost Effectiveness and Resource Allocation 7* , art. no. 18

Brandt, Stefan, Hartmann, Jan, & Hehner, Steffen. (2010). How to design a successful disease-management program. *McKinsey Quarterly, October*.

Brazil, K., Whelan, T., O'Brien, M. A., Sussman, J., Pyette, N., & Bainbridge, D. (2004). Towards improving the co-ordination of supportive cancer care services in the community. *Health Policy, 70*(1), 125-131. doi: 10.1016/j.healthpol.2004.02.007

Browne, G., Kingston, D., Grdisa, V., & Markle-Reid, M. (2007). Conceptualization and measurement of integrated human service networks for evaluation. *Int J Integr Care, 7*, e51.

Browne, G., Roberts, J., Gafni, A., Byrne, C., Kertyzia, J., & Loney, P. (2004). Conceptualizing and validating the human services integration measure. *Int J Integr Care, 4*, e03.

Burns, L. R., & Pauly, M. V. (2002). Integrated delivery networks: a detour on the road to integrated health care? *Health Aff (Millwood), 21*(4), 128-143.

Burns, L. R., Walston, S. L., Alexander, J. A., Zuckerman, H. S., Andersen, R. M., Torrens, P. R., & Hilberman, D. (2001). Just how integrated are integrated delivery systems? Results from a national survey. *Health Care Manage Rev, 26*(1), 20-39.

Burton LC, Anderson GF, & IW, Kues. (2004). Using Electronic Health Records to Help Coordinate Care. *Milbank Quarterly, 82*(2), 457-481.

Cunningham, S.; McAlpine, R.; Leese, G; Brennan, G; Sullivan, F; Connacher, I.; Waller, A.; Boyle, D.I.R.; Greene, S.; Wilson, E.; Emslie-Smith, A.; Morris, A.D. (2011) Using Web Technology to Support Population-Based Diabetes Care. *Journal of Diabetes Science and Technology*. 5(3)

Darkins, A. (2006). Changing the location of care: management of patients with chronic conditions in Veterans Health Administration using care coordination/home telehealth. *J Rehabil Res Dev, 43*(4), vii-xii.

Darkins, A., Ryan, P., Kobb, R., Foster, L., Edmonson, E., Wakefield, B., & Lancaster, A. E. (2008). Care Coordination/Home Telehealth: the systematic implementation of health informatics, home telehealth, and disease management to support the care of veteran patients with chronic conditions. *Telemed J E Health, 14*(10), 1118-1126. doi: 10.1089/tmj.2008.0021

Devers, K. J., Shortell, S. M., Gillies, R. R., Anderson, D. A., Mitchell, J. B., & Erickson, K. L. (1994). Implementing organized delivery systems: an integration scorecard. *Health Care Manage Rev, 19*(3), 7-20.

Donabedian, A. (2005). Evaluating the quality of medical care. 1966. *Milbank Q, 83*(4), 691-729. doi: 10.1111/j.1468-0009.2005.00397.x

Dorr, David, Bonner, Laura M., Cohen, Amy N., Shoai, Rebecca S., Perrin, Ruth, Chaney, Edmund, & Young, Alexander S. (2007). Informatics Systems to Promote Improved Care for Chronic Illness: A Literature Review. *Journal American Medical Informatics Association (JAMIA), 14*, 156 –163.

Eisenhardt, K. (1989). Building Theories from Case Study Research. *The Academy of Management Review, 14(4),* 532-550. doi: citeulike-article-id:2936493

Epping-Jordan, J. E., Pruitt, S. D., Bengoa, R., & Wagner, E. H. (2004). Improving the quality of health care for chronic conditions. *Quality and Safety in Health Care, 13*(4), 299-305.

Fletcher, R. H., O'Malley, M. S., Fletcher, S. W., Earp, J. A., & Alexander, J. P. (1984). Measuring the continuity and coordination of medical care in a system involving multiple providers. *Med Care, 22*(5), 403-411.

Friedman, L., & Goes, J. (2001). Why integrated health networks have failed. *Front Health Serv Manage, 17*(4), 3-28.

Gillies, R. R., Shortell, S. M., Anderson, D. A., Mitchell, J. B., & Morgan, K. L. (1993). Conceptualizing and measuring integration: findings from the health systems integration study. *Hosp Health Serv Adm, 38*(4), 467-489.

Glasby, J., & Dickinson, H. (2010). *International perspectives on health and social care*. Oxford: Wiley Blackwell.

Goodwin, N. (2010) The state of telehealth and telecare in the UK: Prospects for integrated care. *Journal of Integrated Care 18 (6)* pp. 3-10.

Grant, Jenny. (2010). What does it take to make integrated care work? *McKinsey Quarterly, January*.

Gress, S., Baan, C. A., Calnan, M., Dedeu, T., Groenewegen, P., Howson, H., Vrijhoef, B. (2009). Co-ordination and management of chronic conditions in Europe: the role of primary care--position paper of the European Forum for Primary Care. *Qual Prim Care, 17*(1), 75-86.

Grone, O., Garcia-Barbero, M., & Services, W. H. O. European Office for Integrated Health Care. (2001). Integrated care: a position paper of the WHO European Office for Integrated Health Care Services. *Int J Integr Care, 1*, e21.

Haggerty, J. L., Reid, R. J., Freeman, G. K., Starfield, B. H., Adair, C. E., & McKendry, R. (2003). Continuity of care: a multidisciplinary review. *BMJ, 327*(7425), 1219-1221. doi: 10.1136/bmj.327.7425.1219

Hebert, R., & Veil, A. (2004). Monitoring the degree of implementation of an integrated delivery system. *Int J Integr Care, 4*, e05.

Hendriks JM, de Wit R, Crijns HJ, Vrijhoef HJ, Prins MH, Pisters R, Pison LA, Blaauw Y, Tieleman RG. (2012) Nurse-led care vs. usual care for patients with atrial fibrillation: results of a randomized trial of integrated chronic care vs. routine clinical care in ambulatory patients with atrial fibrillation. *Eur Heart J. 2012 Nov*;33(21):2692-9. doi: 10.1093/eurheartj/ehs071.

Karmann, A., Dittrich, G. , & Valliant, J. (2004). How well coordinated are patient hospital careers? Evidence from Saxony, Germany. *Journal of Public Health, 12*(5), 329–338.

Klein, G. (2001). Features of team coordination. In M. McNeese, E. Salas & M. Endesley (Eds.), *New trends in cooperative activities: understanding system dynamics in complex environments* (pp. 68–95). Santa Monica, CA: Human Factors and Ergonomics Society.

Kodner, D. L. (2009). All together now: a conceptual exploration of integrated care. *Healthc Q, 13 Spec No*, 6-15.
Kodner, D. L., & Spreeuwenberg, C. (2002). Integrated care: meaning, logic, applications, and implications--a discussion paper. *Int J Integr Care, 2*, e12.
Leichsenring, K. , & Alaszewski, A. (2004). *Providing integrated health and social care for older persons: a European overview of issues at stake*. Aldershot: Ashgate.
Leroi, I., Woolham, J., Gathercole, R., Howard, R., Dunk, B., Fox, C., O'Brien, J., (...), Ritchie, C. (2013) Does telecare prolong community living in dementia? A study protocol for a pragmatic, randomised controlled trial. *Trials 14 (1)* , art. no. 349.
Leutz, W. N. (1999). Five laws for integrating medical and social services: lessons from the United States and the United Kingdom. *Milbank Q, 77*(1), 77-110, iv-v.
Lloyd, J., & Wait, S. (2006). *Integrated Care: a Guide for Policymakers*. London: Alliance for Health and the Future.
Lluch, M. (2012). Strategic Intelligence Monitor on Personal Health Systems Phase 2 (SIMPHS 2). Evidence consolidation - Report on best practices and key drivers of success: Institute for Prospective and Technological Studies. Joint Research Centre. JRC73069.
Lluch, M., & Abadie, F. (2013). Exploring the role of ICT in the provision of integrated care-Evidence from eight countries. *Health Policy, 111*(1), 1-13. doi: 10.1016/j.healthpol.2013.03.005
Loader, B.D., M. Hardey, and L. Keeble. (2008). *Digital Welfare for the Third Age*. London: Routledge.
Lukas, C. V., Meterko, M., Lowcock, S., Donaldson-Parlier, R., Blakely, M., Davies, M., & Petzel, R. A. (2002). Monitoring the progress of system integration. *Qual Manag Health Care, 10*(2), 1-11.
MacAdam, M. (2008). Frameworks of Integrated Care for the Elderly: A Systematic Review. Ottawa: Canadian Policy Research Networks (CPRN).
McGrath M. (1991) Multidisciplinary teamwork. Avebury, Aldershot
Magnusson, L., Hanson, E. (2012). Partnership working: : The key to the AT-technology transfer process of the ACTION service (Assisting Carers using Telematics Interventions to meet Older people's Needs) in Sweden. *Technology and Disability, Special Issue. 24*. 219-232.
Malhotra, S., Jordan, D., Shortliffe, E., & Patel, V. L. (2007). Workflow modeling in critical care: piecing together your own puzzle. *J Biomed Inform, 40*(2), 81-92. doi: 10.1016/j.jbi.2006.06.002
Minkman, M. M., Vermeulen, R. P., Ahaus, K. T., & Huijsman, R. (2011). The implementation of integrated care: the empirical validation of the Development Model for Integrated care. *BMC Health Serv Res, 11*, 177. doi: 10.1186/1472-6963-11-177
Mistry, H. (2012). Systematic review of studies of the cost-effectiveness of telemedicine and telecare. Changes in the economic evidence over twenty years. *J Telemed Telecare. 2012 Jan;18(1)*:1-6. doi: 10.1258/jtt.2011.110505
Morrisey, M. A., Alexander, J., Burns, L. R., & Johnson, V. (1999). The effects of managed care on physician and clinical integration in hospitals. *Med Care, 37*(4), 350-361.
Munday, B., (2007). *European Social Services a Map of Characteristics and Trends.* Report prepared for the European Council.
Mur-Veeman, I., van Raak, A., & Paulus, A. (2008). Comparing integrated care policy in Europe: does policy matter? *Health Policy, 85*(2), 172-183. doi: 10.1016/j.healthpol.2007.07.008
Newhouse, R. P., Mills, M. E., Johantgen, M., & Pronovost, P. J. (2003). Is there a relationship between service integration and differentiation and patient outcomes? *Int J Integr Care, 3*, e15.
Nies, H. , & Bergman, P. (2004). *Integrating services for older people - a resource book for managers*. Dublin: EHMA.
Nolte, E, & McKee, M. (2008). *Caring for people with chronic conditions : a health system perspective*. Maidenhead [England]: Open University Press.
The Nuffield Trust (2013) Evaluating integrated and community-based care. – How do we know what works?
The Nuffield Trust (2011) What is integrated care? – An overview of integrated care in the NHS.

Olsson, L.-E., Hansson, E., Ekman, I., Karlsson, J. (2009) A cost-effectiveness study of a patient-centred integrated care pathway. *Journal of Advanced Nursing 65 (8)* , pp. 1626-1635.

Ouwens, M., Wollersheim, H., Hermens, R., Hulscher, M., & Grol, R. (2005). Integrated care programmes for chronically ill patients: a review of systematic reviews. *Int J Qual Health Care, 17*(2), 141-146. doi: 10.1093/intqhc/mzi016

Øvretveit, J. . (1998). Integrated Care: Models and Issues. Briefing Paper. Gothenburg: The Nordic School of Public Health.

PAHO. (2011). Integrated Health Service Delivery Networks: Concepts, Policy Options and a Road Map for Implementation in the Americas. Washington, D.C.: Pan American Health Organisation (PAHO).

Parker Oliver D, Demiris G, Wittenberg-Lyles E, Washington K, Porock D. Recruitment Challenges and Strategies in a Home-Based Telehealth Study. *Telemedicine and e-Health. 2010 Sep; 16(7):* 839-843. [Free PMC Article] PMCID: PMC2992400

Plochg, T., & Klazinga, N. S. (2002). Community-based integrated care: myth or must? *Int J Qual Health Care, 14*(2), 91-101.

Protti, D. (2009). Integrated care needs integrated information management and technology. *Healthc Q, 13 Spec No*, 24-29.

Reader, T. W., Flin, R., Mearns, K., & Cuthbertson, B. H. (2009). Developing a team performance framework for the intensive care unit. *Crit Care Med, 37*(5), 1787-1793. doi: 10.1097/CCM.0b013e31819f0451

Reilly, S., Challis, D., Burns, A., & Hughes, J. (2003). Does integration really make a difference? A comparison of old age psychiatry services in England and Northern Ireland. *Int J Geriatr Psychiatry, 18*(10), 887-893. doi: 10.1002/gps.942

Scalvini, S., Tridico, C., Glisenti, F., Giordano, A., Pirini, S., Peduzzi, P., Auxilia, F. (2009) The SUMMA project: A feasibility study on telemedicine in selected Italian Areas. *Telemedicine and e-Health 15 (3)* , pp. 261-269.

Shortell, S. M., Gillies, R. R., Anderson, D. A., Erickson, K., & Mitchell, J. B. (2000). *Remaking health care in America the evolution of the organized delivery system* (2nd ed.). San Francisco: Jossey-Bass.

Shortell, S. M., Gillies, R. R., Anderson, D. A., Mitchell, J. B., & Morgan, K. L. (1993). Creating organized delivery systems: the barriers and facilitators. *Hosp Health Serv Adm, 38*(4), 447-466.

Shukla, R. K. (1985). A longitudinal approach for measuring integration and continuity of nursing care. *Inquiry, 22*(4), 426-432.

Simoens, S., & Scott, A. (2001). Working together in primary care: measuring the extent of integration with local health care cooperatives. Health Economics Research Unit, University of Aberdeen

Singer, S. J., Burgers, J., Friedberg, M., Rosenthal, M. B., Leape, L., & Schneider, E. (2011). Defining and measuring integrated patient care: promoting the next frontier in health care delivery. *Med Care Res Rev, 68*(1), 112-127. doi: 10.1177/1077558710371485

Starfield, B., Steinwachs, D., Morris, I., Bause, G., Siebert, S., & Westin, C. (1979). Concordance between medical records and observations regarding information on coordination of care. *Med Care, 17*(7), 758-766.

Strandberg-Larsen, M., & Krasnik, A. (2009). Measurement of integrated healthcare delivery: a systematic review of methods and future research directions. *Int J Integr Care, 9*, e01.

Suter, E., Oelke, N. D., Adair, C. E., & Armitage, G. D. (2009). Ten key principles for successful health systems integration. *Healthc Q, 13 Spec No*, 16-23.

Thyrian, J.R.; Wuebbeler, M.; Hoffman, W. (2013) Interventions into the care system for dementia. *Geriatric Mental Health Care*. 1(3): 67–71.

Valentijn, P. P., Schepman, S. M., Opheij, W., & Bruijnzeels, M. A. (2013). Understanding integrated care: a comprehensive conceptual framework based on the integrative functions of primary care. *Int J Integr Care, 13*, e010.

Vallespin, B., Fonollosa, D., Alonso, A., & Roca, J. (2008). The deployment of integrated care services for chronic patients: The NEXES project. *Journal on Information Technology in Healthcare*, 6(5), 334-343.

van Gils, R. F., Bosmans, J. E., Boot, C. R. L., Rustemeyer, T., van Mechelen, W., van der Valk, P. G. M. and Anema, J. R. (2013), Economic evaluation of an integrated care programme for patients with hand dermatitis. *Contact Dermatitis, 69*: 144–152. doi: 10.1111/cod.12095

Van Houdt, S., Heyrman, J., Vanhaecht, K., Sermeus, W., & De Lepeleire, J. (2013). An in-depth analysis of theoretical frameworks for the study of care coordination. *Int J Integr Care, 13*, e024.

Viktoria Stein, K., & Rieder, A. (2009). Integrated care at the crossroads-defining the way forward. *Int J Integr Care, 9*, e10.

Villalba, E., Casas, I., Abadie, F., & Lluch, M. (2013). Integrated personal health and care services deployment: experiences in eight European countries. *Int J Med Inform, 82(7),* 626-635. doi: 10.1016/j.ijmedinf.2013.03.002

Wagner, E. H., Austin, B. T., Davis, C., Hindmarsh, M., Schaefer, J., & Bonomi, A. (2001). Improving chronic illness care: translating evidence into action. *Health Aff (Millwood), 20*(6), 64-78.

Wan, T. T., Lin, B. Y., & Ma, A. (2002). Integration mechanisms and hospital efficiency in integrated health care delivery systems. *J Med Syst, 26*(2), 127-143.

Wan, T. T., & Wang, B. B. (2003). Integrated healthcare networks' performance: a growth curve modeling approach. *Health Care Manag Sci, 6*(2), 117-124.

Wang, B. B., Wan, T. T., Clement, J., & Begun, J. (2001). Managed care, vertical integration strategies and hospital performance. *Health Care Manag Sci, 4*(3), 181-191.

Watzlawick, P., Beavin, J. , & Jackson, D. (2000). *Menschliche Kommunikation. Formen, Störungen, Paradoxien*. Göttingen: Huber.

Wheaton, G. (1989), Strategic Organization Design by David Nadler and Michael Tushman (1988). *Scott, Foresman and Company. Asia Pacific Journal of Human Resources*, 27: 111. doi: 10.1177/103841118902700214

WHO. (2010a). People-centred Care in Low- and Middle-income Countries. Report of meeting held 5 May 2010. Geneva: World Health Organization.

WHO. (2010b). World Health Statistics 2010. Geneva: World Health Organisation.

WHO. (2013). ROADMAP Strengthening people-centred health system in the WHO European Region. A framework for Actions towards Coordinated/Integrated HEalth Services Delivery (CIHSD). Copenhagen: WHO Regional Office for Europe.

Williams, P., & Sullivan, H. (2009). Faces of integration. *Int J Integr Care, 9*, e100.

Wootton, R. (2012) Twenty years of telemedicine in chronic disease management-an evidence synthesis. *Journal of Telemedicine and Telecare 18 (4)* , pp. 211-220.

Yin, R. (2009). Case Study Research: Design and Methods. Los Angeles: Sage

Young, A. S., Chaney, E., Shoai, R., Bonner, L., Cohen, A. N., Doebbeling, B., Perrin, R. (2007). Information technology to support improved care for chronic illness. *J Gen Intern Med, 22 Suppl 3*, 425-430. doi: 10.1007/s11606-007-0303-4.

Zanaboni, P., Landolina, M., Marzegalli, M., Lunati, M., Perego, G.B., Guenzati, G., Curnis, A., (...), Masella, C. (2013) Cost-utility analysis of the EVOLVO study on remote monitoring for heart failure patients with implantable defibrillators: Randomized controlled trial

Zhang, S., McClean, S. I., Jackson D. E., Nugent C., Cleland, I. (2014). Patient Satisfaction Evaluation of Telemedicine Applications Is Not Satisfactory. *XIII Mediterranean Conference on Medical and Biological Engineering and Computing 2013. IFMBE Proceedings. Volume 41*, 2014, pp 1140-1143

6.5 Annex 5 - Grey sources and case specific articles

6.5.1 Statistics

European Core Health Indicators (ECHI) http://ec.europa.eu/health/indicators/echi/index_en.htm
Eurostat. (2011a). Population Projection 2010–2060: http://epp.eurostat.ec.europa.eu/portal/page/portal/population/data/database.
Health statistics Basque Country http://www.eustat.es/estadisticas/tema_16/opt_0/ti_Estado_de_Salud/temas.html#axzz2twRGxWb2
Health statistics Catalonia http://www20.gencat.cat/portal/site/canalsalut/menuitem.ab8fdd1b26b3c4038674c210b0c0e1a0/?vgnextoid=170a722ee7c7e210VgnVCM1000008d0c1e0aRCRD&newLang=en_GB

6.5.2 Documentation

ActiveAge (2008) Independent Living, Integrated Care and Individual Healthcare Budgets and the inter-relationships between them. Discussion paper. Business Lab.

Ahgren, B., (2012). "The Art of Integrating Care: Theories Revisited". *The Open Public Health Journal.* N°5, pp:36-39.

Booij, J., *et al.* (2012). *National Surbey Integrated Primary Care.* Slide presentation of the Integrated Primary survey Care in the Netherland. NIVEL, RIVM and Jan van Es Institute.
Catalan Health System Observatory http://www20.gencat.cat/portal/site/canalsalut/menuitem.ab8fdd1b26b3c4038674c210b0c0e1a0/?vgnextoid=170a722ee7c7e210VgnVCM1000008d0c1e0aRCRD&newLang=en_GB
Cabrera M., Ozcivelek R. (2009) ICT for independent living services. In Cabrera M., Malanowski N. Information and communication technologies for active ageing. *The European Commission and IOS Press.*
EC Project PilotSmartCare – IST-CIP-PSP project available at: http://pilotsmartcare.eu/home/
EC Project INTEGRATE – FP7 project awailable at: http://www.integratedcarefoundation.org/project/project-integrate
EIP-AHA, (2012). *ACTION PLAN on 'Replicating and tutoring integrated care for chronic diseases, including remote monitoring at regional levels'*. Report prepared by the B3 Action Group of EIP-AHA.
EIP-AHA, (2013). *A Compilation of Good Practices: Action Group on Replicating and tutoring integrated care for chronic diseases, including remote monitoring at regional level*. Report prepared by the B3 Action Group of EIP-AHA.
EIP-AHA, (2012). *Self assessment questionnaire of the Andalusia Region in Spain*.
EIP-AHA, (2012). *Self assessment questionnaire of the Bas_Rhin Region in Germany*.
EIP-AHA, (2012). *Self assessment questionnaire of the Basque Country in Spain*.
EIP-AHA, (2012). *Self assessment questionnaire of the Campania Region in Italy*.
EIP-AHA, (2012). *Self assessment questionnaire of the Catalonia Region in Spain*.
EIP-AHA, (2012). *Self assessment questionnaire of the Coimbra Region in Spain*.
EIP-AHA, (2012). *Self assessment questionnaire of the Cologne Region in Germany*.
EIP-AHA, (2012). *Self assessment questionnaire of the Delft Region in the Netherland*.
EIP-AHA, (2012). *Self assessment questionnaire of the Emilia Romagna Region in Italy*.
EIP-AHA, (2012). *Self assessment questionnaire of the Galicia Region in Spain*.
EIP-AHA, (2012). *Self assessment questionnaire of the Ile de France Region in France*.

EIP-AHA, (2012). *Self assessment questionnaire of the Ireland*.
EIP-AHA, (2012). *Self assessment questionnaire of the Languedoc Region in France*.

EIP-AHA, (2012). *Self assessment questionnaire of the Liguria Region in Italy*.
EIP-AHA, (2012). *Self assessment questionnaire of the Liverpool Region in UK*.
EIP-AHA, (2012). *Self assessment questionnaire of the Madrid Region in Spain*.
EIP-AHA, (2012). *Self assessment questionnaire of the Nijmegen Region in the Netherland*.
EIP-AHA, (2012). *Self assessment questionnaire of the Northern Netherland Region in the Netherland*.
EIP-AHA, (2012). *Self assessment questionnaire of the Olomoc Region in Czech Republic*.
EIP-AHA, (2012). *Self assessment questionnaire of the Olu Region in Finland*.
EIP-AHA, (2012). *Self assessment questionnaire of the Pais de Loire in France*.
EIP-AHA, (2012). *Self assessment questionnaire of the Piemonte Region in Italy*.
EIP-AHA, (2012). *Self assessment questionnaire of the Saxony Region in Germany*.
EIP-AHA, (2012). *Self assessment questionnaire of the Scotland Region in UK*.
EIP-AHA, (2012). *Self assessment questionnaire of the Skane Region in Sweden*.
EIP-AHA, (2012). *Self assessment questionnaire of the South Denmark Region in Denmark*.
EIP-AHA, (2012). *Self assessment questionnaire of the Twente Region in The Netherland*.
EIP-AHA, (2012). *Self assessment questionnaire of the Valencia Region in Spain*.
EIP-AHA, (2012). *Self assessment questionnaire of the Venezia Region in Italy*.
EIP-AHA, (2012). *Self assessment questionnaire of the Wales Region in UK*.
EIP-AHA, (2012). *Self assessment questionnaire of the Yorkshare Region in UK*.
European Innovation Partnership on Active and Healthy Ageing platform http://ec.europa.eu/research/innovation-union/index_en.cfm?section=active-healthy-ageing
Empirica (2010) "Study on ICT & Ageing – Users, Markets and Technologies" (http://ec.europa.eu/information_society/activities/einclusion/library/studies/docs/ict_ageing_final_report.pdf)
Ernst and Young (2011) The state of remote care in Norway- enabling a sustainable welfare state.
Experiences of Neurologists from the Dresden University Stroke Centre (Saxoni region) that examine stroke patients in other hospitals in the region via video camera and analyse brain CT images. Available at: file://localhost/Users/alberto/Dropbox/Open_Evidence_Projects/04_Integrated_care_IPTS/05_Support_documents/new%20cases%20and%20other%20evidences%20of%20IC%20in%20EC28/Saxoni%20stroke%20diagnosys/Imaging%20%20Diagnostic%20and%20Therapeutic%20Use%20Move%20Closer%20Together%20--%20MEDICA%20Trade%20Fair.html
Etxean Ondo Project https://euskadi.net/r45-contss/es/contenidos/informacion/estadisticas_ss/es_estadist/adjuntos/ETXEAN%20ONDO%20DOMICILIOS.pdf
EUROHEALTH, (2013), "Incentivising Integrated Care". *Quarterly of the European Observatory on Health Systems and Policies.* Volume 19, N°2.
European Commission. (2013). European Innovation Partnership on Active and Healthy Ageing Reference Sites. Excellent innovation for ageing. A European Guide. Brussels: European Commission.
Garcés, J.; Ródenas, F. & Sanjosé, V., (2004). "Care needs among the dependent population in Spain: an empirical approach". *Health Soc Care Community, 12*(6): 466–474.
Garcés, J., Ródenas, F. & Hammar, T., (2013). *Converging methods to link social and health care systems and informal care – confronting Nordic and Mediterranean approaches'*
Glaser, B., & Strauss, A. (1967). The discovery of grounded theory: strategies for qualitative research. Chicago: Aldine
Grimaldo, F., Orduña, JM., Ródenas, F., Garcés, J. & Lozano, M., (2013), "Towards a Simulator of Integrated Long-term Care Systems for Elderly People", in: *International Journal on Artificial Intelligence Tools* -IJAIT's special issue on Agents Applied in Health Care.
Gwent frailty programme (2012): introductory factsheet available at: http://www.bitlib.net/g/gwent+frailty+programme.html.
Gwent frailty programme, (2012). *Scrutiny Committee for Comunity Planning and Development*. Report on the programme.

Ham, C., Heenan, D., Langeley, M., Speel, R.D., (2012). *Integrated care in Noerhern Ireland, Scotland and Wales: lessons for England.* Report for the KingsFund.
Hildebrandt, H., Hermann, C., Knittel, R., Richter-Reichelm, M., Siegel, A., & Witzenrath, W., (2010). "Gesundes Kinzigtal Integrated Care: improving population health by a shared health gain approach and a shared savings contract". In: *Intenational Journal of Integrated Care.* N°10, 23 June 2010.
Hildebrandt, H, (2013). *Integrated care value case: Kinzigtal, S.W. Germany.* Slide Presentation commissioned by the Local Government Association.
JIT, (2008). *Telecare in Scotland*: *Benchmarking the present, embracing the future.* Report on Telecare experiences in Scotland.
KRONIKGUNE, the Basque Centre for Health Services Research and Chronicity http://kronikgune.org/
Liechsenring, K., Billing, J. & Henk, N., (2011). *Long Term Care in Europe – Improving policy and practice*, Ed. Palgrave-MacMillan. pp.100-117
Lincoln, Y., & Guba, E. (1985). Naturalistic inquiry. Beverly Hills, CA: Sage.
NEXES project (CIP-ICT-PSP-2007-225025).
Podavitte, F., (2012). *Cronicità, non autosufficienza, fragilità strategie organizzative.* Presentation done at the conference on "Prevenire la complicazione del Diabete dalla ricerca di base all'assistenza". Istituto Superiore di Sanità. Roma, 6 Marzo 2012.
Schulte, T., & Pimperl, A., (2013). *Results of a Controlled Cohort Study of the Integrated Care System "Gesundes Kinzigtal.* Slide presentation done at the 13th International Conference on Integrated Care, Berlin, Thursday 11 of April 2013.
Siegel, A., Koster, I., Shubert, I., Holzel, L, & Stoessel, U., (2013). "Gesundes Kinzigtal Integrated Care: interim results of the external evaluation". In: *International Journal of Integrated Care.* N°13, 23 October 2013.
Siegel, A., Koster, I., Shubert, I., Holzel, L, & Stoessel, U., (2013). *Gesundes Kinzigtal Integrated Care: interim results of the external evaluation.* Slide presentation.
Study of innovation and cost-effectiveness indicators in eHealth - JRC-SVQ-2012-J03-50-NC
Compilation of good practice. Replicating and Tutoring Integrated Care for Chronic Diseases, Including. Remote Monitoring at Regional Level Second Edition. Action group B3. November 2013 http://ec.europa.eu/research/innovation-union/pdf/active-healthy-ageing/gp_b3.pdf
Ródenas, F., Garcés, J., Carretero, S., & Megia, M.J., (2008). "Case management method applied to older adults in the primary care centres in Burjassot (Valencian Region, Spain)". *European Journal of Ageing, 5*: 57–66.
Silverman, D. (2000). Doing Qualitative Research: A practical handbook. London: Sage.
Stake, R. (1995). The Art of Case Study Research. Thousand Oaks: Sage Publications
Van Dijk, C., E., Swinkels, I., C., S., Rijken, M., Kornevaar, J., & Bakker de, D., H., (2012). "Results after one year introduction of disease oriented payments in the Netherlands". In: *International Journal of Integrated Care.*
Wilkinson, M., Khanna, P., & Murray, D., (2012). *Happily Independent: strategic outline case for the Gwent Frailty Programme.* Report on the integrated care experience on frailty in Welsh.

6.5.3 Archival records

Mental Health Interactive Database (Scotland) available at: http://piramhids.com/home.aspx.
Care pathways and access to support available at: www.scottishpathways.com.
Innovative Practices Map available at*: http://www.opimec.org/practicas/mapa/ and directory http://www.opimec.org/practicas/*
Case Study Highlight documents on IC in Scotland which record the experiences of health and care partnerships in Scotland in reshaping care and integration at a local level., available at:
http://www.jitscotland.org.uk/action-areas/reshaping-care-for-older-people/reshaping-care-improvement-network/effective-care-at-times-of-transition/
European Care Pathways Conference, Glasgow, June 2013 including poster presentations and speaker presentations available at: www.scottishpathways.com.

Integrated Care Pathways website available at: http://www.icptoolkit.org/home.aspx.
Patient Information on KIS is available from the NHS24 website:
http://www.nhs24.com/Explained/MyInfoNHS24/WhatisKIS
Contact: Jonathan Cameron, KIS Programme Manager, NHS National Services Scotland
jcameron2@nhs.net.
Link to publication of Iñaki Martin-Lesende available at: http://www.biomedcentral.com/1472-6963/11/56#IDAOGQR1 .
Reshaping Care Improvement Network available at: http://www.jitscotland.org.uk/action-areas/reshaping- care-for-older-people/reshaping-care-improvement-network/

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