Coping with an ageing population – Learning from good eHealth and telecare practices

The eCare Benchmarking study

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D5.2 Final Study Report

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Disclaimer

This report is part of the study on “Coping with an ageing population - Learning from good eHealth and telecare practices” - the eCare Benchmarking study, commissioned by the European Commission, Directorate General Information Society and Media, Brussels. This report reflects solely the views of its authors. The European Community is not liable for any use that may be made of the information contained therein. We thank our colleagues at the European Commission, from our organisations and our partners in this study for their critical input and review.
Executive summary

Background and objectives

The eCare Benchmarking study has to be seen within the global trend towards population ageing. This unprecedented development has a number of socio-economic side effects which are beginning to exert an influence on the way people in our society age, on how they are being supported in their old age in general and on the way long-term care to older people is provided in particular. On the level of the individual, these changes can mean that support in the form of long-term care is increasingly difficult to obtain when family members are no longer available to take on the role of the caregiver or when formal care providers are not available to the extend needed, either because of staff-shortages or because an older person is lacking the money to pay for full support. The effects of such a care shortage can be extreme, ranging from premature loss of independence in old age to avoidable exacerbations of acute and chronic diseases, from increased social isolation to a reduced quality of life. On the structural level, established systems of health care and social care are coming under increasing economic pressure when it comes to maintaining current levels of care for a growing target population under increasing resource constraints. Possible consequences are that past and current levels of social and health care for the older population can no longer be maintained or can only continued to be financed at the cost of decreased quality and quantity.

The positive potentials generally provided by Information and Communication Technologies (ICT) in this context have been recognised for some time already: the potential to deliver improved care outcomes in a more efficient manner through the use of technologies such as telecare, telehealth, telemonitoring and others, in order to ensure that people receive the support they need when growing old and to relieve economic pressure on the care systems. It has however also been widely recognised that this potential is not yet being realised to the degree that seems possible and desirable. Recent research suggests that different factors act as barriers in this regard, ranging from uncertainties about the economic case for eCare solutions at the part of relevant stakeholders up to more ‘systemic’ imperfections such as fragmentation of current care services and un-receptive regulatory regimes.

Against this background, the present study sheds light on in how far and in what ways health and social care systems in different countries in the European Union are today open to innovation in the area of ICT for long-term care (referred to as eCare in the following) and on what needs to be done to improve openness to innovation with a view to achieving the impacts sketched above. To this end, the study benchmarked and analysed current levels of eCare supply and use as well as key framework conditions that have an influence on developments in this field.

In the following we summarize the key outcomes of the study, following a series of messages that emerged from our analytical work. For each message we provide a brief summary of the issue, links to other parts of the main report where more detailed information and examples of good practice can be found, and recommendations addressed to different stakeholders.
eCare mainstreaming today: the goal in sight, but not yet within reach

The analysis of current eCare deployment levels done by our study show that eCare solutions existing today are still some distance away from being mainstreamed in the sense that they are widely available within and across the countries investigated.

Only 1st generation telecare (i.e. basic social alarm services) is a fully mainstreamed service in most of the countries that were analysed by the study and is widely available in the others. 2nd generation telecare (i.e. basic social alarm extended by means of different types of sensors and actuators installed in the home environment) has started to be deployed on a larger scale but is currently not fully mainstreamed anywhere. 3rd generation telecare where systems and devices can automatically (e.g. based on reasoning algorithms) react to changes in behavioural patterns recognised through sensors) remains by and large at a proof-of-concept stage. Telehealth and telemonitoring solutions seem to start finding their way into day-to-day health care practice, but full mainstreaming is currently achieved nowhere.

There is ample proof from literature, pilot trials and real-life services that telecare and telehealth services, when operating properly, can deliver tangible benefits not only for individuals (older people and, informal carers and care professionals) but also on the level of the social and health care systems. From the point of view of older people and informal carers the main benefits emerging from the impact analysis done by our study include improved quality of life, reduced numbers of avoidable admissions and readmissions into hospital and a reduced time of stay, the ability of staying longer in the home environment rather than having to go into institutional care and reduced pressure on informal carers. Users also reported that eCare provides a feeling of comfort and security in the home environment, less anxiety and other emotional benefits. On the level of the health and social care systems, telecare and telehealth services were shown to have the potential to reduce health care cost (e.g. in the case of avoided hospital admissions), to increase the range of services that can be provided, to improve service quality and to allow for more efficient service provision.

To learn more about...

...current levels of eCare mainstreaming, please read:
► Section 3.1 Technological adoption on page 38.
► Section 4.1 on page 110.

Framework conditions for eCare remain complex but examples show that deployment within given boundaries is possible

Our study looked at framework conditions in which eCare services are commonly provided, including governance structures of the regular social and health care system, policy strategies of relevance for eCare, legislation and regulation, and funding and reimbursement. The picture that emerges is characterized by considerable diversity within and across individual countries. To a large extent this diversity reflects structural complexities of historically grown care and welfare systems as they currently exist in all countries. Further complexity is added by the fact that national health care and social care systems have not been designed with eCare particularly in mind. Clearly,
there is considerable room for shaping framework conditions that are more open to innovation in eCare and more conducive to the actual implementation of eCare in day-to-day care practice across all countries under investigation.

It is however worth to be noted that individual examples of fully up-and-running eCare services (i.e. services that go beyond experiments and pilots) have been identified across all types of social care and health care systems that the study looked at, even if not on a mainstream level. This quite clearly suggests that given framework conditions provide a certain openness to innovation and that eCare service delivery within these given conditions is by no means impossible. It also suggests that there is room for better exploiting the positive potentials generally provided by eCare even under given framework conditions, primarily by focusing on

- socio-technical innovation that brings together people, processes and technology, and
- business models that balance costs and benefits for all stakeholders involved in a service, as further discussed in the following.

To learn more about...

...current framework conditions for eCare and ways how these can be used, please read:
- Section 3.2 Governance and organisation on page 45.
- Section 4.3 on page 123.

Socio-technical innovation requires more attention: people, processes and technology need to be brought together

eCare services tend to be implemented in the framework of established processes for care delivery, service administration and management. A key role in this framework is played by humans such as care professionals and/or family carers providing care to older people and supporting them in their day-to-day life. When eCare devices and applications are introduced into this context, they bring their own set of processes as well as new technical systems, both of which can usually not simply be placed on top of the existing environment. Instead, the implementation of eCare solutions needs to happen in a way that builds on legacy processes and technology infrastructures, and also ensures acceptance and support by staff members and end-users.

The overall approach is sometimes referred to as socio-technical innovation or, more appropriately, socio-technical integration since this puts an emphasis on integrating non-ICT supported care practices and eCare, rather than trying to merely replace ‘old’ ways of delivering care with entirely new ones supported by ICT.

To learn more about...

...socio-technical innovation in eCare, please read:
- Section 4.2.1 on page 115.

Recommendations

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1. Against the background of the potential of socio-technical innovation there may be value in the analysis of selected examples of successful eCare deployment with a particular view to this issue. This could be achieved by means of a dedicated research effort commissioned by the European Commission, involving service providers and care professionals and possibly building on experiences made in EU-funded deployment projects and large-scale demonstration schemes such as the Whole Systems Demonstrator in the UK.

2. On the basis of such an analysis, service providers and the IT industry would benefit from synthesised guidance on what socio-technical innovation can mean in practice and how such a concept might best be applied in the development and implementation of eCare services. Such synthesised guidance would need to be effectively communicated to the stakeholders, e.g. through an online forum.

3. There might be value in creating incentives that promote socio-technical integration of eCare through the inclusion of respective requirements in relevant EU project funding schemes such as the CIP and AAL programme.

4. In the longer run, the acknowledgment of socio-technical innovation in relevant policy strategies for eCare in the individual EU Member States might deserve to receive more attention than it seems to be the case today. Member States’ activities could for example be informed by synthesized guidance (see recommendation 2).

For more details on these recommendations please see section 4.2.1 on page 115.

Business models for eCare must balance costs and benefits for all stakeholder involved

A second factor that was found to foster innovation and to allow eCare services to operate successfully under given framework conditions is the creation of a viable business model for a service. In many respects business models for eCare services that exist already today seem to reflect the framework conditions within which the services are provided and show how they were set-up to fit that framework. In practical terms this process of ‘fitting’ the service means to achieve a balancing not simply of the overall costs and benefits of the service, but of the particular costs and benefits of all stakeholder involved, with the aim of achieving positive outcomes for all and avoiding ‘benefit shifts’. Viable business models were also shown to allow services to best make use of existing flexibilities in reimbursement systems and to unlock new funding sources, e.g. on the private capital market, that exist but are hardly used.

To learn more about...

...business models for eCare and the crucial role they play in balancing benefit shifts, please read:
Despite this potential, viable business modelling for eCare seems to remain a rather underdeveloped area of activity as of today and there seems to be comparatively little evidence on business models available from which service providers, the IT industry and other stakeholders could profit.

### Recommendations

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<td>5</td>
<td>Opportunities to support the creation and collation of evidence on eCare business models that exist in the framework of the European Union’s more market-oriented funding programmes as well as similar schemes funded by national governments should be better exploited. This could for example be done through a dedicated exchange on business models, and good practices, where both experiences from recent deployment projects in the CIP and AAL programme and from other activities could be shared.</td>
<td>☑ European Commission ☑ Member States ☑ (e)Care service providers ☒ Care professionals ☑ IT industry ☒ End-users ☑ Others</td>
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<td>Beyond this, there may be value in exploring further measures by which service providers can be supported in the development of viable business models. Practical examples of how business case modelling can be applied in eCare could be derived both from other branches of the economy which do not immediately relate to eCare and from eCare projects carried out under the European Commission’s CIP programme. European project funding schemes, but also national programmes could become vehicles through which these approaches are made known to a wider audience and their use promoted among those who plan to set up new services with the support of such funds.</td>
<td>☑ European Commission ☑ Member States ☑ (e)Care service providers ☒ Care professionals ☑ IT industry ☒ End-users ☑ Others</td>
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*For more details on these recommendations please see section 4.2.2 on page 117.*

### Opportunities for shaping more conducive framework conditions exist

The study findings on current levels service deployment and the role of socio-technical integration and business models clearly suggest that today’s framework conditions do not make eCare deployment impossible. However the fact that full mainstreaming of eCare services apart from 1st generation telecare is not achieved in any of the countries analyzed makes it clear that considerable deployment barriers continue to exist. This would suggest that the openness of health and social care systems to eCare innovation and ultimately the future mainstreaming of eCare solutions would benefit from shaping more supportive framework conditions in the medium- to long-term.
Existing business models provide useful lessons for shaping regulatory framework conditions, but these are not always self-evident

The promotion of business models for eCare and specifically the collation of business evidence are likely to profit not only service providers and the IT industry, but can also play a role in strategic decision making and particularly in the shaping of favourable framework conditions for eCare and in improving the openness to innovation in this field. One area that would benefit from such practice-oriented adaptation concerns the wider regulative frameworks for eCare both in the individual Member States and at the EU level. As the study found there is some considerable variability in the degree to which different types of legal issues of relevance for eCare are covered in existing legislation and regulation, as well as considerable complexity in terms of the numbers and types of regulations that can be applicable to a given eCare service.

To learn more about...

...legal and regulatory framework conditions for eCare, please read:

► Section 3.4 Legal issues on page 77.
► Section 4.3.1 on page 123.

Recommendations

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<td>Further guidance to service providers and other relevant stakeholders on how to understand and how to deal with the multitude of national and international laws concerning eCare would be useful and should be provided. In the longer run it could also help to identify cases of contradicting regulations, and to start according revision processes of individual pieces of legislation. The European Union could play a supportive role in this process of shaping more certain frameworks in various regards. To begin with, it could be examined whether interpretive guidance in relation to relevant EU-level legislation (such as Directives 1999/44 and 2000/31) could contribute to a higher level of legal certainty concerning the individual service domains covered by this benchmarking exercise. Further guidance on the national level could be created on the basis of existing examples in collaboration with service providers and legal experts from different Member States.</td>
<td>☑ European Commission □ Member States ☑ (e)Care service providers □ Care professionals □ IT industry □ End-users □ Others</td>
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<td>An exchange forum for information and experience cutting across different regulatory fields (such as data protection, consumer rights, patient rights) may foster the establishment of a higher level of legal certainty with respect to the provision of different types of eCare services. Such a forum could include social/health care service providers, policy makers from the EU and national level, and the IT industry and serve as a reference point for developing common objectives across the EU while leaving sufficient room for shaping frameworks at the national level according to the necessities of their individual jurisdictions.</td>
<td>☑ European Commission ☑ Member States ☑ (e)Care service providers ☑ Care professionals ☑ IT industry ☑ End-users □ Others</td>
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For more details on these recommendations please see section 4.3.1 on page 123.
**Integrated eCare provides a large but unused potential for better and more efficient care delivery**

From the limited evidence that is available today it would seem that the potential for improved outcomes, quality and efficiency realized through eCare is especially large when it comes to crossing the sectoral divide that separates social from health care in most countries. At the current stage however, service ‘silos’, i.e. the separated provision of social and health care services to one target group, seem to prevail on the ground in most of the countries under observation. These ‘silos’ can lead to inefficiencies, duplication of resources, and potentially to reduced levels of quality of care. The issue is being recognised to some extent on the policy level, but existing governance frameworks rarely consider the role which ICT can play in this regard.

**To learn more about...**

...integrated eCare and its potential, please read:
- Section 3.2.3 on page 58.
- Section 4.3.2 on page 126.

**Recommendations**

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<td>The issue of eCare within policy strategies for integrated care would benefit from more dedicated attention in order to facilitate the materialisation of the benefits that integrated eCare services can bring about. One way to achieve this would be through the establishment of appropriate mechanisms that facilitate both the use of ICT across sectors (e.g. in terms of data protection and privacy) and the reimbursement of integrated eCare services. While the responsibility for the governance structures concerned lies with the individual Member States, the European Union could take a coordinating role by bringing together key players from all relevant sectors in the countries with a view to learning from existing practice and identifying facilitating factors and barriers that exist today. The European Commission could furthermore contribute experiences and evidence gained from currently ongoing pilot projects for integrated eCare that are carried out within the CIP programme, as well as from future funded activities</td>
<td>☑ European Commission  ☑ Member States  ☑ (e)Care service providers  ☑ Care professionals  ☑ IT industry  ☑ End-users  ☑ Others</td>
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<td>The European Commission is recommended to more closely analyse existing examples of policy and regulatory frameworks for integrated care and eCare. Two avenues of analysis seem promising: 1) A detailed judicial analysis by legal experts of the regulatory mechanisms that are being used and how these depend on the international and national legal contexts; and 2) an analysis of fully up-and-running integrated services that were implemented in the respective frameworks, involving service providers and reimbursement bodies. Such an analysis might be carried out as a dedicated study commissioned by the European Commission and would help understanding in how far and in what ways existing examples can</td>
<td>☑ European Commission  ☑ Member States  ☑ (e)Care service providers  ☑ Care professionals  ☑ IT industry  ☑ End-users  ☑ Others</td>
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also be used in other countries with a view to achieving similar outcomes.

For more details on these recommendations please see section 4.3.2 on page 126.

Ethical issues are widely recognized in general, but hands-on guidance is lacking

Ethical issues in relation to eCare have been receiving increasing attention in the past few years. Up to now it seems that they are usually addressed in one way or other at the organisational level in many countries, e.g. by means of organisational policies or ethics-related staff training. At the same time however, there seems to be an almost complete lack of guidance on these issues through public policies. This lack poses a risk of fragmentation when it comes to addressing ethical aspects within day-to-day practice and particularly when new services are to be set up.

To learn more about...
...ethical issues in relation to eCare, please read:

> Section 3.2.2 on page 55.
> Section 4.3.3 on page 128.

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<td>Although it may not be appropriate to develop a single ethical ‘cookbook’ to guide practice across the various service domains and countries, there may be value in supporting a focused exercise on codification in this field, in the sense of breaking down high-level ethical principles into applicable actions for different contexts. This could include a systematic collation of the various guidelines, codes of practice etc. that have been developed so far, enabling a systematic examination of the possibilities and limits to codification in the field, and the identification of priorities for codification that could then be addressed by the appropriate stakeholders at the national and/or organisational level. The European Union could play a supportive role, e.g. through organising or supporting efforts to engage with, inform and assess the perspectives of the key players that exert an influence in the domains concerned.</td>
<td>☑ European Commission&lt;br&gt;☑ Member States&lt;br&gt;☑ (e)Care service providers&lt;br&gt;☐ Care professionals&lt;br&gt;☐ IT industry&lt;br&gt;☐ End-users&lt;br&gt;☐ Others</td>
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For more details on this recommendation please see section 4.3.3 on page 128.

Going beyond telecare and telehealth: better exploiting the potentials of online services

Beyond the field of what can be called ‘classic’ eCare services (in the sense that they are usually considered when the issue of eCare is being discussed) such as telecare, telehealth and telemonitoring, the study also identified a wide range of eCare online services addressed to older people and informal carers on the one hand and social and
health care professionals on the other hand. At the same time we found clear indications that the innovation potential of such online services may currently not be exploited to the extent that would seem desirable, for a number of reasons.

**eCare online services can help older people and informal carers, if they are able to use them**

What little is available in terms of data on the actual usage of the internet for purposes of long-term care and in relation to online services addressed to older people and informal carers, seems to imply that, notwithstanding some variation between the countries, these services are not yet used by sizable proportions of the target population. There are various reasons that can explain this situation: older people or informal carers may not have access to the internet at all, they may be hampered by a lack of e-skills or they may not be familiar or feel comfortable with more interactive online services that bear some similarities to social web communities like Facebook or LinkedIn. Finally, concerns about data privacy and protection are also likely to play a role.

Other factors that can be assumed to impact on the further deployment of online services from the point of view of the providers of such services include the costs associated with such a service and ways how these costs can be reclaimed (e.g. through usage fees), organisational and/or legal barriers between different types of providers but also resistance against a more active/involved role of cared-for persons and informal carers in care (self-)management.

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**To learn more about...**

...online services addressed to older people and informal carers, please read:

- Section 3.5.1.0 on page 89.
- Section 4.4.1 on page 130.

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**Recommendations**

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<td>With a view to strengthening the further deployment of innovative eCare online services and overcoming existing usage barriers, the European Commission is recommended to conduct further comparative analyses of existing online services, their users and their business models and to become active in the promotion of a further exchange on good practices in this field (building and expanding on what has been done in this study). Thought might also be given to providing funding for RTD and deployment, particularly through the Framework Programmes and the CIP and AAL programme, to foster the development and testing of innovative, user-centred and target-oriented online services, along with rigorous evaluations of impacts, costs and benefits.</td>
<td>☑ European Commission  ☐ Member States  ☑ (e)Care service providers  ☐ Care professionals  ☑ IT industry  ☑ End-users  ☐ Others</td>
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*For more details on this recommendation please see section 4.4.1 on page 130.*
Online services for care professionals exist, but so do serious usage barriers

Notwithstanding the various good examples of online services addressed to care professionals that the study found, it seems that carers in many countries are not able to use them for their benefit due to a lack of e-skills provided through continuous and vocational training and other reasons. This skills gap can also be expected to impact on professionals’ attitude towards and confidence in the use of classic eCare. The study analyzed in how far IT skills are today part of the training curricula of care professionals and found wide variability both in terms of the content scope of existing training measures and in terms of the coverage of different professions. The study also found that the issue of ICT-related skills and training is today covered only to a limited extent in relevant policy frameworks.

To learn more about...

...online services addressed to care professionals and the role of ICT-related skills and training, please read:

► Section 3.5.2 on page 99.
► Section 3.5.3 on page 104.
► Section 4.4.2 on page 132.

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| 13  | It is recommended to better reflect the issue of e-skills requirements for care professionals in political strategies with the aim of providing better framework conditions for ICT training among care professionals, particularly with a view to improving skills levels among the full range of professionals both in social and in health care. The European Commission could take a co-ordinating role in this field, not only fostering exchange on good practice but also by inviting relevant stakeholders (including education institutions, service providers, care professionals and IT manufacturers) to agree on common standards on how to effectively teach and train basic and occupational ICT skills. The special focus should be upon quality, effectiveness and accessibility of ICT training. | ☑ European Commission
tà Member States
☑ (e)Care service providers
☑ Care professionals
☑ IT industry
 tà End-users
☑ Others  |

For more details on this recommendation please see section 4.4.2 on page 132.

Opportunities for further strengthening the evidence base on impacts and markets to benefit all stakeholders should be exploited

One cross-cutting theme that emerged from the research carried out by the eCare Benchmarking study is a lack of empirical evidence that became obvious in several of the thematic areas that we analyzed. In general it must be assumed that this lack of
evidence today increases the uncertainty of decision making in the eCare domain on almost all levels and is one of the factors explaining why eCare mainstreaming is so slow in occurring.

**Improving the current evidence base on impacts is not a straightforward task but can be done**

Impact evidence is usually gathered by means of evaluated pilots. Our research found on the one hand a multitude of small- to medium scale pilots and on the other hand only singular examples for so-called large-scale pilots. One main disadvantage of the former from the point of view of decision makers is that their results are often difficult to aggregate to a level where impacts beyond individual service cases can be identified, which could be transferred to other contexts and in that way allow the drawing of generic conclusions. Large-scale pilots spanning larger geographic areas and including high numbers of users are more likely to produce this kind of results that can be used on a higher level. At the same time they are hampered by the efforts that are needed to set them up and carry them out, both in terms of the organisational requirements and in terms of the resources that are needed.

To remedy the current lack of impact evidence available to support decision making, two somewhat different yet complementary approaches therefore seem advisable. First, the generation of further large scale evidence would provide additional support to high-level decision making, especially on the EU, national and regional policy level. Second, the potential of smaller scale pilots could be better harnessed with a view to creating evidence that can support both providers on the ground and decision makers on the different levels.

To learn more about...

...impact evidence and how its creation can be fostered, please read:

▶ Section 4.5.1 on page 134.

**Market intelligence is needed but does not (yet) exist**

Beyond impact evidence as outlined above, our study also found a widespread absence of market evidence. This refers primarily to data about eCare customer groups, the demand potential for different types of services, current levels of eCare use, assessments of individual drivers and hindering factors such as skills, and willingness to pay but also information about eCare business models and how they can be built in a way to allow sustainable service operation, as discussed previously.

Similar to what has been said above in relation to impact evidence, this lack of market intelligence is not without effect. Particularly the absence of data that is comparable across countries can be expected to impose difficulties for an eCare industry that mostly acts on a European scale. Furthermore, a lack of business evidence can have a negative impact on care service providers when it comes to deciding about the implementation of eCare.

To learn more about...

...market evidence and what kind of data is missing, please read:
A European focal point for eCare evidence would provide necessary support to stakeholders on all levels

Ultimately, increased openness to innovation in eCare and the actual mainstreaming of eCare services will need to be achieved by a range of different actors operating at the national, regional and local level. Giving these actors access to suitable evidence and guidance on what can be gained by eCare and how it can best be implemented seems to represent one of the most promising avenues to exploit the positive potentials of eCare in the short to medium term. It seems however unlikely that this goal could be achieved without dedicated support. Rather a concerted action might need to be launched on the European level, particularly involving those stakeholders with vested cross-national interests (such as the eCare industry, European associations of providers, professionals and user).

**Recommendation**

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| 14  | EU policy could play a facilitating role in the establishment of a European focal point for eCare evidence, e.g. by creating lacking evidence, by bringing together results which already exist today and by making it more suitable for the purposes of strategic decision making and eCare implementation on the ground. One way to achieve these objectives would be through a European observatory for eCare, as a dedicated EU effort and equipped with the necessary resources to carry out a series of tasks, similarly to initiatives that have for instance been implemented in other areas such as e-business e.g. eBusiness W@tch. With a view to the involvement of different stakeholders with a prime interest in the matter it might make sense to explore options through which players such as the eCare industry (including associations) as well as European associations of providers, professionals and users could contribute to the setting-up of such a framework. | ☑ European Commission  
☑ Member States  
☑ (e)Care service providers  
☑ Care professionals  
☑ IT industry  
☑ End-users  
☐ Others |

*For more details on this recommendation please see section 4.5.3 on page 136.*

**Methodology: the study approach in brief**

The eCare Benchmarking study analysed the openness to innovation in the area of ICT-enabled home care services in ten countries in Europe. To this end, the study brought together quantitative and qualitative information from primary and secondary sources and analysed them in the context of the ten countries’ national models of long-term care and their characteristics. The emerging picture throws a clearer light on how the Member States of the Union can address the challenges of an ageing population and increasing prevalence of chronic diseases stemming from the demographic change, by means of different technologies commonly referred to under the heading of eCare.
Thematic aspects covered by the study

The study looked at a total of five thematic areas that have a bearing on ICT in long-term care and can be expected to have an impact on a country’s openness to innovation in this field. For each thematic area or macro-category, key issues for benchmarking and analysis were identified on the basis of a literature analysis, as follows.

1. **The technological adoption of eCare**, including
   - The current supply of different types of telecare and telehealth services
   - The current use of telecare in the target population
   - Technical readiness, the existence of an infrastructure necessary for eCare

2. **The governance and organisation of eCare**, including
   - Policy frameworks on ICT for long-term care
3. **The funding and economic impact of eCare**, including

- Reimbursement systems for eCare, their coverage and flexibility
- The existence of targeted funding measures available for eCare endeavours
- The availability of statistically representative evidence on costs and benefits of eCare
- The mainstreaming potential for eCare

4. **Legal issues of relevance for eCare**, including

- The reference to ICT-based services in legal frameworks for data protection
- The reference to ICT-based services in other legal frameworks

5. **The role of human capital in eCare**, including

- The availability and use of online services addressed to older people and informal carers
- The availability and use of work-related online services addressed to social and health care professionals
- The teaching of ICT skills in the framework of training curricula for social and health care professionals

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The study looked at five main groups of stakeholders that have a prime and direct involvement in long-term care service provision, namely patients or clients (older people in need of care), carers (formal and informal), care organisations, and authorities and payers.

As far as patients or clients are concerned, the scope of the study covers older people in need of care. Older people do not represent a homogeneous population group as regards health situation, personal needs, aspirations and living circumstances. The relevance of, and demand for, ICT-based services and support varies substantially across the overall older population, and particular subgroups may be more relevant for particular markets and/or types of service/products than others. A focus should be on older people with chronic diseases, since independence and quality of life can be more difficult to maintain for older people who become frail or have to cope with a chronic illness.

Formal carers include professional staff such as social- and day-carers, nurses, doctors and all other formally trained people providing long-term care services. Formal carers are usually employed by a care organisation. Excluded are all health and social care providers who do not relate directly to the theme of the study, such as all care staff involved in acute care only (e.g. specialist doctors and nurses like surgeons, intensive care professionals, tertiary care staff).
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Authorities and payers are those entities defining the governance and organisational structure of the long-term care system, including its financing arrangements. Depending on the form of the national long-term care system, this group comprises the relevant ministries, government agencies, health insurances, social insurances, and long-term care insurances.

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The study covers a broad spectrum of technologies, sorted into six categories. Per se, these categories and the terms used to label them tend to have rather broad generic meanings that often point beyond the scope of the study, namely the benchmarking of eCare in the sense of ICT for long-term care. To cope with this, conceptual boundaries for each technology category were introduced that are in line with the study’s scope, as follows:

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• **Teletraining & educational support** is provision of training and education to patients as well as formal and informal carers through the use of ICT, either in interactive training sessions or in the form of one-way information provision.

**Country coverage**

The study used five different models of long-term care identified from literature (Simonazzi, 2008) in order to select the ten countries that were included in its scope. These models were derived from clustering EU Member States according to different characteristics of their long-term care system. The five models and their main characteristics are:

- The **Anglo-Saxon** model, prevalent in the UK and in Ireland, is based on a high degree of private provision regulated by the state on the basis of a liberal approach to social policy;
- The **Continental** model, based on the corporatist welfare state, is generally applied in Germany, Austria, the Netherlands, Luxembourg, and, to a lesser extent, France and Belgium. Social protection is guaranteed by participation in the labour market;
- The **Scandinavian** model, linked to the Nordic countries (Sweden, Denmark, Norway and Finland), is based on high security and formal, state-provided care, with little involvement by the private sector;
- The **Mediterranean** model, which brings together Italy, Spain, Portugal, Greece and Cyprus, relying heavily on family-based care and social assistance;
- The **Eastern European** model links most new Member States; it evolved following the pre-1989 system, and is mostly family-centred.

The following ten countries were selected:

- Anglo-Saxon model: United Kingdom
- Continental model: Netherlands, Germany, France
- Scandinavian model: Denmark, Sweden
- Mediterranean model: Spain, Italy
- Eastern European model: Estonia, Hungary

**Study outcome: The eCare Benchmarking scoreboard**

The scoreboard is the first of the three main outcomes of the eCare Benchmarking study. It presents standardised data on a series of indicators covering the thematic macro-categories and the benchmarking issues outlined above.

The scoreboard uses data from both primary and secondary sources, using four means of data collection:
• Literature search: the study team conducted a systematic review of available literature of relevance in the context of eCare. The keywords used for the literature search can be found in Section 3.3 of the Report Annex.

• Collection of secondary data from official statistics: secondary data from official statistics and a number of studies carried out by empirica and other organisations were searched and included into the scope of the scoreboard when appropriate.

• Collection of primary data by means of national correspondents: data on indicators that could not be fed from secondary sources was collected by a group of ten national experts, one in each of the ten countries. For a list of the experts please see Section 8.1 of the Report Annex. Data collection took place from January to April 2011.

• Collection of additional primary data and results validation by means of expert interviews: Expert interviews were conducted by the study team with the aim to 1) receive expert opinion on certain missing or unclear data items critical to the scoreboard and 2) receive the experts’ opinion on the scoreboard results as part of a validation process. A total of 19 experts were interviewed on specific thematic issues either by phone, mail or face-to-face using a non-standardized approach. For a list of the experts and themes covered please see Section 8.3 of the Report Annex.

While there are some quantitative indicators in the scoreboard, most information used in the benchmarking started off as being of a qualitative nature. To make this qualitative information suitable for benchmarking, a scoring system was employed: relevant qualitative information was analysed by the study team and transformed into quantitative measures using a scoring system. An ordinal scale of characteristics was developed for each indicator where each item on the scale carries a scoring value. By applying these scores on the basis of the qualitative information and calculating them, the overall score for each of the indicators was derived.

To allow for the easy comparison of indicators based on different scores and of the quantitative indicators, all values were standardised to a common range of 0 to 5, with 0 representing the lowest and 5 the highest value.

A list of all indicators included in the scoreboard, including the scoring system used for the qualitative ones is included in Section 6 of the Report Annex, while Section 7 of the Annex contains the full set of raw scores and the calculation formulas for each component indicator. An example of how the scoreboard scores were calculated is included in section 2.5.1 of the main report.

**Study outcome: eCare Benchmarking good practices**

The analysis of good practices is the second of the three main outcomes of the eCare Benchmarking study. For the purposes of this study, a good practice can be a policy programme, funding scheme, technological solution, a practice tackling ethical issues, or a training programme. It should represent a good learning experience for Europe and its member states. In that sense, a good practice is a way of doing things in the field of the study that is successful, innovative, and can be expected to facilitate the deployment of ICT-enabled care services in the quest of coping with demographic change.

Good practices were identified from the eCare Benchmarking scoreboard and described according to a common format. The descriptions are part of the analytic chapter 3 of this report, more detailed descriptions can be found in section 4 of the Report Annex.
Study outcome: Impact modelling

A modelling of impacts of selected eCare technologies based on available data is the third of the three main outcomes of the eCare Benchmarking study. The main aim of the impact analysis was to underpin the policy recommendations made on the basis of the study results and to get a consolidated understanding about what is today known in relation to impacts in eCare.

The impact modelling itself was carried out in a number of subsequent steps:

- **Step 1:** Identify suitable evidence. On the basis of the scoreboard indicator “Statistically representative evidence on key benefits and cost avoidance”, large scale eCare implementations were defined that involved at least 1,000 actual patients or were fully available across an entire geographic area (at least municipality level). For these implementations existing evaluation studies were identified that could yield the data for the modelling.

- **Step 2:** Identify diseases and technologies covered by existing evidence. In a second step, these studies were reviewed and details on the coverage of specific chronic diseases and the technologies within the scope of the study were collected.

- **Step 3:** Define a limited number of cases for specific analysis. Based on the results of step 2, a limited number of cases were selected for a more detailed analysis. These cases were defined according to the country where the evidence is found, the service provided to patients, and the disease(s) targeted by the service.

- **Step 4:** Case analyses. Each selected case was then analysed for the inputs, outputs, outcomes and impacts connected with it. Main outcomes and impacts were extracted to be included in a cost-benefit analysis.

- **Step 5:** Quantify estimates of economic outcome. Values from existing evidence were extrapolated to the regional or country level. The extrapolation followed the setting in the specific country, such as the number of patients with a certain condition in the country. It also focused exclusively on documented economic outcomes.

- **Step 6:** Qualitative analysis of social outcomes. Social effects that do not easily lend themselves to quantitative analysis were analysed separately and in a qualitative manner, based on the available case-specific evidence and insights from the literature.

- **Step 7:** Summary analysis of potential social and economic impact. Finally, the results of the analyses were summarised and aggregated, demonstrating potential social and economic gains, but also drawing attention to costs and risks associated with large scale deployment of home care services through the use of ICT for older people with chronic diseases.

More details on the impact modelling approach and its results can be found in section 5 of the Report Annex. The outcomes of the analysis are used in the analytic chapter 3 of this report.
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1 Introduction

The study “Coping with an ageing population - Learning from good eHealth and telecare practices”, called the eCare Benchmarking study in the following, addresses the need to explore the European space in terms of the mainstreaming of eCare. This need is evident from the context of an ageing population, the associated social and economic challenges, and the growing pool of promising ICT-enabled solutions supporting long-term care of older and chronically ill people at home.

The study was commissioned by the European Commission, Information Society and Media Directorate-General and is being carried out by empirica Gesellschaft für Kommunikations- und Technologieforschung mbH (Bonn, Germany) in association with GVG e.V. - Gesellschaft für Versicherungswissenschaft und -gestaltung e.V., (Cologne, Germany).

This final report brings together all main outcomes of the study. Following an overview the overall study scope, approach and methods are presented in Chapter 2, Chapter 3 is devoted to the presentation and analysis of the study findings, while Chapter 4 brings the implications of the findings together to draw conclusions.

This report is accompanied by an annex, available as a separate document, containing further information on the study approach and methods, the full good practice description templates, more detailed results of the impact modelling carried out by the study and various raw data that were used in the writing of this report. References to this annex are made throughout the report as applicable.
2 Study approach and methods

The eCare Benchmarking study analysed the openness to innovation in the area of ICT-enabled home care services in ten countries in Europe. To this end, the study brought together quantitative and qualitative information from primary and secondary sources and analysed them in the context of the ten countries’ national models of long-term care and their characteristics. The emerging picture throws a clearer light on how the Member States of the Union can address the challenges of an ageing population and increasing prevalence of chronic diseases stemming from the demographic change, by means of different technologies commonly referred to under the heading of eCare.

The overall approach adopted for this study is shown in the figure below. In order to understand the status quo in eCare, the study looked at five thematic areas (called macro-categories), at different stakeholders involved in home care, and at different types of technologies.

In doing so, the study produced three main outputs, namely:

- A quantitative scoreboard of key benchmarking indicators for each thematic macro-category and country,
- a series of good practices, and
- a modelling and analysis of impacts in selected fields.
The following sections give a brief overview of the study’s methodological and analytical approach. For detailed information the reader is referred to Section 2 of the Report Annex.

### 2.1 Thematic aspects covered by the study

The study looked at a total of five thematic areas that have a bearing on ICT in long-term care and can be expected to have an impact on a country’s openness to innovation in this field. For each thematic area or macro-category, key issues for benchmarking were identified on the basis of a literature analysis. The detailed outcomes of this literature analysis are presented in Section 3.2 of the Report Annex.

In short, the thematic macro-categories and respective issues for benchmarking are:

6. **The technological adoption of eCare**, including
   - The current supply of different types of telecare and telehealth services
   - The current use of telecare in the target population
7. The governance and organisation of eCare, including
- Technical readiness, the existence of an infrastructure necessary for eCare
- Policy frameworks on ICT for long-term care
- Political governance of ethical issues in relation to ICT for long-term care
- Policy frameworks on integrated social and health care and the role of ICT
- Policies addressing support to informal carers and the role of ICT

8. The funding and economic impact of eCare, including
- Reimbursement systems for eCare, their coverage and flexibility
- The existence of targeted funding measures available for eCare endeavours
- The availability of statistically representative evidence on costs and benefits of eCare
- The mainstreaming potential for eCare

9. Legal issues of relevance for eCare, including
- The reference to ICT-based services in legal frameworks for data protection
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2.2 Stakeholders covered by the study

The study looked at five main groups of stakeholders that have a prime and direct involvement in long-term care service provision, namely patients or clients (older people in need of care), carers (formal and informal), care organisations, and authorities and payers.

As far as patients or clients are concerned, the scope of the study covers older people in need of care. Older people do not represent a homogeneous population group as regards health situation, personal needs, aspirations and living circumstances. The relevance of, and demand for, ICT-based services and support varies substantially across the overall older population, and particular subgroups may be more relevant for particular markets and/or types of service/products than others. A prime focus should be on older people with chronic diseases, since independence and quality of life can be more difficult to maintain for older people who become frail or have to cope with a chronic illness. On the basis of different statistics on the prevalence of chronic diseases (see Section 3.1 of the Report Annex for details) the study focuses primarily on people with cardiovascular diseases (incl. CAD, hypertension, heart failure and stroke), diabetes,
respiratory disease (mostly COPD) and dementia, as well as those suffering from combinations of these diseases.

Formal carers include professional staff such as social- and day-careers, nurses, doctors and all other formally trained people providing long-term care services. Formal carers are usually employed by a care organisation. Excluded are all health and social care providers who do not relate directly to the theme of the study, such as all care staff involved in acute care only (e.g. specialist doctors and nurses like surgeons, intensive care professionals, tertiary care staff).

Informal carers include family, friends, neighbours, and paid care staff without a formal qualification in the field of health or long-term care, including carers with a migrant background.

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2.3 Technologies covered by the study

The study covers a broad spectrum of technologies, sorted into six categories. Per se, these categories and the terms used to label them tend to have rather broad generic meanings that often point beyond the scope of the study, namely the benchmarking of eCare in the sense of ICT for long-term care. To cope with this, conceptual boundaries for each technology category were introduced that are in line with the study’s scope, as follows:

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## 2.4 Country coverage

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- Mediterranean model: Spain, Italy
- Eastern European model: Estonia, Hungary
The choice of three countries with a continental long-term-care model at the expense of only one country from the Anglo-Saxon model is motivated by the following considerations: The countries with a continental model are quite diverse in themselves, which means that a higher number of countries is required in order to ensure some level of representativeness. On the other hand, the Anglo-Saxon group comprises only two countries, so selecting both of them would pose a methodological fault with respect to the concept of the countries selected only being representative of the model they belong to.

For details on country selection please see Section 3.2 of the Report Annex

### 2.5 Study outcomes

#### 2.5.1 The eCare Benchmarking scoreboard

The scoreboard is the first of the three main outcomes of the eCare Benchmarking study. It presents standardised data on a series of indicators covering the thematic macro-categories and the benchmarking issues outlined above.

**Data sources**

The scoreboard uses data from both primary and secondary sources, using four means of data collection:

- Literature search: the study team conducted a systematic review of available literature of relevance in the context of eCare. The keywords used for the literature search can be found in Section 3.3 of the Report Annex.

- Collection of secondary data from official statistics: secondary data from official statistics and a number of studies carried out by empirica and other organisations were searched and included into the scope of the scoreboard when appropriate. See indicator lists for details.

- Collection of primary data by means of national correspondents: data on indicators that could not be fed from secondary sources was collected by a group of ten national experts, one in each of the ten countries. For a list of the experts please see Section 8.1 of the Report Annex. Data collection took place from January to April 2011.

- Collection of additional primary data and results validation by means of expert interviews: Expert interviews were conducted by the study team with the aim to 1) receive expert opinion on certain missing or unclear data items critical to the scoreboard and 2) receive the experts’ opinion on the scoreboard results as part of a validation process. A total of 19 experts were interviewed on specific thematic issues either by phone, mail or face-to-face using a non-standardized approach. For a list of the experts and themes covered please see Section 8.3 of the Report Annex.

**Scoreboard calculation**

While there are some quantitative indicators in the scoreboard, most information used in the benchmarking started off as being of a qualitative nature. To make this qualitative information suitable for benchmarking, a scoring system was employed: relevant qualitative information was analysed by the study team and transformed into quantitative measures using a scoring system. An ordinal scale of characteristics was developed for each indicator where each item on the scale carries a scoring value. By applying
these scores on the basis of the qualitative information and calculating them, the overall score for each of the indicators was derived.

To allow for the easy comparison of indicators based on different scores and of the quantitative indicators, all values were standardised to a common range of 0 to 5, with 0 representing the lowest and 5 the highest value.

A list of all indicators included in the scoreboard, including the scoring system used for the qualitative ones is included in Section 6 of the Report Annex, while Section 7 of the Annex contains the full set of raw scores and the calculation formulas for each component indicator.

**Calculation example**

We demonstrate the calculation approach for the scoreboard scores, using the indicator “Reference to ICT based services in legal frameworks other than data protection” (used in section 3.4 of this report) and the score value for the UK.

**Step 1:**

The qualitative information collected on legal frameworks other than data protection in the UK was analysed and scored using the predefined scoring system, see table below. The scoring values are given in square brackets [x]. As the table shows, the indicator consists of a number of components (concerning regulation/legislation in relation to different areas of technology) that are scored individually.

<table>
<thead>
<tr>
<th>Compound indicator</th>
<th>Component indicators and scoring</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1 Reference to ICT based services in legal frameworks other than data protection</td>
<td>Existence of explicit regulation/legislation concerning the domain under investigation:</td>
</tr>
<tr>
<td></td>
<td>- Telecare:</td>
</tr>
<tr>
<td></td>
<td>- dedicated legal/regulated framework or referenced in wider framework [1]</td>
</tr>
<tr>
<td></td>
<td>- no regulation/legislation referring directly or indirectly to the domain [0]</td>
</tr>
<tr>
<td></td>
<td>Existence of explicit regulation/legislation concerning the domain under investigation:</td>
</tr>
<tr>
<td></td>
<td>- Telehealth/ telemonitoring:</td>
</tr>
<tr>
<td></td>
<td>- dedicated legal/regulated framework or referenced in wider framework [1]</td>
</tr>
<tr>
<td></td>
<td>- no regulation/legislation referring directly or indirectly to the domain [0]</td>
</tr>
<tr>
<td></td>
<td>Existence of explicit regulation/legislation concerning the domain under investigation:</td>
</tr>
<tr>
<td></td>
<td>- Telemedicine:</td>
</tr>
<tr>
<td></td>
<td>- dedicated legal/regulated framework or referenced in wider framework [1]</td>
</tr>
<tr>
<td></td>
<td>- no regulation/legislation referring directly or indirectly to the domain [0]</td>
</tr>
<tr>
<td></td>
<td>Existence of explicit regulation/legislation concerning the domain under investigation:</td>
</tr>
<tr>
<td></td>
<td>- Personal Health Records (PHR):</td>
</tr>
<tr>
<td></td>
<td>- dedicated legal/regulated framework or referenced in wider framework [1]</td>
</tr>
<tr>
<td></td>
<td>- no regulation/legislation referring directly or indirectly to the domain [0]</td>
</tr>
<tr>
<td></td>
<td>Existence of explicit regulation/legislation concerning the domain under investigation:</td>
</tr>
<tr>
<td></td>
<td>- Electronic Health Records (EHR):</td>
</tr>
<tr>
<td></td>
<td>- dedicated legal/regulated framework or referenced in wider framework [1]</td>
</tr>
<tr>
<td></td>
<td>- no regulation/legislation referring directly or indirectly to the domain [0]</td>
</tr>
</tbody>
</table>
Existence of explicit regulation/legislation concerning the domain under investigation:

- Teletraining and educational support:
  - o dedicated legal/regulative framework or referenced in wider framework [1]
  - o no regulation/legislation referring directly or indirectly to the domain [0]

The application of the scoring system to the UK qualitative information yields the following raw scores for the individual components.

<table>
<thead>
<tr>
<th>Country</th>
<th>Component Indicator</th>
<th>Component Score [Max. score]</th>
<th>Reasoning / Qualitative information scored</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK</td>
<td>D1: Explicit reference to Telecare in regulation/legislation</td>
<td>1 [1]</td>
<td>Safety of medical devices is regulated by a dedicated agency, including so called assistive technology which explicitly includes telecare equipment (see entry for F2 below) Telecare Code of Practice developed by the Telecare Services Associations (TSA) defines a voluntary quality standard, which seems however to be referenced by government agencies and telecare commissioners (<a href="http://www.telecare.org.uk/files/47734/FileName/TSACodeofPracticeExecutiveSummary.pdf">http://www.telecare.org.uk/files/47734/FileName/TSACodeofPracticeExecutiveSummary.pdf</a>) The British Standards Institute has issued a standard on for alarms and social alarms (BS EN 50134-7), the standard covers a range of service related aspects</td>
</tr>
<tr>
<td></td>
<td>D1: Explicit reference to Telehealth/Telemonitoring in regulation/legislation</td>
<td>1 [1]</td>
<td>Medicines and Healthcare products Regulatory Agency (MHRA) was set up in April 2003 from a merger of the Medicines Control Agency and the Medical Devices Agency. The MHRA is the government agency which is responsible for ensuring that medicines and medical devices work, and are acceptably safe. It covers telehealth/telemedicine and telecare systems and devices, the latter has a dedicated centre in Blackpool (<a href="http://www.mhra.gov.uk/Safetyinformation/Generalsafetyinformation/AssistiveTechnology/index.htm">http://www.mhra.gov.uk/Safetyinformation/Generalsafetyinformation/AssistiveTechnology/index.htm</a>)</td>
</tr>
<tr>
<td></td>
<td>D1: Explicit reference to Telemedicine in legislation/regulation</td>
<td>1 [1]</td>
<td>See above</td>
</tr>
<tr>
<td></td>
<td>D1: Explicit reference to Personal Health Records in legislation/regulation</td>
<td>0 [1]</td>
<td>No explicit reference in legislation/regulation was identified</td>
</tr>
</tbody>
</table>
The right to privacy and confidentiality and to expect the NHS to keep confidential information safe and secure. In operational regard, the Care Record Guarantee, Version 5 of January 2011 makes explicit provisions in relation to electronic care records, e.g. when it comes to access rights.


No explicit reference in legislation/regulation was identified

Step 2:
The raw component scores were then fed into the calculation formula given below and standardised to the common range of 0 to 5, yielding the scoreboard score of 3.3.

The same scoring system and formula was used to calculate the remaining nine scoreboard values of this indicator for the other countries.

By means of the other scoring systems presented in section 6 of the Report Annex and the scoring formulas presented in section 7 of the Report Annex the scoreboard values for the remaining indicators were calculated.

2.5.2 eCare Benchmarking good practices

The analysis of good practices is the second of the three main outcomes of the eCare Benchmarking study. For the purposes of this study, a good practice can be a policy programme, funding scheme, technological solution, a practice tackling ethical issues, or a training programme. It should represent a good learning experience for Europe or its member states. In that sense, a good practice is a way of doing things in the field of the study that is successful, innovative, and can be expected to facilitate the deployment of ICT-enabled care services in the quest of coping with demographic change.

Good practices were identified from the eCare Benchmarking scoreboard and the data behind the individual scores. As a first step, countries scoring relatively high in a certain macro-category or a compound indicator were considered to be candidates for sources of good practice. In a second step, the raw data from the primary data gather-
ing or secondary sources for the area concerned was consulted in order to determine the reasons for the high score values, which often presented potential good practices.

All potential good practices were described using a common format, containing

- the long-term care model cluster,
- the country,
- the macro-category,
- the compound indicator
- a description of the practice based on the information available from data gathering,
- the type of the practice
- and a first analysis of its innovative feature / learning experience component, also based on available data.

These short profiles for the potential good practices were provided to the participants of the study validation workshop, together with recommendations of the study team on which ones to analyse in more detail. This was done again with the support of the national correspondents in the countries and additional experts as necessary. The resulting good practice descriptions are part of the analytic chapter 3 of this report, more detailed descriptions can be found in section 4 of the Report Annex

## 2.5.3 Impact modelling

A modelling of impacts of selected eCare technologies based on available data is the third of the three main outcomes of the eCare Benchmarking study. The main aim of the impact analysis was to underpin the policy recommendations made on the basis of the study results and to get a consolidated understanding about what is today known in relation to impacts in eCare.

The impact modelling itself was carried out in a number of subsequent steps:

- **Step 1:** Identify suitable evidence. On the basis of the scoreboard indicator “Statistically representative evidence on key benefits and cost avoidance”, large scale eCare implementations were defined that involved at least 1,000 actual patients or were fully available across an entire geographic area (at least municipality level). For these implementations existing evaluation studies were identified that could yield the data for the modelling.

- **Step 2:** Identify diseases and technologies covered by existing evidence. In a second step, these studies were reviewed and details on the coverage of specific chronic diseases and the technologies within the scope of the study were collected.

- **Step 3:** Define a limited number of cases for specific analysis. Based on the results of step 2, a limited number of cases were selected for a more detailed analysis. These cases were defined according to the country where the evidence is found, the service provided to patients, and the disease(s) targeted by the service.

- **Step 4:** Case analyses. Each selected case was then analysed for the inputs, outputs, outcomes and impacts connected with it. Main outcomes and impacts were extracted to be included in a cost-benefit analysis.

- **Step 5:** Quantify estimates of economic outcome. Values from existing evidence were extrapolated to the regional or country level. The extrapolation followed
the setting in the specific country, such as the number of patients with a certain condition in the country. It also focused exclusively on documented economic outcomes.

- Step 6: Qualitative analysis of social outcomes. Social effects that do not easily lend themselves to quantitative analysis were analysed separately and in a qualitative manner, based on the available case-specific evidence and insights from the literature.

- Step 7: Summary analysis of potential social and economic impact. Finally, the results of the analyses were summarised and aggregated, demonstrating potential social and economic gains, but also drawing attention to costs and risks associated with large scale deployment of home care services through the use of ICT for older people with chronic diseases.

More details on the impact modelling approach and its results can be found in section 5 of the Report Annex.
3 The eCare Benchmarking scoreboard

This chapter presents the eCare Benchmarking scoreboard as well as an analysis of the implications of the results. For a description of the scoreboard methodology and of how data have been collected, see chapter 2.
Figure 3-1: The eCare Benchmarking scoreboard

<table>
<thead>
<tr>
<th>Long-term care model</th>
<th>Anglo-Saxon</th>
<th>Central European</th>
<th>Scandinavian</th>
<th>Mediterranean</th>
<th>Eastern</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country</td>
<td>UK</td>
<td>FR</td>
<td>NL</td>
<td>DE</td>
<td>DK</td>
</tr>
<tr>
<td>Technological adoption</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supply of 1st generation telecare</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
</tr>
<tr>
<td>Supply of 2nd generation telecare</td>
<td>3.8</td>
<td>3.8</td>
<td>3.8</td>
<td>3.8</td>
<td>3.8</td>
</tr>
<tr>
<td>Supply of 3rd generation telecare</td>
<td>0.0</td>
<td>0.0</td>
<td>1.3</td>
<td>1.3</td>
<td>1.3</td>
</tr>
<tr>
<td>Supply of home telehealth</td>
<td>3.8</td>
<td>1.3</td>
<td>2.5</td>
<td>3.8</td>
<td>1.3</td>
</tr>
<tr>
<td>Supply of video services</td>
<td>1.3</td>
<td>1.3</td>
<td>2.5</td>
<td>2.5</td>
<td>2.5</td>
</tr>
<tr>
<td>Use of 1st generation telecare among 65+ living alone and receiving care</td>
<td>2.9</td>
<td>0.3</td>
<td>0.4</td>
<td>0.6</td>
<td>0.9</td>
</tr>
<tr>
<td>Technical readiness - infrastructure for eCare</td>
<td>3.2</td>
<td>3.1</td>
<td>3.4</td>
<td>2.6</td>
<td>4.0</td>
</tr>
<tr>
<td>Framework conditions impacting on openness to innovation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Governance and Organisation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Policy framework on ICT for long-term care</td>
<td>2.8</td>
<td>0.5</td>
<td>1.0</td>
<td>1.0</td>
<td>1.7</td>
</tr>
<tr>
<td>Public policy measures taken to address ethical concerns</td>
<td>0.8</td>
<td>0.8</td>
<td>1.0</td>
<td>0.0</td>
<td>0.5</td>
</tr>
<tr>
<td>Policy framework on integrated social &amp; health care and the role of ICT</td>
<td>3.8</td>
<td>1.4</td>
<td>0.9</td>
<td>1.0</td>
<td>3.6</td>
</tr>
<tr>
<td>Policies addressing support to informal carers and the role of ICT</td>
<td>3.2</td>
<td>0.9</td>
<td>1.5</td>
<td>0.9</td>
<td>0.9</td>
</tr>
<tr>
<td>Funding and economic impact</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flexibility of reimbursement system</td>
<td>2.8</td>
<td>2.8</td>
<td>3.1</td>
<td>2.2</td>
<td>2.8</td>
</tr>
<tr>
<td>Reimbursement promoting specific technologies</td>
<td>1.5</td>
<td>1.3</td>
<td>0.5</td>
<td>1.0</td>
<td>1.3</td>
</tr>
<tr>
<td>Targeted funding measures for start-off support</td>
<td>4.2</td>
<td>2.9</td>
<td>3.3</td>
<td>3.1</td>
<td>3.8</td>
</tr>
<tr>
<td>Statistically representative evidence on key benefits and cost avoidance</td>
<td>1.9</td>
<td>1.7</td>
<td>0.6</td>
<td>0.8</td>
<td>0.6</td>
</tr>
<tr>
<td>Mainstreaming potential for ICT in long-term care</td>
<td>3.1</td>
<td>1.8</td>
<td>2.3</td>
<td>2.1</td>
<td>2.6</td>
</tr>
<tr>
<td>Legal issues</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reference to ICT based services in legal frameworks other than data protection</td>
<td>3.3</td>
<td>2.5</td>
<td>0.8</td>
<td>1.7</td>
<td>3.3</td>
</tr>
<tr>
<td>Reference to ICT based services in data protection legal frameworks</td>
<td>2.9</td>
<td>3.3</td>
<td>0.8</td>
<td>3.3</td>
<td>2.5</td>
</tr>
<tr>
<td>Human capital</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supply of online services for older people and informal carers</td>
<td>3.4</td>
<td>1.4</td>
<td>3.4</td>
<td>3.5</td>
<td>2.8</td>
</tr>
<tr>
<td>Digital literacy of people 55+</td>
<td>2.5</td>
<td>2.7</td>
<td>3.5</td>
<td>2.3</td>
<td>3.4</td>
</tr>
<tr>
<td>Use of internet for searching health-related information by people 55+</td>
<td>1.3</td>
<td>1.2</td>
<td>2.0</td>
<td>1.8</td>
<td>1.9</td>
</tr>
<tr>
<td>Supply of work-related online services for care professionals</td>
<td>5.0</td>
<td>3.1</td>
<td>2.5</td>
<td>4.4</td>
<td>4.4</td>
</tr>
<tr>
<td>Use of computer &amp; internet for training purposes by GPs</td>
<td>4.8</td>
<td>3.7</td>
<td>3.3</td>
<td>3.9</td>
<td>3.1</td>
</tr>
<tr>
<td>Basic and occupational ICT skills in training curricula for care professionals</td>
<td>5.0</td>
<td>1.4</td>
<td>1.8</td>
<td>3.6</td>
<td>4.6</td>
</tr>
</tbody>
</table>
3.1 Technological adoption

‘Technological adoption’ in the present study refers to the current diffusion and penetration, as well as different uses of ICT in home care. Diffusion and penetration of eCare services reflects in a summative way the organisational, economic, legal and ethical context services are embedded. It thus reflects the situation analysed in the other five macro-categories. Its benchmarking comprises two types of indicators. The first type estimates the level of supply of five technologies used in this field and serves as a proxy for availability of such services in the market. The second type of indicators estimates the real use of technologies by older people with chronic diseases. Ideally both indicator types would be collected for all technologies. However, reliable data on use can only be collected in a representative survey. For these types of indicators the study team was thus bound to make use of the few existing surveys identified by a literature review. Nevertheless, to draw a picture of technical adoption the study team made use of the indications the supply side delivered. If no offers exist on the market, one can deduct that there is no uptake. Further, it can be inferred that the adoption of a certain technology is following a pattern similar to the degree of maturity of the supply side. The scoreboard therefore differentiates the level of supply in five groups: no activity, proof of concepts or small scale pilot exercises, larger scale pilots and pilot-like market offers, service more significantly offered within the care system, and standard services within the care system.

The macro-category technological adoption contains another compound indicator that serves a slightly different purpose: many eCare technologies are not in routine use by a majority of people at the moment. It was therefore found useful to also estimate the potential of a country to adopt or further scale-up eCare services from a technical point of view. For that purpose a compound indicator was created measuring the use of technologies that can be enabling factors for eCare services at home such as electronic health records, internet access and ePrescribing systems. These services are regarded to either ease the integration of service on the professional side such as electronic health records in GP practices and hospitals or on the user side such as broadband connections.

The following table gives an overview of the compound indicators of this macro-category. Indicators benchmarking supply have only one component, whereas the use indicator and the technical readiness indicator are component indicators. Raw data for each indicator and information on how qualitative indicators were aggregated and scored into quantitative benchmarking values is included in Section 7.1 of the Report Annex.

Table 3-1: Indicators used for the technological adoption macro-category

<table>
<thead>
<tr>
<th>Compound indicator</th>
<th>Type of indicator</th>
<th>Component indicator(s)</th>
<th>Data source(s)</th>
</tr>
</thead>
</table>
| Levels of supply 1st generation telecare | Qualitative (scored) | o No activity detected  
o Still in the phase of proof of concepts or pilot exercises  
o Few services to restricted market or large scale pilots  
o Already more significantly offered within care system  
o Widely offered within market or standard service within care system | Primary data gathering |
| Levels of supply 2nd generation telecare | Qualitative (scored) | o No activity detected  
o Still in the phase of proof of concepts or pilot exercises  
o Few services to restricted market or large scale pilots  
o Already more significantly offered within care system  
o Widely offered within market or standard service within care system | Primary data gathering |
| Levels of supply 3rd | Qualitative (scored) | o No activity detected  
o Still in the phase of proof of concepts or pilot exercises | Primary data gathering |
generation telecare
- Few services to restricted market or large scale pilots
- Already more significantly offered within care system
- Widely offered within market or standard service within care system

Levels of supply home telehealth
Qualitative (scored)
- No activity detected
- Still in the phase of proof of concepts or pilot exercises
- Few services to restricted market or large scale pilots
- Already more significantly offered within care system
- Widely offered within market or standard service within care system
Primary data gathering

Levels of supply video services
Qualitative (scored)
- No activity detected
- Still in the phase of proof of concepts or pilot exercises
- Few services to restricted market or large scale pilots
- Already more significantly offered within care system
- Widely offered within market or standard service within care system
Primary data gathering

Use of 1st generation telecare among 65+ living alone and receiving care
Quantitative
- Percentage of respondents
Secondary data source: ICT & Ageing study / SHARE 2005

Technical readiness - infrastructure for eCare
Quantitative
- Hospitals with a hospital wide central EPR system, alone or that share info with local EPR systems / Hospitals with a central EPR system but also with some local EPR systems not able to share info with the central one
- Patient online access to their electronic hospital patient record
- Share of GPs in the EU 27 using - Electronic Health Records (Electronic storage of individual medical patient data)
- Internet usage among 65+
- Availability of national ePrescribing systems
Secondary data source: eHealth Indicators study; Eurostat 2011; eHealth strategies 2010; eHealth Benchmarking - phase III

Figure 3-2 below shows the overview of scores for the macro-category on technical adoption. A detailed description and analysis of the findings can be found in the following sections.

<table>
<thead>
<tr>
<th>Long-term care model</th>
<th>Anglo-Saxon</th>
<th>Central European</th>
<th>Scandinavian</th>
<th>Mediterranean</th>
<th>Eastern</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country</td>
<td>UK</td>
<td>FR</td>
<td>NL</td>
<td>DE</td>
<td>DK</td>
</tr>
<tr>
<td></td>
<td></td>
<td>SE</td>
<td>ES</td>
<td>IT</td>
<td>EE</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>HU</td>
</tr>
<tr>
<td>Technological adoption</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supply of 1st generation telecare</td>
<td>5,0</td>
<td>5,0</td>
<td>5,0</td>
<td>5,0</td>
<td>5,0</td>
</tr>
<tr>
<td>Supply of 2nd generation telecare</td>
<td>3,8</td>
<td>3,8</td>
<td>3,8</td>
<td>3,8</td>
<td>3,8</td>
</tr>
<tr>
<td>Supply of 3rd generation telecare</td>
<td>0,0</td>
<td>0,0</td>
<td>1,3</td>
<td>1,3</td>
<td>0,0</td>
</tr>
<tr>
<td>Supply of home telehealth</td>
<td>3,8</td>
<td>1,3</td>
<td>2,5</td>
<td>3,8</td>
<td>1,3</td>
</tr>
<tr>
<td>Supply of video services</td>
<td>1,3</td>
<td>1,3</td>
<td>2,5</td>
<td>2,5</td>
<td>2,5</td>
</tr>
<tr>
<td>Use of 1st generation telecare among 65+ living alone and receiving care</td>
<td>2,9</td>
<td>0,3</td>
<td>0,4</td>
<td>0,6</td>
<td>0,9</td>
</tr>
<tr>
<td>Technical readiness - infrastructure for eCare</td>
<td>3,2</td>
<td>3,1</td>
<td>3,4</td>
<td>2,6</td>
<td>4,0</td>
</tr>
</tbody>
</table>

Note: Scoreboard scores are standardized to a range of 0 to 5. See section 2.5.1 on how the scores were calculated.
3.1.1 Levels of supplying first generation telecare

First generation telecare is the most basic and least technologically complex service among the three types of telecare services. In seven out of ten countries, first generation telecare is a routine service offer available to any person, including older people with or without chronic diseases. This result is not too surprising, as first generation telecare has been on offer for more than 20 years now. Nevertheless, there are exceptions, such as in Italy, Estonia and Hungary, although even these three countries show a significant level of telecare supply. Particularly in Italy and Hungary there are numerous examples of fully mainstreamed services, in parallel to significant gaps in the geographical coverage of supply.

GOOD PRACTICE

Obligatory provision of 1st generation telecare in Hungary

In 2008 Hungary set up a comprehensive policy that aims at providing elderly people with care in their own homes avoiding that people need to move to homes for the aged. Among other forms of basic social care like meals on wheels and basic nursing, 1st generation telecare service were made obligatory for local communities to provide. In return they receive financial support by the state for providing these services.

For more information read the full good practice case in Section 4 of the Report Annex

In the south of Italy only one small community that offers telecare services was identified, whereas in the north most local communities or even regions offer telecare services. Although some gaps in geographical coverage can still be detected the widespread offering of telecare in Hungary is remarkable and points to an effective policy (see good practice). In Estonia, first generation telecare is only available in Tallin and in very few municipalities throughout the country.

Table 3-2: Levels of supplying first generation telecare - indicator raw scores

<table>
<thead>
<tr>
<th>Country</th>
<th>UK</th>
<th>FR</th>
<th>NL</th>
<th>DE</th>
<th>DK</th>
<th>SE</th>
<th>ES</th>
<th>IT</th>
<th>EE</th>
<th>HU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Levels of supplying first generation telecare</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>4</td>
<td>3.5</td>
<td>3</td>
<td>3.5</td>
</tr>
<tr>
<td>Max score: 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

When considering the overall position across the different models of long-term care, there is no cluster-related pattern to be identified. Rather, the countries with less-than routine service offering have an uneven inner country distribution in common, with economically weaker regions seeming to account for lower uptake levels. Concluding it can be said that while first generation telecare services are generally mainstreamed across Europe, some regions present potential gaps.

3.1.2 Levels of supplying second generation telecare

Second generation telecare is an advancement of first generation telecare, adding passive sensors to the user kit. Most service providers who offer first generation telecare also offer second generation services as by now second generation technology is a routine part of technology providers’ portfolios. However, the primary data gathering made evident that service providers see these add-on components as suitable for a much smaller audience. Service offers are often hidden on the web pages or revealed only by direct interviews. Also service providers told the study team that the uptake of these products is not significant anywhere for the moment. In addition some sensors
cause too many false alarms which makes providers more cautious in active promotion of these. Furthermore, it is, for example, the Andalusian regions’ strategy to reach a large number of customers with a basic service rather than fewer clients with a more advanced service.

Table 3-3: Levels of supplying second generation telecare -indicator raw scores

<table>
<thead>
<tr>
<th>Country</th>
<th>UK</th>
<th>FR</th>
<th>NL</th>
<th>DE</th>
<th>DK</th>
<th>SE</th>
<th>ES</th>
<th>IT</th>
<th>EE</th>
<th>HU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Levels of supplying 2nd generation telecare</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>Max score: 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>

This indicator shows that contrary to first generation telecare, second generation services have only made relative progress, even on the supply side. The pattern, however, largely follows the position in first generation services, with Italy, Hungary and Estonia being on the lower end of the spectrum and again strong regional disparities within countries seem to be the reason. The more advanced the services, the smaller the potential client base for companies, since fewer people seem to need the functionalities offered. Thus, the countries with strong regional disparities lag behind. Still there seems to be the need to provide more mature sensors and make these attractive to a wider customer base.

3.1.3 Levels of supplying third generation telecare

The third generation is the most recent and most advanced incarnation of telecare. When applying a strict definition of third generation telecare services - reacting automatically to a change in the pattern of connected sensors - only four countries are active in the field with research projects. There are also a number of very advanced 2.5 generation telecare research projects in countries like Sweden, Italy and the UK. The difference between the latter and The Netherlands, Germany, Denmark and Hungary should not be overestimated. The 2.5 generation telecare falls short of the third generation in that often the automatic recognition of patterns in the monitoring data relies on predefined rules instead of self-learning algorithms.

Table 3-4: Levels of supplying third generation telecare raw -indicator raw scores

<table>
<thead>
<tr>
<th>Country</th>
<th>UK</th>
<th>FR</th>
<th>NL</th>
<th>DE</th>
<th>DK</th>
<th>SE</th>
<th>ES</th>
<th>IT</th>
<th>EE</th>
<th>HU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Levels of supplying 3rd generation telecare</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Max score: 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

In any case, all countries are on a very low mainstreaming level of third generation telecare. Third generation telecare is a field of research in the proof of concept stage and will stay so for the coming years. Most examples found are based on the Ambient Assisted Living Joint Programme (AAL-JP) which - given their advancement seem to provide meaningful support for the development of intelligent care systems.

For the three generations of telecare, a maturity gradient is visible: 1st generation telecare (i.e. basic social alarms) is nearly routinely supplied in all countries except Estonia. There is some mainstreaming for 2nd generation telecare. 3rd generation telecare is clearly emerging but is currently mostly at the pilot level. This picture confirms similar findings of the ICT & Ageing study carried out in 2008, with progress visible in some cases in 2nd and 3rd generation telecare and telehealth.
3.1.4 Levels of supplying home telehealth

Home telehealth for chronically ill and older people is a topic in all countries, yet supply varies substantially. No country up to now can be regarded as offering telehealth as a routine service accessible to all.

However, there are two clear frontrunners that have implemented several measures to foster mainstreaming: Germany and the UK. In both countries, telehealth is offered to a substantial number of people and for a variety of chronic diseases. This is remarkable especially because Germany and the UK represent very different health and care systems. Though very different from a systemic perspective they both used similar instruments: they offered seed funding and/or actively supported innovation by introducing flexibility in their care systems. When talking a closer look it is apparent that the instruments used differ again in order to fit into their national systems (see good practice).

Sweden, the Netherlands and Italy also present examples of implementation of telehealth, but more scattered and restricted to specific applications for certain diseases. Surprisingly, in France, Denmark and Spain only research projects were identified in this area. It may be that their health care systems are more provider-oriented and ICT is applied for connecting and supporting professionals. This assumption is, at least partly, supported by the “Use of EHR among GPs” indicator (see technical infrastructure). Clearly Estonia and Hungary lag behind with only very initial activity detected.

**GOOD PRACTICE**

*Seed funding and free contracting legislation as enablers of telehealth adoption in Germany*

A newly introduced legislation in Germany allowed insurance companies contractual freedom and gave them seed funding. It caused a substantial number of innovative ways to overcome problems like lacking integration of healthcare providers and the focus on acute care. It also boosted telehealth making Germany one of the countries with the best supply of telehealth in Europe.

*Grants, purchasing frameworks and free commissioning as enablers of telehealth adoption in England*

When searching for the reasons why the UK ranks highly for the level of supply in home telehealth we find a number of fostering measures by the English National Health Service (NHS): (i) preventative technology grants provide seeding funding at the local level, (ii) commissioning with few restrictions on primary care trust level, (iii) a National Framework Agreement establishing market transparency in structuring offers and providing minimum criteria.

For more information read the full good practice case in Section 4 of the Report Annex

The level of mainstreaming home telehealth services is still quite low and patchy across Europe and this does not relate to the model of long-term care. From the supply as such this pattern cannot be understood, as the reasons are probably to be found in other macro categories like the two good practices shown. However a correlation between these could not be identified. From other studies we know that problems are mostly on the micro level like lacking innovation processes and an integration with existing care models (Stroetmann et al., 2010, Cleland et al., 2005).

| Table 3-5: Levels of supplying home telehealth raw - indicator raw scores |
|---------------------------------|---|---|---|---|---|---|---|---|
| Country                        | UK | FR | NL | DE | DK | SE | ES | IT | EE | HU |
| Levels of supplying home telehealth max score: 4 | 3 | 1 | 2 | 3 | 1 | 2 | 1 | 2 | 0.5 | 0.5 |
3.1.5 Levels of supplying video service

Video services connect carers and patients, sometimes to monitor the discharge phase, sometimes to improve communication in general. Services identified were either research projects with small scale pilots, regional offers or larger scale pilots. Three services dealt with neurological disorders. Few services to restricted market were found in the Netherlands, Germany and Sweden and Denmark.

**GOOD PRACTICE**

**Standardisation and interoperability as enablers of patient to professional video services adoption**

The Danish cooperative venture MedCom has set up and maintains a common Danish Health Care Data Network through which a VDX standard has been adopted for videoconferencing services.

The standardisation of this video hub has ensured a national adoption of video based communication in Denmark ranking from simple web cam communications to advanced tele-presence communications. Furthermore, the use of a common standard has ensured a multi-supplier strategy.

For more information read the full good practice case in Section 4 of the Report Annex

Remarkable here is also that Denmark has defined a standard for video-communication that should help services to be more easily integrated with existing IT in hospitals as well as care organisation and connected to the homes of patients (see good practice). Hungary is the only country showing no activity.

**Table 3-6: Levels of supplying video services raw - indicator raw scores**

<table>
<thead>
<tr>
<th>Country</th>
<th>UK</th>
<th>FR</th>
<th>NL</th>
<th>DE</th>
<th>DK</th>
<th>SE</th>
<th>ES</th>
<th>IT</th>
<th>EE</th>
<th>HU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Levels of supplying video service</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Max score: 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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</tr>
</tbody>
</table>

In general the differences between countries and clusters are less evident than for other indicators. Video monitoring services are not mainstreamed. This is a conclusion applying across the board. It remains to be seen whether this situation will change, but the Danish approach indicates that integration with other, routine services may be a requirement for large scale take-up.

3.1.6 Use of 1st generation telecare among older people

This quantitative secondary source indicator estimates the use of first generation telecare and thus reflects the demand side. It is based on data presented by (Kubitschke and Cullen, 2010a) and shows the share of the population aged 65 years and older that uses a basic social alarm service. The UK attained the highest value followed by Sweden and Denmark. Countries from the Mediterranean and Continental system range between 1.5% and 4%. Hungary is on a similar level, whereas Estonia was not represented. These usage levels have remained largely stable over the past years. These findings raise the question whether all people that could actually benefit from 1st generation telecare are also using it, and therewith also the question where the actual market saturation point for 1st generation lies in terms of clients that can be targeted. The data clearly suggest that the market saturation point is nowhere equal to 100% of the population aged 65+. 
A closer look at the reasons that commonly lead people to enrolling in a social alarm service reveals that it is deemed in particular helpful for older people who living alone and suffer from a chronical illness (aproxima Gesellschaft für Markt- und Sozialforschung Weimar mbH and Initiative Hausnotruf, 2010). Unfortunately statistical data on these three items is not available for all study countries from one survey. The SHARE survey has data for seven out of ten countries. Therefore we used this survey to estimate the market size and usage figures for this subgroup (see table below) and extrapolated the figures for UK and Hungary from the average. As can be seen the share of users is significantly higher among people with weaker health or those living alone and receiving care when compared to the overall population 65+. Levels vary between 6.0% in France and 58.6% in the UK.

Among the probably reasons that can explain these differences is the fact that people are healthy and live alone to strongly varying degrees in Europe. This boosts the penetration rate in Spain, Italy and Germany but lowers it in the Netherlands, Denmark and Sweden. A German study also implies that the reasons for not using basic social alarms might be found in people’s backgrounds. The people currently elderly have grown up in wartime and strongly believe that spending which can be avoided, although at a cost, should be avoided. Lacking technological affinity and fear of granting strangers access to their own home are further although minor reasons for not enrolling in a basic social alarm service (aproxima Gesellschaft für Markt- und Sozialforschung Weimar mbH and Initiative Hausnotruf, 2010).

All in all these findings suggest that market saturation points for 1st generation telecare and - by implication - for other eCare technologies as well strongly depend on demographics and other characteristics (up to individual biographies) of the target group and that base populations for the calculation of usage levels must be defined with care. There is also a considerable lack of comparative cross-national data on eCare use that seriously hampers a better understanding of the domain.

| Table 3-7: Use of 1st generation telecare among older people raw indicator values |
|----------------------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| Country                         | UK 16.0% | FR 1.5%  | NL 3.0%  | DE 3.0%  | DK 6.5%  | SE 10.0% | ES 4.0%  | IT 1.5%  | HU 3.0%  |
| Use of 1st generation telecare among people 65+ | 100%     |
| Use of 1st generation telecare among people 65+, living alone and receiving care | 58.6%    | 6.0%    | 7.9%    | 12.5%   | 18.6%    | 30.3%   | 28.6%   | 6.8%    | 11.0%    |

3.1.7 Technical readiness – infrastructure for eCare

As said in the introduction to this chapter, this compound indicator looks at the technical readiness for eCare services. It estimates the potential of a country to adopt or further scale-up eCare services from a technical point of view. For that purpose a compound indicator was created measuring the use of technologies that could be enabling factors for eCare services at home such as electronic health records, internet access and ePrescribing systems.

The availability of medical information for improving continuity of care in the framework of integrating health and social care services is an important prerequisite for establishing information systems that make use of this information. Very few applications exist, up till now, that realise the concept of an EHR. However, to estimate the readiness for such concepts the use of EHRs among GPs and in hospitals can be seen as a useful proxy. The data used are from a representative survey among general practitioners and one among hospitals.
Internet access is a prerequisite for many home-based eCare services. On the one hand it allows for the assumption that if internet is used then basic ICT skills are also available. On the other hand it simplifies and speeds-up deployment of these services.

ePrescribing systems are complex applications covering the whole process from prescribing to dispensing. Systems like that require well established identification and authorisation structures and deeply imbedding them into healthcare structures. It can therefore be assumed that ePrescribing systems prepare health and care institutions for other eCare services.

### Table 3-8: Technical readiness - infrastructure for eCare - raw indicator values

<table>
<thead>
<tr>
<th>Country</th>
<th>UK</th>
<th>FR</th>
<th>NL</th>
<th>DE</th>
<th>DK</th>
<th>SE</th>
<th>ES</th>
<th>IT</th>
<th>EE</th>
<th>HU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of EHR among GPs</td>
<td>86.0%</td>
<td>83.0%</td>
<td>89.6%</td>
<td>64.9%</td>
<td>96.3%</td>
<td>81.6%</td>
<td>81.2%</td>
<td>68.9%</td>
<td>60.5%</td>
<td>92.1%</td>
</tr>
<tr>
<td>Max value: 100% of respondents</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospitals with a hospital wide central EPR system, alone or that share info with local EPR systems / Hospitals with a central EPR system but also with some local EPR systems not able to share info with the central one</td>
<td>82%</td>
<td>81%</td>
<td>89%</td>
<td>68%</td>
<td>100%</td>
<td>100%</td>
<td>94%</td>
<td>49%</td>
<td>67%</td>
<td>90%</td>
</tr>
<tr>
<td>Max value: 100% of respondents</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do patients have online access to their electronic patient records?</td>
<td>3%</td>
<td>5%</td>
<td>3%</td>
<td>0%</td>
<td>25%</td>
<td>0%</td>
<td>8%</td>
<td>7%</td>
<td>0%</td>
<td>20%</td>
</tr>
<tr>
<td>Max value: 100% of respondents</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% of households having a broadband connection</td>
<td>75%</td>
<td>67%</td>
<td>80%</td>
<td>75%</td>
<td>80%</td>
<td>83%</td>
<td>57%</td>
<td>49%</td>
<td>64%</td>
<td>52%</td>
</tr>
<tr>
<td>Max value: 100% of respondents</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ePrescribing systems (max 1)</td>
<td>0.75</td>
<td>0.75</td>
<td>0.75</td>
<td>0.50</td>
<td>1.00</td>
<td>1.00</td>
<td>0.75</td>
<td>0.50</td>
<td>0.25</td>
<td>0.00</td>
</tr>
</tbody>
</table>

Denmark shows a high level of technical readiness in most components. It is closely followed by Sweden. Netherlands, France, UK and Spain followed by a small gap. This gap is then followed by Germany, Hungary, Italy, and Estonia. Although Hungary, Italy and Estonia showed weaker scores before Germany seems to lag behind in this indicator. Although it does not score badly overall Spain is especially weak in internet access.

### 3.2 Governance and organisation

The range of potential needs and demands of older people is as diverse as the target group itself, ranging from complex needs associated with a chronic condition to the need of little support services such as support for household work, hygiene or shopping. They often do not only comprise a need for healthcare only- social care is also needed as a key support for the health of (older) people in order to ensure essential needs such as nutrition, hygiene, safe living and social wellbeing (ESF Exploratory Workshop, 2010). Long-term care needs are needs for social care and healthcare at the same time and require attention from both social care and healthcare systems.

Consequently, the investigation of governance structures and frameworks for the provision of long-term care needs to consider both governance structures of healthcare and social care systems. It is a well known fact that rule making, service delivery and reimbursement structures in the majority of countries work quite differently for social care and healthcare with different stakeholders and governmental levels involved. Long-term care also cuts across different boundaries such as formal and informal, public and private provision and provision of services at home or in residential care homes or hospitals, making the investigation of long-term care governance structures quite complex and almost impossible to compare.
Governance for purposes of the present study is defined as the structures and processes by which a system (or different systems) for long-term care is regulated, directed and controlled. It deals with the relations among different actors, which in a national context tend to be highly path-dependent. The core variable in long-term care governance as defined for this study is public policy since generally only government has the legitimate authority to make decisions that are binding for all stakeholders involved. Two key constituents of governance in the area of long-term care, namely reimbursement schemes and legislation, and their influence on adoption of telecare and other ICT applications for long-term care are further investigated in two separate sections, namely the "Funding & economic impact" and "Legal Issues".

There are four main issues related to eCare governance that emerge from the current debate (and are not covered in the funding & economic impact and legal issues macro categories) and lend themselves to quantitative benchmarking as undertaken in this study. These have been translated into four compound indicators which are the following:

- **Investigation whether policy frameworks exist that address ICT for long-term care provision.** Here, it is important to understand the different approaches countries have applied to anchor the topic of ICT in their overall policy framework for long-term care. This can range from integration of ICT-related policy issues and objectives into legislation to non-binding policy documents and strategy papers. Another investigated aspect was to understand the nature and strengths of existing policy frameworks. This was done by analysing the extent to which relevant aspects for ICT-supported care provision such as ethical issues, integration into existing care provision processes or data protection are covered by existing policy frameworks.

- **Investigation of the existence of public policy measures addressing ethical concerns arising around the individual application domains under investigation.** These may take different forms, such as strategic / policy documents on ethical issues in the application domains under investigation, measures directed towards gauging expert views on ethical issues for the purpose of opinion forming and policy development, measures directed towards involving the “layman” (the general public rather than experts) in opinion forming and policy development, sectoral / occupational codes of practice addressing ethical issues in the application domains under investigation.

- **Investigation of the existence of policy frameworks addressing ICT-supported integrated care provision, i.e. by covering both social care and health care.** Similar to the first component indicator, the present study examined the policy frameworks for integrated care provision in the ten countries, the extent to which such frameworks make clear references to ICT, and the nature and strengths of the policies in place. The latter was done by exploring whether the reported policy frameworks include clear timeframes/roadmaps as regards the implementation of structures and measures favouring ICT for integrated care provision. If not policy documents could be identified, the existence of ICT-related topics in debates among key stakeholders was analysed.

- **Investigation to what extent policies and policy measures addressed at supporting informal carers consider ICT.** For this fourth compound indicator the study team examined the existence of a policy framework for supporting informal carers in general and the extent to which ICT-related aspects are covered in

---

1. A policy framework as defined for the purposes of this study is the set of existing legislation and policy documents used to set the principles and goals for planning and organisation of the long-term care sector. This can comprise policy documents, papers as well as legislation. The aim of the study was however not to create a comprehensive inventory of all policy documents in place but to provide an indication of their existence and nature.
that framework. Another aspect was whether ICT-related topics have already found their way into the policy and academic debate.

Each of the four compound indicators described above comprises several component indicators. Compound and component indicators used for this macro-category are further described in the table below. Raw data for each indicator and information on how qualitative indicators were aggregated and scored into quantitative benchmarking values are included in Section 7.2 of the Report Annex.

**Table 3-9: Indicators used for the governance & organisation macro-category**

<table>
<thead>
<tr>
<th>Compound indicator</th>
<th>Type of indicator</th>
<th>Component indicator(s)</th>
<th>Data source(s)</th>
</tr>
</thead>
</table>
| Policy framework   | Qualitative       | Existence of a policy framework covering ICT for long-term care in general and home care in particular, either stand-alone or included in other strategy:  
· ICT for long-term care is recognized in national policy as legislation or other binding policy action (e.g. directives etc.)  
· ICT for long-term care is recognized in regional policy as legislation or other binding policy action (e.g. directives etc.)  
· An ICT for long-term care strategy exists in national policy as a written policy statement stating guiding principles (statement of intentions, white books)  
· An ICT for long-term care strategy exists in regional policy as a written policy statement stating guiding principles (statement of intentions, white books)  
· Discussion of ICT for long-term care is currently limited to national policy debate among stakeholders  
· The issue of ICT for long-term care has not yet surfaced on the national policy agenda and discussion has just/hardly begun  | Primary data gathering, desk research and secondary data sources |

If policy framework exists, coverage of:  
· Telecare (incl. social alarm)  
· Telehealth/telemonitoring  
· Telemedicine  
· Personal Health Records (PHR)  
· Electronic Health Records (EHR)  
· Teletraining & educational support

If policy framework exists, coverage of standards and interoperability:  
· recognised as a concern  
· description of agreement processes/roadmaps

If policy framework exists, coverage of ethical issues:  
· recognised as a concern  
· description of agreement processes/roadmaps

If policy framework exists, coverage of data protection, data security, privacy:  
· recognised as a concern  
· description of agreement processes/roadmaps

If policy framework exists, coverage of alignment of care provision processes and ICT:  
· recognised as a concern  
· description of agreement processes/roadmaps

If policy framework exists, coverage of ICT-related skills and training:  
· recognised as a concern  
· description of agreement processes/roadmaps

If framework exists, coverage of chronic disease management:  
· recognised as a concern  
· description of agreement processes/roadmaps

If policy framework exists, coverage of ICT as a means to in-
<table>
<thead>
<tr>
<th>Compound indicator</th>
<th>Type of indicator</th>
<th>Component indicator(s)</th>
<th>Data source(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>crease efficiency of homecare service provision:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>o recognised as a concern</td>
<td></td>
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<td>o description of agreement processes/roadmaps</td>
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<td>If debate only, coverage of issues:</td>
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<td>o Standards and interoperability</td>
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<td></td>
<td>o Ethical issues (e.g. informed consent)</td>
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<td>o Data protection, data security, privacy</td>
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<td>o Alignment of care provision processes and ICT</td>
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<td>o ICT-related skills and training</td>
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<td>o Chronic disease management</td>
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<td>o Benefits to older people</td>
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<td>o ICT as a means to improve care provision efficiency</td>
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<tr>
<th>Public policy measures taken to address ethical concerns</th>
<th>Qualitative (scored)</th>
<th>Existence of policy measures to address ethical concerns:</th>
<th>Primary data gathering and desk research</th>
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<tr>
<td>Telecare:</td>
<td></td>
<td>o strategic policy documents</td>
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<td>o opinion/advise on experts vies on ethics</td>
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<td>o opinion/advise on “layman’s” view on ethics</td>
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<td>o occupational guidelines/codes of practice</td>
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<td>Telehealth/ telemonitoring:</td>
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<td>o strategic policy documents</td>
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<td>o opinion/advise on experts vies on ethics</td>
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<td>o occupational guidelines/codes of practice</td>
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<td>Telemedicine:</td>
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<td>o strategic policy documents</td>
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<td>o occupational guidelines/codes of practice</td>
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<td>Personal Health Records (PHR):</td>
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<td>o strategic policy documents</td>
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<td>o occupational guidelines/codes of practice</td>
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<td>Electronic Health Records (EHR):</td>
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<td>o strategic policy documents</td>
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<td>o opinion/advise on experts vies on ethics</td>
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<td>o occupational guidelines/codes of practice</td>
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<td></td>
<td></td>
<td>· A care integration strategy exists, (partly) translated into legislation</td>
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<td>· A care integration strategy/measures exist, but no legislation yet</td>
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<td>· The issue is currently debated among key stakeholders</td>
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<td>· The issue of care integration support has not yet surfaced on the national policy agenda and discussion has just/hardly begun.</td>
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<td>If policy framework exists, coverage of:</td>
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<td>o Telehealth/telemonitoring</td>
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<td>o Telemedicine</td>
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<td>o Personal Health Records (PHR)</td>
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<td>o Electronic Health Records (EHR)</td>
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<td></td>
<td>o Teletraining &amp; educational support</td>
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<td></td>
<td>o Concerning other ICT deployment</td>
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<td></td>
<td>If policy framework exists:</td>
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<td></td>
<td>Does it define explicit time frames and milestones for the deployment of ICT in long-term care?</td>
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<td></td>
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<td>If policy framework exists:</td>
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<td></td>
<td></td>
<td>Does it define specific actions and support measures?</td>
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Overall, the scores for the macro-category “governance & organisation” show great variability across the countries under investigation (Figure 3-3). Political coverage of ICT for long-term care seems to differ considerably between the countries that have been investigated with the United Kingdom scoring highest for three of the four compound indicators.

The available data show also comparatively high scores in the Scandinavian countries (Denmark and Sweden). Lower scores are observable in France, Germany and the Netherlands, and in the countries of the Mediterranean and Eastern country clusters.
3.2.1 Existence and nature of policy frameworks covering ICT in long-term care

The present study started with an analysis of existing policy frameworks on ICT for long-term care. These could be a dedicated policy strategy or even binding legislation explicitly addressing ICT-supported long-term care on the one hand, or the inclusion of the topic in existing policy strategies on the other. The policy documents identified were then analysed in order to better understand their nature and strengths, i.e. where the topic of ICT is anchored in the overall long-term care policy framework and to what extent different topics that are relevant when it comes to facilitating the deployment of ICT are considered. In countries where no policy documents were identified, national data gathering focused on investigating the degree to which ICT is covered in the national debate among key stakeholders, i.e. the breadth and intensity of the political debate.

The compound indicator “Policy framework on ICT for long-term care” consists of ten different component indicators, as can be seen in Table 3-9 above. Policy framework in the sense of this study is understood as the bouquet of policy documents, white papers and legislation which address the issue of ICT in long term care in a certain country. For calculation of the first component indicator “Existence of a policy framework covering ICT for long-term care”, the scoring of the results followed the assumption that existence of legislation would always be a stronger indication for preparedness to foster ICT in long-term care than mere existence of a policy strategy or policy documents. The full overall score could thus only be reached if a country has an explicit ICT reference in a piece of legislation on long-term care and if it has set specific timeframes and milestones as regards important topics such as standards and interoperability, ethical issues, data protection or ICT-related skills and training in related policy documents.

<table>
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<tr>
<th>Existence of a policy framework ICT for long-term care...</th>
<th>No. of countries</th>
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<tr>
<td>ICT for long-term care is considered in national or regional policy as legislation or other binding policy action (e.g. directives etc.)</td>
<td>0</td>
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<tr>
<td>ICT for long-term care is considered in national or regional policy as a written policy statement stating guiding principles (statement of intentions, white books)</td>
<td>8</td>
</tr>
<tr>
<td>The issue of ICT for long-term care is currently in the national policy debate among stakeholders</td>
<td>1</td>
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<tr>
<td>ICT for long-term care has not yet surfaced on the national policy agenda and discussion has only/hardly begun</td>
<td>1</td>
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Analysis reveals that many countries (8 out of 10) have a policy framework in place that covers the issue of ICT-supported long-term care in one way or another. There are, however, large differences in the approaches the countries have adopted. The UK, for example, has a rather large number of policy reports in place that highlight the potential of telecare in a long-term care setting and set the political framework for its deployment. Telecare and telehealth applications are covered in a wide range of policy documents (both in social care and health care related policy documents) including documents addressing specific aspects of long-term care provision, such as care for people with chronic conditions. (DH Long-term Conditions NSF Team, 2005)
GOOD PRACTICE

Promoting ICT deployment in national social care and health care policies and systems: From national strategy to local implementation

The United Kingdom has, overall, a rather strong policy framework in place supporting the adoption and wider deployment of technologies supporting older people with long-term care needs. The promotion of adequate technologies is included as one of several means for supporting older people in several policy documents such as “Information for Health - An Information Strategy for the Modern NHS 1998-2005” which included “National strategy for local implementation” which concentrated on the use of technology across all aspects of the National Health Service (NHS). Shortly after this greater focus was given to technology specifically for managing long term conditions in “National Service Framework (NSF) for Long-term Conditions” (2005). This was then followed by an overall inspection into measures for improving the health service “High Quality Care for All NHS Next Stage Review”. Due to the already largely integrated nature of ICT across the NHS the review included technology by default, however a deliberate focus was applied to innovation and technology as the way forward to an improved NHS.

The structure of health and social services provision in the UK has meant that the review has cascaded downwards into local and regional level policy and subsequently implementation. This, in turn, feeds back to shape the direction of national initiatives. In order to guide implementation and regulate the review has also spread outwards into correspondingly more developed and detailed national policy. Whenever long-term care is discussed in policy technology based solutions usually appear alongside them which suggests that technology is adequately integrated in general long-term care provision and regulation processes.

For more information read the full good practice case in Section 4 of the Report Annex

One of several mechanisms established in the UK to foster ICT-supported care services is the “The National Framework Agreement on Telecare (NFA)”, which was developed as a public procurement mechanism to support the delivery of telecare in the UK. It eliminates the need for local care services to individually undertake their own procurement exercises; more generally, it aims to contribute to the creation of a competitive marketplace for telecare in the public sector. This award-winning initiative is generally rated as very successful, and it is used by over 80% of local authorities. Available evidence suggests that the initiative delivers substantial cost savings. The UK, in addition, offers seed funding and/or actively supports innovation by introducing flexibility in its care system, a fact that also led to the UK scoring rather highly (cf. also macro-category “funding and economic impact”).

What is also observable is the fact that in some countries ICT for long-term care is addressed in (e)Health policy frameworks, as is the case for example in Germany, where no dedicated and separate policy framework for ICT in long-term care exists but relevant technologies are included in some of the e-Health related documents and policy papers. A similar pattern was found in Sweden, which seems to lack clear policies addressing ICT to support social care provision but has references to long-term care in its national eHealth strategy. It also supports the conduction of trials with technological support and services in regular housing and everyday activities for older people and their relatives as part of two major national programmes. One of these is the “Technology for Elderly programme”, which is coordinated by the Swedish Institute of Assistive Technology (Hi). 100 projects received support from the program between 2007 and 2010. For the period 2010-2012, the Government has reserved an additional 66 SEK million (approximately 6.97 EUR million). Companies, organisations and local government authorities can apply for project funding in this area at two times during the period. Also, three municipal pilot projects will be initiated during 2011. The objective is to test and develop new technology for older people in their homes. The trials seek to demonstrate technology support and services for everyday activities. Furthermore the
strategy encourages the promotion of good examples regarding technical support, development of services, measures for improving accessibility and surroundings encouraging activity for elderly and their relatives.

Hungary addresses eHealth topics as part of its general information society policy “Digital Renewal Action Program”. Remarkably, Hungary established an extensive scheme for social alarm provision to older people: Since January 2008, each Hungarian municipality with over 10,000 inhabitants is obliged to offer a telecare home service (i.e. social alarms) for elderly people (above 65) in need. In smaller municipalities, provision is more patchy. Municipalities may choose to provide the services themselves or outsource them. In the latter case, providers are private sector suppliers who operate under a service contract with the local government. Financing for developing and maintaining the services is available from the state budget on a normative basis. Smaller municipalities may cooperate, and networks of smaller places which together exceed the number of 10,000 inhabitants are also eligible for state financing. Residents of municipalities with more than 10,000 inhabitants can expect to receive a social alarm service if they apply for it and are found eligible. Local governments co-finance this service up to a sum of HUF 40,000 (approx. EUR 160) per person per year. Recipients are asked for co-payment if this sum is exceeded, but only up to a maximum 2% of their monthly income.

Spain also seems to have managed to improve the political framework conditions to push ICT-support social care services. This obviously started with a comprehensive reform of the long-term care sector establishing a more coherent policy framework for the provision of long-term care services (Act 39/2006 on the Promotion of Personal Autonomy and Care for Dependent Persons), publicised as being the fourth pillar of the welfare state. With this reform, Spain has introduced a universal but subjective right to long-term care services (cf. the description of long term models in Section 2 of the Report Annex for more details). Eligible individuals are guaranteed access to a basic service package financed by the national government and complementary packages financed by the regional governments. The central government establishes the political and regulatory framework whereas the different autonomous regions design the actual policies and provision strategies. After the entry into force of the Act 39 in 2006, different regional laws on social services have been published in Spain. This specific legislation on social rights gives further development to the LAPAD including issues related to ICTs for the long-term care. The Law 12/2007 of Social Services of Cataluña, and the Law 13/2008 of Social Services of Galicia mention ICTs, specifically long-term telecare, as part of the benefits to provide for dependent and older people. The new law allows for flexibility in financing arrangements whilst maintaining a basic system for the whole country. The ongoing decentralisation trend in Spain seems to have created favourable framework conditions for innovations in the area of long-term care in the country.

Considerable differences can also be observed in the geographical coverage of policies addressing ICT in long-term care. This again seems to be (not surprisingly) a function of where the overall framework for long-term care provision is anchored politically. In countries where long-term care governance and provision is anchored at regional level, the issue of ICT is also discussed on that level and is included in regional strategies accordingly. In other countries, long-term care is very much governed at national level and thus, the issue of ICT is also discussed and regulated at that level. One example where the relevant jurisdiction is at national level is Germany, as opposed to Italy where ICT in long-term care is very much discussed at regional level and local level. However, in most of the countries governance structures do not only vary as regards rule making but also as regards funding and delivery of services, with different geographical levels involved in each.

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In one of the 10 countries, namely Italy, the issue of ICT for long-term care is currently limited to the national policy debate among stakeholders and has not (yet) reached the level of a policy strategy or document. However, Italy seems to have a rather intense and detailed policy and research debate in place, covering a variety of different topics that are relevant for the deployment of ICT in long-term care. These topics include, for example, standards and interoperability, ethical issues and the alignment of care provision processes and ICT. Overall, innovation in the health and social care system in Italy has to face extremely fragmented and often non-efficient governance since responsibilities are mainly on a regional level with a large variety of stakeholders involved. As a consequence of regional differences, the economic, cultural and professional resources required by partnership bodies at local level are not equally spread across the country. In addition, the regional diversity produces different governance practices with large differences between the North and the South.

In Estonia the issue of ICT for long-term care has not yet surfaced on the national policy agenda. ICT-related topics are only covered to an extremely limited extent in the current policy debate on long-term care and homecare. Chronic disease management with the help of ICT is mentioned in a good practice guideline report and there are plans to launch telemonitoring projects in the near future. Apart from this, ICTs do not play a role in current policy debates and discussions among stakeholders. However, major long-term care reforms are in process and will take effect in 2013 (cf. description of long-term care models in Section 2 of the Report Annex) probably improving the general political framework conditions for the provision of long-term care services.

Overall, governance structures for long-term care in general and for ICT provision in a long-term care context in particular seem to be quite fragmented in all countries; each country shows a rather unique combination of governance structures, involving players from the social care, health care and often pension system. This fragmentation of governance structures is likely to make the development of a coherent policy framework addressing ICT in long-term care quite challenging.

**Nature and strengths of existing policy frameworks**

When looking in more detail at the nature and strengths of the national policy frameworks our investigation focussed on the following issues:

- Does the policy framework (which in most cases consists of a combination of various policy documents and pieces of legislation) cover the technologies relevant in a long-term care context: telecare, telehealth/telemonitoring, telemedicine, personal health records, electronic health records, teletraining and educational support?
- Does the policy framework cover standards and interoperability, ethical issues, data protection and privacy, alignment of care provision processes and ICT, ICT-related skills and training, and chronic disease management? Here, for each of the topics it was distinguished whether the policy framework recognises them merely as a general concern or whether it includes clear roadmaps and timeframes.

In countries with a policy framework on ICT for long-term care in place, great variability can be observed as regards the consideration of the different technologies. Sweden and the United Kingdom are the countries that seem to be most concrete as regards coverage of the technologies relevant in a long-term care context. It has however to be mentioned that in these countries coverage of the different technologies is spread across various policy documents rather than being the subject of one unified policy document covering all technologies. This however does not come as a surprise given the wide range of technologies covered in the current study (telecare, tele-
health/telemonitoring, telemedicine, personal health records, electronic health records, teletraining and educational support).

At the other end of the spectrum, policy documents covering the issue of ICT in long-term care in France seem not as specific as other the policy documents identified in the United Kingdom or Sweden. Yet, they refer to technologies in general but do not distinguish between dedicated technology applications such as telecare, telemonitoring and the like.

Many of the topics seen as being relevant for establishing a good policy environment for ICT in long-term care (such as data protection, ethical issues, standards & interoperability, alignment with existing care provision processes) are being addressed as a general concern by most of the policy documents and strategies identified. However, again a large variety of different patterns was found: Overall, the issue of ICT-related skills and training seems to be less well covered in the policy documents identified. Only in three countries (Sweden, UK and the Netherlands) is the issue recognised as a concern in the policy documents identified. Given the fact that this topic is crucial to wider adoption of ICT, a fact also outlined in previous research and by the results of the public consultation on the European Innovation Partnership on Active and Healthy Ageing (Stroetmann et al., 2010, European Commission, 2011b)3, better alignment with policies on long-term care could be seen as a desirable objective. Our analysis of the macro-category human capital also confirms that a lot more needs to be done as regards training and skills development among nurses and other care professionals. Policy needs to provide adequate framework conditions for ICT training among care professionals. The challenge is to develop and apply policies that enhance and expand the required skills and knowledge among a wide range of nurses and care professionals as well as informal carers.

Alignment of care provision processes and ICT is also not widely considered in the policy framework identified; only in one country (UK) is this issue not only addressed in policy documents but also covered in existing roadmaps towards the implementation of telecare and telehealth applications in long-term care. This pattern stands in contrast to a broad consensus among experts that policy development must, in order to succeed, start with a strong focus on improving, streamlining and integrating service delivery processes. Many existing processes are not sufficiently integrated to reap the potential benefits from introducing telecare solutions. Examination of existing processes and how the new solution can be fitted into these processes has been found to be a crucial precondition to successful deployment of new care technologies. Telecare and telehealth solutions must follow, support, and offer opportunities for, such process innovations - but should not be seen as the driving force. Thus, policies and research/implementation programmes directed towards ICT in long-term care need to better address and push the topic of process-led innovation.

Many of the countries covered by the present study pay strong attention to standards, interoperability and data protection, for which concrete measures and timeframes/roadmaps have been laid down by policy-making (cf. also “legal issues”). Another topic that was seen as an indication for the strength of a policy strategy covering ICT in long-term care was “ICT for chronic disease management”. With the exception of France, all policy documents identified do at least recognise this issue as a concern. The United Kingdom has dedicated roadmaps in place which aim to promote ICT applications to support chronic disease management.

Scores for the Mediterranean and Eastern European countries are among the lowest with Spain being an exception. Germany, the Netherlands and France also show lower

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scores in comparison with the UK, Denmark and Sweden. According to the data available, this seems in most cases to be due to the fact that existing policy strategies in the Continental cluster are not as explicit and concrete in terms of ICT coverage and dedicated aims and timeframes as the strategies in the Scandinavian cluster and the United Kingdom.

It also seems that the approaches countries adopt even within the same cluster differ strongly and that governance structures are very fragmented in all countries, with responsibility for rule making, reimbursement and delivery split among various players on different geographical levels. This makes a) the development of coherent strategies quite challenging and b) investigation of the business case for telecare an important but complex task since the actual case for introduction of telecare may look very different to different players in a given health care/social care system. Here, a detailed understanding of the innovation mechanisms on the provider side (micro-level) seems to be missing so far. Policy could support this process by setting up appropriate measures to review and understand innovation mechanisms on provider side and reflect this in adequate policy instruments.

### 3.2.2 Public policy measures taken to address ethical concerns

As in the case of legal issues discussed above, ethical issues connected with ICT-enabled service provision in the health and social care arenas that go beyond data privacy have only started to receive attention by policy makers, researchers and practitioners. A major concern emerging from this debate is that the development of the technology may be running ahead of detailed discussion of the ethical issues raised by the increasing application of technologies in social and health care service provision, e.g. when it comes to collection and use of data in the framework of service such as ICT-enabled lifestyle monitoring. These can be regarded as classic ethical issues in service provision—relating to the key principles of non-malfeasance, beneficence, justice and autonomy— which may require renewed consideration in relation to the nature of these data and the manner of their collection and use (Bowes et al., 2009).

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**GOOD PRACTICE**

*Social Care Institute for Excellence (SCIE) – Provision of hands-on guidance on addressing ethical issues around telecare, UK*

The Social Care Institute for Excellence (SCIE) commissioned a report on current concerns around ethics and telecare. SCIE is an independent charity working with adults, families and children’s social care and social work services across the UK. It also works closely with related services such as health care and housing. The institute gathers and analyse knowledge about what works and translate that knowledge into practical resources, learning materials and services, thereby helping to improve the knowledge and skills of those working in care services. By exploring the complex ethical issues surrounding the commissioning and provision of telecare, SCIE’s guidance report aims at ensuring that commissioners and providers of telecare address these issues when developing their procedures and protocols. Thus the report is primarily aimed at key stake holders in telecare supply such as social care commissioners, social care providers, telecare manufacturers, telecare providers and policy makers. However, people arranging telecare for their own support needs, and the families of those people, may also benefit from this report, as it explores what they might reasonably expect from the professionals providing a telecare service. A range of ethics related issues and means of addressing them in practice are presented in two main sections relating to pre- and post-installation of telecare. The main issues raised are summarised below.

For more information read the full good practice case in Section 4 of the Report Annex
A particular aspect that deserves attention when it comes to a cross-country benchmarking of developments in this field concerns the fact that relevant activities do not primarily arise at the national level (e.g. in relation equality of access to high quality services). ICT-based applications and services such as telecare and home telehealth represent particular forms of social care, health care or more integrated forms of long-term care. They thus derive some of their ethical requirements from the more general ethical requirements of these domains of human service provision (Kubitschke and Cullen, 2010a). Within these domains, ethical issues arise, and are frequently being addressed, at the organisational level and the professional level. Organisational ethics are for instance concerned with principles that apply to organisations as a whole (e.g. social service providers, home care agencies, health care providers, and so on). They may concern duty to those served (and to one's own staff), patient rights and provider rights, provider commitment to quality and standards, provider compliance with values and laws, and so on. Professional ethics are concerned with principles that apply for professionals and other paid staff that directly provide human services (doctors, nurses, social workers, occupational therapists, home care workers, and so on). They may for instance concern duty to specific patients, rights of specific individual patients, caregiver duty to professional competence, caregiver compliance with professional codes, and so on. Many of these aspects are addressed by activities happening at the organisational level. They are thus difficult to catch by means of a wide-ranging cross-country benchmarking approach adopted for the purposes of this study, e.g. when it comes to the development of ethical organisational practices or training of staff in relation to ethical issues. Clearly, a comprehensive benchmarking of ethical practices observable at the organisational across the countries under investigation is thus clearly beyond the scope of the study. Rather, the current benchmarking focuses policy measures taken at the national governance level to addressing ethical issues potentially arising around the ICT application domains under investigation. These may take different forms, such as:

- Strategic / policy documents on ethical issues in the application domains under investigation
- Measures directed towards gauging expert views on ethical issues for the purpose of opinion forming and policy development
- Measures directed towards involving the “layman” (the general public rather than experts) in opinion forming and policy development
- Sectoral / occupational codes of practice addressing ethical issues in the application domains under investigation.

The overview scoreboard result shows very little activity across both individual ICT application domains and countries representing different long-term care models (Figure 3-3). With a score of 1.0, the Netherlands rank highest when it comes to a country comparison. In relation to application domains, most activity can be observed when it comes to EHR (see Table 3-11 below).

When it comes to the latter, a good practice code for medical personnel has been issued in Estonia which addresses amongst other things ethical issues connected to using the national Health Information System. In a similar way the Danish Council of Ethics has issued a hearing statement in 2005, which identifies some of the major ethical considerations and dilemmas one should keep in mind when developing and implementing electronic health records, including high level recommendations. Another example comes from France, where the work of the implementing agency for the French EHR system, the so called DMP (ASIP Santé), is being accompanied by an ethical committee.

In relation to telehealth and telemedicine more generally, in Italy the Committee for Bioethics (The Comitato Nazionale per la Bioetica) issued an official opinion on ethical
issues, “Etica, salute e nuove tecnologie dell’informazione” (Ethics, health and new Information Technologies), in 2006. This body provides advice to the government, parliament and other national bodies. In particular, this document focuses on communication tools between the citizen and the health operators in hospitals where “face-to-face” relationships have always been recognised as a fundamental aspect. The document also appeals to the need for correctness in Internet information exchange on health issues and suggests quality certification measures based on shared codes of conduct and certification through accredited certification agencies.

A similar approach is adopted in the Netherlands, where a number of guidance reports concerning telehealth and telemedicine have been issued.

**GOOD PRACTICE**

The Centre for Ethics and Health (CEG) - building up an evidence base on ethical issues, NL

A diverse range of ethics-related issues can arise around ICT-enabled provision of home care and support. As the field begins to mature beyond experiments and pilots, there is a need to provide the relevant actors with operationally useful guidance on how to provide new services in accordance with widely accepted ethical principles. The interpretation and application of universal ethical principles in any specific context is however often not straightforward. In the Netherlands a dedicated think tank, the Centre for Ethics and Health (CEG), was founded by the Minister of Health, Welfare and Sport to provide evidence based guidance on ethical issues. Already back in 2004, two guidance reports on ICT-based care were commissioned by the Council for Public Health and Health Care (Raad voor de Volksgezondheid en Zorg). The analysis identifies a range of aspects deserving attention from a macro-ethical perspective such as differences in availability across municipalities and other forms of inequality of access depending on diagnosis, insurer, and reimbursement regime. One set of issues associated with this situation concerns patient selection, where the possible emergence of ‘creaming and dumping’ needs to be considered. At the micro-ethical level, i.e. where ethical considerations play out in an individual case of an older person, a range of issues were identified as well, e.g. privacy as regards access to medical records and new arrangements that may introduce requirements for non-medical personnel, e.g. in call centres, to have access to medical information. More recently in 2010, another guidance report entitled “So far away and yet so near?” was released. The report analyses a scenario in which “care at a distance” replaces a considerable part of home care currently provided on-site. Whether intentionally or not, it can be assumed that in such a scenario telecare will change established care relationships. For instance, informal carers and patients will carry out more medical and semi-medical activities, whereas care professionals will have more of a coaching role. The report identifies a range of ethical questions arising from this trend. It also identifies what actors are concerned and options for further action.

For more information read the full good practice case in Section 4 of the Report Annex

In France, the requirement to respect ethical issues when practicing telemedicine has been enshrined in legislation. That French Order of Doctors (Ordre National des Medecins) has published a professional code that by law needs to be respected when delivering telemedicine services. The relevant legal provisions are enshrined in the law on social health insurance, article 32, which makes the respect of the deontological code mandatory for health care professionals when practicing telemedicine.

Overall, there is however little activity in the area of public policy measures addressing ethical concerns around ICT-enabled forms of support directed towards older people. Although there is some strategic appreciation of the topic on a generic level in some places, ethical issues regarding the use of specific technologies - apart perhaps from issues potentially emerging around EHR - are not addressed in any visible policies in the countries investigated. As discussed earlier, this may not necessarily mean that ethical issues are not being addressed at the organisational level, e.g. by means of organisational policies or ethics-related staff training. Nevertheless, more high-level strategic
policies which could serve as a guiding framework for the actors “on the ground” do hardly exist. This poses the risk of fragmentation when it comes to the type and nature of ethical aspects that are going to be addressed within day to day practice at the organisational level, and the way these are going to be addressed as well.

Table 3-11: Public policy measures taken to address ethical concerns

<table>
<thead>
<tr>
<th>Country</th>
<th>UK</th>
<th>FR</th>
<th>NL</th>
<th>DE</th>
<th>DK</th>
<th>SE</th>
<th>ES</th>
<th>IT</th>
<th>EE</th>
<th>HU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existence of policy measures to address ethical concerns:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Telecare</td>
<td>3</td>
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<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
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<td></td>
<td></td>
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<tr>
<td>- Telehealth/ telemonitoring</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
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<td></td>
</tr>
<tr>
<td>- Telemedicine</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
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<tr>
<td>- Personal Health Records (PHR)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Max score:</td>
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<td>Existence of policy measures to address ethical concerns:</td>
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<tr>
<td>- Electronic Health Records (EHR)</td>
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<td>1</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>0</td>
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</table>

One challenge posed in this regard is to select and apply the right level of guidance, e.g. whether to utilise “hard” measures such as regulation or “soft” measures such as voluntary guidelines or definition of good practices. Whatever level of guidance is to be implemented, a key challenge concerns the distillation of ethical issues into an operationally useful form that can guide policy and practice in the field (Kubitschke and Cullen, 2010a). This is not a straight forward task as many ethical issues present as dilemmas, where there is no obvious normative right or wrong that can be determined a priori and outside the context. Rather, in practice ethical issues may often concern trade-offs of interests, between cost-saving and quality/preferences, between older people and informal carers, and so on.

In view of these complexities, there may be value in supporting a focused exercise on codification in this field, despite the fact that developing a single ethical ‘cookbook’ to guide practice across the various service domains investigated by this study may neither be possible nor may it be useful. However, a systematic collation of the various guidelines, codes of practice and so on that have been developed so far, which either directly address aspects of ICTs and elderly care or guide sectors and practices within which ICT-based innovations are to be introduced, would be a useful exercise. This would enable a systematic examination of the possibilities and limits to codification in the field of ethics in ICT-enabled elderly care, and identification of priorities for codification that could then be addressed by the appropriate stakeholders at the national and/or organisational level.

3.2.3 Existence and nature of policy frameworks on integrated social and health care and the role of ICT

Recent scientific and policy debates at global and national level have highlighted the fact that demographic change, the rising incidence of chronic disease and unmet de-
mand for more personalised care are trends requiring a new, integrated approach to health and social care. Many countries have embarked on a policy strategy for improving the continuum of care, making use of a range of measures, including national strategic frameworks to outline broad priorities and goals for policy. Advanced ICTs are a major opportunity to realise care integration, superseding today's chain of disjoint responses to discrete threats to health. The key deployment domains for telecare, tele-health and other ICT applications, however, have largely remained segregated silos. For this reason, the present study views existence and strengths of policies supporting ICT and integrated care delivery as of crucial importance.

The compound indicator on ICT-supported integrated social & health care covers two aspects: first, whether care integration, i.e. the integrated provision of social care and healthcare, is addressed on the political level at all. Second, it was investigated whether ICTs play a role in respective policy documents or pieces of legislation. Full scores could only be achieved if both apply.

In more detail, the scoreboard for the topic of integrated care provision is comprised of five component indicators:

- **Existence of a policy framework for care integration.** Here, the present study examined whether a policy framework exists and if so, to what extend it is translated into legislation or reflected in strategic policy documents. It was also investigated whether integrated care is a topic of the current policy debate among key stakeholders.

- **ICT coverage in policy documents and legislation.** For this second component indicator the study team investigated whether a) ICTs are mentioned in the existing integration policy framework at all and b) which technologies are covered. This was done in order to better understand the strengths of the policy in place.

- **Coverage of explicit time frames/milestones in policy documents identified as another indication of the strength and concreteness.**

- **Definition of specific actions and support measures, also indicating strength and concreteness.**

- **Coverage of ICT-related topics in policy debate among key stakeholders.**

Table 3-12 gives an overview of the existence of a care integration policy framework. For the interpretation of the scoreboard data it is relevant to note that the relatively high scores in some countries are due to the fact that existence of an integration strategy (without consideration of ICT-reference) was included in the scoring. The assumption behind this is that the existence of a strategy for integration of social care and health care can be viewed as an indication of degree of openness of a system towards innovation; this is because a shift towards integrated care has been shown to act as a pathway for innovation\(^4\) (Billings J. and Leichsenring K., 2005), particularly in the field of care provision to older people with chronic diseases and with regard to making use of the innovative potential of ICTs.\(^5\)

<table>
<thead>
<tr>
<th>Table 3-12: Existence of care integration framework</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Existence of a care integration framework</strong></td>
</tr>
<tr>
<td>A care integration framework exists, (partly) translated into legislation</td>
</tr>
</tbody>
</table>


\(^5\) Readers should note, however, that since the focus of the study is on ICT-supported long-term care, the existence of an integration strategy without reference to ICT was only weighted by ¼ of a full score.
A care integration framework/measures exist, no legislation yet | 3
The issue is currently debated among key stakeholders | 3
The issue of care integration has not yet surfaced on the national policy agenda and discussion has only/hardly begun | 0

Results of our analysis for the first component reveal that seven out of the ten countries have policy documents or legislation in place that cover the topic of integrating social and health care. They thus seem to have at least started to develop a policy foundation for moving towards more integrated care provision. In four countries integration is already supported by legislation, at least to some extent. For example in the UK, the Health and Social Care Bill contains significant measures to modernise and integrate health and social care. The Act brought together a number of disparate authorities with the goal to place health and social care under one umbrella. The regulation of health and adult social care is currently carried out by the Commission for Healthcare, Audit and Inspection (known as the Healthcare Commission) and the Commission for Social Care Inspection; the Mental Health Act Commission has monitoring functions with regard to the operation of the Mental Health Act 1983. The new legislation will replace these three bodies and create a single, integrated regulator for health and adult social care - the Care Quality Commission. The Bill defines the new Commission’s functions as assuring safety and quality, performance assessment of commissioners and providers, monitoring the operation of the Mental Health Act and ensuring that regulation and inspection activity across health and adult social care is co-ordinated and managed. The new system will enable a joined-up regulation for health and social care, helping to ensure better outcomes for those who use the services. There are already many good examples of integrated health and social care delivery so the creation of a single regulatory system will fit with this. Although this national legislation on integrated social care and healthcare does not explicitly refer to ICT, the United Kingdom has also several policy documents in place (including the Wanless report and the ‘Delivering 21st Century IT Support for the NHS’) that make explicit reference to ICT in an integrated care provision context.

Most of the countries with a law on care integration do also have policy documents in place that make reference to ICTs. Examples include Sweden and the UK. Germany is an interesting exception in this regard, since integration of social care and healthcare services is supported by national legislation but no policy documents or papers were identified that address ICT-supported integrated social care and healthcare provision. In 2004 the German health reform began with a start-up funding for Integrated Care. It provided the basis for better coordination between healthcare providers such as GPs, hospitals and pharmacies. Further reforms in 2007 also allowed social care providers to participate in the integrated care contracts. It resulted in a substantial number of innovative measures to overcome problems such as poor integration of healthcare providers and too strong focus on acute care. The reforms also boosted the market for telehealth applications, making Germany one of the countries with the best supply of telehealth in Europe (cf. good practice “Seed funding and free contracting legislation as enablers of telehealth adoption in Germany”).

There are however also countries (especially the countries from the Eastern European cluster) where care integration seems as yet to be addressed only in policy debates among relevant stakeholders. Even the Netherlands reported no dedicated integration strategy, although there are moves towards more integrated care, e.g. in the FWG Trendreport “Zicht op Zorg en Functies” where ‘ketenzorg’ refers to integration of different types of care from the moment of diagnosis until the point that care has become so complex that a medical specialist is required.
Denmark has embarked on a strategy that, while not including social care and healthcare provision in legislative mechanisms, consists of a clear policy towards exploitation of ICT’s potential in the area, as laid down in dedicated frameworks and roadmaps. Interesting in the case of Denmark is that the country addresses ICT and care integration in its general information society strategy (cf. good practice box). In combination with the “Danish Public Welfare Technology Foundation” (cf. good practice under “funding and economic impact” and the description of long-term care models in Section 2 of the Report Annex) it is expected that the Danish will be able to steer the development of the public sector in a clear direction by linking budgets with the use of new technologies and more efficient ways of working (ABT-Fonden, 2011).

**Nature and strengths of existing policy frameworks**

Overall, explicit coverage of different technologies for supporting integrated care appears limited in all documents and strategies identified (on average only two of the six most relevant ICTs are mentioned). The only exemptions found are the policy frameworks in the UK, Italy and Denmark, which cover a larger number of technologies in some detail. EHRs seem to be addresses most often, however, in the majority of cases in relation to integration of care services within the healthcare sector and not across social care and healthcare.

**GOOD PRACTICE**

**Towards cross-sectoral care provision frameworks in Denmark**

Several Danish policy makers are today realising that the traditional budgetary as well as management-wise barriers between primary healthcare, secondary healthcare and social care services are ineffective, create institutional silos and do not favour patient-centred, integrated care provision. In order to face this challenge and to pave the way towards more integrated care provision, Denmark has launched a new set of policy strategies covering the national, regional, and municipal level, thus also overcoming governance level boundaries. These strategies make explicit reference to the potentials of ICTs to support integrated social care and healthcare provision.

For more information read the full good practice case in Section 4 of the Report Annex

Not much is reported about timeframes and milestones for ICT deployment in existing care integration strategies. Only the UK and Denmark, which appear to have the most advanced policy frameworks for care integration, make reference to time plans and milestones in their strategy. The same holds true for specific support actions/measures for ICT deployment in integration strategy.

Different legal backgrounds, responsibilities, reimbursement systems for health and social care (both to be considered when it comes to long-term care) often lead to fragmented governance structures, which tend to involve a large number of players and decision makers with different visions, goals and priorities. Assuring adequate governance frameworks for better cooperation and collaboration must be high on the political agenda with policies addressing long-term care of older people focussing on a cross-sectoral perspective (incl. social care, healthcare and maybe also employment and housing policies). Appropriate mechanisms need to be established to support better collaboration across sectors in each Member State. At European level establishment of an exchange of good practice between relevant stakeholders could help fostering ICT deployment in integrated care provision. For example, establishment of a more cross-cutting European forum should be considered, bringing together key players from all relevant sectors. This should include representation from health, social care and housing policy-makers and providers (at pan-European and Member State levels).
In sum, one of the key conclusions that can be drawn from the analysis of this compound indicator is that many countries have started to address the issue of care integration but insufficient consideration is given to the role which ICT can (and arguably must) play in this regard. A policy framework for care integration has started to emerge in many countries, and appears already well developed in some countries such as Denmark and the UK. In most of the other countries under observation, there is a move towards more integrated care provision in general, but consideration of ICT in this regard is just emerging.

### 3.2.4 Policies addressing support of informal carers and the role of ICT

EU Member States differ strongly with respect to the attention and strategic role which informal carers are given in policy-making on long-term care. There is a broad consensus within all Member States that informal care will grow in importance in the coming years as a result of well-known demographic and socio-economic trends. At the same time, those individuals who traditionally have done by far the largest chunk of informal care work, i.e. women outside of the labour force, are becoming scarcer as female employment rates and average retirement ages increase, and as women demand a fairer distribution of family and home work.

Policy-makers are discussing a whole range of potential solutions for addressing the challenges in connection with informal care. ICT offers some interesting potential for supporting informal carers in their day-to-day work, and this is reflected in various policy documents dealing with the need to support informal care within the family (European Commission, 2007a).

In order to map the extent to which ICT applications are featured within policy-making on supporting informal care provision, three indicators were selected:

- The first component indicator investigates the extent to which a policy framework (or several of such) on supporting informal carers exists in general, regardless of whether it makes reference to ICT applications or not. The present study distinguishes between a fully fledged strategy and legislation or other forms of binding policy documents. Indeed, many countries have made a dedicated effort to develop policy-making in support of informal carers. Others have developed relevant policy measures in a more fragmented manner, often spread across several policy areas such as social welfare, labour market, equality, and/or gender policies. If a policy framework is absent, a distinction is made between the issue of supporting informal carers being part of the policy debate and a situation where it has hardly surfaced at all on the policy agenda. Evidence for the existence of a national policy debate includes opinions or resolutions published by key stakeholder groups, organisation of major conferences, working groups and the like. In countries in which the sub-national level plays a major role in policy-making in the social welfare area, activities at regional or local level are taken into account as well. Note that since the focus of the study is on ICT-supported long-term care, the existence of a policy framework for supporting informal carers which does not make explicit reference to ICT was only weighted by 1/4 of a full score.

- The second component indicator is only applicable for countries in which a policy on supporting informal carers exists. It attempts to measures the role played by ICT in this policy. Mostly, ICT applications are being discussed in policy documents only, usually when describing the kinds of support that need to
be designed and further developed for providing effective support to informal carers.

- The third component indicator intends to measure the extent to which a policy debate and/or major research on ICT-supported help for informal carers are visible in the country. In the most advanced countries, the stakeholder debate and the related research are already at the stage of discussing concrete measures and issues for advancing application of ICT in the area, while in others ICT-based supports are being discussed as a general issue only, for instance in the form of a public debate on of what is technologically possible and available in the market for ICT-applications targeting informal carers.

### Table 3-13: Existence of a policy framework supporting informal carers

<table>
<thead>
<tr>
<th>Existence of policy framework supporting informal carers</th>
<th>No. of countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy framework exists, (partly) translated into legislation</td>
<td>7</td>
</tr>
<tr>
<td>Policy framework/measures exist, no legislation yet</td>
<td>1</td>
</tr>
<tr>
<td>The issue is currently debated among key stakeholders</td>
<td>2</td>
</tr>
<tr>
<td>The issue of informal carer support has not yet surfaced on the national policy agenda and discussion has only/hardly begun</td>
<td>0</td>
</tr>
</tbody>
</table>

While the issue of how to effectively support informal carers has recently received growing attention amongst policy-makers across Europe, the potential contribution which ICT can make in this area is only beginning to reach the policy debate even in the more advanced countries.

With regard to existence of a policy strategy on supporting informal carers in general, most of the 10 countries have a least a set of policy measures in place to provide targeted support to providers of informal care. This takes in most countries the form of carer’s leave guaranteed by national legislation, sometimes combined with policy documents outlining strategic objectives as regards support for family carers. When comparing between countries in this regard, the countries of Eastern Europe score lowest; policies on long-term care here still mainly focus on improving public care service provision, and on lowering rates of institutionalisation. In southern Europe, a strong reliance on self-organisation of care for older people within the family means that the issue has not achieved the same importance in policy-making as in the Continental cluster.

In terms of legislation, the UK is scoring relatively high, as it formally recognised the role of unpaid carers already in 1995 ("Carers Recognition and Services Act"), and subsequently developed a strategy for providing effective support to this target group ("Carers and Disabled Children Act" in 2000, "Carers Equal Opportunity Act" in 2004, "National Carers’ Strategy" in 2008, updated in 2010). In some countries, including Sweden, France and Italy, policy-making on the issue mainly takes place at regional or municipal rather than national level.

With regard to the role played by ICT in policy documents for supporting informal carers, the analysis suggests that only in the UK applications of ICT are mentioned explicitly. In the UK, the National Carers’ Strategy stresses that "Technology can play a major part in giving carers peace of mind, and in doing so can provide space that they can call their own". Telecare has already been mentioned in the first UK strategy for carers in 1999 (HM Government, 2008).
GOOD PRACTICE

Holistic policy support for informal carers

The United Kingdom has a dedicated strategy in place that aims at supporting informal carers. The 2008 “Carers at the heart of 21st century families and communities: a caring system on your side, a life of your own” sets out the Government's short-term agenda and long-term vision for the future care and support of carers. The first Carer’s Strategy was developed in 1999 since which the strategy has been developed and republished. Alongside this is the Carer’s Grant which is issued to local authorities every year with the aim of improving support for carers. The strategy sets out the framework for developing support for carers not just as a one-off but as a progressive process of change over the next 10 years. Technology support is also part of this strategy: “technology can play a major part in giving carers peace of mind, and in doing so can provide space that they can call their own.” The strategy recognises that “is important that we continue to invest in technology to improve the support offered to both the person cared for and their carer.”

For more information read the full good practice case in Section 4 of the Report Annex

In all other countries analysed by the present study, applications of ICT for supporting informal carers have not found their way into policy documents, but are being discussed in the public debate among key stakeholder groups. Concrete measures are being discussed at least in three countries (UK, Sweden and the Netherlands). Evidence can be found in a recent set of reports on “The Potential of ICT in Supporting Domiciliary Care” commissioned by the IPTS (European Commission, 2009).

It must however be noted that absence of policies addressing ICT support for informal carers does not necessarily mean that no ICT support exists for informal carers. Both in Spain and Italy, for example, a number of social welfare providers and related organisations are using web tools to allow informal carers to obtain training and practical help, as well as the possibility to exchange experience and communicate with each other (cf. also Section 0).

Also, organisations which represent the interests of informal carers at national level exist in most Member States, e.g. in the form of carers’ associations. In six of the 10 countries analysed, these organisations have started to address use of ICT for supporting carers, for example by publishing about it and/or by staging expert workshops and conferences. In so far as providers of ICT-based products and services for supporting informal carers are available, carer’s associations also appear to understand it as their task to inform their target audience about available offers and to help them select between providers. Examples of carers’ associations with activities in the area include Landelijke Vereniging voor Mantelzorgers en Vrijwilligerszorg (Mezzo) in the Netherlands; Confederación Española de Familiares de Enfermos de Alzheimer y otras demencias (CEAFA) in Spain; Anhörigas Riksförsbund (AHR) in Sweden; and Carers UK.

Overall, governance structures for informal carer support are particularly fragmented since they touch upon employment and gender policies, family structures, general value systems and a full range of other domains. This extreme fragmentation makes it difficult to deploy ICTs in this area in a coherent and structured manner. In sum, while policy frameworks for support of informal carers are in development in all of the countries investigated, policy support seems to be needed as regards the integration and consideration of the potentials ICT provides for addressing the needs of informal carers. The existing policy frameworks for supporting family carers need to be updated to cover the issue of ICT applications targeted at this particular group of users. This should be based on a good grasp of technologies’ strengths but also limitations.
3.3 Funding and economic impact

The macro-category funding and economic impact comprises two themes that are indispensable in the quest to boost the deployment of ICT-enabled long-term care services for the elderly. The first theme, funding, relates to the practicalities of financing projects and routine services. The compound indicators “Flexibility of the reimbursement system” and “Reimbursement promoting specific technologies” address the latter by providing a general assessment of the flexibility of the health and social care reimbursement systems in matters of including new, innovative services into the long-term care service baskets as well as by pointing to specific reimbursement lines addressing the routine use of services supported by any of the six technology fields covered by this study.

The third compound indicator is also related to funding. “Targeted funding measures for start-off support” addresses insights on the possibility of drawing on different types of financing sources for pilot projects and experimental implementations, as well as seed funding for investments. Options considered include public and non-public sources. Public sources are national, regional, or other state governed schemes and budget lines, such as (care) innovation funds, R&D funds or market validation and deployment support initiatives. Non-public financing sources include venture capital, capital markets, commercial financing, charity financing and public private partnerships (PPPs). In all cases, a large number of opportunities available and used indicates a high degree of openness to innovation.

The other theme of this macro-category, economic impact and potential, deals with the issue of justifying financial and other economic investments. The scoreboard focuses on two compound indicators. The availability of “statistically representative evidence on key benefits and cost avoidance” refers to published studies on the socio-economic impact of implementing innovative, ICT supported services in long-term care of older people, possibly suffering from chronic diseases. The qualification “statistically representative” refers to the requirement of evidence to be applicable and reproducible outside the setting of the individual study, i.e. its external validity. This requirement usually reduces the number of qualifying studies to those covering a significant number of patients and/or carers. If the requirement of external validity is met, the evidence can be used for conclusions about the possible impact of nation-wide deployment of innovative eHealth and telecare services. The presumption of this scoreboard indicator is twofold: first, more such evidence indicates a certain degree of awareness and interest in the topics and technologies covered by this study; second, in places where more such evidence is available investment decisions can be better informed. Both aspects can be seen as proxies for the degree of openness of the long-term care systems to ICT enabled service provision. The components of this indicator consist of several possible degrees of evidence availability related to the six technologies covered by the scope of the study.

The fifth compound indicator of the economic impact and potential theme is “Mainstreaming potential for ICT in long-term care” and is a proxy for market opportunities in the field of eCare in the respective country. The indicator builds on three pillars. First, a certain level of supply and usage of eCare services points towards a market where the products and services are not completely new to the consumers, which lowers the entry barriers. Thus, the average technological adoption score, despite data availability constraints, serves as the first component indicator. Second, the existence and scope of a policy framework supporting uptake ICT-based care services is taken into account through the “Policy framework on ICT for long-term care” score. The existence of such policies and strategies is also seen as a facilitating factor in terms of market development. Third, the existence of open reimbursement and funding schemes al-
so depicts an innovation friendly market environment. This component is calculated by taking the average of the "Flexibility of reimbursement system" and "Targeted funding measures for start-off support" scores.

The following table gives an overview of the compound indicators of this macro-category, as well as their components. Raw data for each indicator and information on how qualitative indicators were aggregated and scored into quantitative benchmarking values is included in Section 7.3 of the Report Annex.

<table>
<thead>
<tr>
<th>Compound indicator</th>
<th>Type of indicator</th>
<th>Component indicator(s)</th>
<th>Data source(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flexibility of reimbursement system</td>
<td>Qualitative (scored)</td>
<td>Flexibility of general health and social care reimbursement systems regarding new technology/ICT-service innovations. - The country has a Diagnosis Related Group reimbursement system implemented in hospitals - There is a cash-for-care allowance system - Responsible authorities have flexibility over budget allocations</td>
<td>Desk research</td>
</tr>
<tr>
<td>Reimbursement promoting specific technologies</td>
<td>Qualitative (scored)</td>
<td>Existence of specific reimbursement arrangements for ICT in long-term (home) care: - Telecare: o primary care (GPs) o secondary care (hospital/specialist) o home care (care at the patient’s home) - Telehealth/ telemonitoring: o primary care (GPs) o secondary care (hospital/specialist) o home care (care at the patient’s home) - Telemedicine: o primary care (GPs) o secondary care (hospital/specialist) o home care (care at the patient’s home) - Personal Health Records (PHR): o primary care (GPs) o secondary care (hospital/specialist) o home care (care at the patient’s home) - Electronic Health Records (EHR): o primary care (GPs) o secondary care (hospital/specialist) o home care (care at the patient’s home)</td>
<td>Primary data gathering and desk research</td>
</tr>
<tr>
<td>Targeted funding measures for start-off support</td>
<td>Qualitative (scored)</td>
<td>Existence and use of targeted national/regional funding measures for investments: - No schemes existent - Some funding schemes existent, but not used - Some funding schemes existent and occasionally used, such as in the framework of broader funding schemes - Specific funding measures for ICT in LTC exist and are used - A broad range of measures provides financing to numerous initiatives Existence and use of non-government funding possibilities: - Venture capital o Not possible o Possible but not used o Occasionally used as a financing source o Regularly used as a financing source - Capital markets o Not possible o Possible but not used o Occasionally used as a financing source</td>
<td>Primary data gathering</td>
</tr>
</tbody>
</table>
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- Regularly used as a financing source
- Commercial financing
  - Not possible
  - Possible but not used
  - Occasionally used as a financing source
  - Regularly used as a financing source
- Charity financing
  - Not possible
  - Possible but not used
  - Occasionally used as a financing source
  - Regularly used as a financing source
- Public-private partnerships (PPP)
  - Not possible
  - Possible but not used
  - Occasionally used as a financing source
  - Regularly used as a financing source

<table>
<thead>
<tr>
<th>Statistically representative evidence on key benefits and cost avoidance</th>
<th>Qualitative (scored)</th>
<th>Evidence with high external validity features only:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telecare:</td>
<td>No evidence available</td>
<td>Extensive evidence is available, but mostly based on small scale studies</td>
</tr>
<tr>
<td>Telehealth/telemonitoring:</td>
<td>No evidence available</td>
<td>Extensive evidence is available, but mostly based on small scale studies</td>
</tr>
<tr>
<td>Telemedicine:</td>
<td>No evidence available</td>
<td>Extensive evidence is available, but mostly based on small scale studies</td>
</tr>
<tr>
<td>Personal health records (PHRs):</td>
<td>No evidence available</td>
<td>Extensive evidence is available, but mostly based on small scale studies</td>
</tr>
<tr>
<td>Electronic health records (EHRs):</td>
<td>No evidence available</td>
<td>Extensive evidence is available, but mostly based on small scale studies</td>
</tr>
<tr>
<td>Teletraining and educational support:</td>
<td>No evidence available</td>
<td>Extensive evidence is available, but mostly based on small scale studies</td>
</tr>
</tbody>
</table>

- Mainstreaming potential for ICT in
- Qualitative (scored)
- Average level of supply and use of different types of eCare services (aggregated technological adoption score).
- Indirectly primary data gathering and
long-term care

Existence and scope of a policy strategy for ICT for home care, either stand-alone or included in another strategy (compound indicator “Policy strategy on ICT for long-term care” score)

Existence of open reimbursement and funding schemes (average compound indicators “Flexibility of reimbursement system” and “Targeted funding measures for start-off support” score)

desk research

The overview scoreboard result in the macro-category funding and economic impact is a relatively coherent position across the different LTC models.

Figure 3-4: Scoreboard scores for funding and economic impact

<table>
<thead>
<tr>
<th>Long-term care model</th>
<th>Anglo-Saxon</th>
<th>Central European</th>
<th>Scandinavian</th>
<th>Mediterranean</th>
<th>Eastern</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country</td>
<td>UK</td>
<td>FR</td>
<td>NL</td>
<td>DE</td>
<td>DK</td>
</tr>
<tr>
<td>Funding and economic impact</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flexibility of reimbursement system</td>
<td>2.8</td>
<td>2.8</td>
<td>3.1</td>
<td>2.2</td>
<td>2.8</td>
</tr>
<tr>
<td>Reimbursement promoting specific technologies</td>
<td>1.5</td>
<td>1.3</td>
<td>0.5</td>
<td>1.0</td>
<td>1.3</td>
</tr>
<tr>
<td>Targeted funding measures for start-off support</td>
<td>4.2</td>
<td>2.9</td>
<td>3.3</td>
<td>3.1</td>
<td>3.8</td>
</tr>
<tr>
<td>Statistically representative evidence on key benefits and cost avoidance</td>
<td>1.9</td>
<td>1.7</td>
<td>0.6</td>
<td>0.8</td>
<td>0.6</td>
</tr>
<tr>
<td>Mainstreaming potential for ICT in long-term care</td>
<td>3.1</td>
<td>1.8</td>
<td>2.3</td>
<td>2.1</td>
<td>2.6</td>
</tr>
</tbody>
</table>

Note: Scoreboard scores are standardized to a range of 0 to 5. See section 2.5.1 on how the scores were calculated.

If we were to identify a pattern across the results, it would be along the lines of the indicators rather than the countries or clusters. Despite differences between the countries, the general picture shows a position where funding is more or less available for starting off initiatives, and also within the general reimbursement system, yet the technologies themselves are not really subject to specific reimbursement incentives. Unrelated to this, and despite a substantial impact evidence base on the micro level, evidence of sufficient robustness and external validity for meaningful conclusions on a national or even European level is few and far between. Regarding the potential for future development of a market for eCare services, the situation, with six out of ten countries scoring between 2 and 3 out of 5 points, is probably better than some would expect.

3.3.1 Flexibility of reimbursement system

The flexibility of the general health and care reimbursement system(s) towards the uptake of new, innovative services shows a relatively positive situation, with most countries scoring more than 2 out of 4 points. Table 3-15 shows the raw scores of this indicator.

It is critical to bear in mind that this indicator only focuses on the flexibility with which the budgets of general reimbursement systems can be consumed, not on how large they are or to what extent this flexibility is being exploited. It is beyond the scope and resource constraints of this study to research and analyse the respective cash-for-care programs or disposable income structure of the older population. This makes it impossible to judge or score this aspect in the context of the current scoreboard building exercise, despite the need to perform such analysis in order to interpret the data collect-
ed by the eCare Benchmarking study in the right context. In spite of this drawback, the indicator gives an insight on how easy it is, under the right circumstances, for eCare services to enter the regular care service provision and reimbursement system.

<table>
<thead>
<tr>
<th>Table 3-15: Flexibility of reimbursement system raw indicator scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country</td>
</tr>
<tr>
<td>Flexibility of general health and social care reimbursement systems regarding new technology/ICT-service innovations</td>
</tr>
<tr>
<td>Max score: 4</td>
</tr>
</tbody>
</table>

The distribution between countries clearly shows that the flexibility of a reimbursement system does not reflect the cluster structure but rather specific characteristics of the individual country. This is most strikingly demonstrated by a comparison between Estonia and Hungary. Estonia does not have a well developed public long-term care sector for older people, which is a disadvantage from the perspective of the European social model, but can be seen as an opportunity for innovation. Since most services have to be paid for by the patients and their relatives, they can also choose to spend the money on services providing more or better care. This relates to the opportunity of implementing new services, which is easier in such a setting than in systems where services are already established without technology components and need changing or even replacing. The other Eastern European country, Hungary, has a better defined set of services that belongs to long-term care, which however, makes the reimbursement options more rigid and less open to innovation.

**GOOD PRACTICE**

*Telecare and telehealth reimbursement by primary care trusts in the UK*

Each primary care trust (PCT) in England, which are the bodies managing primary care at the local level, can decide whether to have telecare/telehealth based on its own needs. Around a third of the 151 PCTs in England are using telehealth, with another third expressing an interest in this approach. A PCT can, in a way, reimburse itself for telecare and telehealth by top slicing its budget.

The complete flexibility of PCTs in the service basket they provide makes the decision on whether to introduce new, innovative services a matter of judgment of these services and what they can deliver. This is an advantage to settings in which legacy and rigid budget assignment determine the introduction of new services.

A similar situation exists in Northern Ireland where the budget of Health and Social Care (HSC) Trusts in conjunction with commissioning from Local Commissioning Groups means decisions on service provision are made at a local level. Also in Wales, where the 22 local authorities use their budgets according to what they consider is the local demand for telecare initiatives. In Scotland, funding is provided by the National Telecare Development Programme (TDP), after assessment by the Joint Improvement Team (JIT).

For more information read the full good practice case in Section 4 of the Report Annex

It must be noted that the opportunity of implementing new services alone does not mean that uptake is high. Other factors, such as affordability, also play critical roles. This is illustrated by the Telecare and telehealth reimbursement by primary care trusts in the UK, which is one of the good practices identified by the study.

This example shows how flexibility is expressed in the option to assess the needs of care delivery and the value that new, innovative solutions can bring in this respect. This option also leaves the possibility that some services are considered inadequate in certain settings, which may be the case for the share of PCTs that do not show interest
in taking up telecare and telehealth services. From a socio-economic perspective this is at least as important as promoting value adding technologies, as it reduces the probability of wasteful use of resources.

The message of this indicator is that reimbursement systems have become fairly open to different, new and altered care services including those enabled by ICT, as long as key decision makers are persuaded to use their decision power to support them. However, these decision makers need to balance many aspects including (still not well understood) demand patterns, supplier lobby, resource constraints (the amount of money available for distribution), as well as political developments. In the end, the decision makers need to have the knowledge, experience, and incentives to use the available flexibility. This is an observation consistent with the findings of an EC study on eHealth investments, which concluded that although money is an issue in boosting eHealth investment, the way the money is spent is the more important and challenging theme (Dobrev, 2008).

Another issue is the current drive for reform in the health and social care systems across Europe. Many countries are working on this in realisation of the fact that sustainability can be at stake. While such reforms offer an opportunity for innovation, they also go with a level of uncertainty about the future structures. For example, England is currently introducing exhaustive changes in the health and social care financing systems, which can have a substantial impact on the flexibility of the reimbursement system. Thus, there is still some way to go before investments can start relying on the long-term care system as a source of sustainable long-term financing.

### 3.3.2 Reimbursement promoting specific technologies

Reimbursement mechanisms promoting specific eCare technologies can be found in all countries, but as a rule it covers mostly telecare services and these often also only in selected areas of care such as home care (cf. table below). Telehealth/ telemonitoring and telemedicine services are defined in a fairly restricted manner for the purpose of this study, which limits the portfolio of possible services in question. Most of the available services target acute health care rather than long-term care of older people with chronic diseases. The focus of the study on the latter may be part of the explanation of why reimbursement for these services is less widely spread. EHRs are generally funded as infrastructure investments in most countries, and not as reimbursable service items. For example in Denmark the official status of EHRs is a service provided to citizens as a part of the general health care system, rather than support provided to care provider organisations. Some care providers (particularly GPs) are even legally obliged to use EHRs, but there is no EHR related reimbursement line. PHRs are even less of a topic for specific subsidies. The only country where it was identified that PHRs can be partly reimbursed by the health insurance companies in Germany, although uptake of this opportunity by citizens is extremely low.

| Table 3-16: Reimbursement promoting specific technologies component indicator scores |
|---------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|
| Country                        | UK  | FR  | NL  | DE  | DK  | SE  | ES  | IT  | EE  | HU  |
| Existence of specific reimbursement arrangements for ICT in long-term (home) care: |     |     |     |     |     |     |     |     |     |     |
| - Telecare                     | 3   | 3   | 2   | 2   | 2   | 2   | 2   | 2   | 2   | 2   |
| Max score: 4                   |     |     |     |     |     |     |     |     |     |     |
| Existence of specific reimbursement arrangements for ICT in long-term (home) care: | 1   | 1   | 0   | 1   | 1   | 2   | 0   | 0   | 0   | 0   |
| - Telehealth/ telemonitoring   |     |     |     |     |     |     |     |     |     |     |
The fact that scores are very low across the board is related to a number of aspects. One is that the technologies considered to represent innovative solutions in long-term care provision are far from having entered routine reimbursement systems. This seems to be the case regarding taking them up explicitly in reimbursement catalogues. However, this fact itself is not necessarily a negative sign from a policy perspective. This position is less helpful for steering investments towards the use of certain ICTs, but at the same time gives more room for innovation and out-of-the-box-thinking. Thus, while the low scores suggest a deficiency from an ICT-policy perspective, this is not necessarily the case from the point of view of long-term care policy. As stressed by experts during the validation workshop of the study, a highly flexible reimbursement system without reimbursement of specific technologies can be even more open to innovation than one focusing on promoting a certain technology.

### 3.3.3 Targeted funding measures for start-off support

Targeted funding measures for pilot, validation and deployment projects are fairly well developed and in some cases also used. With the exception of Hungary, all countries score relatively high (cf. Figure 3-4 above), which is explained by two phenomena: first, the fact that most measures are of a general nature and not specific to eCare, and second that the relatively high risk related to innovation in general and the likelihood of securing sustainable future revenue streams in particular make building strong business plans difficult. The latter is a barrier to exploiting non-public funding options, even when these are theoretically available.

The Eastern European countries have generally limited state governed funding opportunities, with Estonia being in a slightly better position. This is mainly due to the fact that the Estonian Ministry of Social Affairs has seized the opportunity to exploit EU structural funds for the development and deployment of a nation-wide EHR system. This has reduced the financial burden to the ministry budget to less than 60% of the total investment cost. The use of structural and other EU funding opportunities to enhance the limited financial resources for supporting innovations is something that can be taken up not only by other Eastern European countries, but by all Member States.

Italy scores also relatively low compared to the other countries, which is due primarily to the fact that there are no dedicated funding measures for ICT for long-term care. Many telecare projects for older people are funded through “Regional Non-Self-Sufficiency Funds” or other general funds rather than such specific to eCare services.

**GOOD PRACTICE**
Public-private partnerships in Spain

In Spain, public-private partnerships (PPPs) are a commonly used source of funding for the implementation of technology in the public health care system. The regulation which makes these arrangements possible increases the chance of success in the adoption of new technologies in the health care sector.

Co-funding by Public Administrations and Private Partners has been identified in several telecare and telemonitoring projects, including AmiVital, a partnership between the Science and Innovation Ministry and Private Companies (Telefónica I+D, Televént, Ericsson, etc.) with focus on telecare and telemonitoring of older people and LOBIN, a PPP on telemonitoring technologies between the Spanish Industry Ministry and NLAZA soluciones, SMART solutions and SIMAVE on the commercial side.

For more information read the full good practice case in Section 4 of the Report Annex

The highest scoring Member State is again the UK (4.2/5), followed by Denmark (3.8/5). Apart from a well developed range of public measures providing financing to numerous initiatives, the UK stands out with regular use of PPP arrangements (such as within the Whole System Demonstrator framework). PPP arrangements are also emerging in other countries, as one of the good practice examples suggests.

GOOD PRACTICE

Danish Public Welfare Technology Foundation

The Danish PWT Foundation – Investments in Public Welfare Technology (in Danish: ABT-fonden), administers a 400 million Euros (3 billion DKK for 2009-2015) programme. The programme recognizes that the public sector will be experiencing increasing demand for supportive services over the coming years due to on-going demographic developments.

One of the thematic areas addressed is “Care Technologies”, aiming for instance at testing/deploying age-friendly toilets, electronic bath/shower chairs, electronic tools supporting people with autism, alarm/tracking systems for people with dementia, medication reminders for people with mental disorders, electronic tools for self-activation of retarded adults, solutions for lifting/moving frail older people, electronic door locking systems and fall management. The PWT Foundation is a tangible structure for targeted distribution of public money, explicitly addressing upcoming challenges.

For more information read the full good practice case in Section 4 of the Report Annex

Investors in Denmark are making use particularly of commercial loans. This drives the country to a compound score of 3.8/5. Another notable occurrence in Denmark is the Public Welfare Technology Foundation, which administers public funds for projects targeting specifically the challenges of demographic change and explicitly including care technologies within the scope of their work. This type of organisational recognition of the need to face upcoming challenges, yet allowing considerable flexibility, and thus room for innovation, in the type of technologies funded, is considered to be worthy of exploring by other countries as well.

The Scandinavian countries provide also another good practice with regards to public start-off funding opportunities. In Sweden, national, regional, and local authorities have joined forces in a network called Vinnvård.

GOOD PRACTICE

Vinnvård, a community of practice in long-term care, Sweden

Vinnvård is an organisation which operates on the national level and is funded by governmental organisations and the Swedish Association of Local Authorities and Regions (SKL). It maintains a Community of Practice for the elderly, chronically ill, informal carers, politicians, health- and
social service personnel, health- and social service executives, researchers, members of senior
citizen organisations and business corporations. The scheme has a total of 150 million SEK (16.8
million euro) at its disposal for the period 2007-2012. The money is spent on improving the
ability to convert knowledge into practice by contributing with research as well as tenable and
instructive examples in the elaboration of management systems, ways of organizing work, and
forms of cooperation between health and social care, research institutions, and enterprises.

For more information read the full good practice case in Section 4 of the Report Annex

This network also relates directly to the overall theme of the eCare Benchmarking
study, namely coping with an ageing population, by bringing together all stakeholders
related to the ageing society and specifically funding initiatives that explore innova-
tions in health and social care.

Table 3-17 below depicts some details on the availability and use of different public
and private sources of restricted financing for pilot projects, start-ups and other prom-
ising, yet unproven endeavours.

When examining eCare in terms of the technologies subject to the eCare Benchmarking
study, specific seed funding schemes are not necessarily widely spread. However, this
is not in itself a problem, as long as more general funding mechanisms provide the poss-
sibility to be utilised for innovations in the field of LTC for older people, with or with-
out chronic diseases. From a policy perspective, this means that, apart from the Eastern
European countries where generally public funding is rare, governments can focus
on ensuring investments in eCare are eligible for existing funding schemes rather than
opening new, dedicated ones which comes at a greater cost.

<table>
<thead>
<tr>
<th>Table 3-17: Targeted funding measures component indicator scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country</td>
</tr>
<tr>
<td>Existence and use of targeted national/regional funding measures for investments Max score: 4</td>
</tr>
<tr>
<td>Existence and use of non-government funding possibilities: - Venture capital Max score: 3</td>
</tr>
<tr>
<td>Existence and use of non-government funding possibilities: - Capital markets Max score: 3</td>
</tr>
<tr>
<td>Existence and use of non-government funding possibilities: - Commercial financing Max score: 3</td>
</tr>
<tr>
<td>Existence and use of non-government funding possibilities: - Charity financing Max score: 3</td>
</tr>
<tr>
<td>Existence and use of non-government funding possibilities: - Public-private partnerships (PPP) Max score: 3</td>
</tr>
</tbody>
</table>

The other conclusion from the scores on this compound indicator is that non-public fi-
nancing options are generally available across Europe, but low level of uptake (one of
the factors explaining why no country scores the maximum of 5 points) indicates a poss-
ible lack of clear and strong business cases. This relates back to the issues regarding
the reimbursement systems, the need for sustainable long-term revenue streams, and the associated risks and uncertainties.

### 3.3.4 Statistically representative evidence on key benefits and cost avoidance

When it comes to evidence on key service costs and benefits available from national sources, a somewhat sobering picture emerges. As the literature already indicated prior to the field work of the study most evidence is based on small and statistically not representative samples of users. This makes it conceptually and scientifically difficult to use the vast number of pilot tests and evaluations for judging the impact on national or at least regional level deployment of eCare services.

Across the board, robust evidence is still rare. For PHRs, no relevant evidence was found in any of the countries (see Table 3-18). The highest scoring Member States are the UK (1.9/5), France and Italy (1.7/5). In Italy, the eCare Network in Bologna not only provides ICT-enabled care and health services to a large number of older people, but has also measured the impact these services have. Extrapolating the evidence on the basis of the more than 3,000 customers indicates a potential annual saving of more than 24,000 hospital admissions, or €143m, if the services were expanded to the whole of Italy.

**GOOD PRACTICE**

**eCare network of Bologna, Italy**

The eCare network of Bologna offers telecare and telemonitoring services on the health and psychological status of elderly people, provided by GPs, social services, nurses, voluntary associations and charities. The service currently serves about 3,300 customers. The majority of the users benefit from basic telecare services. Following a pilot study, the eCare network also provides more advanced telemedicine/telemonitoring services to patients. As a result of these activities, about 100 hospital admissions could be avoided in two years resulting in a general saving of approximately 600,000€. Further to this reduction of health costs, the eCare services helped to improve the older peoples’ quality of life and allowed them to continue living independently in their homes.

For more information read the full good practice case in Section 4 of the Report Annex

In the UK, two different sources of robust, large scale evidence yield a similar conclusion regarding the potential of eCare services to contribute to meeting the challenge of restrictive economic conditions and expanding demand for long-term care. The estimated economic impact of scaling up services to the whole of the UK for the Scottish National Telecare Development Programme (TDP) and the North Yorkshire City Council telemedicine services for community care is around €300m p.a. The TDP savings are primarily due to reduced duration of hospitalisation, avoided admissions to hospitals and care homes, as well as a reduction in the need for physical home visits. Another study in the UK, the telemonitoring project in Northern Ireland, reported, on a sample of 1,000 patients, the number of bed days for planned hospital stays to be reduced by 59% while unplanned hospital admissions were reduced by another 56%. Extrapolated to the whole of the UK, these yield a potential saving of about £710m of health care expenditure annually.

**GOOD PRACTICE**

**Regional Telemedicine Network Midi-Pyrenees (Midi-Pyrenees RTR GIP), France**
The Regional Telemedicine Network Midi-Pyrenees (Midi-Pyrenees RTR GIP) is a public-private organisation governed by the rules of a “Public Interest Grouping. The RTR GIP conducts and coordinates the telemedicine activities in the region Midi-Pyrenees on behalf of public and private health care institutions and private health care professionals. The objective is to equalize the care providers’ reimbursement to the performance provided, and to the value added by telemedicine throughout the region, which is geographically challenging. The GIP brings together 60 public and private health facilities, two health networks and association TMVES (Telemedicine City health establishments), and other health actors such as the Regional Union of Private Physicians Midi-Pyrenees Paul Sabatier University and the European Institute of Telemedicine. To date, 52 health care provider organisations are already equipped (representing 69 hospital sites and 126 deployment configurations), and 5 GP practices. The Telemedicine network is structured around two strands of activities, the primary of which includes health care education among the various health care professionals connected to the network. Total avoided cost due to tele-training and tele-staff-meetings of one regional network were estimated at €674,372 for the year 2004.

For more information read the full good practice case in Section 4 of the Report Annex

It must be noted that the score for the UK does not account for the Whole System Demonstrator (WSD) project, which is expected to deliver significant evidence of precisely the required type. WSD results are expected to be published only later in 2011, so after the end of the eCare Benchmarking study. An unusual and unexpected scoreboard results concerns the Scandinavian countries, which score very low. In both cases, the study team was confronted with a position of the benefits being so clearer and undisputable to decision makers that no resources are invested in comprehensive impact studies. Evidence on the functionalities and performance is available, yet this was outside the scope of this indicator.

A rare example of evidence on the impact of teletraining and educational support provides the Regional Telemedicine Network Midi-Pyrenees (Midi-Pyrenees RTR GIP) in France. Driven by the challenges related to physical conditions in this mountainous region, the RTP GIP has recorded substantial savings in using its network not only for point-of-care collaboration across a whole region, but also for professional training. In the analysis of the potential projection for the whole of France, potential total annual benefits were estimated at close to €960m, of which nearly €300m can be attributed to savings related to the teletraining services. The resulting estimated net benefits of €24m p.a. are of purely financial matter. Additional, intangible benefits are believed to be substantial, yet have not been quantified in the analysis.

Table 3-18: Impact evidence component indicator scores

<table>
<thead>
<tr>
<th>Country</th>
<th>UK</th>
<th>FR</th>
<th>NL</th>
<th>DE</th>
<th>DK</th>
<th>SE</th>
<th>ES</th>
<th>IT</th>
<th>EE</th>
<th>HU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evidence with high external validity features only:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Telecare</td>
<td>3</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Max score: 3</td>
<td></td>
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<td>Evidence with high external validity features only:</td>
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<tr>
<td>- Telehealth/telemonitoring</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>1</td>
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<td>0</td>
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<td>Evidence with high external validity features only:</td>
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<td>- Telemedicine</td>
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<tr>
<td>- Personal health records (PHRs)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
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</tr>
</tbody>
</table>
### Mainstreaming potential for ICT in long-term care

The last compound indicator in this macro-category, the mainstreaming potential for ICT in long-term care, shows a lead of the UK and the two Scandinavian countries. However, the highest score of 3.1/5 indicates room for improvement across the whole of Europe. The lead of the UK, Sweden and Denmark is primarily due to their relatively more open reimbursement and targeted funding systems, with the UK also doing much better than the other countries on the policy framework theme.

<table>
<thead>
<tr>
<th>Country</th>
<th>UK</th>
<th>FR</th>
<th>NL</th>
<th>DE</th>
<th>DK</th>
<th>SE</th>
<th>ES</th>
<th>IT</th>
<th>EE</th>
<th>HU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average level of supply and use</td>
<td>2.8</td>
<td>2.0</td>
<td>2.6</td>
<td>2.7</td>
<td>2.6</td>
<td>2.7</td>
<td>2.2</td>
<td>1.8</td>
<td>1.2</td>
<td>1.6</td>
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<tr>
<td>of different types of eCare</td>
<td></td>
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<tr>
<td>services (aggregated technological adoption score). Max score: 5</td>
<td></td>
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<tr>
<td>Existence and scope of a policy</td>
<td>2.8</td>
<td>0.5</td>
<td>1.0</td>
<td>1.0</td>
<td>1.7</td>
<td>2.6</td>
<td>1.4</td>
<td>0.2</td>
<td>0.0</td>
<td>1.0</td>
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<tr>
<td>framework for ICT for home care</td>
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<tr>
<td>(compound indicator “Policy</td>
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<tr>
<td>framework on ICT for long-term</td>
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<tr>
<td>care” score) Max score: 5</td>
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<tr>
<td>Existence of open reimbursement</td>
<td>3.6</td>
<td>2.8</td>
<td>3.2</td>
<td>2.6</td>
<td>3.3</td>
<td>3.4</td>
<td>2.9</td>
<td>2.2</td>
<td>3.1</td>
<td>1.4</td>
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<tr>
<td>and funding schemes (average</td>
<td></td>
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<td>compound indicators “Reimbursement</td>
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<td>system” and “Targeted funding</td>
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<td>measures” score) Max score: 5</td>
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</table>

The conclusions from this indicator address directly potential investors, who can expect to find a more facilitating environment in the UK, Denmark and Sweden, followed by the Netherlands, Spain and Germany. As for other parts of the scoreboard, the scores do not follow a cluster-related pattern across the different models of long-term care. For policy makers, the scores show countries can do more in terms of boosting investment in eCare services by twisting the framework conditions in a direction attracting investors. Specifically, lack of political commitments seem to be pulling the scores down, indicating that there is a very tangible role for policy makers in attracting investments in ICT-enabled long-term care services.
3.4 Legal issues

The relevance of legal aspects has frequently been highlighted in the political and scientific arenas when it comes to factors potentially inhibiting the wider uptake of ICT-based solutions in the health care and social care domains. Rarely does a country have a coherent set of laws specifically designed to address ICT-based forms of support of older people. In view of the pace at which new technological solutions emerge this may not come as a surprise, and phenomena such as telecare and telehealth tend to be addressed within existing legal frameworks respectively, e.g. when it comes to professional liability and data privacy.

Against this background, the complexities of the legal frameworks that may apply in relation to the implementation of a particular ICT-based service have been identified as a factor that may act as barrier to the exploitation of the potentials ICTs generally hold in the fields under investigation (Stroetmann K. A. et al., 2010, Kubitschke and Cullen, 2010a, eHealth Taskforce report 2007, 2007). In a particular instance, a diverse range of legal and regulatory fields may be concerned, at least potentially, including for example technology related regulation/legislation (e.g. safety of consumer and or medical devices) and service related regulation/legislation (e.g. duties and responsibilities of statutory agencies, consumer and contract law, data protection and personal information legislation, occupational law and even criminal law) (Fisk M. J., 2011, Weichert T., 2011). From a European-level perspective, the diversity of national legal frameworks prevailing across the European Union has tended to add further complexities to this field (time.lex, 2009). Health care and social care providers may therefore be reluctant to engage in newly emerging ICT-supported service provision because of concerns and uncertainties about the legal dimensions involved (Kubitschke and Cullen, 2010a).

A forensic in-depth analysis of the variety of national legislative and regulative regimes as they currently exists across the EU in relation to their conduciveness to ICT-enabled forms support of older people is of cause well beyond the scope of this benchmarking exercise. For instance, liability issues potentially emerging around a particular telecare service may in principle be covered by national consumer protection legislation, e.g. when a device applied in this context causes harm to the user, albeit the nature of the problem may not be covered explicitly in the letter of a national law. Nevertheless, a definite assessment in a particular instance would require an in-depth legal analysis, including e.g. relevant national and/or EU-level law cases.

For the purposes of this benchmarking exercise, the macro-category “legal issues” therefore focuses on reflecting the extent to which any interpretative guidance is available in relation to legal aspects concerning the application categories under investigation. The underlying hypothesis is that any such guidance would contribute to the reduction of legal/regulative uncertainties potentially faced by relevant stakeholders. Such guidance may be directly enshrined in the letter of a relevant law, e.g. in cases where a certain piece of law makes direct reference to ICT-based service provision in health and/or social care. Beyond this, interpretative guidance may be available from other sources, e.g. dedicated oversight bodies which have been established in many countries when it comes to particular regulative fields such as product safety and data protection, or from umbrella organisations representing relevant stakeholder groupings such as care service providers.

Operationally, the first compound indicator measures whether any explicit reference to ICT-based service categories under investigation is made in national legislation. This may concern wider regulative frameworks such as general health care regulation/legislation, e.g. when it comes to the sue of ICTs in service provision, or a dedicated piece of legislation enacted to regulate a particular ICT-based service, e.g. the
law on telecare provision as it was introduced in Hungary some years ago. Beyond this the indicator measures whether any interpretative guidance is available from other official sources such as regulative oversight bodies.

An aspect that has received quite a lot of attention in the debate about ICT-enabled forms of support to older people concerns liability of service providers in cases of breach of confidentiality. A right to confidentiality is provided in European countries through specific privacy or confidentiality legislation which has been enacted in response to the so called Data Protection Directive of 1995 (Directive 95/46/EC). By adopting this directive the European Union set legally binding rules for the protection of individuals with regard to the processing of personal data. Through this regulation, basic principles for processing personal data have been stipulated, which have to be followed in all Member States. These include, for instance, the principles of transparency, legitimate purpose and proportionality. The Data Protection Directive of 1995 was complemented in 2002 (Directive 2002/58/EC), with particular respect to the processing of personal data in the electronic communication sector. Beyond this, some countries have introduced dedicated legislation on professional secrecy and/or patient rights that stipulate professional duties of health care professionals and rights of the patients when it comes to data protection, albeit these may not necessarily be specifically tailored to the characteristics of ICT-based service provision and electronic data processing in the domains under investigation.

Against this background, a dedicated compound indicator has been developed for the purposes of this study with a view to reflecting to what extent legal frameworks make reference to ICT-based forms of support when it comes to data protection in particular. Again, such referencing may take the form of explicit mentioning in the letter of relevant law or interpretative guidance provided by relevant oversight bodies.

The following Table 3-20 gives an overview of the two compound indicators of this macro-category, as well as their components. Raw data for each indicator and information on how qualitative indicators were aggregated and scored into quantitative benchmarking values is included in Section 7.4 of the Report Annex.

### Table 3-20: Indicators used for the “legal issues” macro-category

<table>
<thead>
<tr>
<th>Compound indicator</th>
<th>Type of indicator</th>
<th>Component indicator(s)</th>
<th>Data source(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reference to ICT-based services in legal/regulative frameworks other than data protection</td>
<td>Qualitative (scored)</td>
<td>Reference to ICT-based services in relevant legal/regulative frameworks other than data protection:</td>
<td>Primary data gathering and desk research</td>
</tr>
<tr>
<td>- Telecare:</td>
<td></td>
<td>o reference in legal/regulative framework</td>
<td></td>
</tr>
<tr>
<td>- Telehealth/ telemonitoring:</td>
<td></td>
<td>o no reference in legal regulative framework</td>
<td></td>
</tr>
<tr>
<td>- Telemedicine:</td>
<td></td>
<td>o reference in legal/regulative framework</td>
<td></td>
</tr>
<tr>
<td>- Personal Health Records (PHR):</td>
<td></td>
<td>o no reference in legal regulative framework</td>
<td></td>
</tr>
<tr>
<td>- Electronic Health Records (EHR):</td>
<td></td>
<td>o reference in legal/regulative framework</td>
<td></td>
</tr>
<tr>
<td>- Teletraining and educational support:</td>
<td></td>
<td>o no reference in legal regulative framework</td>
<td></td>
</tr>
</tbody>
</table>
The overview scoreboard result in the macro-category “legal issues” shows some variability across countries, albeit at a comparatively low level overall (see Figure 3-5).

![Figure 3-5: Scoreboard scores for legal issues](image)

Note: Scoreboard scores are standardized to a range of 0 to 5. See section 2.5.1 on how the scores were calculated.

Overall, a group of countries cutting across different LTC models (UK, FR, DK, DE) score comparatively high, while none of them comes close to the maximum score (5).

In general interpretative guidance in relation to legal issues as defined for the purposes of this benchmarking exercise seems to be less common in Mediterranean and Eastern European countries which are included in the study.
3.4.1 Availability of legal/regulative guidance in relation to particular ICT service and application domains

Overall, explicit regulative/legislative guidance is most frequently provided when it comes to Telecare and Electronic Health Records (EHR) (see Table 3-21). Both application domains show a reasonable level of maturity in terms of wider mainstreaming - or at least concrete deployment plans - within many national social/heath care markets. Social alarms, so called 1st generation Telecare, have for instance been around for more than two decades. Today, 1st generation telecare can be considered as fully mainstreamed in many countries in the sense that such services are available and are provided on a regular basis. For more advanced, so called 2nd generation telecare, involving provision of additional sensors to enhance basic social alarm services is gaining ground as well, and particular in the UK they can be considered a mainstream offering in many municipalities across the country. Similarly, many European Countries have launched concrete initiatives to put EHR systems in place on a nation-wide scale.

**GOOD PRACTICE**

**TSA Code of Practice – setting quality standards for telecare, UK**

In the UK, the Telecare Services Association (TSA) has developed its Telecare Code of Practice primarily for use by telecare service providers to ensure quality standards for service delivery and to assist commissioners in identifying quality providers. It provides a comprehensive quality framework for telecare in relation to both technology related aspects and aspects relating to the service delivery process. Quality requirements set out in the Code of Practice cover a range of standards modules:

- Safeguarding
- Governance
- Staff & Training
- Privacy & Data Protection
- Partnership Working
- Service User Communication
- Managing access to working in service user’s home
- Technology Management
- Business Continuity
- Planning and Development of telecare service centre
- Legislation (incl. Health & Safety)
- Performance Management & KPIs
- Nation State Variants

Through the endorsement by government bodies the TSA Code of Practice has become a de facto regulatory instrument for setting quality standards for telecare in the UK.

This finding points into the direction that a demand for interpretative guidance around regulative/legislative issues will increasingly come to the fore as more and more useful ICT applications will find their way into day-to-day practices across the various application domains investigated by this study. Whether or not this may take the form of dedicated regulation/legislation or other forms of guidance may very much depend on the national legal/regulative environment. The approaches that have been adopted so far across the countries investigated for the purposes of this study seem to a large extent reflect existing diversity when it comes to the characteristics of established social care and health care systems as well as legal traditions, which are again deeply rooted in Member States’ political, social and economic environment. When it comes to avoiding legal/regulative uncertainties among relevant stakeholders a one-size-fits-all approach can thus hardly be imagined to be successful.
In the UK for instance, explicit reference to telecare concerns for instance both binding legislation and voluntary guidelines. The former concerns for instance explicit referencing of telecare equipment and devices by the relevant regulative authority in relation to safety requirements imposed on “assisteive technology”. When it comes to voluntary guidelines, the Teleservice Association (TSA) has developed a telecare code of practice. TSA aims to promote and support the telecare industry and highlight the benefits of telecare for consumers. It has almost 300 members, primarily from Local Authorities, Registered Social Landlords and private sector suppliers. The association works closely with the Government and devolved authorities. In England TSA played a strong role in policy development around telecare, which is e.g. reflected in the development of the ‘Building Telecare in England’ strategy published in 2005.

**GOOD PRACTICE**

*Germany's Social Code - Regulating reimbursement of end user costs of social alarms in an insurance-based long term care system, DE*

In Germany, reimbursement of end user costs of social alarms is available under the statutory long term care insurance scheme which was introduced in the early 1990s. Persons who are eligible to receive financial support under this scheme can apply for reimbursement according to the rules laid down in the German Social Code (SGB XI, §78 Abs. 1). The social court of Aachen has recently clarified that costs have to be reimbursed in any case where an alarm service enables the user to live independently, i.e. not only in cases where a personal risk derives from the medical history of the user (Az.: S 13 KN 39/04 P). In case of successful application, a monthly service fee of up to €18.36 for a 24/7 alarm service is reimbursable, as well as a once-off charge for installation and advice on service usage. Additional service features and any adaptation of the equipment which may be required are not reimbursable however. Reimbursement is only possible for social alarms provided by organisations that have concluded a contract with the care insurance, amongst others specifying quality standards to be adhered to. For persons with low income and special individual needs, as certified by a doctor or a statement of a social worker, costs can also be reimbursed by the social welfare office.

An example of explicit reference being made to 1st generation telecare in legislation concerning social care more generally comes from Germany. Here, reimbursement/direct provision of social alarms is regulated in the social security code (SGB XI) for people who are entitled to receive support under the statutory long-term care insurance (Pflegehilfsmittelverzeichnis nach § 78 Abs. 2 SGB XI,). In Hungary, dedicated legislation concerning the provision of 1st generation telecare had been launched in 2007 prescribing that from January 2008 on social alarm services would have to be offered to those in need of such a service in each Hungarian municipality with more than 10,000 inhabitants. Until the end of 2009, provision of a social alarm system was thus obligatory for municipalities falling under this obligation. Recent changes in legislation seem however to have taken place, and since January 2010 provision does not seem to be mandatory anymore but rather recommended.

When it comes to EHRs, today such systems have been implemented or are under development in many countries, at the national level or in various regional health care systems. This development has been fostered, inter alia, by the European eHealth Action Plan mentioning the implementation of EHR as one explicit goal. Respectively, such systems have become a prominent element in many national strategies and roadmaps, albeit not always well defined, often (implicitly) referring only to a patient summary or basic electronic patient record (Stroetmann K. et. al., 2011). Explicit reference to EHR is made in seven out of the 10 countries investigated for the purposes of this study, again taking different forms and addressing different aspects. In France for instance, regulation concerning EHR has been incorporated within the wider legislative framework for health care provision in the country. Here, provisions concerning the so-
called “Dossier Médical Personnel” (DMP, Personal Medical Records) have been integrated in the Health Insurance Act. Another example comes from Germany, where regulation has been enacted to introduce electronic patients’ summaries. These are planned to be established through the electronic health card (eGK). The eGK is to be used for access to different kinds of data collections, including data that are necessary and useful in case of emergency according to the Social Code Book V (SGB V).

When it comes to telehealth/telemonitoring as defined for the purposes of this study, explicit reference in legal frameworks can be found to a lesser extent. This concerns for instance regulation on safety of medical devices including telehealth devices, e.g. as e.g. explicitly referenced in the case of relevant regulation in the UK. Another example concerns the definition of the scope telehealth by means of dedicated regulation, as for instance in France. Here, a decree published in 2010, the so called “Décret telemedicine”, defines the kind of telemedicine services to be made available and how they are reimbursed, including remote monitoring and vital signs measurement.

In some countries soft law explicitly addressing telemedicine as defined for the purposes of this study can be found. For instance, the Danish Board of Health issued legal guidelines regarding the liability and other legal matters in connection with practitioners’ use of telemedicine. The guidelines refer to rules and principles in the existing legislation, which also applies in connection with the use of telemedicine. The guidelines conclude that the use of telemedicine does not affect the usual legal liability and other legal obligations of practitioners.

The only example of legislation/regulation addressing tele-training and educational support comes from Hungary. By Ministerial Order issued in October 2009, an eLearning program was launched for health professionals, amending a previous Ministerial Order of 1998 concerning rules set out for postgraduate programs addressing health professionals. During the last two years about 12-15 courses were launched as a part of this eLearning programme, which seemed to be mandatory for dentists who have a public contract.

<table>
<thead>
<tr>
<th>Table 3-21: Reference to ICT based service in legal frameworks other than data protection: component indicator raw scores</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Country</strong></td>
</tr>
<tr>
<td>Reference in legal frameworks: Telecare</td>
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<tr>
<td>Max score: 1</td>
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<tr>
<td>Reference in legal frameworks: Telehealth/telemonitoring</td>
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<tr>
<td>Max score: 1</td>
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<tr>
<td>Reference in legal frameworks: Telemedicine</td>
</tr>
<tr>
<td>Max score: 1</td>
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<tr>
<td>Reference in legal frameworks: Personal Health Records (PHR)</td>
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<tr>
<td>Max score: 1</td>
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<tr>
<td>Reference in legal frameworks: Electronic Health Records (EHR)</td>
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<tr>
<td>Max score: 1</td>
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<tr>
<td>Reference in legal frameworks: Teletraining/education</td>
</tr>
<tr>
<td>Max score: 1</td>
</tr>
</tbody>
</table>

The DMP programme has been transferred into the responsibility of ASIP Santé.
In general, there is a very wide ranging legal/regulatory space that has potential relevance to the various ICT-based service categories covered by this study, as discussed in the beginning of this section. In view of these complexities there seems to be value in developing, in a first step, more hands-on guidance on how the basic principles enshrined in current legislation across the relevant legislative fields may be practically played out with respect to the particular types of services (e.g. telecare and telehealth). As far as deemed necessary, revision of relevant legislation may be an option that could be addressed in a subsequent step. In view of the distribution of competencies which exists between the European Union and the Member States as regards health and social care, the Member States would have a pivotal role to play in both respects. The European Commission could nevertheless play a supportive role as well, e.g. by examining as to whether interpretive guidance in relation to potentially relevant EU-level legislation could contribute to achieving legal certainty in relation to the individual services domains covered by this benchmarking exercise.

Apart from this, there may be value in establishing a forum for evidence based mutual exchange cutting across different legislative fields (e.g. data protection, consumer rights, patient rights and so on) that are potentially concerned when it comes to avoiding legal uncertainty with respect to the different types of ICT-based services under investigation. Such a forum could also include key players from the socio-medical and ICT market sides (e.g. social/health care providers and policy makers, equipment providers) and serve as a reference point for developing common objectives across the EU while leaving sufficient room for shaping legislative frameworks at the national level according to the specificities of the individual jurisdictions concerned.

### 3.4.2 Specific data protection legislation

In the European Union, the processing of personal data is governed by the European Directive on personal data protection and by the Directive on the protection of privacy in electronic communications (European Parliament, 1995). All countries investigated have transposed these directives into national law. The data collated suggest that the level of regulative/legislative detailing in relation to more general data protection legislation varies across applications domains rather than countries (see Table 3-22). In particular when it comes to Electronic Health Records (EHR) data protection issues have been explicitly addressed in eight out of the ten countries under investigation. Also, five countries have explicitly addressed data protection issues potentially emerging telehealth/telemonitoring as defined for the purposes of this study, followed by telemedicine (four countries) and telecare (three countries). Personal Health Record and Teletraining have received considerably less attention yet when it comes to explicitly detailing data protection requirements.

Here again, legislative / regulative approaches adopted vary considerably across countries. In the UK for instance, general data protection legislation has been detailed by a dedicated document which was jointly issued by the Department of Health, the General Medical Council and the Office of the Information Commissioner in 2007. The document explicitly clarifies that the use of ICT in the health domain has to comply with general data protection legislation, the “Joint guidance on the use of IT equipment and access to patient data”. The need to comply with duties of confidentiality that are a part of the code of conduct of the regulatory bodies that govern registered health professionals is explicitly pointed out. The document also draws attention to two other relevant guides issued by the Department of Health, the NHS Code of Conduct 652 (November 2003) and the Care Record Guarantee (first published May 2005, and subsequently updated). Within these two documents, attention is drawn to people’s access rights to their own records, controls on others’ access, the options people have to further limit
access, and access rights in case of an emergency. Also, the joint guidance on the use of IT equipment and access to patient data cited three specific legal standards.

<table>
<thead>
<tr>
<th>Table 3-22: Reference to ICT-based services data protection legal frameworks: component indicator raw scores</th>
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<tbody>
<tr>
<td>Country</td>
</tr>
<tr>
<td>Reference in legal frameworks: Telecare</td>
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<td>Max score: 2</td>
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<tr>
<td>Reference in legal frameworks: Telehealth/telemonitoring</td>
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<td>Max score: 2</td>
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<tr>
<td>Reference in legal frameworks: Telemedicine</td>
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<td>Max score: 2</td>
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<tr>
<td>Reference in legal frameworks: Personal Health Records (PHR)</td>
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<td>Max score: 2</td>
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<tr>
<td>Reference in legal frameworks: Electronic Health Records (EHR)</td>
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</tr>
<tr>
<td>Reference in legal frameworks: Teletraining/education</td>
</tr>
<tr>
<td>Max score: 2</td>
</tr>
</tbody>
</table>

In France, the so called decree on data-hosts dealing with health related data (décret Hébergeur du 4 janvier 2006 - agrément pour l’hébergement données de santé) and the “decret confidentialité” of May 15th makes provisions on how to handle health related data privacy in general and in relation to ICT-based data processing in particular. The first decree (n°2006-6) defines the conditions for the certification of host providers. It lists mainly obligations with regards to security and privacy. The second decree (n°2007-960) regulates the confidentiality of medical information stored in information systems in particular and focuses for example on compliance with security standards.

Another example comes from Germany where specific provisions concerning EHR type systems are incorporated into occupational health care regulation. Here, article 10 of the medical professional code rules the doctor’s duties concerning the documentation of diagnosis and provided care. Doctors have to produce “necessary” documentation. There are several possibilities: paper based documentation and digital documentation. If the data is stored on electronic processing units within the institution that collects the data, e.g. the doctor in his surgery or the hospital, special rules in art. 10 par. 5 of the medical professional code and recommendations of the German medical assembly have to be observed. Pursuant to general data storage rulings in article 9 of the Federal Data Protection Act 138 and article 10 par. 5 of the medical professional code the digital external storage of data requires actions to protect the data against unauthorised modification, destruction or utilisation. The German Medical Assembly has published recommendations concerning digital data storing operations and suggests use of digital signatures, virtual private network (vpn)-clients and qualified digital time stamps.

**GOOD PRACTICE**

*Facilitating legal certainty by domain-specific interpretative guidance in relation to data protection by a national oversight body, IT*

In Italy legislation on data privacy, the so called Privacy Law, explicitly clarifies that ICT-based applications and services, so called tele-aid and telemedicine, fall under the ambit of national
data protection regulation. Moreover a dedicated supervisory body, Garante della protezione dei dati personali (Garante), has provided interpretative guidance on a number of issues which have emerged over the recent years around the application of ICT in the health care domain. In hospitals for instance, the use of cameras is allowed in specific departments, whose recordings are only to be viewed by authorised medical staff and relatives of the patients. The guidelines states that all precautions must be taken that are necessary to ensure a high level of protection of patients’ privacy and dignity. The data controller has to make sure that only specifically authorised staff may access the images recorded for the above purposes, e.g. medical and/or nursing staff.

When it comes to telehealth as defined for the purposes of this study, binding regulation has been introduced beyond general data protection legislation in some countries, albeit to a lesser extent when compared to the EHR domain. In Denmark for instance, general data protection legislation has been frequently augmented by supplementary provisions in other Acts. When it comes to telehealth in particular, separate provisions are made in the Consolidation Act on Legal Protection and Administration in Social Matters regarding automatic electronic exchange of information between the hospitals and home care services consolidated in August 2007, and the revised health act paragraph 37 on the patient’s right to see own data (empirica). In Italy, the Data Protection Authority published a Decision on video surveillance on 8th April 2010, which would in principal seem to apply to all types of video based consultations/monitoring.

In the telecare domain, again various approaches towards explicit regulation of data protection issues were identified. The UK provides an example where general guidelines have been issued on how to adequately cater for data protection and privacy issues. Here, the Telecare Services Association (TSA) has set up a code of practice for the installation, monitoring and servicing of telecare which recognises issues around data protection. In Germany, again specific reference is made to telecare within general social care legislation as described earlier, which includes data protection matters.

As in the case of legal frameworks not related to data protection in particular, there would be value in developing more hands-on guidance on how the basic principles enshrined in current data protection legislation may be practically applied to the particular types of ICT-based services covered by this study. The European Commission could play a supportive role in this as well, e.g. by examining as to whether interpretive guidance in relation to EU-level data protection legislation could contribute to a higher level of legal certainty in relation to the individual services domains covered by this benchmarking exercise. Apart from this, there may be value in establishing a forum for evidence based mutual exchange on how key principles enshrined in EU-level legislation on data protection, may best be implemented in legislative frameworks at the national level respectively, with respect to the various types of ICT-based service.

### 3.5 Human capital

Human capital is commonly understood as the set of individual resources that allows people to participate in social life in general and in working life in particular. In that sense it can be regarded as a person's stock of competences, knowledge and personality. As such, it is closely linked to education and training but also to the individual personality and the question of personal motivations and drivers.

For the purposes of the present study, this wider concept was employed to cover specific aspects of human capital related to the long-term care of older people and the role of ICT in building and actualising or applying this capital. This more focused con-
cept was brought to bear on three main groups of people involved in long-term care, namely

- older people, potentially suffering from chronic diseases, as recipients of care services and prime target group,
- informal carers, i.e. family members or other relations providing care to older people, and
- care professionals working in social and health care service provision.

There are three main issues related to human capital in relation to eCare that emerge from the current debate and lend themselves to the kind of data collection and benchmarking undertaken in this study. These are:

- The availability and use of online services providing information, training or other interaction means (like peer support in online communities) addressed to both older people and informal carers.
- The availability and use of work-related online services (like online libraries or e-learning programmes) addressed to care professionals.
- The existence of the necessary skills among older people, informal carers and care professionals that are needed for using ICT.

To build the human capital macro-category part of the scoreboard, the eCare Benchmarking study collected primary information about online services addressed to older people, informal carers and care professionals and on the inclusion of basic and occupational ICT skills in training curricula for care professionals. Further data on the digital literacy of older people, the use of the Internet for searching health-related information by older people, and on the use of computers and the Internet for training purposes by GPs were taken from secondary sources and are used as proxy indicators for the issues of service use and skills.

The indicators used for this macro-category are further described in the table below. Raw data for each indicator and information on how qualitative indicators were aggregated and scored into quantitative benchmarking values is included in Section 7.5 of the Report Annex.

<table>
<thead>
<tr>
<th>Compound indicator</th>
<th>Type of indicator</th>
<th>Component indicator(s)</th>
<th>Data source(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply of online information, training and support relevant in a care context</td>
<td>Qualitative (scored)</td>
<td>Existence of national online information services addressed</td>
<td>Primary data gathering</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Types of content being covered</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- thematic information</td>
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<tr>
<td></td>
<td></td>
<td>- information about care services</td>
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<td></td>
<td></td>
<td>- online training</td>
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<td></td>
<td></td>
<td>- interactive peer support</td>
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<tr>
<td></td>
<td></td>
<td>- interactive expert support</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>If online services identified addressed to older people:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- types of content being covered</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- thematic information</td>
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<tr>
<td></td>
<td></td>
<td>- information about care services</td>
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<td></td>
<td></td>
<td>- online training</td>
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<td></td>
<td></td>
<td>- interactive peer support</td>
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<tr>
<td></td>
<td></td>
<td>- interactive expert support</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>If online services identified addressed to older people, ease of access:</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Service is available free of charge</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Service costs apply, but people in need receive support</td>
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<tr>
<td></td>
<td></td>
<td>- Content is being provided in multiple languages</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>If online services identified addressed to informal carers:</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>- types of content being covered</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- thematic information</td>
<td></td>
</tr>
</tbody>
</table>
- information about care services
- online training
- interactive peer support
- interactive expert support

If online services identified addressed to informal carers, ease of access:
- Service is available free of charge
- Service costs apply, but people in need receive support
- Content is being provided in multiple languages

Publication of results from official quality assurance of care service providers by means of ICT:
- for social and health care services
- for social or health services
- not at all

Existence of websites facilitating exchange of experiences with care providers among patients and family carers:
- for social and health care services
- for social or health services
- not at all

<table>
<thead>
<tr>
<th>Digital literacy of older people</th>
<th>Quantitative</th>
<th>Individuals 55+ who have carried out 1 or more internet-related activities</th>
<th>Secondary data source: Eurostat E-skills of individuals and ICT competence in enterprises 2010</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Use of internet for searching health-related information</th>
<th>Quantitative</th>
<th>Share of individuals 55+ using the Internet for seeking health-related information</th>
<th>Secondary data source: Eurostat Computers and the Internet in households and enterprises 2010</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Supply of work-related online information for care professionals</th>
<th>Qualitative (scored)</th>
<th>Existence of work-related online information services for care professionals</th>
<th>Primary data gathering</th>
</tr>
</thead>
</table>

If online services identified in social care:
Type(s) of content being covered
- information
- online training
- online services

If online services identified in social care, these are offered
- only to selected professions
- to a majority or all professions

If online services identified in health care:
Type(s) of content being covered
- information
- online training
- online services

If online services identified in health care, is long-term care addressed:
- as a specific topic, stand-alone or inter-alia
- in so far as it is part of the general health care topic

If online services identified in social care, these are offered
- only to selected professions
- to a majority or all professions
Use of ICT for training purposes by GPs

Share of GPs in the EU27 using a computer or the internet for continuous medical education (CME) or continuous professional development (CPD)

Secondary data source: Pilot on eHealth Indicators study 2008

<table>
<thead>
<tr>
<th>Basic and occupational ICT skills in training curricula for care professionals</th>
<th>Qualitative (scored)</th>
<th>Existence of curricula or training offers covering IT in the training of care professionals:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>- in social care only</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- in health care only</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- in social and health care</td>
</tr>
</tbody>
</table>

If curricula or training offers identified in social care, these cover
- basic ICT skills only
- occupational ICT skills only
- both basic and occupational ICT skills

If curricula or training offers identified in social care, these are offered in the framework of
- vocational training only
- continuous training only
- both vocational and continuous training

If curricula or training offers identified in social care, these are offered
- only to a limited share of professionals,
- to a majority of or all professionals.

If curricula or training offers identified in health care, these cover
- basic ICT skills only
- occupational ICT skills only
- both basic and occupational ICT skills

If curricula or training offers identified in health care, these are offered in the framework of
- vocational training only
- continuous training only
- both vocational and continuous training

If curricula or training offers identified in health care, these are offered
- only to a limited share of professionals,
- to a majority of or all professionals.

Primary data gathering

Figure 3-6 below shows the overview of scores for the macro-category on human capital. A detailed description and analysis of the findings can be found in the following sections.
3.5.1 Availability and use of online services addressed to older people and informal carers

The study searched for websites providing online services to older people as well as informal carers in the ten countries under observation. The websites that were identified were then analysed in more depth to determine

- the types of content being offered (thematic information, information about care service providers, online training, interactive peer support / online communities and interactive expert support), and
- the ease of access to the websites, i.e. if usage fees apply and if content is available in multiple languages.

It should be noted that the data gathering was not supposed to constitute a full inventory of all relevant websites in a country since this would have been beyond the purpose and the scope of this study. Rather the information gathered in this way provides an indication of the general availability of these types of online services.

The study identified websites addressed to both older people and informal carers in a majority of the countries (7). In two countries, only websites addressed to older people were identified while in one country (Hungary) there seem to be no such online services at all (see Table 3-24).

Table 3-24: Raw scores for supply of online services addressed to older people and informal carers

<table>
<thead>
<tr>
<th>Country</th>
<th>UK</th>
<th>FR</th>
<th>NL</th>
<th>DE</th>
<th>DK</th>
<th>SE</th>
<th>ES</th>
<th>IT</th>
<th>EE</th>
<th>HU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existence of national online information services addressed to older people and/or informal carers Max score: 2</td>
<td></td>
<td></td>
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<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Types of content offered to older people Max score: 5</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ease of access of services offered to older people Max score: 2</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Types of content offered to informal carers Max score: 5</td>
<td></td>
<td></td>
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</tbody>
</table>
The range of content being provided varies between the countries, with the highest range being found in the Netherlands, Spain and Sweden (four out of five types of content, with interactive peer support in Sweden being only available in some municipalities). The lowest variety is found in France and Estonia (two out of five types). Examples for rather comprehensive websites (in terms of content offered) addressed to older people are the Dutch sites kiesbetter.nl and cosunmentendezorg.nl or the Spanish escueladepacientes.ec (see also good practice case below). A similar amount of content addressed to informal carers is for example provided by the Spanish sercuidadores.es or the UK carersuk.org.

A closer look at the types of online content provided (see Table 3-25) shows that thematic information about care-related issues (e.g. about common chronic diseases or support with applying for funds from reimbursement schemes) addressed to older people are very frequent. Only slightly less frequent is online information for informal carers (e.g. about issues of work-life balance or support with applying for financial help). Also quite frequent are websites containing information about care service providers. Often these offer geographic search options allowing people to find relevant providers in their area. In some countries, this information is linked to the outcomes of quality assessments, thus supporting people’s choice (see below for more information on quality assurance).

Websites offering interactive peer-group support in the form of online communities or discussion fora are also rather widespread and were found in several countries addressed to both older people and informal carers. It seems notable that only few instances of websites were identified that provide interactive expert support services to their users. All in all, websites in five countries offer interactive support by experts to informal carers, either in a time-delayed manner via (closed) discussion fora or e-mail, or via phone hotlines. Examples for these include the German wegweiser-demenz.de, specifically addressing people caring for persons with dementia, or the Swedish 1177.se which is a general portal on health services in Sweden, run by the Swedish municipalities and regions. Amongst other things, 1177.se offers both older people and informal carers expert advice via a feedback form. Similar services addressed to older people could only be identified in two countries. Apart from 1177.se this is the Estonian kliinik.ee, a website offering health-related advice and expert support that addresses older people inter-alia.

### Table 3-25: Types of online content for clients and carers

<table>
<thead>
<tr>
<th>Websites identified that provide...</th>
<th>No. of countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>thematic information to older people</td>
<td>9</td>
</tr>
<tr>
<td>information about service providers to older people</td>
<td>7</td>
</tr>
<tr>
<td>online training to older people</td>
<td>2</td>
</tr>
<tr>
<td>interactive peer support to older people</td>
<td>8</td>
</tr>
<tr>
<td>interactive expert support to older people</td>
<td>2</td>
</tr>
<tr>
<td>thematic information to informal carers</td>
<td>7</td>
</tr>
<tr>
<td>information about service providers to informal carers</td>
<td>7</td>
</tr>
<tr>
<td>online training to informal carers</td>
<td>2</td>
</tr>
</tbody>
</table>
One of the aspects that the study examined was the ease of access to the identified websites (see Table 3-24). Almost all websites offer information, online communities and parts of other services at no charge. Users are usually required to register, particularly to gain access to the communities. There were only some instances of services charging a fee (such as the co-ordination services for informal carers in the Netherlands, see below). The analysis of the websites also showed that almost no website offers content in languages other than the countries official language. Only in the UK and in Germany the study identified single websites that offer parts of their content in the languages of major immigrant groups (e.g. in Turkish and Russian in Germany). This seems to be well in line with other research findings (Kluzer et al., 2010). Setting aside the general debate about integration of immigrants and the role of languages in that process, this situation implies that most of the care-related information available online is at the moment not readily accessible to people with a migration background that have limited or no foreign language skills.

**GOOD PRACTICE**

**Social web services supporting informal carers in care management in the Netherlands**

Social web-type online services available in the Netherlands provide a good example of how informal carers can be supported in balancing their carer duties with the rest of their life and in cooperating with other people and organisations supporting them and the cared-for person. Several initiatives have been initiated in recent years, including Carenzorgt (https://www.carenzorgt.nl/) and Zorgsite (http://www.zorgsite.nl/). These sites offer ways to maintain a (shared) online agenda, to use task-lists, to make notes, to request others to take over certain duties, to receive updates on the status of the care recipient and to coordinate work with professional care provider organisations.

For more information read the full case presented in Section 4 of the Report Annex

Among online services for informal carers, two websites in the Netherlands (see box) seem to be noteworthy. They support family carers in co-ordinating their efforts with other family members and friends; one service additionally offers co-ordination with selected local care service providers. Further good examples for interactive services addressed to older people and informal carers (including online training / e-learning courses) were also found in Spain, see below.

These examples demonstrate quite well a potential for online services in this specific area that seems to exist but is not yet widely exploited. There are various reasons that can explain this situation, including a lack of demand reflecting that particularly older care-givers do not always have the necessary e-skills (see below) or are not acquainted with this kind of online exchange that bears some similarities to social web communities like Facebook or LinkedIn (albeit with reduced functionality and in a more focused manner), a problem worsened by user interfaces primarily developed for a young, tech-savvy audience. There is currently some discussion in how far websites such as Facebook could help in the co-ordination of care services not only for family carers but also for professionals (Kuraitis, 2011). Notably, arguments speaking against this include a lack of data security and privacy that are considered even more critical in the case of health-related data when compared to other personal information. This points to a potential demand for more focused, less networked and more secure services with usable and accessible interfaces. Google’s recent announcement to globally discontinue its Google Health service (Brown and Weihl, 2011) is interesting in this context. Patients’ concerns about data privacy and security are commonly seen as a major reason for the
lack of demand that brought about the services end, particularly in Europe (Heise News, 2011).

A major factor that can be assumed to impact the supply side is the costs associated with such a service and ways how these costs can be reclaimed. While in general, different targeted funding measures such as capital markets, venture capital etc. are available for the financing of eCare services (cf. Section 3.2 for details) their use necessitates the building of viable business plans, including revenue streams to cover investments and running cost. Ways to achieve revenue include fees paid directly by the end-users as well as the inclusion of such services into existing reimbursement schemes. Another, well-established source of revenue for web services is the use of advertisements on the website. All these pathways however require a clear perception of the added value either by the end-users, a reimbursing body or advertising businesses. While this perception may not usually exist at present for various reasons, it is still conceivable that demand for this kind of services increases in the medium to long-term, also due to an increasing number of informal carers. Other barriers to wider deployment located on the supply-side in a wider sense include a lack of e-skills among care professionals (see section 3.5.3 below), organisational and/or legal barriers between different types of providers but also resistance against a more active / involved role of cared-for persons and informal carers in care (self-)management.

**GOOD PRACTICE**

**Online services for older people and informal carers in Spain**

In Spain there exist several websites addressed to older people and informal carers, providing information, online training and support through experts and peers. The “Escuela de Pacientes” (School for Patients) provides online training to older people and informal carers on a number of age- and health-related issues. Social networks like “Autocuidados en Red” (Selfcare on the Net) and “Red Social de Cuidadoras y Cuidadores Familiares” (Social Network of Carers and Family Carers) bring together professional and informal care givers and patients. The range of different services provided to older people and particularly to informal carers stands out compared to most other countries under observation.

For more information read the full case presented in Section 4 of the Report Annex

Interesting insights into service concepts, approaches to viability and the role of different framework conditions are provided by the good practices from the Netherlands and Spain. The two Dutch sites analysed in detail for the good practice cases operate in a rather fragmented, open market-style care service provider landscape based on insurance financing, somewhat similar to the situation that can for example be found in Germany. Their functioning depends on an accordingly market-oriented service approach and a viable business model in a narrower sense in that their immediate cost coverage must be achieved by continuous revenue streams either from reimbursers or users, rather than from existing budgets. Indeed, Zorgsite.nl was initially meant to be fully financed by care service providers, municipalities and insurance companies. Since these partners were not willing to pay for a free internet product at first, provider ShareCare introduced a paid version for the consumer market, based on a monthly, four monthly, or annual fee paid by the cared-for person or the informal carer. The number of users has grown slowly but steadily over the past years and has by now reached 11,000. According to the provider, the steady growth of the service and its perceivable usefulness increasingly convinces care service providers (home care, mental health care, hospitals) to sign contracts with Zorgsite.nl and provide this service to their clients. The other Dutch case, Carenzorgt.nl, is provided by Nedap, an IT company offering - amongst other things - software solutions for the home care sector. Carenzorgt.nl
is currently being offered free of charge as an extra service or module to home care providers using Nedap solutions.

Compared to this, Spanish services (including some of the very few examples of online training being offered to older people and informal carers, see box above) operate in the more centralised environment of government-provided care services in Spain. From the analysis of the case it emerged that a strong societal and political will to support older people and informal carers (to be seen primarily in the context of the demographic change and its different impacts on care, along with the progression of the Spanish Information Society) is driving many developments in this field. Within the autonomous regions of the country, several large municipalities (which have main responsibility for social care provision) have been promoting the development of the “Health 2.0” concept. The concept advocates a comprehensive and innovative health model and requires the creation of information systems to be used by health professionals, managers and citizens. In this context there exist online services addressed to older people that are provided by regional governments (such as the Escuela de Pacientes / School for Patients operated by the Consejería de Salud de la Junta de Andalucía) or by large welfare organisations (such as SerCuidador / Being a Carer operated by the Cruz Roja Española), as well as by associations of informal carers or by private providers.

While these cases provide good examples of how viable services can be built and operated in a sustainable manner under different framework conditions, issues around a lack of demand (and its various reasons) as well as barriers on the supply-side are clearly having an impact in many countries and may explain why more interactive services and e-learning for older people and informal carers is still an exception rather than the rule. One consequence of this certainly is that an existing potential to better empower both groups and to help them acquire relevant skills is far from being fully realised.

**Use and non-use of online services**

Beyond the supply of online services addressed to older people and informal carers, the study also made efforts to benchmark their use. Any such endeavour is seriously hampered by a lack of suitable data covering the EU Member States. There are no indicators in the official statistic that address the use of specific types of online content of different population groups, including older people. The present study approached the issue by means of a proxy indicator included in the Eurostat ICT household survey: use of the Internet for the search of health-related information. Data on this indicator was used for the age-group 55-74 years to cover (as much as possible) both informal carers and cared-for older people.

The percentage values for the indicator is given in Figure 3-7, the values correspond to the (standardised) scores presented in the scoreboard above. As can be seen, the share of older people using the internet for this purpose varies from about 10-12% in Italy and Spain to about 38-40% in Denmark and in the Netherlands. On the one hand, the group of the non-users includes those who do not use the internet at all, on the other hand those who do not use the internet for this express purpose. The picture would suggest that despite the moderate to good availability of such online services, these are not used by sizable proportions of the target population. In the cases of the UK, the Netherlands, Germany, Denmark and Sweden there seems to be quite a good match of comparatively high usage rates and good availability of services, while in Spain and Italy as well as in Estonia and Hungary there is a notable mismatch.

Some care should be exercised when interpreting these findings, since the indicator constitutes but a proxy, with two main shortcomings. One is that people may not consider chatting on websites for older people or trying to find a meals-on-wheels provider online as the “search for health-related information” on the internet. The described activities are considerably different from an information search and are also not neces-
necessarily linked to any health issue. The second shortcoming is that the indicator overestimates the use of the internet for health-information search among older people since it does not cover people older than 74 years. This means that particularly the older old as a group where internet use rates drop considerably compared to the younger old are not included.

On the whole this seems to imply that there is a (probably considerable) gap between the availability and the use of online services addressed to older people and informal carers. Accordingly, the potential benefits of such services are currently not reaching sizable parts of the target population. This has also knock-on effects on the creation of more complex, interactive online services (as discussed above) who for this reason have difficulties reaching an adequately big group of clients. Although the slow-going closure of the age-gap of the digital divide can be expected to considerable reduce this problem in the medium-term, there is a number of things that can already be done at this stage, including the provision of the skills necessary to use the internet and advanced online services.

Figure 3-7 People aged 55-74 using the internet for searching health-related information

<table>
<thead>
<tr>
<th>Country</th>
<th>Digital Literacy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Denmark</td>
<td>70%</td>
</tr>
<tr>
<td>Germany</td>
<td>65%</td>
</tr>
<tr>
<td>Estonia</td>
<td>55%</td>
</tr>
<tr>
<td>Spain</td>
<td>45%</td>
</tr>
<tr>
<td>France</td>
<td>35%</td>
</tr>
<tr>
<td>Italy</td>
<td>20%</td>
</tr>
<tr>
<td>Hungary</td>
<td>15%</td>
</tr>
<tr>
<td>Netherlands</td>
<td>10%</td>
</tr>
<tr>
<td>Sweden</td>
<td>5%</td>
</tr>
</tbody>
</table>

Source: Eurostat, for details see indicator table.

That e-skills are one factor hampering the use of online services by older people and informal carers is clearly suggested by available statistics. In the indicator used here, digital literacy is defined as the capability to carry out between 1 and 6 internet-related activities, such as using a search engine, sending an e-mail with attachments or posting messages in a chat room.

For the age-group 55+, digital literacy levels vary from about 15-18% Italy and Spain to about 70% in Denmark, the Netherlands and Sweden (see Figure 3-8). Again this pattern matches reasonable well with the availability pattern, with the notable exceptions of the UK and Germany. When comparing these figures to the digital literacy of people aged 65+ there is in all countries a drop of about 10-12% points, clearly implying that older people’s exclusion from internet use is (also) an issue of e-skills.
In the course of five years between 2005 and 2010, digital literacy increased (sometimes considerably) in all countries under observation (see Figure 3-9). For example, the rate almost tripled in Hungary (from ~12% to ~32%), more than doubled in Spain (from about 9% to about 18%) and increased by more than 30% in Sweden.

Again this would imply that the issue of lacking e-skills will solve itself in the medium to long term. Such a simplistic interpretation however does not take into account that the time-span may still be (unacceptably) long, given the consequences of the demographic change and that there are older people in need of care and informal carers today that are missing out on the benefits that online services could bring to them in their daily life.
Online information about the quality of care service providers

Patients and clients are becoming increasingly demanding in terms of personalised and individual support, also asking for more responsive and higher quality services (Colombo et al., 2011). As consumer-oriented attitudes spread across society, consumers expect increased service availability and quality, and they want to be enabled to make informed choices about their own care.

In a growing number of countries, the Internet (and other ICT applications) now plays an important role in allowing patients to gather and exchange information about the quality of different care providers and the services they provide, thus helping them to choose care services which meet their particular needs and requirements.

Publication of results from official quality assurance gives patients the opportunity to make better informed choices about the right care (provider) for themselves or their relatives. It is also a means of increasing the pressure on policy makers (and providers) to implement strategies that seek to prevent insufficient quality of care services.

Apart from the online publication of results from official quality assurance processes, ICTs can be a means to facilitate exchange of experience between on the one hand patients or family carers themselves (e.g. via online portals, blogs, and discussion forums) and between the patients and providers of care on the other hand. Both set the patients in a better position to choose adequate care services by enabling them to gather information about the quality of services and providers thereof. Exchange of experience between patients and providers of care, be it social care providers or players in the healthcare system, can in addition support the providers of care in improving the quality of their service portfolio by harnessing the direct feedback from their patients. Online services facilitating the exchange of experience between patients can potentially serve the same objective. However, adequate feedback mechanisms to the providers and the preparedness among patients or clients to share the information with providers need to be in place.

The present study analysed to what extent websites are currently being used to make results from official quality assurance available to patients and their carers. Furthermore it was investigated whether there are services in place allowing patients and family carers to exchange their experience about the quality of care providers with other service users and/or directly with social care and healthcare providers.

All in all, results from official quality assurance processes seem to be made publicly available online in almost all countries examined, except Estonia, where no such websites could be identified (see Table 3-26). About half of the countries where websites are used to publish results from official quality assurance see this happening in both the health and social care domains.

<table>
<thead>
<tr>
<th>Results from official QA of care service providers made publicly available by means of ICT...</th>
<th>No. of countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>... for social and health care services</td>
<td>4</td>
</tr>
<tr>
<td>... for social or health services</td>
<td>5</td>
</tr>
<tr>
<td>... are not publicly available or no official quality assurance exists</td>
<td>1</td>
</tr>
</tbody>
</table>

Germany, for example, provides results from quality assurance in nursing homes and at home (i.e. the social care area) on several websites (e.g. www.pflegekompass.de, www.pflegelotse.de) and has similar online tools available also in the health care area,
e.g. the “White list for hospitals” (www.weisse-liste.de). This white list provides a search facility for doctors and hospitals that includes reports of experiences made by patients. Additionally, other health-related information material such as information about certain diseases can be accessed or downloaded. The website also provides a checklist that can be used when searching the adequate nursing homes.

**GOOD PRACTICE**

**Online publication of results of independent assessments of quality of life in nursing homes**

In Germany, the nation-wide register “Heimverzeichnis” provides a list of all nursing homes including contact data and information about the services offered. The registry also provides, and this is unique, data about quality of life in the nursing home. The classification of quality of life is based on a total of 121 criteria. 52 criteria cover autonomy of life, 37 criteria cover participation/integration (“Teilhabe”) and 32 cover human dignity. The register allows for the first time in German history a comparison of nursing homes following criteria for quality of life for potential clients and their carers. The results of the quality assessment are provided online and are easy to understand and interpret also for patients and family carers.

For more information read the full good practice case in Section 4 of the Report Annex

Of particular interest in Germany is the new established “Heimverzeichnis” which provides a complete list of all nursing homes in Germany, made accessible via an easy-to-use search facility. The data provided on the website are structural data such as contact data and information about the services offered. The registry also provides, and this is unique, data about quality of life in the nursing home. The “Heimverzeichnis” is independent and thus not committed to any health insurance or funding agency on the care market, which appears quite unique at least in the countries under investigation. The results of the assessments carried out for the “Heimverzeichnis” are published online in an understandable and informative format. The Heimverzeichnis thus is a facility that seeks to empower patients and users to find the right care for their particular needs, by providing a comprehensive bouquet of information needed in order to make an informed and independent decision about the right nursing home (cf. good practice box).

Although many of the countries under investigation publish results from official quality assurance processes in the social care and healthcare area, not many examples could be identified that provide information on the quality of social care and healthcare services through a one-stop portal on one single website.

**GOOD PRACTICE**

**Patient-centred information portal supporting patients in finding the right care provider and insurance company**

www.kiesbeter.nl is a website commissioned by the Ministry of Health, Welfare and Sports, and developed and hosted by the National Institute for Public Health and the Environment (RIVM). The website serves as a public health portal, meant to provide information to all citizens (16+) of the Netherlands on questions concerning social and healthcare, health insurances and health in general. On the website, information can be obtained about illness, health, medicines and treatments, patient information and patient interest organisations, social care/healthcare providers and health care insurers. Information about care providers consist of their location, treatment possibilities, and grades.

For more information read the full good practice case in Section 4 of the Report Annex
One example comes from the Netherlands, where results from both sectors are available on one single website (www.kiesbeter.nl). The service was started in 2004 based on the experience with earlier attempts to set up a public health portal with objective the objective to provide qualitative information for citizens (Health booth / Gezondheidskiosk). The reason why this service was considered important in the Netherlands was the introduction in 2006 of the regulated market model, which stimulated competition between health care insurers and between care providers (both healthcare and social care). In order to let users benefit from such competition, the transparency of the market needs to be strong, which meant that efforts were required to provide citizens with an easy-to-use means to gather market information (cf. good practice box).

In some countries, only one sector could be identified, in which results from official quality assurance processes are published, i.e. either the social care or the healthcare area. This is the case for example in France, where only results from quality assurance in the health care sector (http://www.platines.sante.gouv.fr/) seem to be available. In other countries such as Italy or Hungary, official websites publishing results from quality assurance seem to cover only some but not all care providers in the country. In Hungary, only a number of hospitals appear to publish quality assurance outcomes on their websites.

As regards the existence of online services supporting exchange of experience among patients and family carers about the quality of care providers and their services, almost all countries, except Hungary, reported to have some service in place. However, rather large differences were found when it comes to the information available on these website and the facilities that can be used to exchange experiences. In addition, there appear to be large differences as regards how patients’ feedback is used, e.g. for improvement of the actual services provided. The U.K. has, for example, several online platforms that support patients and carers in exchanging experiences between themselves and with care providers, and in establishing feedback mechanisms between patients and care providers. One example is the “Patient Opinion Blog” (www.patientopinion.org.uk) where patients report about their experiences with health and social care providers. Major points of criticism are then collected into a report, which serves to make the voices of patients heard (cf. good practice box).

**GOOD PRACTICE**

**Establishing feedback mechanisms between patients and care providers in the United Kingdom**

The United Kingdom has several mechanisms in place which provide a feedback mechanism between patients and care providers. The Patient Opinion Blog is a website where patients are invited to write about their experiences with health and social care providers. Key points of criticism are then collected into a report which has the objective of making the voices of patients heard. The hope is that health and social care providers will then respond to these complaints by addressing obvious shortcomings of their services. The blog also serves as a guide for patients who have yet to choose a provider. In a similar vein is the Adult Care Blog, which raises issues found in the health and social care sector. The Patient Knows Best Blog serves as a tool for interaction between patients and doctors. The Blog lets patients discuss any open questions that they have about their condition; advice is provided by doctors and other health professionals.

For more information read the full good practice case in Section 4 of the Report Annex

Other examples include the UK’s Bettercaring (www.bettercaring.com) and Caregiver Familiare (www.caregiverfamiliare.it) in Italy. When it comes to the consideration of patients’ feedback by providers of social care and healthcare providers, the UK in particular has established a fairly open feedback mechanism between patients and provid-
ers; this allows patients to interact directly with care professionals. A number of service quality assurance indicators, both official and public opinion-based, are used by NHS Direct, a mechanism that has not been observed in any other country. Although there are portals and websites available in other countries for facilitating the take-up of patient feedback by care providers, the study did not identify another country where public-based service quality assurance indicators are used by the institutions responsible for quality assurance in such a systematic manner as it is the case in the UK.

One of the main conclusions to be drawn from this indicator is that the majority of countries covered by the analysis uses ICT to make results from official quality assurance processes accessible for patients and clients. By improving transparency, innovative use of ICT is already exerting some pressure on service providers to step up efforts to safeguard service standards and to prevent deficiencies in quality. However, there are still considerable differences observable when it comes to the publication of patient-centred data, for example by publishing results from quality assurance of healthcare and social care providers through a single website. This could only be found in one country out of the ten examined. Some countries do only publish results from quality assurance from the social care or the health sector; some only publish parts of the quality results available. This puts the patient or client in a rather difficult position when it comes to searching for adequate care services or facilities or compare different services or providers. Here, policy could play a role in increasing pressures to publish results from quality assurance processes for both social care and healthcare players in an understandable and easy-to-use manner. Another area where differences between the countries could be observed is the extent to which experiences communicated by patients and carers with care providers find their way into officially published quality assurance reports and what the processes are for this.

As regards further developments in deployment of telecare applications it is to be expected that the whole area of establishing and anchoring quality assurance criteria and processes for telecare services will become increasingly important. The Telecare Services Association in the United Kingdom is a good example: it provides a description of its code of practice, which includes performance management and key performance indicators, which government agencies support it and which services providers subscribe to it. Organizations such as the TSA, and frameworks for quality assurance and performance indicators in general, are likely to become a key ingredient in overall quality assurance in care provision.

### 3.5.2 Availability and use of work-related online services addressed to care professionals

In some aspects similar to the services analysed above, the Internet can also be used to provide work-related information and online services to care professionals. Given the huge amount of information available online, one main task of such services would be to digest content for an easier and somehow quality-controlled consumption by professionals. Beyond such one-way information provision, e-learning and other interactive online services are also conceivable. Through primary data gathering the eCare Benchmarking study identified relevant websites addressed to social and health care professionals in the ten countries. Again, the aim was not to create a comprehensive inventory of such services but to provide an indication of their existence and scope.

The study found websites addressed to both groups of professionals in five countries (UK, France, the Netherlands, Germany and Denmark), in the other five countries only services addressing health care professionals (Sweden, Spain, Italy (some regions), Estonia and Hungary) could be identified (see Table 3-27). Among the ten countries observed, the UK stands out as the only one achieving the full score of five. Indeed there
is a comprehensive set of online services addressed to care professionals. This is followed by Germany and Denmark, the former standing out in particular due to services addressed to social care professionals.

Table 3-27: Raw scores for supply of work-related online information for care professionals

<table>
<thead>
<tr>
<th>Country</th>
<th>UK</th>
<th>FR</th>
<th>NL</th>
<th>DE</th>
<th>DK</th>
<th>SE</th>
<th>ES</th>
<th>IT</th>
<th>EE</th>
<th>HU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existence of work-related online information services for care professionals social care and / or health care</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>0,6</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Max score: 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Types of content offered in social care</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Max score: 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Services offered in social care available to selected or majority of / all professions</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Max score: 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Types of content offered in health care</td>
<td>3</td>
<td>1,5</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>1</td>
<td>0</td>
<td>0,6</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Max score: 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long-term care addressed as a specific topic (stand alone or inter-alia) or only in so far as it is part of the general health care topic</td>
<td>1</td>
<td>0,5</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0,6</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Max score: 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Services offered in health care available to selected or majority of / all professions</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>1,3</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Max score: 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

When looking in some detail at the type of content provided, there emerges a picture similar to that found for websites addressing older people and informal carers: most websites that were identified for both professions provide thematic information, for example about diseases and diagnoses, care pathways or treatments (see Table 3-28). These information websites are not only online libraries such as NHS Evidence (http://www.evidence.nhs.uk) but also wider information portals containing news, multi-media elements and other content.

Table 3-28: Types of online content for professionals

<table>
<thead>
<tr>
<th>Websites identified that provide...</th>
<th>No. of countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>thematic information to social care professionals</td>
<td>6</td>
</tr>
<tr>
<td>online training to social care professionals</td>
<td>2</td>
</tr>
<tr>
<td>interactive services to social care professionals</td>
<td>3</td>
</tr>
<tr>
<td>thematic information to health care professionals</td>
<td>7</td>
</tr>
<tr>
<td>online training to health care professionals</td>
<td>3</td>
</tr>
<tr>
<td>interactive services to health care professionals</td>
<td>2</td>
</tr>
</tbody>
</table>

An interesting format identified was that of Wikis, either as thematic ‘care’ portals within the Wikipedia online encyclopaedia or as stand-alone Wikis.

**GOOD PRACTICE**
Wikis as a way to provide work-related information for care professionals: two German examples

Today there are various websites offering possibilities for care professionals to access work-related information including access to the latest research papers and e-books. Among these, one approach stands out in the way in which the information is being generated: the Wikipedia or more general Wiki approach of providing user-generated content for professional use. Two examples from Germany were selected to illustrate this approach, primarily because of their long existence and comprehensiveness: the thematic portal on care within the German Wikipedia and the specialised care Wiki, pflegewiki.de. In their community approach, both portals deviate from more common types of websites with care-related information that are being maintained more or less centrally by public or commercial bodies. Quality assurance follows the Wikipedia principle of peer-groups control through other authors and readers. For more information read the full case presented in Section 4 of the Report Annex.

Two examples for this are the portal “Pflege” of the German Wikipedia (http://de.wikipedia.org/wiki/Portal:Pflege) and the German “Pflegewiki” (http://www.pflegewiki.de) that provide information on a wide range of topics including care professions, care concepts, treatments, devices etc. (see box to the right). Similar Wikipedia portals were also identified in the English, French and Dutch Wikipedia. What makes them notable is the Wiki approach itself: a (virtual) community of practice rather than a centrally maintained or edited website. That this approach has high appeal in general (outside the immediate domain of care) has been acknowledged for some time now. In 2005, a study published in Nature compared Wikipedia with the Encyclopaedia Britannica, concluding that the former is almost equal to the latter when it comes to accuracy (Kleinz, 2005). Studies with similar results have also been conducted for Wikipedia and the German Brockhaus Encyclopaedia. This is not to say that Wikis (both general ones and specialised care wikis) escape problems of content quality, which are generally well-known and widely discussed, particularly among the regular authors of the Wikis, with the discussions and the solutions proposed in them becoming part of the quality assurance mechanism. One way that care providers using the Wikis seem to employ to work around this is by combining them with other, centrally edited sources to a comprehensive information package (e.g. delivered to the professionals by means of a PDA). Wikis represent an alternative way of content creation with specific weaknesses (e.g. difficulties achieving high quality) and strengths. The latter include that they allow harnessing the knowledge and experience of care staff working on the ground in a way that may be difficult to achieve for other types of media, such as journals or books. In a case study on pflegewiki.de, the initiator of the Wiki states that the core team of authors (some 70 individuals) consists mostly of long-time professionals specialising in certain areas; several of them had been entertaining the idea of writing a book for some time but had always been deterred by the efforts this would take. To them, the Wiki offers a way to communicate their experiences without having to become book editors (Panke and Thillosen, 2008).

Compared to information provision, websites offering e-learning and other interactive services were found to a lesser extent. Online training for social and health care professionals was identified in two and three countries, respectively. The beta version of an e-learning portal launched by NHS Scotland (http://www.sharedlearning.scot.nhs.uk) can serve as an example of what is possible in the continuous education of care professionals. Other interactive services were identified in three (addressed to social care professionals) and two countries (addressed to health care professionals), respectively. Examples for services provided include online discussion fora, but also the online access to patient data as in the case of the Danish website sundhed.dk. This source is the overall online access point to the Danish health system and the provision of work-related information to professionals is only one of the aspects covered.
**GOOD PRACTICE**

**E-libraries and e-learning for care professionals**

In the UK there is a number of websites addressed to care professionals that provide both work-related information and possibilities for continuous education via e-learning, such as NHS Evidence (http://www.evidence.nhs.uk) that offers access to journals, periodicals and other evidence sources to both social and health care professionals. Similar e-libraries also exist in regional variants for Scotland (http://www.knowledge.scot.nhs.uk) and Wales (http://www.wales.nhs.uk/sitesplus/878). At http://www.professionalcarers.co.uk/e-learning.html and http://www.helpthehospices.org.uk/our-services/running-your-hospice/education-training/e-learning general online training courses for professionals and special palliative care e-learning courses for both professionals and informal carers are available. NHS Scotland offers a beta version of an e-learning portal for care professionals called Shared Learning (http://www.sharedlearning.scot.nhs.uk).

Compared to the other countries included in the study, the comprehensiveness of services available to both social and health care professionals stands out. One reason for this can be seen in the centralised manner in which care provision in the UK is organised which facilitates the realisation of comprehensive ICT strategies.

For more information read the full case presented in Section 4 of the Report Annex

All in all, these findings seem to suggest that there is room for improvement when it comes to the availability of the type of services analysed here. This seems particularly to be the case for social care professionals in those countries where no websites could be identified. Furthermore, the analysis of the websites shows that not all professions within the areas of social and health care are addressed to the same extent (see Table 3-29). Of the six countries where websites for social carers were found, those in three seemed to address only selected professions such as nurses, whereas other groups like social workers were not targeted explicitly. Websites for healthcare professionals seem to be more comprehensive in that regard; only in two out of nine countries a limited coverage of professions was identified. Although such an analysis of the coverage of professions presents some difficulties on the basis of the data that could be gathered in this study (e.g. due to differing job titles or a lack of inventories of professions in care in each country) this still seems to suggest that healthcare professionals are more favoured in this regard than social care professionals, and also that certain professions within both fields are currently not addressed.

**Table 3-29: Professions addressed by online content**

<table>
<thead>
<tr>
<th>Websites identified that address...</th>
<th>No. of countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>only selected professions in social care</td>
<td>3</td>
</tr>
<tr>
<td>a majority or all professions in social care</td>
<td>3</td>
</tr>
<tr>
<td>only selected professions in healthcare</td>
<td>2</td>
</tr>
<tr>
<td>a majority or all professions in healthcare</td>
<td>7</td>
</tr>
</tbody>
</table>

With a view to their particular usefulness within long-term care, the study also made an attempt to understand in how far websites for healthcare professionals addressed the issue of long-term care in a dedicated manner (e.g. through information about diagnosis and treatment or older people or about long-term care services that patients can be referred to) or only implicitly in so far as it is part of general healthcare (e.g. through information about diseases that also occur among older people). Although a
dedicated content analysis was beyond the scope of the study, the available information suggests that websites in five out of nine counties did not address long-term care explicitly, which may have an impact on their usefulness for this specific purpose and point to a need for further improvement.

**Use of online services**

The supply of work-related online services does not necessarily mean that these can be or actually are being used by care professionals. However, data on ICT use among care professionals and on key individual barriers to usage, such as e-skills, covering the EU Member States is largely missing. This is especially the case for all social care professions since (as of 2009) there exists not one survey addressing ICT use within this group (Meyer et al., 2009). With the 2008 *Pilot on eHealth Indicators* study (Meyer et al., 2008) (targeting GPs) and the eHealth Benchmarking III survey in hospitals (Deloitte and Ipsos Belgium, 2011), the situation for healthcare professionals is considerably better, even if here, too, many professions are not covered. The proxy indicator used here to gauge the use of ICT for information and training purposes was taken from the former GP survey and covers the use of computers and the internet for continuous medical education.

The percentage values for the indicator is given in Figure 3-8, the values correspond to the (standardised) scores presented in the scoreboard above. The use of computers and the Internet for the specific purpose of continuous training is fairly widespread among European GPs, ranging from about 60% in Denmark to more than 90% in Spain and the UK. This can be understood to indicate that this particular group indeed makes ample use of information and other services available online. At the same time, GPs are also among those target groups that are addressed by almost all websites for health professionals that were identified by this study. Without data on the purposes of internet use among other care professions it is impossible to better understand the match of supply and demand in this field and for this reason there remains the possibility of a (considerable) gap between both in several countries.

![Figure 3-10 Share of GPs in the EU27 using a computer or the internet for medical education](image)

Source: *Pilot on eHealth Indicators*, for details see indicator table.

The issue of e-skills of care professionals is addressed in the following section.
3.5.3 Basic and occupational ICT skills in training curricula for care professionals

The third issue addressed within the human capital macro-category concerns ICT skills of care professionals and in how far these are today part of curricula and training offers addressed to them. The issue is on the one hand of relevance in the context of the work-related online information analysed above, but on the other hand plays an even greater role when it comes to e-skills that are needed to make effective use of eCare technologies in care practice, from telecare to EHRs. To capture both aspects the study discerns between

- basic ICT skills (i.e. skills needed to use computers and the Internet) and
- occupational ICT skills (i.e. skills needed to operate IT applications encountered in working life, such as telecare and telehealth devices but also skills needed to plan and implement the use of IT in the context of existing care delivery processes) of care professionals.

Again, there are no existing data sources covering this issue to the extent required for this study and delivering data that is comparable across EU member states. Therefore, primary data on the availability of curricula and training offers for social and health care professionals was collected and analysed in terms of content, provision context and coverage to arrive at an indication of the situation in relation to this topic in each of the ten countries under observation.

The study identified training offers with an ICT component in all ten countries under observation (see Table 3-30). In six countries (UK, Germany, Denmark, Spain, Estonia and Hungary) ICT skills were to some extend included in curricula or training offers addressed to both social care and health care professionals, in four countries only in those addressed to healthcare professionals (France, Netherlands, Sweden and Italy). The UK and Spain take an outstanding position due to a wide coverage of types of skills and different professions, as well as the inclusion of ICT skills in both vocational and continuous training. A similar situation was found in Denmark. The low scores in France, the Netherlands, Sweden and Italy are mainly due to the fact that no training offers addressed to social carers were found.

<table>
<thead>
<tr>
<th>Table 3-30: Raw scores for basic and occupational ICT skills in training curricula for care professionals</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Country</strong></td>
</tr>
<tr>
<td>Existence of curricula or training offers covering IT in the training of care professionals in social care and / or healthcare Max score: 2</td>
</tr>
<tr>
<td>Coverage of basic and / or occupational ICT skills in training of social care professionals Max score: 2</td>
</tr>
<tr>
<td>ICT skills included in vocational and / or continuous training of social care professionals Max score: 2</td>
</tr>
<tr>
<td>ICT training offered to social care professionals available to selected or majority of / all professions Max score: 2</td>
</tr>
<tr>
<td>Coverage of basic and / or occupational ICT skills in training of healthcare professionals</td>
</tr>
</tbody>
</table>
At first glance, this may give a rather positive impression of the overall situation. However, considerable differences in scope and coverage characterise the findings in most of the countries. In this context it seems notable that in four countries no ICT-related training addressed to social care professionals could be identified. This points to a possible e-skills gap in the respective work forces. When looking at the types of ICT skills covered (basic ICT skills and occupational ICT skills, see Table 3-31), the majority of the training offers covers both aspects to some degree. For both professions, training offers in two countries cover only occupational skills and in one country only basic skills.

When it comes to the educational context in which ICT-related training is offered (vocational education or continuous education), curricula in some countries can be found in both areas: in four countries addressed to social care professionals and in four countries addressed to healthcare professionals. In other cases, ICT curricula were only found in vocational training (two and three countries respectively) or only in continuous training (zero and three countries, respectively).

### Table 3-31: ICT skills addressed by training offers

<table>
<thead>
<tr>
<th>ICT skills covered…</th>
<th>No. of countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>basic ICT skills only in training of social care professionals</td>
<td>1</td>
</tr>
<tr>
<td>occupational ICT skills only in training of social care professionals</td>
<td>2</td>
</tr>
<tr>
<td>basic and occupational ICT skills in training of social care professionals</td>
<td>3</td>
</tr>
<tr>
<td>basic ICT skills only in training of healthcare professionals</td>
<td>1</td>
</tr>
<tr>
<td>occupational ICT skills only in training of healthcare professionals</td>
<td>2</td>
</tr>
<tr>
<td>basic and occupational ICT skills in training of healthcare professionals</td>
<td>7</td>
</tr>
</tbody>
</table>

### Table 3-32: ICT training context

<table>
<thead>
<tr>
<th>Educational context of ICT training…</th>
<th>No. of countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>in vocational training of social care professionals only</td>
<td>2</td>
</tr>
<tr>
<td>in continuous training of social care professionals only</td>
<td>0</td>
</tr>
<tr>
<td>in vocational and continuous training of social care professionals</td>
<td>4</td>
</tr>
<tr>
<td>in vocational training of healthcare professionals only</td>
<td>3</td>
</tr>
<tr>
<td>in continuous training of healthcare professionals</td>
<td>2</td>
</tr>
</tbody>
</table>
Training for different professions

A notable fact about ICT training in the care context becomes visible when analyzing in how far different professions in both fields of care are addressed by the curricula and training offers that were identified. In five out of the six countries where the study found offers addressed to social care professionals, these seem to be available to a majority or all of the professionals in the field, while in Germany only a share of professionals has access to such trainings. Here ICT is included in the training regulations for qualified social care workers (Altenpfleger), but not for assistant social care workers (Altenpflegehelfer). For healthcare professionals, a different picture emerges: in half of the countries only a limited share of the healthcare professions seems to have access to ICT training. Most training offers that were identified are addressed to nurses, in Germany there is also a regionally available continuous education module on ICT use in doctors’ practices telemedicine addressed to practice assistants (Fachkraft für elektronische Praxiskommunikation). In the Netherlands and Sweden even nurses are only addressed in a limited number of training offers, since the issue has not been on the agenda for a long time. In all five countries, particularly doctors do not seem to be addressed.

Some limitations to the available data that were already discussed in the context of work-related online information also apply here and the coverage of professions can therefore only be determined approximately. Nevertheless it is noteworthy that particularly in healthcare there seems to be a gap in the coverage of e-skills provision that does not concern the entire field (as in the case of the four countries where no ICT training for social care professionals could be identified) but certain health professions that currently have no or limited access to ICT training.

<table>
<thead>
<tr>
<th>Availability of ICT training...</th>
<th>No. of countries</th>
</tr>
</thead>
<tbody>
<tr>
<td>only to a limited share of social care professionals</td>
<td>1</td>
</tr>
<tr>
<td>to a majority of or all of social care professionals</td>
<td>5</td>
</tr>
<tr>
<td>only to a limited share of healthcare professionals</td>
<td>5</td>
</tr>
<tr>
<td>to a majority of or all of healthcare professionals</td>
<td>5</td>
</tr>
</tbody>
</table>

Another trend that is observable (e.g. in Germany and the Netherlands) is the availability of specialised health IT courses, similar to classical medical engineering but with a focus on ICT / eHealth. These are aimed at qualifying people to take over decision maker roles in relation to IT, for instance as CTOs or CIOs in hospitals. Examples include a Master in Health Informatics offered at the Aalborg University in Denmark or graduate course ‘IT Manager on the Health Economy’ offered in Germany. While specialised health IT or eHealth staff certainly is a viable option for larger providers (particularly hospitals), they would be difficult for smaller units such as GP practices since the cost for such a specialised post could not be justified but the amount of IT to be managed. Practices are therefore relying very much on outside support when it comes to managing their IT (74% of practices receiving professional IT support in 2007 (Meyer et al., 2008).
Effective use of ICT training

Further to these differences in the availability of training offers with an ICT component, available literature on the issue of e-skills among care professionals suggests that whatever is available is not necessarily being used by the target groups to a full extent or may not be considered useful in their day-to-day care work. For example a 2007 UK study on professional issues experienced by nurses working in an eHealth environment (Baker et al., 2007) found - among other things - that more advanced, comprehensive ICT skills (e.g. those allowing professionals to understand the often complex interplays encountered in networked environments, the factors contributing to an effective integration of ICT in care processes etc.) are currently not being taught.

The study also found cases where the subject of health informatics was removed from nurse training curricula, supposedly due to a lack of qualified teachers. A similar situation was also identified by the present eCare Benchmarking study in the Netherlands where two care technology training courses at the university of Arnhem and Nijmegen were discontinued, although here due to a lack of demand from the student side (HANovatie, 2010). From the literature and from the research done within this study there are a number of barriers to the effective use of ICT training by care professionals, including that

- continuous education offers in ICT can be difficult for care professionals to include into their working life due to time constraints,
- training courses are not being paid by the employer, even if they are required for work,
- particularly older nurses may be excluded from occupational ICT training due to a lack of basic ICT skills and of acquaintance with the overall topic of ICT, and
- more far ranging issues, such as negative attitudes (e.g. care professionals considering ICT to be of limited relevance for their concrete care work), hamper the uptake of ICT training among professionals.

A (partial) solution at least to the problem of missing resources to take the training and to a lack of applicability can be seen in the training usually provided by IT manufacturers. This training focuses on the use of the manufacturer’s devices and is therefore highly applicable and in terms of cost is usually part of the overall delivery arrangement and therefore not something that needs to be paid by the individual professional. At the same time, this type of training does not convey more cross-cutting occupational ICT skills which would empower professionals to take a more active role in the (successful) incorporation of ICT in their day-to-day care processes.

GOOD PRACTICE

Basic and occupational IT skills of UK care professionals

In the United Kingdom, IT skills are a regular part of the vocational and continuous training of most social and health care professionals. In that sense, the country takes a leading role among the ten countries analysed in this study. The relatively advanced stage of IT training not only leads to numerous examples of how basic IT skills (i.e. in using general purpose IT like computers and the internet) and occupational IT skills (i.e. in using care-specific applications and systems like electronic health records or telehealth devices) can be taught in practice. It also allows observing what kind of challenges and issues occur in a more advanced stage from which other countries can learn. These challenges for example include difficulties with the effectiveness of the training or acceptance problems in the workforce due to monetary and time restraints.

For more information read the full case presented in Section 4 of the Report Annex
All this seems to point to a gap between the availability and the effective use of ICT-related training for social and health care professionals. It also indicates that this issue is closely related to the wider developments in eCare: barriers that hamper eCare deployment also have an impact on eCare training, while at the same time a lack of training is one of the barriers to wider deployment. The findings emerging from both the literature and the primary data gathering conducted by this study seem to indicate that an extension of the coverage of existing training activities would lead to positive effects, similar to a shift from teaching purely technical skills to more comprehensive skills that allow care professionals to effectively select, include and use ICT in their complex work environment.
4 Conclusions and recommendations

The eCare Benchmarking study has to be seen within the global trend towards population ageing. This unprecedented development has a number of socio-economic side effects which are beginning to exert an influence on the way long-term care is currently provided to older people in Europe and beyond. To begin with, demand for care can be expected to increase over the coming decades. In the future, not only will there be more older people in absolute and relative terms, there will also be considerably more very old people. At the same time there will be fewer family carers providing informal support, not only due to demographic changes but also due to increasing labour force participation of women and changing family structures. This population group currently carries the core burden of long-term care in most countries. These developments are accompanied by emerging staff shortages in the formal care sector. Beyond this, there will be a smaller productive overall workforce contributing to the creation of economic wealth in general and the financing of health and social services in particular.

Together, all these developments can be expected to have an increasing impact on the way people in our society age and on how they are being supported in their old age. On the level of the individual, this can mean that support in the form of long-term care is increasingly difficult to obtain when family members are no longer available to take on the role of the caregiver or when formal care providers are not available to the extend needed, either because of staff shortages or because an older person is lacking the money to pay for full support. The effects of such a care shortage can be extreme, ranging from premature loss of independence in old age to avoidable exacerbations of acute and chronic diseases, from increased social isolation to a reduced quality of life. On the structural level established systems of health care and social care are coming under increasing economic pressure, when it comes to maintaining current levels of care for a growing target population under given resource constraints.

Historically, national care systems have been developed in a piecemeal manner, responding to political and financial problems in an ad-hoc manner, rather than on the basis of a comprehensive long-term strategy. Today, a more comprehensive policy response seems however necessary to cope with the individual and structural challenges briefly sketched above. The positive potentials generally provided by Information and Communication Technologies (ICT) in this context have been recognised for some time already: the potential to deliver improved care outcomes in a more efficient manner through the use of technologies such as telecare, telehealth, telemonitoring and others, in order to ensure that people receive the support they need when growing old and to relieve economic pressure on the care systems.

At the European policy level, the European Commission has been addressing these potentials through a series of initiatives. Examples include the Action Plan on Information and Communications Technology for Ageing (European Commission, 2007b) and more recently the Digital Agenda for Europe as well as the European Innovation Partnership on Active and Healthy Ageing (European Commission, 2010a, European Commission, 2010b). Political activity in this field is however not limited to the European level. As revealed by our analysis, policy initiatives and programmes addressing the use of ICT in care for older people can be found in many countries on national, regional and even local governance levels. It has been widely recognised that the potential of ICT in care is not yet being realised to the degree that seems possible and desirable, and that market forces alone are unlikely to ensure the wide mainstreaming of innovative eCare solutions. Recent research suggests that different factors act as barriers in this regard, ranging from uncertainties about the economic case for eCare solutions at the part of
relevant stakeholders up to more ‘systemic’ imperfections such as fragmentation of current care services and un-receptive regulatory regimes (Kubitschke and Cullen, 2010b). Most recently, a Commission staff working paper highlighted that innovation in all its forms – spanning across technology, process and social innovation - has a key role to play when it comes to improving the well-being and health of older citizens, ensuring sustainability and enhancing Europe’s global competitiveness and growth (European Commission, 2011a).

Against this background, the present study sheds light on how far and in what ways health and social care systems in different countries in the European Union are today open to innovation in the area of ICT for long-term care (referred to as eCare in the following) and on what needs to be done to improve openness to innovation with a view to achieving the impacts sketched above. To this end, the study benchmarked and analysed current levels of eCare supply and use as well as key framework conditions that have an influence on developments in this field. In the following, we bring together key outcomes from our literature analysis, from the quantitative benchmarking and the qualitative analysis of primary data on the various thematic aspects, from the collection of good practices and from the impact analysis with a view to identifying options for strategic action that has the potential to facilitate further market development in this field.

4.1 eCare mainstreaming today: the goal in sight, but not yet within reach

The analysis of current deployment levels done by our study show that eCare solutions existing today are still some distance away from being mainstreamed in the sense that they are widely available within and across the countries investigated.

Telecare, teleheatlth and telemonitoring

<table>
<thead>
<tr>
<th>Country</th>
<th>UK</th>
<th>FR</th>
<th>NL</th>
<th>DE</th>
<th>DK</th>
<th>SE</th>
<th>ES</th>
<th>IT</th>
<th>EE</th>
<th>HU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply of 1st generation telecare</td>
<td>5,0</td>
<td>5,0</td>
<td>5,0</td>
<td>5,0</td>
<td>5,0</td>
<td>5,0</td>
<td>5,0</td>
<td>5,0</td>
<td>4,4</td>
<td>3,8</td>
</tr>
<tr>
<td>Supply of 2nd generation telecare</td>
<td>3,8</td>
<td>3,8</td>
<td>3,8</td>
<td>3,8</td>
<td>3,8</td>
<td>3,8</td>
<td>3,8</td>
<td>1,5</td>
<td>0,0</td>
<td>2,5</td>
</tr>
<tr>
<td>Supply of 3rd generation telecare</td>
<td>0,0</td>
<td>0,0</td>
<td>1,3</td>
<td>1,3</td>
<td>1,3</td>
<td>0,0</td>
<td>0,0</td>
<td>0,0</td>
<td>0,0</td>
<td>1,3</td>
</tr>
<tr>
<td>Use of 1st generation telecare among 65+ living alone and receiving care</td>
<td>2,9</td>
<td>0,3</td>
<td>0,4</td>
<td>0,6</td>
<td>0,9</td>
<td>1,5</td>
<td>1,4</td>
<td>0,3</td>
<td>n.a</td>
<td>0,5</td>
</tr>
</tbody>
</table>

Note: Detail of the scoreboard, see section 3 on page 36 for the full scoreboard. Scoreboard scores are standardized to a range of 0 to 5. See section 2.5.1 on how the scores were calculated.

Telecare concerns the provision of social care services from a distance supported by means of telecommunications and computerised systems. This can be further divided into 1st generation telecare / social alarms as a baseline service on which more advanced services can build, 2nd generation telecare enhancing basic social alarms with e.g. sensors in the home, remote social care etc., and 3rd generation telecare including “anticipatory” devices, advanced monitoring and analysing behavioural patterns. Telecare is primarily used to support people in living independently in their home environment or on the move.
The scoreboard shows that only so called 1st generation telecare (i.e. basic social alarm services) is a fully mainstreamed service in seven out of the ten countries that were analysed by the study (achieving the maximum possible score of 5) and is widely available in the remaining three. The actual usage of 1st generation telecare ranges from 6% to 60% of people aged 65 years and older that live alone and are in need of care (scores between 0.3 and 2.9). When compared with earlier research these shares seem to be quite stable over time, suggesting that levels of market saturation may vary considerably between countries (Kubitschke and Cullen, 2010b). So called 2nd generation telecare (i.e. basic social alarm extended by means of different types of sensors and actuators installed in the home environment) has started to be deployed on a larger scale but is currently not fully mainstreamed anywhere. It is available to some extent in seven countries (score 3.8), to a limited extend in two (score 2.5) and not at all available in one country. So called 3rd generation telecare where systems and devices can automatically (e.g. based on reasoning algorithms) react to changes in behavioural patterns recognised through sensors) remains by and large at a proof-of-concept stage. RTD projects were identified in four countries (score 1.3).

<table>
<thead>
<tr>
<th>Country</th>
<th>UK</th>
<th>FR</th>
<th>NL</th>
<th>DE</th>
<th>DK</th>
<th>SE</th>
<th>ES</th>
<th>IT</th>
<th>EE</th>
<th>HU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply of home telehealth</td>
<td>3.8</td>
<td>1.3</td>
<td>2.5</td>
<td>3.8</td>
<td>1.3</td>
<td>2.5</td>
<td>1.3</td>
<td>2.5</td>
<td>0.6</td>
<td>0.6</td>
</tr>
<tr>
<td>Supply of video services</td>
<td>1.3</td>
<td>1.3</td>
<td>2.5</td>
<td>2.5</td>
<td>2.5</td>
<td>2.5</td>
<td>1.3</td>
<td>1.3</td>
<td>1.3</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Note: Detail of the scoreboard, see section 3 on page 36 for the full scoreboard. Scores are standardized to a range of 0 to 5. See section 2.5.1 on how the scores were calculated.

Home telehealth / telemonitoring covers all ICT delivering medical services to the home with a view, for instance, to supporting people suffering from chronic diseases. Telehealth solutions seem to start finding their way into day-to-day health care practice, at least in some countries. Today, such services are offered to a some extent in two of the countries under investigation (score 3.8) and local examples were identified in three further countries, albeit on a limited scale (score 2.5). While some level of activity was found in every country under observation, full mainstreaming is currently achieved nowhere. A similar situation was found for services using video communication to care for older people in their home. These are being used to a limited extend in four countries (score 2.5), to lesser degrees in five and not at all in one.

The study found ample proof that telecare and telehealth services, when operating properly, can deliver tangible benefits not only for individuals (older people and, informal carers and care professionals) but also on the level of the social and health care systems. The literature analysis yielded a multitude of studies reporting on impacts of pilot trials and regular service operations. The study also looked at impact evidence produced by the evaluation of large-scale service implementations (involving at least 1,000 actual patients or being fully available across an entire geographic area, see section 5 of the Report Annex for details). A total of five evaluations were identified that met our selection criteria and were analysed in some detail to get a better understanding of their costs and benefits. These were the National Telecare Development Programme (TDP, Scotland, UK), the North Yorkshire County Council telecare services (UK), the Midi Pyrénées Telemedicine Network (France), the e-Care network of Bologna (Italy) and the remote patient monitoring of patients with long-term chronic illnesses in Northern Ireland (UK). From the point of view of older people and informal carers the main benefits of the analysed services include improved quality of life, reduced numbers of avoidable admissions and readmissions into hospital and a reduced time of stay, the ability of staying longer in the home environment rather than having to go into in-
institutional care and reduced pressure on informal carers. Service users also reported that the services provide a feeling of comfort and security in the home environment, less anxiety and other emotional benefits. On the level of the health and social care systems, telecare and telehealth services were shown to reduce health care cost (e.g. in the case of avoided hospital admissions) and allow for more efficient service provision. More detailed results of the impact analysis were presented throughout section 3 of the present report and can also be found in section 5 of the Report Annex.

**eCare online services**

When the issue of eCare is being discussed, the focus is usually on technologies such as telecare, telehealth/telemonitoring or Electronic Health Records as mentioned before. The internet and specifically online services often receive only passing reference, primarily in the context of empowerment or capacity building or in connection with requirements to improve the levels of internet use among older people. Accordingly, systematic and comprehensive research on online services of relevance for long-term care is scarce. A recent study about the role of ICT and migrants (Klüzer et al., 2010) carried out on behalf of the European Commission’s Institute for Prospective Technological Studies broke ground in this respect, for the first time providing comparative evidence for four countries: England, Germany, Italy and Spain.

The present study built and expanded upon the approach adopted by Klüzer et al. and looked in more detail at the supply of online services addressed to older people, informal carers and professional carers in social and health care. We identified a surprisingly wide range of online services addressed to older people and informal carers in most of the countries. In terms of content being provided these reach from rather simple, one-way information websites (e.g. about chronic diseases) to databases of care service providers, e-learning portals or interactive expert support platforms. Interactive services include for example websites supporting family carers in co-ordinating their efforts with other family members, friends and local care service providers. All in all however the study found that this kind of more interactive services are considerably less common than simpler websites focusing on one-way information provision.

The services that we found seem to provide a good demonstration of the potential of online services to deliver benefits to older people and their informal carers in areas that are by and large complementary to those covered by classic eCare. Information provision, e-learning, online communities and other forms of interactive support cannot only help these target groups in their daily life, they also seem to respond quite well to an increasing demand for possibilities that allow people to take a more active role in the management of their own care or that of relatives.

![Figure 4-3 Scoreboard: Supply of online services](image)

<table>
<thead>
<tr>
<th>Country</th>
<th>UK</th>
<th>FR</th>
<th>NL</th>
<th>DE</th>
<th>DK</th>
<th>SE</th>
<th>ES</th>
<th>IT</th>
<th>EE</th>
<th>HU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply of online services for older people and informal carers</td>
<td>3.4</td>
<td>1.4</td>
<td>3.4</td>
<td>3.5</td>
<td>2.0</td>
<td>3.4</td>
<td>3.8</td>
<td>3.4</td>
<td>1.2</td>
<td>0.0</td>
</tr>
<tr>
<td>Supply of work-related online services for care professionals</td>
<td>5.0</td>
<td>3.1</td>
<td>2.5</td>
<td>4.4</td>
<td>4.4</td>
<td>1.5</td>
<td>1.1</td>
<td>1.6</td>
<td>1.5</td>
<td>1.5</td>
</tr>
</tbody>
</table>

*Note: Detail of the scoreboard, see section 3 on page 36 for the full scoreboard. Scoreboard scores are standardized to a range of 0 to 5. See section 2.5.1 on how the scores were calculated.*

From examples found across the ten countries observed, there are also many online services addressed to health and social care professionals, both in relation to vocational and continuous education and in the context of their day-to-day work. In Germany for example various websites are offering possibilities for care professionals to access work related information including access to the latest research papers and e-books,
some of them on the basis of the Wikipedia concept. In England, too, many educational possibilities are to be found, such as e-libraries, journals, periodicals, continuous e-learning courses and other evidence sources addressing both social and health care professionals.

Deployment contexts

Where telecare and telehealth services have been successfully deployed so far, these are primarily provided within established (public/statutory) health care and social care system boundaries, and by the usual actors of established health and social care service provision. Online services addressed to older people, informal carers and care professionals are provided by quite different stakeholders: by care organisations as part of regular care, by patient, welfare or professional organisations and by private providers on a commercial basis in a direct provider-to-client market. Apart from these online services, more “consumer-driven” service concepts directed towards self-care or prevention can rarely be found today, at least when it comes to fully up and running service offerings that have been implemented at a wider scale. It remains yet to be seen whether newly emerging technology solutions, e.g. the growing range of health related apps for smart phones, have the potential to facilitate eCare utilisation beyond established care service delivery structures.

4.2 Framework conditions for eCare remain complex but examples show that deployment within given boundaries is possible

To the level this was possible within the conceptual and practical boundaries of this study, we looked at framework conditions in which eCare services are commonly provided, including governance structures of the regular social and health care system, policy strategies of relevance for eCare, legislation and regulation, and funding and reimbursement. The picture that emerges is characterized by considerable diversity within and across individual countries as regards:

- ways in which the provision of long-term care to older people is situated within the overall social and health care systems of a country;
- the responsibilities of the different stakeholders that play a role in long-term care (including policy makers, governance bodies, payers, service providers and others);
- the relative importance of family care and professional care within given care systems and policies;
- laws and regulations applying to care services in general and eCare in particular; and
- ways in which regular non-ICT based care services and eCare services are reimbursed.

This diversity is illustrated well by the second part of the scoreboard covering framework conditions that impact on the openness to innovation in the area of eCare. Figure 4-4 shows this part of the scoreboard reduced to the main categories and the color codes for the different scores. Not only is there great diversity across the countries (depicted by color differences between the columns) but also between the different thematic areas within one country (depicted by color differences between the rows).
To a large extent this diversity reflects structural complexities of historically grown care and welfare systems as they currently exist in all countries. Further complexity is added by the fact that all national health care and social care systems have not been designed with eCare particularly in mind. Clearly, there is considerable room for shaping framework conditions that are more open to innovation in eCare and more conducive to the actual implementation of eCare in day-to-day care practice across all countries under investigation. We will return to the issue later on in this chapter.

It is however worth to be noted that individual examples of fully up-and-running eCare services (i.e. services that go beyond experiments and pilots) have been identified across all types of social care and health care systems, as described in some detail above. For instance, 2nd generation telecare services are available in nine out of ten countries. Home telehealth services were found in five countries, among which are the UK, Germany, Sweden and Italy, i.e. countries representing quite different care and welfare system traditions and governance structures. Nowhere, as has been said above, do these services achieve full mainstreaming in the sense that they can be used by everybody that would need them. But the fact that they are in regular operation at least locally/regionally suggests that given framework conditions provide levels of openness to innovation and that eCare service delivery within these given conditions is by no means impossible. It also suggests that there is room for better exploiting the positive potentials generally provided by eCare even under given framework conditions, at least within a short term perspective. Within a longer term perspective, attention may need to be given to appropriately addressing the more “systemic” barriers presented by non-conducive framework conditions as they have been analyzed in the previous chapters of this report.

Independent of the given care and welfare system within which individual eCare services were identified, on a case by case basis these tend to be characterized by quite different strategic priorities and operational objectives, as the qualitative analysis of the study data showed. These include:

- the improvement of care outcomes, e.g. in terms of increased health-related quality of life, early discharge from hospital, avoided or delayed admission into institutional care, independent living, safety and security;
• the improvement of the quality of the service, e.g. in terms of reliability, geographic coverage, accessibility and acceptance;
• the improvement of the efficiency of service delivery, e.g. in terms of better use of staff time, avoidance of travel time and cost, and reduced number of interventions.

What the exact objectives of an eCare implementation actually are depends on the priority goals assigned to eCare in the particular (local) setting, and not at least on the target group to which they are addressed and the characteristics of that target group, e.g. in terms of demography, need for care, disease pattern including chronic diseases etc. What most of them have in common is that they are set-up to support regular social and health care service provision to those target groups. As the study found, services that achieve this goal, i.e. to deliver eCare that caters to specific objectives related to regular care in given framework conditions, are usually

• integrated with the regular care processes they are intended to support and
• they have developed a viable service or business model that allows sustainable operation under the given framework conditions.

4.2.1 Socio-technical innovation requires more attention: people, processes and technology need to be brought together

As discussed before, eCare solutions tend to be implemented in the framework of established processes for care delivery, service administration and management, many of which may not be supported by means of ICT. Notwithstanding any use of technology, a key role in this framework is played by humans such as care professionals and/or family cares providing care to older people and supporting them in their day-to-day life. When eCare devices and applications are introduced into this context, they will usually bring their own set of processes as well as new technical systems, both of which are usually not simply placed on top of the existing environment. Instead, the implementation of eCare solutions tends to happen in a way that builds on legacy processes and technology infrastructures, and also ensures acceptance and support by staff members and end-user.

The overall approach is sometimes referred to as socio-technical innovation or, more appropriately, socio-technical integration since this puts an emphasis on integrating non-ICT supported care practices and eCare, rather than trying to merely replace ‘old’ ways of delivering care with entirely new ones supported by ICT. Both from the literature research and from the analysis of service implementations this emerged as one of the key factors when it comes to ensuring that eCare services deliver tangible benefits to older people. Clearly there would be value in better understanding how successful socio-technical integration of eCare within day-to-day care practices can be achieved, with a particular view to learning from existing examples of successfully deployed eCare solutions in terms of:

• how they are aligned to the underlying social and/or health care processes,
• how this alignment was achieved at the time the service was set up,
• what concrete steps and measures were used, and
• what the costs and benefits of socio-technical integration were from the perspective of all stake holders involved in the value chain.
**Recommendations**

The implementation of a dedicated initiative by the European Commission on socio-technical integration in eCare policy strategies is recommended. Such an initiative should be addressed to the analysis and promotion of successful eCare deployment and socio-technical integration in relevant policy strategies for eCare. This initiative could be based on the results of the present study and provide guidance on how this concept should be best implemented in service provision.

It also appears worthwhile for the promotion of socio-technical integration of eCare to address this topic and include respective requirements in relevant EU project funding schemes such as the CIP and AAL programme.

The target groups would mainly be service providers but also IT industry. These activities should be accompanied by the establishment of an online forum for an effective communication to the stakeholders involved in and addressed to the activities carried out under the European Innovation Partnership for Active and Health Ageing.

In the long run, the acknowledgment of socio-technical innovation in relevant policy strategies for eCare also in the individual EU Member States should receive more attention than it seems to be the case today. Member States’ activities could for example be informed by synthesized guidance (see recommendation 2).

The preparation and execution of a dedicated research effort (commissioned by the European Commission) is recommended which is directed towards the analysis of selected examples of successful eCare deployment such as those identified by our study but with a particular view to the issue of socio-technical innovation. Helpful insights could certainly also be gained from organisations that are partaking in EU-funded deployment projects, e.g. in the framework of the CIP and AAL programmes, as well as from the collaboration with other large-scale demonstration schemes such as the Whole Systems Demonstrator in the UK.

Furthermore, a number of additional measures to promote socio-technical innovation can be derived from the evidence presented throughout this report. To begin with, service providers and the IT industry could benefit from synthesised guidance on what socio-technical innovation can mean in practice and how such a concept might best be applied in the development and implementation of eCare services. Such synthesised guidance would need to be effectively communicated to the stakeholders, e.g. through an online forum. Such a measure might be linked to the activities carried out under the European Innovation Partnership for Active and Health Ageing. Ideally stakeholders would be involved in such a forum from a very early stage on to allow them to formulate their needs and to define what they can contribute. Also adequate levels of resources should be foreseen for the operation of the forum over a longer period of time. The latter is deemed necessary particularly with a view to achieving sustainability, since past experience has shown that the continued operation of such a forum without adequate resource backing is unlikely to succeed.

There might also be value in creating incentives that promote socio-technical integration of eCare through the inclusion of respective requirements in relevant EU project funding schemes such as the CIP and AAL programme. Some of the good practice examples identified by our study in the area of funding and economic impact provide a good starting point for how this can be achieved in practice; see particularly the case of the Vinnvard community of practice in Sweden that funds health care research and requires researchers to work with care practitioners from...
the very beginning to improve the applicability of the research. Specific elements that can be of interest include Vinnvards communication platform for researchers and care providers and the ways by which applicants are educated on the core principles of the scheme.

GOOD PRACTICE

Vinnvård, a community of practice in long-term care, Sweden

Vinnvård is an organisation which operates on the national level and is funded by governmental organisations and the Swedish Association of Local Authorities and Regions (SKL). It maintains a Community of Practice for the elderly, chronically ill, informal carers, politicians, health- and social service personnel, health- and social service executives, researchers, members of senior citizen organisations and business corporations. The scheme has a total of 150 million SEK (16.8 million euro) at its disposal for the period 2007-2012. The money is spent on improving the ability to convert knowledge into practice by contributing with research as well as tangible and instructive examples in the elaboration of management systems, ways of organizing work, and forms of cooperation between health and social care, research institutions, and enterprises.

For more information read the full good practice case in Section 4 of the Report Annex

In the longer run, the acknowledgment of socio-technical integration in relevant policy strategies for eCare in the individual EU Member States might deserve to receive more attention than it seems to be the case today. Currently, this issue seems to be covered by policy only in the UK to a noteworthy extent. Member States’ activities could for example be informed by synthesized guidance similar to what has been discussed for service providers and the IT industry above.

4.2.2 Business models for eCare must balance costs and benefits for all stakeholders involved

Business models are not just about money

A second factor emerging from the literature research and the qualitative analysis of the study findings that was found to foster innovation and to allow eCare services to operate successfully under given framework conditions is the availability of a viable business model. A business model can be understood as the overall concept that allows eCare services to deliver the outcomes they are expected to deliver in a way that is economically viable. The concept of a business model can be used equally for eCare services that are commercial by nature, e.g. being provided by private enterprises, and for services provided by public/statutory actors without commercial interests. In both cases, the general objectives of the business model can be considered to be the same, namely to ensure a service that is cost-effective and sustainable, i.e. continuously yielding benefits that stand in a positive relation to the costs. In this sense, both costs and benefits are not limited to actual monetary transactions but also encompass resources (such as the time of care staff) and intangible factors (such as quality of life and other impacts on older people and informal carers). This allows for business models that are built around both the direct recovery of cost through monetary benefits or resource savings, as well as an indirect recovery of cost through the achievement of intangible benefits (e.g. better care for people with chronic diseases pursued as a societal goal).

Examples for services of the former kind can often be found in systems characterized by private service delivery, where reimbursement for instance happens through social and health care insurance companies. Here providers will usually have to rely on recovering all costs of service delivery from the reimbursement they can achieve without additional support through public money. Examples for the latter can be found in public
systems, where for instance a municipality is responsible for the provision of social care and will finance these services through according municipal budgets. Mixtures of both models are possible and occur in practice. For example, increasing pressure on public purses but also changes in the provision of public grants lead to restrictions on care budgets that limit the amount to which intangible benefits are being pursued. Factual coping strategies include efforts to increase the efficiency of service delivery in order to save costs (for example through integrating redundant social and health care services) or the introduction of complementary service fees payable by end-users. A recent example for the latter can be found with the UK Orkney Islands Council that launched a public consultation to find out whether user fees for the Council’s telecare service would be acceptable to citizens. This was triggered by the phase-out of a grant from the Scottish government that was originally used as a financing source for the service (see (Orkney Islands Council, 2011)).

**Benefit shifts represent a stumbling block for even the most promising service concepts**

In many respects current business models for eCare services seem to reflect the framework conditions within which the services are provided and show how they were set-up to fit that framework. In practical terms this process of ‘fitting’ the service means to achieve a balancing not simply of the overall costs and benefits of the service, but of the particular costs and benefits of all stakeholder involved, with the aim of achieving positive outcomes for all. The fact that services are provided in a multi-stakeholder environment encompassing older people, informal carers, social and health care professionals, provider organizations, payment and governance bodies, is one of the characteristics of the regular social and health care system that has a strong impact also on eCare services. Within this environment one of the most frequent problems encountered in the building of a viable business model are so-called ‘benefit shifts’. These occur when one stakeholder has to bear all or most of the costs of the service (investment and/or running costs) while one or more other stakeholders reap most or all of the benefits, which will usually result in the disadvantaged stakeholder refusing to become part of the service.

One example for this would be a telemonitoring service set-up by a social care provider that leads to a reduction of patients’ face-to-face visits to a doctor. Within a reimbursement system that pays the provider only for regular, face-to-face care the reimbursement body would benefit from such a service through reduced care costs, whereas the social care provider would make a double loss: from the investment into the telemonitoring service and from the foregone income due to the avoided visits. Within this example, possible ways out of this situation could include a service fee payable by the end-user that covers the care provider’s cost, an arrangement between the provider and the reimbursement body to share the saved care costs or a combination of both.

There are many examples for benefit shifts that can occur for different service configurations under different framework conditions. In Sweden, the Vinnvard community mentioned above considers the creation of appropriate incentives for all health care players one of the biggest challenges faced in the implementation of services. Problems arise in particular where a service delivers a public good (such as better care for people with chronic disease) but this benefit is not passed on to the institution setting up and running it in some way. Often there are also barriers that factually hinder a balancing of the shift even if it would conceptually be possible, for example if legislation prevents certain stakeholders from concluding direct contracts with each other. This situation was for example encountered in Germany before a reform introduced between 2000 and 2007 that created the legal framework for contracts for integrated care provision involving actors from different areas of health and social care (see 5th and 11th Book of the Social Security Code, SGBV and SGBXII). Up to then, legal restrictions had
largely hampered this kind of cooperation. Ways of dealing with benefit shifts are an important component of many contracts for integrated care concluded under this law. One example of an integrated service running under the framework of SGBV is the Cardio Integral service that was identified by the study’s search for German eCare services. Cardio Integral is an integrated disease management programme addressed to heart failure patients. Part of the programme is a 12 months telehealth period, during which patients are monitored and trained in ways of dealing with their disease and adapting their lifestyle. The service involves GPs, specialists, technology providers and a health care insurance. Its main impacts are improved care outcomes for the target patient population and reduced health care costs for the health insurance. At the same time, service providers incur costs for service set-up and operation. A contract (according to SGBV) between all actors involved allows that the additional costs for the service providers are compensated from the health care costs saved by the insurance.

**Business models should make better use of existing degrees of freedom in reimbursement schemes**

Examples of business models can be found which make use of existing levels of flexibility in given reimbursement systems. This includes for instance cases where decisions on the use of resources for care can be taken rather close to the point of care service delivery, for instance where stakeholders responsible for service provision can also decide how to use their budgets or where services are commissioned locally or regionally from a flexible budget. Potential flexibility can also be found in systems that are based on outcome-oriented reimbursement, e.g. through the use of Diagnosis Related Groups (DRGs) or similar concepts in the hospital context. A third area where there is a certain potential for flexibility is that of personal care budgets that are paid either to older people or informal carers. However, care budgets can only be considered to contribute to flexibility where the actual amount paid is high enough to cover for services beyond basic regular care or (in the case of allowances paid to informal carers) high enough to cover more than the immediate efforts of the caregiver.

**Figure 4-5 Scoreboard: Flexibility of reimbursement system**

<table>
<thead>
<tr>
<th>Country</th>
<th>UK</th>
<th>FR</th>
<th>NL</th>
<th>DE</th>
<th>DK</th>
<th>SE</th>
<th>ES</th>
<th>IT</th>
<th>EE</th>
<th>HU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flexibility of reimbursement system</td>
<td>2.8</td>
<td>2.8</td>
<td>3.1</td>
<td>2.2</td>
<td>2.0</td>
<td>3.4</td>
<td>2.5</td>
<td>2.2</td>
<td>4.1</td>
<td>1.6</td>
</tr>
</tbody>
</table>

*Note: Detail of the scoreboard, see section 3 on page 36 for the full scoreboard. Scoreboard scores are standardized to a range of 0 to 5. See section 2.5.1 on how the scores were calculated.*

All in all our study found that potential flexibility within today’s reimbursement systems seems higher than might commonly be assumed, as the scoreboard results for this indicator show. A certain degree of flexibility in relation to budget decisions was identified in all of the ten countries analyzed. Similarly there is a DRG system for hospitals in all countries, albeit with differences in terms of measures that are covered. Compared to this, in-cash benefits for long-term care were only identified in four out of ten countries to varying degrees.

An example of how flexibility in relation to budget decisions can be achieved can be found in the UK’s Primary Care Trusts (PCTs). While this example is particular to more centralized health care systems such as those in the UK, Spain or some Northern European countries, the underlying principle of subsidiarity in budget decisions might also be realizable in other systems, such as for instance those of Germany or the Netherlands. Furthermore, in these more decentralized systems that are largely based on pri-
vate service provision, outcome-oriented payment and personal budgets can be expected to play a bigger role in ensuring a flexible reimbursement system.

**GOOD PRACTICE**

**Telecare and telehealth reimbursement by primary care trusts in the UK**

Each primary care trust (PCT) in England, which are the bodies managing primary care at the local level, can decide whether to have telecare/telehealth based on its own needs. Around a third of the 151 PCTs in England are using telehealth, with another third expressing an interest in this approach. A PCT can, in a way, reimburse itself for telecare and telehealth by top slicing its budget.

The complete flexibility of PCTs in the service basket they provide makes the decision on whether to introduce new, innovative services a matter of judgment of these services and what they can deliver. This is an advantage to settings in which legacy and rigid budget assignment determine the introduction of new services.

A similar situation exists in Northern Ireland where the budget of Health and Social Care (HSC) Trusts in conjunction with commissioning from Local Commissioning Groups means decisions on service provision are made at a local level. Also in Wales, where the 22 local authorities use their budgets according to what they consider is the local demand for telecare initiatives. In Scotland, funding is provided by the National Telecare Development Programme (TDP), after assessment by the Joint Improvement Team (JIT).

For more information read the full good practice case in Section 4 of the Report Annex

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**Only a viable business model will unlock new funding sources**

Clearly, business models play a crucial role when it comes to realizing the innovation potential of eCare within given framework conditions; and both the literature research and our qualitative analysis of the study data suggest that the development of sustainable business models remains one of the hinges upon which eCare mainstreaming will turn in the future. In relation to this we found that beyond reimbursement in the context of social and health care services there are further, quite different financing options for investments in eCare that are generally available across Europe, as the scoreboard results below show. This refers both to targeted funding mechanisms available on the private market, such as commercial financing, venture capital or charity financing, but also to public-private partnerships and public funding measures for investments.

Particularly the private sources that are available to varying degrees in all countries are usually not directly addressed to eCare but are rather general purpose funding instruments.

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**Figure 4-6 Scoreboard: Targeted funding measures**

<table>
<thead>
<tr>
<th>Country</th>
<th>UK</th>
<th>FR</th>
<th>NL</th>
<th>DE</th>
<th>DK</th>
<th>SE</th>
<th>ES</th>
<th>IT</th>
<th>EE</th>
<th>HU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Targeted funding measures for start-off support</td>
<td>4.2</td>
<td>2.9</td>
<td>3.3</td>
<td>3.1</td>
<td>3.8</td>
<td>3.3</td>
<td>3.2</td>
<td>3.3</td>
<td>2.4</td>
<td>1.3</td>
</tr>
</tbody>
</table>

*Note: Detail of the scoreboard, see section 3 on page 36 for the full scoreboard. Scoreboard scores are standardized to a range of 0 to 5. See section 2.5.1 on how the scores were calculated.*

It is however worth to be noted that our analysis did not identify any inherent reasons that would prevent eCare stakeholders from making use of them (such as the explicit exclusion of care services) for financing service implementation. Since the actual uptake of such instruments is however low or even non-existent in most of the countries under observation, the reasons for this must lie elsewhere and are most likely to be found in the absence of viable business models and business plans which are necessary to obtain such funding. Nevertheless the study found activity in some countries, such as Germany where both venture capital and commercial financing seem to be used to
some extent. Similarly, investors in Denmark are making use particularly of commercial loans. Another notable occurrence in Denmark and an example for public funding on the national level is the Public Welfare Technology Foundation (see below), which administers public funds for projects targeting specifically the challenges of demographic change and explicitly including care technologies within the scope of their work. This type of organisational recognition of the need to face upcoming challenges, yet allowing considerable flexibility in the type of technologies funded, might be worthy of exploring by other countries as well.

**GOOD PRACTICE**

Danish Public Welfare Technology Foundation

The Danish PWT Foundation – Investments in Public Welfare Technology (in Danish: ABT-fonden), administers a 400 million Euros (3 billion DKK for 2009-2015) programme. The programme recognizes that the public sector will be experiencing increasing demand for supportive services over the coming years due to on-going demographic developments. One of the thematic areas addressed is “Care Technologies”, aiming for instance at testing/deploying age-friendly toilets, electronic bath/shower chairs, electronic tools supporting people with autism, alarm/tracking systems for people with dementia, medication reminders for people with mental disorders, electronic tools for self-activation of retarded adults, solutions for lifting/moving frail older people, electronic door locking systems and fall management. The PWT Foundation is a tangible structure for targeted distribution of public money, explicitly addressing upcoming challenges.

For more information read the full good practice case in Section 4 of the Report Annex

Despite the positive examples that were identified, viable business modelling for eCare seems to remain a rather underdeveloped area of activity as of today. While the responsibility for the creation of business model for a given service cannot be taken out of the individual provider’s hands there seem to be several ways how policy could support their creation and use, particularly through

- research into and analysis of business models that exist for different types of eCare services under different framework conditions, and
- promotion of approaches that facilitate the creation of business models and direct support to service providers by means of an exchange on business model good practice.

It seems that comparatively little evidence on business models is available from which others could profit, particularly given the multitude of service types and configurations under different framework conditions that exist or are possible. As a consequence, organisations that want to become involved in the field are rarely able to learn from experiences made elsewhere apart from general lessons such as on overall cost-effectiveness. But as the example of the benefit shifts explained above shows, such general information tends to mask details that are critical for success. Only where detailed information on eCare Business models is available and being shared can stakeholders involved in service development, implementation and operation avoid repeating mistakes made elsewhere.

**Recommendations**

*Opportunities to support the creation and collation of evidence on eCare business models that exist in the framework of the European Union’s more market-oriented funding programmes as well as similar schemes funded by national governments should be better exploited. This could for example be done through a dedicated exchange on business models, and good practices, where*
both experiences from recent deployment projects in the CIP and AAL programme and from other activities could be shared.

Beyond this, there may be value in exploring further measures by which service providers can be supported in the development of viable business models. Practical examples of how business case modelling can be applied in eCare could be derived both from other branches of the economy which do not immediately relate to eCare and from eCare projects carried out under the European Commission’s CIP programme. European project funding schemes, but also national programmes could become vehicles through which these approaches are made known to a wider audience and their use promoted among those who plan to set up new services with the support of such funds.

With a view to promoting business case modelling in eCare, evidence on business models should therefore be identified, created and shared. Of particular interest would be insights into the actual usage of private funds, particularly commercial financing and venture capital. An upcoming study funded by the European Commission (SMART 2011/0071) can be expected to make a first useful contribution to this theme.

Beyond this both the European Union with its more market-oriented funding programmes as well as national governments with similar schemes seem in general well placed to support the further creation and collation of business evidence. There is no doubt that this can only happen to a certain degree given that business data is usually confidential with a view to competitiveness. At the same time there seems to be a chance that particularly the sharing of such information across Europe might be achievable given that service providers usually operate on a regional or even local scale and are therefore less likely to feel negative effects on their own competitiveness when sharing information with other parts of Europe. There might be ways in which information on business models and even on costs and benefits can be shared without giving away too much. What seems required mostly is a sensitive approach to confidentiality that allows stakeholders involved in such an exchange to define the levels of openness that they deem appropriate. A concrete measures could for example be a dedicated exchange on business models, practical experiences and good practices between relevant stakeholders, to be carried out under the auspices of the European Innovation Partnership (EIP) for Active and Healthy Ageing where both experiences from recent deployment projects in the CIP and AAL programme and from other activities could be shared.

Beyond this, there may be value in exploring further measures by which service providers can be supported in the development of viable business models. Evidence-based guidance on business case modelling can for instance be found for branches of the economy which do not immediately relate to eCare. As in the case of socio-technical integration these have however not yet been synthesized with a view to providing guidance to eCare stakeholder in particular. Practical examples of how business case modelling can be applied in eCare can also be derived from existing projects carried out under the European Commission’s CIP programme (Meyer et al., 2011 (forthcoming)). European project funding schemes, such as the CIP or AAL programme, but also national programmes could become vehicles through which these approaches are made known to a wider audience and their use promoted among those who plan to set up new services with the support of such funds. The above-mentioned Danish PWT Foundation may serve as an example of how this can be realised in practice. As one consequence, such an approach would bring the requirements of the respective funding schemes closer to those that already now prevail on the private capital market where funds cannot be obtained without suitable business plans. Apart from the immediate impacts on service providers, this approach can also bring about conceptual benefits for the wider eCare domain and
help to increase openness to innovation in this field: a stronger focus on business models may result in more realistic and viable service concepts. Similar to the effects of socio-technical integration described in the previous section, stronger utilisation of business case modelling concepts and tools can provide a useful means of reality checking for emerging eCare services. Only technology solutions which a) provide a clear added value to current practices and b) show comprehensive socio-technical innovativeness and c) are build on reasonable investment requirements can be expected to find their way into mainstream provision. With a view to the competitiveness of Europe's IT industry this might also bring advantages since it would help to avoid future failed investments into solutions that will ultimately not achieve market success.

4.3 Opportunities for shaping more conducive framework conditions exist

The study findings on current levels service deployment and the role of socio-technical integration and business models clearly suggest that today's framework conditions do not make eCare deployment impossible. However the fact that full mainstreaming of eCare services apart from 1st generation telecare is not achieved in any of the countries analyzed makes it clear that considerable deployment barriers continue to exist. This would suggest that the openness of health and social care systems to eCare innovation and ultimately the future mainstreaming of eCare solutions could benefit from shaping more supportive framework conditions in the medium- to long-term.

4.3.1 Existing business models provide useful lessons for shaping framework conditions, but these are not always self-evident

As already briefly discussed above, the promotion of business models for eCare and specifically the collation of business evidence is likely to profit not only service providers and the IT industry, but can also play a role in strategic decision making and particularly in the shaping of favourable framework conditions for eCare and in improving the openness to innovation in this field. In relation to this it might be beneficial to consider supporting decision makers in social and health in learning from practical eCare service examples, from evidence on costs and benefits, and from experiences made in service implementation particularly in relation to barriers and hindering factors. Conclusions drawn from such sources could for example be used to further improve the flexibility of reimbursement systems that exists already today.

Furthermore such knowledge on eCare business models could help in the adaptation of the wider regulative frameworks both in the individual Member States and on the EU level. As the scoreboard results show there is some variability in the degree to which different types of legal issues of relevance for eCare are covered in existing legislation and regulation, albeit at a comparatively low level overall. A more in-depth qualitative analysis showed that existing legal frameworks are characterised by high levels of complexity in terms of the numbers and types of regulations that can be applicable to a given eCare service.
Against this background the study found some examples of organisations that have begun to provide interpretive guidance to eCare service provider, for instance as part of wider quality standards (see the case of the TSA Code of Practice in the UK below) or as targeted guidelines (as in the case of the Garante guidelines in Italy, see below).

**GOOD PRACTICE**

**TSA Code of Practice – setting quality standards for telecare, UK**

In the UK, the Telecare Services Association (TSA) has developed its Telecare Code of Practice primarily for use by telecare service providers to ensure quality standards for service delivery and to assist commissioners in identifying quality providers. It provides a comprehensive quality framework for telecare in relation to both technology related aspects and aspects relating to the service delivery process. Quality requirements set out in the Code of Practice cover a range of standards modules:

- Safeguarding
- Governance
- Staff & Training
- Privacy & Data Protection
- Partnership Working
- Service User Communication
- Managing access to/working in service user’s home
- Technology Management
- Business Continuity
- Planning and Development of telecare service centre
- Legislation (incl. Health & Safety)
- Performance Management & KPIs
- National State Variants

Through the endorsement by government bodies the TSA Code of Practice has become a de facto regulatory instrument for setting quality standards for telecare in the UK.

**Facilitating legal certainty by domain-specific interpretative guidance in relation to data protection by a national oversight body, IT**

In Italy legislation on data privacy, the so called Privacy Law, explicitly clarifies that ICT-based applications and services, so called tele-aid and telemedicine, fall under the ambit of national data protection regulation. Moreover a dedicated supervisory body, Garante della protezione dei dati personali (Garante), has provided interpretative guidance on a number of issues which have emerged over the recent years around the application of ICT in the health care domain. In hospitals for instance, the use of cameras is allowed in specific departments, whose recordings are only to be viewed by authorised medical staff and relatives of the patients. The guidelines states that all precautions must be taken that are necessary to ensure a high level of protection of patients’ privacy and dignity. The data controller has to make sure that only specifically authorised staff may access the images recorded for the above purposes, e.g. medical and/or nursing staff.

For more information read the full good practice cases in Section 4 of the Report Annex

**Recommendations**
Further guidance to service providers and other relevant stakeholders on how to understand and how to deal with the multitude of national and international laws concerning eCare would be useful and should be provided. In the longer run it could also help to identify cases of contradicting regulations, and to start necessary revision processes of individual pieces of legislation. The European Union could play a supportive role in this process of shaping more certain frameworks in various regards. To begin with, it could be examined whether interpretive guidance in relation to relevant EU-level legislation (such as Directives 1999/44 and 2000/31) could contribute to a higher level of legal certainty concerning the individual service domains covered by this benchmarking exercise. Further guidance on the national level could be created on the basis of existing examples in collaboration with service providers and legal experts from different Member States.

An exchange forum for information and experiences cutting across different regulatory fields (such as data protection, consumer rights, patient rights) may foster the establishment of a higher level of legal certainty with respect to the provision of different types of eCare services. Such a forum could include social/health care service providers, policy makers from the EU and national level, and the IT industry and serve as a reference point for developing common objectives across the EU while leaving sufficient room for shaping frameworks at the national level according to the necessities of their individual jurisdictions.

Given that the complexity of legal frameworks on eCare services can be considered to have an impact on the openness to innovation in eCare and on the mainstreaming of services all over Europe, further guidance to service providers and other relevant stakeholders on how to understand and how to deal with the multitude of national and international laws concerning ICT-based services would be useful. In the longer run it could also help to identify cases of contradicting regulations, and to start according revision processes of individual pieces of legislation. The European Union could play a supportive role in this process of shaping more certain frameworks in various regards. To begin with, it could be examined whether interpretive guidance in relation to relevant EU-level legislation, such as the Directive 1999/44 on certain aspects of the sale of consumer goods and associated guarantees or Directive 2000/31 on certain aspects of information society services, in particular electronic commerce, could contribute to a higher level of legal certainty concerning the individual services domains covered by this benchmarking exercise. Further guidance could be created on the basis of existing examples such as the TSA and Garante guidelines described above in collaboration with service providers and legal experts from different Member States.

Apart from this an exchange forum cutting across different regulatory fields (such as data protection, consumer rights, patient rights) may foster the establishment of a higher level of legal certainty with respect to the different types of eCare services. Such a forum could include social/health care service providers, policy makers from the EU and national level, and the IT industry and serve as a reference point for developing common objectives across the EU while leaving sufficient room for shaping frameworks at the national level according to the necessities of their individual jurisdictions. Again it might make sense to assess in how far this issue can be addressed in the framework of the European Innovation Partnership on Active and Healthy Ageing.
### 4.3.2 Integrated eCare provides a large but unused potential for better and more efficient care delivery

From the limited evidence that is available today it would seem that the potential for improved outcomes, quality and efficiency realized through eCare is especially large when it comes to crossing the sectoral divide that separates social from health care in most countries. The case of the eCare network in Italian Bologna provides an indicative example of the kinds of benefits that can be achieved through integrated services.

**GOOD PRACTICE**

**eCare network of Bologna, Italy**

The eCare network of Bologna offers telecare and telemonitoring services on the health and psychological status of elderly people, provided by GPs, social services, nurses, voluntary associations and charities. The service currently serves about 3,300 customers. The majority of the users benefit from basic telecare services. Following a pilot study, the eCare network also provides more advanced telemedicine/telemonitoring services to patients. As a result of these activities, about 100 hospital admissions could be avoided in two years resulting in a general saving of approximately 600,000€. Further to this reduction of health care costs, the eCare services helped to improve the older peoples’ quality of life and allowed them to continue living independently in their homes.

For more information read the full good practice case in Section 4 of the Report Annex

At the current stage however, service ‘silos’, i.e. the separated provision of social and health care services to one target group, seem to prevail on the ground in most of the countries under observation. These ‘silos’ can lead to inefficiencies, duplication of resources, and potentially to reduced levels of quality of care. Older people are particularly affected by this situation, since they often need both types of services, such as support with daily living activities from the social care and chronic disease management from the health care side.

From the findings of the study it seems that this issue is being recognised to some extent on the policy level and that governance frameworks for better cooperation and collaboration across the sectors of social and health care are taking an increasingly prominent role on the political agenda.

**Figure 4-8 Scoreboard: Policy framework for integrated care**

<table>
<thead>
<tr>
<th>Country</th>
<th>UK</th>
<th>FR</th>
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<th>ES</th>
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<th>EE</th>
<th>HU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy framework on integrated social &amp; health care and the role of ICT</td>
<td>3.8</td>
<td>1.4</td>
<td>0.9</td>
<td>1.0</td>
<td>3.6</td>
<td>1.0</td>
<td>0.9</td>
<td>1.2</td>
<td>0.9</td>
<td>0.9</td>
</tr>
</tbody>
</table>

*Note: Detail of the scoreboard, see section 3 on page 36 for the full scoreboard. Scoreboard scores are standardized to a range of 0 to 5. See section 2.5.1 on how the scores were calculated.*

The study found that seven out of the ten countries analysed have policy frameworks in place that cover social and health care integration in general to some degree, in four of them this is done in the framework of legislation. At the same time however, insufficient consideration is given to the role which ICT can play in this regard: only in four countries do policy frameworks make specific mentioning of eCare. The study identified two examples of initiatives in Germany and Denmark that not only tackled the issue of siloed care provision but specifically paved a way for the use of eCare as one instrument amongst others to bring about more integrated services. The German example was already mentioned above as a proven means to cope with benefits shifts occurring in multi-provider environments.
GOOD PRACTICE

Seed funding and free contracting legislation as enablers of telehealth adoption in Germany

A series of reforms in the German health care system aimed to tackle the issue of segregated care service provision, primarily within the health care sector but also across the boundaries of health and social care. A series of laws (introduced between 2000 and 2007) allowed German health and social care insurance companies contractual freedom and gave them seed funding for setting up integrated care contracts. This resulted in a substantial number of innovative approaches to overcome problems like lacking integration of different types of healthcare providers and like the focus on acute care. It also boosted the adoption of telehealth services, making Germany one of the countries with the best supply of telehealth among the countries covered by this study.

Towards cross-sectoral care provision frameworks in Denmark

Several Danish policy makers are today realising that the traditional budgetary as well as management-wise barriers between primary healthcare, secondary healthcare and social care services are ineffective, create institutional silos and do not favour patient-centred, integrated care provision. In order to face this challenge and to pave the way towards more integrated care provision, Denmark has launched a new set of policy strategies covering the national, regional, and municipal level, thus also overcoming governance level boundaries. These strategies make explicit reference to the potentials of ICTs to support integrated social care and healthcare provision.

For more information read the full good practice case in Section 4 of the Report Annex

Recommendations

The issue of eCare within policy strategies for integrated care would benefit from more dedicated attention in order to facilitate the materialisation of the benefits that integrated eCare services can bring about. One way to achieve this would be through the establishment of appropriate mechanisms that facilitate both the use of ICT across sectors (e.g. in terms of data protection and privacy) and the reimbursement of integrated eCare services. While the responsibility for the governance structures concerned lies with the individual Member States, the European Union could take a coordinating role by bringing together key players from all relevant sectors in the countries with a view to learning from existing practice and identifying facilitating factors and barriers that exist today. The European Commission could furthermore contribute experiences and evidence gained from currently ongoing pilot projects for integrated eCare that are carried out within the CIP programme, as well as from future funded activities.

The European Commission is recommended to more closely analyse existing examples of policy and regulatory frameworks for integrated care and eCare. Two avenues of analysis seem promising: 1) A detailed judicial analysis by legal experts of the regulatory mechanisms that are being used and how these depend on the international and national legal contexts; and 2) an analysis of fully up-and-running integrated services that were implemented in the respective frameworks, involving service providers and reimbursement bodies. Such an analysis might be carried out as a dedicated study commissioned by the European Commission and would help understanding in how far and in what ways existing examples can be used in other countries and with a view to achieving similar outcomes.
4.3.3 Ethical issues are widely recognized in general, but hands-on guidance is lacking

Ethical issues in relation to eCare have been receiving increasing attention in the past few years, particularly in the scientific debate. This includes organisational ethics concerned with principles that apply to organisations as a whole, including duty to those served (and to one’s own staff), patient rights and provider rights, provider commitment to quality and standards, provider compliance with values and laws, and so on. Professional ethics are concerned with principles that apply to professionals and other paid staff that directly provide human services, including duty to specific patients, rights of specific individual patients, caregiver duty to professional competence, caregiver compliance with professional codes, and so on. Up to now it would seem that these kinds of ethical issues are usually addressed in one way or other at the organisational level in many countries, e.g. by means of organisational policies or ethics-related staff training.

At the same time however, there seems to be an almost complete lack of guidance through public policies on ethical issues in eCare that poses a risk of fragmentation when it comes to addressing ethical aspects within day-to-day practice and particularly when new services are to be set up (see scoreboard results below).

<table>
<thead>
<tr>
<th>Country</th>
<th>UK</th>
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<th>NL</th>
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<th>ES</th>
<th>IT</th>
<th>EE</th>
<th>HU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy measures taken to address ethical concerns</td>
<td>0.8</td>
<td>0.8</td>
<td>1.0</td>
<td>0.0</td>
<td>0.5</td>
<td>0.0</td>
<td>0.0</td>
<td>0.5</td>
<td>0.3</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Note: Detail of the scoreboard, see section 3 on page 36 for the full scoreboard. Scoreboard scores are standardized to a range of 0 to 5. See section 2.5.1 on how the scores were calculated.

Similar to what has been said above in relation to legal issues, it seems that stakeholders on the ground (managers of care providers, care professionals etc.) can benefit from structured and hands-on guidance in relation also to ethical issues that supports them in integrating approved ethical practices in the processes of their eCare services. Two examples of how such guidance can be realized are presented below. In the Netherlands, the health ministry founded a dedicated think tank, the Centre for Ethics and Health, to produce evidence based guidance on ethical issues. In the UK the Social Care Institute for Excellence (SCIE), an independent charity organisation, commissioned a guidance report around ethics and telecare. The two cases show how the same goal – practical guidance on ethical issues - can be achieved by two very different approaches. They might point a way as to how such guidance (also for other areas of the eCare domain) can be produced in other countries.

**GOOD PRACTICE**

The Centre for Ethics and Health (CEG) - building up an evidence base on ethical issues, NL

A diverse range of ethics-related issues can arise around ICT-enabled provision of home care and support. As the field begins to mature beyond experiments and pilots, there is a need to provide the relevant actors with operationally useful guidance on how to provide new services in accordance with widely accepted ethical principles. The interpretation and application of universal ethical principles in any specific context is however often not straightforward. In the Netherlands a dedicated think tank, the Centre for Ethics and Health (CEG), was founded by the Minister of Health, Welfare and Sport to provide evidence based guidance on ethical issues. Already back in 2004, two guidance reports on ICT-based care were commissioned by the Council for Public Health and Health Care (Raad voor de Volksgezondheid en Zorg). The analysis
identifies a range of aspects deserving attention from a macro-ethical perspective such as differences in availability across municipalities and other forms of inequality of access depending on diagnosis, insurer, and reimbursement regime. One set of issues associated with this situation concerns patient selection, where the possible emergence of ‘creaming and dumping’ needs to be considered. At the micro-ethical level, i.e. where ethical considerations play out in an individual case of an older person, a range of issues were identified as well, e.g. privacy as regards access to medical records and new arrangements that may introduce requirements for non-medical personnel, e.g. in call centres, to have access to medical information. More recently in 2010, another guidance report entitled “So far away and yet so near?” was released. The report analyses a scenario in which “care at a distance” replaces a considerable part of home care currently provided on-site. Whether intentionally or not, it can be assumed that in such a scenario telecare will change established care relationships. For instance, informal carers and patients will carry out more medical and semi-medical activities, whereas care professionals will have more of a coaching role. The report identifies a range of ethical questions arising from this trend. It also identifies what actors are concerned and options for further action.

Social Care Institute for Excellence (SCIE) – Provision of hands-on guidance on addressing ethical issues around telecare, UK

The Social Care Institute for Excellence (SCIE) commissioned a report on current concerns around ethics and telecare. SCIE is an independent charity working with adults, families and children’s social care and social work services across the UK. It also works closely with related services such as health care and housing. The institute gathers and analyse knowledge about what works and translate that knowledge into practical resources, learning materials and services, thereby helping to improve the knowledge and skills of those working in care services. By exploring the complex ethical issues surrounding the commissioning and provision of telecare, SCIE’s guidance report aims at ensuring that commissioners and providers of telecare address these issues when developing their procedures and protocols. Thus the report is primarily aimed at key stakeholders in telecare supply such as social care commissioners, social care providers, telecare manufacturers, telecare providers and policy makers. However, people arranging telecare for their own support needs, and the families of those people, may also benefit from this report, as it explores what they might reasonably expect from the professionals providing a telecare service. A range of ethics related issues and means of addressing them in practice are presented in two main sections relating to pre- and post-installation of telecare. The main issues raised are summarised below.

For more information read the full good practice case in Section 4 of the Report Annex

**Recommendations**

Although it may not be appropriate to develop a single ethical ‘cookbook’ to guide practice across the various service domains and countries investigated by this study, there may be value in supporting a focused exercise on codification in this field, in the sense of breaking down high-level ethical principles into applicable actions for different contexts. This could include a systematic collation of the various guidelines, codes of practice and so on that have been developed so far, independent from whether these directly address aspects of ICTs and elderly care or guide sectors and practices within which ICT-based innovations are to be introduced. This would enable a systematic examination of the possibilities and limits to codification in the field, and the identification of priorities for codification that could then be addressed by the appropriate stakeholders at the national and/or organisational level. Furthermore this would allow to produce the kind of hands-on guidance needed by stakeholders on the ground (managers of care providers, care professionals etc.) in order to apply high-level ethical principle in the concrete context of their day-to-day work.

When it comes to facilitating the implementation of ethical issues in eCare processes, the European Union could play a supportive role, e.g. through organising or supporting efforts to engage with, inform and assess the perspectives of the key
players that exert an influence in the domains concerned. This might also become one of the horizontal issues to be addressed by the European Innovation Partnership on Active and Healthy Ageing. In particular this would need to target the wider majority of health and social care organisations and the professionals who will ultimately be decisive in whether or not ICT-based services come to be mainstreamed within their service and practice repertoires. There would be value in focusing such an effort in particular on emerging cross-disciplinary perspectives, such as the emerging discipline of ‘integrated long-term care’ (see above).

4.4 Going beyond telecare and telehealth: better exploiting the potentials of online services

Beyond the field of what can called ‘classic’ eCare services (in the sense that they are usually considered when the issue of eCare is being discussed) such as telecare, telehealth and telemonitoring, the study also identified a wide range of eCare online services addressed to older people and informal carers on the one hand and social and health care professionals on the other hand. At the same time we found clear indications that the innovation potential of such online services may currently not be exploited to the extent that would seem desirable, for a number of reasons.

4.4.1 eCare online services can help older people and informal carers, if they are able to use them

In relation to services addressed to older people and informal carers, what little is available in terms of data on the actual usage of the internet for purposes of long-term care seems to imply that, notwithstanding some variation between the countries, these services are not yet used by sizable proportions of the target population. Shares of people aged 55 and older that use the internet for the search of health-related information range from 10% to 40%, as can also be seen from the corresponding scoreboard values below.

There are various possible reasons that can explain this situation: one is that older people or informal carers may not have access to the internet in their household at all. They may also be hampered by a lack of the necessary e-skills, a factor that is clearly suggested by available statistics as can be seen from the second score above. For the age group 55+, digital literacy levels vary from 15% to 70%, for people aged 65+ these levels drop by about 10% in all countries. A third reason may be that people are not familiar or feel comfortable with this kind of online services that bear some similarities

7 This indicator from the Eurostat ICT Household survey was used as a proxy for the use of eCare online services, in absence of a more targeted indicator.
to social web communities like Facebook or LinkedIn (albeit with reduced functionality and in a more focused manner). Concerns about data privacy and protection are also likely to play a role. For example, there is currently some discussion in how far websites such as Facebook could help in the co-ordination of care services not only for family carers but also for professionals (Kuraitis, 2011). Notably, arguments speaking against this include a lack of data security and privacy that is considered even more critical in the case of health-related data when compared to other personal information. This points to a potential demand for more focused, less open and more secure services with usable and accessible interfaces. Two examples for online services addressed to informal carers were identified in the Netherlands (see below) and showcase the potential these can have when it comes to supporting family members and friends in caring for an older person.

**GOOD PRACTICE**

*Social web services supporting informal carers in care management in the Netherlands*

Social web-type online services available in the Netherlands provide a good example of how informal carers can be supported in balancing their carer duties with the rest of their life and in cooperating with other people and organisations supporting them and the cared-for person. Several initiatives have been initiated in recent years, including Carenzorgt (https://www.carenzorgt.nl/) and Zorgsite (http://www.zorgsite.nl/). These sites offer ways to maintain a (shared) online agenda, to use task-lists, to make notes, to request others to take over certain duties, to receive updates on the status of the care recipient and to coordinate work with professional care provider organisations.

For more information read the full case presented in Section 4 of the Report Annex

Other factors that can be assumed to impact on the further deployment of online services from the point of view of the providers of such services include the costs associated with such a service and ways how these costs can be reclaimed (e.g. through usage fees), organisational and/or legal barriers between different types of providers but also resistance against a more active/involved role of cared-for persons and informal carers in care (self-)management. In a sense, these barriers seem to be similar to those found in the area of classic eCare as discussed before, but for the special case of online support services they are even less well understood. There is a potential that solutions for these particular problems can be developed based on experiences made elsewhere in online service provision. A number of successful examples of online services for long-term care exist from which others can learn about how to address particular target groups, how online services can be integrated into existing care delivery processes, how viable business models can be built and other aspects.

**Recommendations**

*With a view to strengthening the further deployment of innovative eCare online services and overcoming existing usage barriers, the European Commission is recommended to conduct further comparative analyses of existing online services, their users and their business models and in the promotion of a further exchange on good practices in this field (building and expanding on what has been done in this study). Thought might also be given to providing funding for RTD and deployment, particularly through the Framework Programmes and the CIP and AAL programme, to foster the development and testing of innovative, user-centred and target-oriented online services, along with rigorous evaluations of impacts, costs and benefits.*
4.4.2 **Online services for care professionals exist, but so do serious usage barriers**

Notwithstanding the various good examples of online services addressed to care professionals, it appears that carers in many countries are not able to use them for their benefit due to a lack of e-skills provided through continuous and vocational training. This skills gap can also be expected to impact on professionals’ attitude towards and confidence in the use of classic eCare. The study analyzed in how far IT skills are today part of the training curricula of care professionals and found wide variability both in terms of the content scope of existing training measures and in terms of the coverage of different professions, as witnessed by the scoreboard values presented below.

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<tr>
<th>Country</th>
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<th>HU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic and occupational ICT skills in training curricula for care professionals</td>
<td>5.0</td>
<td>1.4</td>
<td>1.8</td>
<td>3.6</td>
<td>4.6</td>
<td>1.4</td>
<td>5.0</td>
<td>7.1</td>
<td>3.9</td>
<td>3.6</td>
</tr>
</tbody>
</table>

*Note: Detail of the scoreboard, see section 3 on page 36 for the full scoreboard. Scoreboard scores are standardized to a range of 0 to 5. See section 2.5.1 on how the scores were calculated.*

In relation to the coverage of different professions it seems that on the whole there are more training offers addressed to health care professionals than to social care professionals, while at the same time, certain professions (e.g. nurses or care support workers) in both fields seem to be worse off than others (e.g. doctors). The United Kingdom is taking a leading role in trying to tackle that issue by making e-skills a regular part of the vocational and continuous training of most social and health care professionals.

**GOOD PRACTICE**

*Basic and occupational IT skills of UK care professionals*

In the United Kingdom, IT skills are a regular part of the vocational and continuous training of most social and health care professionals. In that sense, the country takes a leading role among the ten countries analysed in this study. The relatively advanced stage of IT training not only leads to numerous examples of how basic IT skills (i.e. in using general purpose IT like computers and the internet) and occupational IT skills (i.e. in using care-specific applications and systems like electronic health records or telehealth devices) can be taught in practice. It also allows observing what kind of challenges and issues occur in a more advanced stage from which other countries can learn. These challenges for example include difficulties with the effectiveness of the training or acceptance problems in the workforce due to monetary and time restraints.

*For more information read the full case presented in Section 4 of the Report Annex*

Due to its comparatively advanced stage in this matter, the UK also allows better understanding secondary effects encountered in a comparatively well developed ICT training system. There seems to be a number of barriers to the effective use of ICT training by care professionals, including that:

- continuous education offers in ICT can be difficult for care professionals to include into their working life due to time constraints,
- training courses are not being paid by the employer, even if they are required for work,
particularly older nurses may be excluded from occupational ICT training due to a lack of basic ICT skills and of acquaintance with the overall topic of ICT, and

more far ranging issues, such as negative attitudes (e.g. care professionals considering ICT to be of limited relevance for their concrete care work), hamper the uptake of ICT training among professionals.

The experiences that are today being made in the UK in dealing with these barriers are likely to provide helpful lessons for other countries in the not too distant future, when increasing pervasiveness of eCare starts to have a stronger impact on e-skills training of professionals.

Up to today, all study findings seem to point to a gap between the availability and the effective use of ICT-related training for social and health care professionals. A gap that can also be considered as being closely related to openness to innovation in eCare in general and the mainstreaming of ‘classic’ eCare services in particular: barriers that hamper eCare mainstreaming can be expected to have an impact on eCare training (in the sense that such training makes no sense when professionals are unlikely to encounter ICT in their later work), while at the same time a lack of ICT training is one of the barriers to eCare mainstreaming. For this reason it might be worth considering whether an extension of the coverage of existing training activities could lead to positive effects, similar to a shift from teaching purely technical skills to more comprehensive skills that allow care professionals to effectively select, include and use ICT in their complex work environment.

The study also found that the issue of ICT-related skills and training is today covered only to a limited extent in relevant policy frameworks. Only in two countries (Sweden and Hungary) is the issue recognized as a concern in policy documents.

Recommendations

It is recommended to better reflect the issue of e-skills requirements for care professionals in political strategies with the aim of providing better framework conditions for ICT training provision, particularly with a view to improving skills levels among the full range of professionals both in social and in health care. The European Commission could take a co-ordinating role in this field, not only fostering exchange on good practice but also by inviting relevant stakeholders (including education institutions, service providers, care professionals and IT manufacturers) to agree on common standards on how to effectively teach and train basic and occupational ICT skills. The special focus should be upon quality, effectiveness and accessibility of ICT training.

As indicated above, the UK could provide a good first source of learning examples that however need to be assessed in terms of their transferability to and applicability in other training contexts.

4.5 Opportunities for further strengthening the evidence base on impacts and markets to benefit all stakeholders should be exploited

One cross-cutting theme that emerged from the research carried out by the eCare Benchmarking study is a lack of empirical evidence that became obvious in several of
the thematic areas that we analyzed, and we made repeated reference to this in the previous parts of the conclusions. In general it must be assumed that this lack of evidence today increases the uncertainty of decision making in the eCare domain on almost all levels and is one of the factors explaining why eCare mainstreaming is so slow in occurring:

- on the level of care providers when it comes to deciding what services to implement, how to integrate eCare into existing processes and how to build viable business models;
- on the level of national governance and reimbursement bodies when it comes to deciding how framework conditions need to be adapted and to assessing what the impacts of these adaptations are;
- on the level of the European Union when it comes to deciding about measures that can support eCare mainstreaming across the Member States; and
- on the level of the IT industry when it comes to deciding about what products and services to offer, how to reach customers and how to develop sustainable business models for eCare applications.

This lack of evidence can be seen to occur in relation to two major areas, namely:

- evidence on the impacts of eCare services and
- market intelligence.

### 4.5.1 Improving the current evidence base on impacts is not a straightforward task but can be done

The term ‘impact evidence’ we use in this context to encompass all sources of empirical evidence that relate to the effects of eCare on the different stakeholders involved, particularly older people, informal carers, care professionals and care provider organizations. Impact evidence is usually gathered by means of evaluated pilots and our research found that there is by now a multitude of according studies. Usually these are characterized by being of a small- to medium scale in terms of user involved, by evaluating very different and very specific service configurations, and by differences in the evaluation design, data collection and data analysis methods that are used. This complexity seems quite clearly to be another reflection of the context-sensitivity of eCare that emerged so pronouncedly from our analysis of deployment levels and framework conditions (see above). We have concluded before that this diversity is best understood against the background of the historical development of care systems in each country and the goals they pursue, and that it is likely to remain a key characteristic of the domain for a considerable time span. At the same time we concluded that this diversity has strong impacts on eCare mainstreaming and particularly on decision making with a view to facilitating mainstreaming. One consequence of the diversity of studies available in relation to this is that they are difficult to aggregate to a level where impacts beyond individual service cases can be identified, which could be transferred to other contexts and in that way allow the drawing of generic conclusions.

A partial solution to this problem can be seen in the generation of evidence from more large-scale pilots, that span larger geographic areas and include more service providers and end-users and are therefore more likely to produce results that can be used on a higher level. Our study found only singular examples for this kind of large-scale evidence on the basis of evaluated trials carried out in the ten countries under observation, as can be seen from the scores below.
Figure 4-12 Scoreboard: Representative impact evidence

<table>
<thead>
<tr>
<th>Country</th>
<th>UK</th>
<th>FR</th>
<th>NL</th>
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<th>HU</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statistically representative evidence on key benefits and cost avoidance</td>
<td>1.9</td>
<td>1.7</td>
<td>0.6</td>
<td>0.8</td>
<td>0.6</td>
<td>0.0</td>
<td>0.3</td>
<td>1.7</td>
<td>0.0</td>
<td>0.0</td>
</tr>
</tbody>
</table>

Note: Detail of the scoreboard, see section 3 on page 36 for the full scoreboard. Scoreboard scores are standardized to a range of 0 to 5. See section 2.5.1 on how the scores were calculated.

Evaluations of a scale that would allow drawing conclusions on the regional or national level were only found in two countries, in one for the area of telecare and in another for the area of telemedicine. Evaluations that at least extensively cover one field of technology even if on the basis of several smaller scale studies were identified in four more cases. One reason for this relatively small number of large-scale pilots is probably to be seen in the efforts that are needed to set them up and carry them out, both in terms of the organisational requirements and in terms of the resources that are needed. And even those large scale pilots that are carried out have to find ways of dealing with the challenges imposed by the complexity of the domain, e.g. when having to implement services that are sufficiently similar to allow comparability of results across a number of pilot sites.

The general requirements for impact evidence that can be used for the purposes of decision making can perhaps be subsumed under three keywords; robustness, comprehensiveness and transferability. Robustness, in the sense implied here, means that evidence should in general be of sufficient quality and quantity and should be based on sound data with statistical significance. With a view to trial design this would imply that a suitable number of patients needs to be involved and that a trial needs to be of sufficient duration to allow for effects to show (e.g. health outcomes or admission avoidance). Comprehensiveness is meant to cover a wide range of impacts, including not only impacts on patients (such as health-related quality of life, avoidance of admissions into hospital or institutional care and acceptance), but also those on social and health care professionals (for example in relation to the integration into existing working processes, perception of effectiveness and job satisfaction), and service providers (e.g. in terms of business models and barriers hampering service implementation). Comprehensiveness can also mean to cover different types of service scenarios and processes with the aim of capturing as much as possible the real-life settings in which eCare is being delivered. Finally transferability implies that experiences made in one place can serve as learning examples for people in other places, who want to achieve similar outcomes with similar means (e.g. through explicit reporting on framework conditions that applied to the evaluated service that would allow assessing in how far the evidence is applicable in another context).

To remedy the current lack of impact evidence available to support decision making, two different approaches seem advisable. First, the generation of further large scale evidence would provide additional support to high-level decision making, especially on the EU, national and regional policy level. Second, the potential of smaller scale pilots could be better harnessed with a view to creating evidence that can support both providers on the ground and decision makers on the different levels. The specific value of such smaller pilots compared to larger ones in this context can be seen in the fact they can

- cover more ground in terms of service concepts and framework conditions,
- respond better to the factual diversity in eCare across Europe because of this and therefore
provide their own answer to the issue of transferability, because it is more likely that care and IT providers find a learning example that matches their own objectives when setting up a new eCare product or service.

Furthermore and in particular with a view to transferability, it might be worth to explore ways for the better aggregation of evidence and support their implementation in practice. This could for example be achieved through the use of an aggregation layer bringing together evidence from individual evaluations based on the use of comparable benchmarks in cases where the evaluated services are comparable to some extent in terms of goals to be achieved, the type of intervention, the target group etc. A key advantage of such an approach would be that it can be added to any evaluation scheme, thus retaining the evaluators’ freedom in choosing those designs and methods that best suit their need.

4.5.2 Market intelligence is needed but does not (yet) exist

Beyond impact evidence as outlined above, our study also found a widespread absence of market evidence. This refers primarily to data about eCare customer groups, the demand potential for different types of services, current levels of eCare use, assessments of individual drivers and hindering factors such as skills, and willingness to pay but also information about eCare business models and how they can be built in a way to allow sustainable service operation, as discussed previously. Specifically we found that the following types of evidence are missing:

- In general terms, statistical data that is comparable across European countries and regions.
- More specifically statistical data on the use of classic eCare from representative surveys of older people and informal carers and
- Statistical data on the use of eCare online services from representative surveys of older people, informal carers and care professionals.
- Evidence on and analysis of business models for classic eCare and online services.

Similar to what has been said above in relation to impact evidence, this lack of market intelligence is not without effect. Particularly the absence of data that is comparable across countries can be expected to impose difficulties for an eCare industry that mostly acts on a European scale and may contribute to further market fragmentation. Furthermore, as was described above, a lack of business evidence can have a negative impact on care service providers when it comes to deciding about the implementation of eCare.

4.5.3 A European focal point for eCare evidence would provide necessary support to stakeholders on all levels

Ultimately, increased openness to innovation in eCare and the actual mainstreaming of eCare services will need to be achieved by a range of different actors operating at the national, regional and local level. Giving these actors access to suitable evidence and guidance on what can be gained by eCare and how it can best be implemented represents perhaps the most promising avenue to exploit the positive potentials of eCare in
the short term. It seems however unlikely that this goal could be achieved without dedicated support. Rather a concerted action would need to be launched on the European level, particularly involving those stakeholders with vested cross-national interests (such as the eCare industry, European associations of providers, professionals and user).

**Recommendations**

**EU policy could play a facilitating role in the establishment of a European focal point for eCare evidence, e.g. by creating lacking evidence, by bringing together results which exist already today and by making them more suitable for the purposes of strategic decision making and eCare implementation on the ground.**

One way to achieve these objectives would be through a European observatory for eCare, as a dedicated EU effort and equipped with the necessary resources to carry out a series of tasks, similarly to initiatives that have for instance been implemented in other areas such as e-business (e.g. eBusiness W@tch). With a view to the involvement of different stakeholders with a prime interest in the matter it might make sense to explore options through which players such as the eCare industry (including associations) as well as European associations of providers, professionals and users could contribute to the setting-up of such a framework.

Possible tasks of the observatory could include:

- The definition of an approach and concrete methods for the aggregation of impact evidence that already exists and the joint up analysis of this evidence with a view to drawing high-level conclusions for strategic decision making. This could build on existing approaches for meta-analysis that are already widely used in the health care domain and also in relation to eCare, but with a) a wider scope in terms of evidence sources to be included and b) a clear alignment with strategic eCare related policy goals.

- The provision of support for the formulation of evaluation methods, specifically by working on the creation of an aggregation layer bringing together evidence from individual evaluations based on the use of comparable benchmarks in cases where the evaluated services are comparable to some extent in terms of goals to be achieved, the type of intervention, the target group etc. This could be added to tried and tested evaluation approaches in a way that maintains their usefulness on the ground while allowing them to also contribute on an aggregate level.

- The collection of primary market evidence through EU wide representative surveys among older people, informal carers and care professionals to cover issues such as eCare use, drivers and barriers, willingness to pay etc., as outlined above. In practical terms, existing model surveys (i.e. templates for setting up surveys on given issues) could be used for this purpose. Examples for model surveys covering aspects of eCare use for different stakeholders in social and health care can for instance be found in the eHealth Benchmarking study (Meyer et al., 2009).

- Carrying out dedicated research on selected issues of relevance for eCare such as business models, online services, or IT skills of care professionals etc. as described in some detail throughout this concluding chapter and in that way to provide contextual analyses of the data gathered in the previous steps.
## 4.6 Recommendation summary

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| 1   | Against the background of the potential of socio-technical innovation there may be value in the analysis of selected examples of successful eCare deployment with a particular view to this issue. This could be achieved by means of a dedicated research effort commissioned by the European Commission, involving service providers and care professionals and possibly building on experiences made in EU-funded deployment projects and large-scale demonstration schemes such as the Whole Systems Demonstrator in the UK. | ☑️ European Commission  
☐ Member States  
☑️ (e)Care service providers  
☑️ Care professionals  
☐ IT industry  
☐ End-users  
☑️ Others |
| 2   | On the basis of such an analysis, service providers and the IT industry would benefit from synthesised guidance on what socio-technical innovation can mean in practice and how such a concept might best be applied in the development and implementation of eCare services. Such synthesized guidance would need to be effectively communicated to the stakeholders, e.g. through an online forum. | ☑️ European Commission  
☐ Member States  
☑️ (e)Care service providers  
☑️ Care professionals  
☐ IT industry  
☐ End-users  
☐ Others |
| 3   | There might be value in creating incentives that promote socio-technical integration of eCare through the inclusion of respective requirements in relevant EU project funding schemes such as the CIP and AAL programme. | ☑️ European Commission  
☐ Member States  
☐ (e)Care service providers  
☐ Care professionals  
☐ IT industry  
☐ End-users  
☐ Others |
| 4   | In the longer run, the acknowledgment of socio-technical innovation in relevant policy strategies for eCare in the individual EU Member States might deserve to receive more attention than it seems to be the case today. Member States’ activities could for example be informed by synthesized guidance (see recommendation 2). | ☑️ European Commission  
☑️ Member States  
☑️ (e)Care service providers  
☑️ Care professionals  
☐ IT industry  
☐ End-users  
☐ Others |
| 5   | Opportunities to support the creation and collation of evidence on eCare business models that exist in the framework of the European Union’s more market-oriented funding programmes as well as similar schemes funded by national governments should be better exploited. This could for example be done through a dedicated exchange on business models, and good practices, where both experiences from recent deployment projects in the CIP and AAL programme and from other activities could be shared. | ☑️ European Commission  
☑️ Member States  
☑️ (e)Care service providers  
☑️ Care professionals  
☑️ IT industry  
☐ End-users  
☑️ Others |
| 6   | Beyond this, there may be value in exploring further measures by which service providers can be supported in the development of viable business models. Practical examples of how business case modelling can be applied in eCare could be derived both from other branches of the economy which do not immediately relate to eCare and from eCare projects carried out under the European Commission’s CIP programme. European project funding schemes, but also national programmes could become vehicles | ☑️ European Commission  
☑️ Member States  
☑️ (e)Care service providers  
☑️ Care professionals  
☑️ IT industry  
☐ End-users  
☑️ Others |
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| 7   | Further guidance to service providers and other relevant stakeholders on how to understand and how to deal with the multitude of national and international laws concerning eCare would be useful and should be provided. In the longer run it could also help to identify cases of contradicting regulations, and to start according revision processes of individual pieces of legislation. The European Union could play a supportive role in this process of shaping more certain frameworks in various regards. To begin with, it could be examined whether interpretive guidance in relation to relevant EU-level legislation (such as Directives 1999/44 and 2000/31) could contribute to a higher level of legal certainty concerning the individual service domains covered by this benchmarking exercise. Further guidance on the national level could be created on the basis of existing examples in collaboration with service providers and legal experts from different Member States. | ☑ European Commission □ Member States  
☑ (e)Care service providers  
☐ Care professionals  
☐ IT industry  
☐ End-users  
☑ Others |
| 8   | An exchange forum for information and experience cutting across different regulatory fields (such as data protection, consumer rights, patient rights) may foster the establishment of a higher level of legal certainty with respect to the provision of different types of eCare services. Such a forum could include social/health care service providers, policy makers from the EU and national level, and the IT industry and serve as a reference point for developing common objectives across the EU while leaving sufficient room for shaping frameworks at the national level according to the necessities of their individual jurisdictions. | ☑ European Commission  
☑ Member States  
☑ (e)Care service providers  
☐ Care professionals  
☑ IT industry  
☐ End-users  
☐ Others |
| 9   | The issue of eCare within policy strategies for integrated care would benefit from more dedicated attention in order to facilitate the materialisation of the benefits that integrated eCare services can bring about. One way to achieve this would be through the establishment of appropriate mechanisms that facilitate both the use of ICT across sectors (e.g. in terms of data protection and privacy) and the reimbursement of integrated eCare services. While the responsibility for the governance structures concerned lies with the individual Member States, the European Union could take a coordinating role by bringing together key players from all relevant sectors in the countries with a view to learning from existing practice and identifying facilitating factors and barriers that exist today. The European Commission could furthermore contribute experiences and evidence gained from currently ongoing pilot projects for integrated eCare that are carried out within the CIP programme, as well as from future funded activities | ☑ European Commission  
☑ Member States  
☑ (e)Care service providers  
☐ Care professionals  
☐ IT industry  
☐ End-users  
☑ Others |
| 10  | The European Commission is recommended to more closely analyse existing examples of policy and regulation mechanisms through which these approaches are made known to a wider audience and their use promoted among those who plan to set up new services with the support of such funds. | ☑ European Commission  
☐ Member States |
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<td>11</td>
<td>Although it may not be appropriate to develop a single ethical ‘cookbook’ to guide practice across the various service domains and countries, there may be value in supporting a focused exercise on codification in this field, in the sense of breaking down high-level ethical principles into applicable actions for different contexts. This could include a systematic collation of the various guidelines, codes of practice etc. that have been developed so far, enabling a systematic examination of the possibilities and limits to codification in the field, and the identification of priorities for codification that could then be addressed by the appropriate stakeholders at the national and/or organisational level. The European Union could play a supportive role, e.g. through organising or supporting efforts to engage with, inform and assess the perspectives of the key players that exert an influence in the domains concerned.</td>
<td>☑ European Commission  ☑ Member States  ☑ (e)Care service providers  ☑ Care professionals  ☑ IT industry  ☑ End-users  ☑ Others</td>
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<td>12</td>
<td>With a view to strengthening the further deployment of innovative eCare online services and overcoming existing usage barriers, the European Commission is recommended to conduct further comparative analyses of existing online services, their users and their business models and to become active in the promotion of a further exchange on good practices in this field (building and expanding on what has been done in this study). Thought might also be given to providing funding for RTD and deployment, particularly through the Framework Programmes and the CIP and AAL programme, to foster the development and testing of innovative, user-centred and target-oriented online services, along with rigorous evaluations of impacts, costs and benefits.</td>
<td>☑ European Commission  ☑ Member States  ☑ (e)Care service providers  ☑ Care professionals  ☑ IT industry  ☑ End-users  ☑ Others</td>
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<td>13</td>
<td>It is recommended to better reflect the issue of e-skills requirements for care professionals in political strategies with the aim of providing better framework conditions for ICT training among care professionals, particularly with a view to improving skills levels among the full range of professionals both in social and in health care. The European Commission could take a co-ordinating role in this field, not only fostering exchange on good practice but also by inviting relevant stakeholders (including education</td>
<td>☑ European Commission  ☑ Member States  ☑ (e)Care service providers  ☑ Care professionals  ☑ IT industry  ☑ End-users  ☑ Others</td>
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institutions, service providers, care professionals and IT manufacturers) to agree on common standards on how to effectively teach and train basic and occupational ICT skills. The special focus should be upon quality, effectiveness and accessibility of ICT training.

14 EU policy could play a facilitating role in the establishment of a European focal point for eCare evidence, e.g. by creating lacking evidence, by bringing together results which already exist today and by making it more suitable for the purposes of strategic decision making and eCare implementation on the ground. One way to achieve these objectives would be through a European observatory for eCare, as a dedicated EU effort and equipped with the necessary resources to carry out a series of tasks, similarly to initiatives that have for instance been implemented in other areas such as e-business e.g. eBusiness W@tch. With a view to the involvement of different stakeholders with a prime interest in the matter it might make sense to explore options through which players such as the eCare industry (including associations) as well as European associations of providers, professionals and users could contribute to the setting-up of such a framework.

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