

White paper

# Telecare outcomes framework

An integrated, multi-stakeholder approach for identifying and quantifying the beneficial outcomes of advanced levels of telecare

**\*\* Under Embargo \*\***

Service users and their family

Social care

Healthcare

Allied public services

## Executive Summary

As policy makers, commissioners and providers of health and care services strive to find new solutions to the ever growing pressures of ageing populations, telecare is increasingly an area of interest. In many municipalities, reactive telecare is already a well-established component of social care, albeit to varying levels of deployment and maturity. Globally, Spain is widely cited as the leading exemplar of proactive telecare, having commenced and progressively refined this approach since the late 1990s. Whilst leading thinkers are investigating this potential for their own systems, one of the challenges has been a lack of clarity on the economic and operational evidence for commissioners at all levels of telecare.

Telecare benefits services users, family/friend carers and the social care and healthcare systems that enable the service to be delivered. Multiple studies have investigated different aspects of telecare, often in isolation, but one of the challenges has been assessing these across the complete ecosystem, and identifying the benefits for each of the stakeholder groups.

Recognising this challenge as part of the Tunstall funded independent research programme, work was commissioned to develop a unified outcomes framework for telecare. The new model provides an integrated, ecosystem wide perspective which also outlines the principal benefit groupings per stakeholder. These are designed to span all tiers of telecare. As such the approach can facilitate analysis at any one tier as well as investigation of the opportunities in transitioning to higher tier capabilities. The approach aligns with the 'quadruple aims model'<sup>1</sup> and reflects potential outcomes which improve health and care results, cost efficiencies and user/carer experience.

Spanning health and care, the framework can be particularly effective in facilitating integrated planning for telecare programmes and we recommend its adoption by policy makers and commissioners in each of these sectors.

The framework has been used as part of the Tunstall research programme to frame each study enabling the findings to progressively build an ever more complete perspective for all stakeholders and each area of benefit. We recommend that other analysts and researchers adopt the framework to progressively expand the evidence base using aligned terminology and comparability between different research findings.

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<sup>1</sup> Institute for Healthcare Improvement, <http://www.ihl.org/>

## 1.0 Introduction and context

Telecare is an increasing area of interest for policy makers and commissioners in health and care as they strive to find new solutions to the challenges of an ageing population. Advanced forms of telecare which seek to proactively support service users and their family and avoid or reduce emergencies and adverse events is a key focus. However, well deployed and managed reactive telecare (personal emergency response) can also offer significant benefits and this remains a core component of even the most advanced approaches. With policy makers and commissioners investigating such options, one of the challenges has been the lack of clarity on the operational and economic evidence at all levels of telecare.

In response, Tunstall commissioned an independent research programme to analyse the outcomes realised which span each of the reactive, proactive and personalised telecare tiers. The programme is ongoing and the most recent research has been published in “The transformational potential of telecare” whitepaper<sup>2</sup>. Earlier work was presented in the “Demand Management from Care homes” whitepaper<sup>3</sup>.

This work highlighted not only the very significant beneficial outcomes but also the complexities with benefits accruing across social-care, healthcare, user, carer and wider ecosystems. From a commissioner perspective, this might mean some of the benefits could be realised outside of their scope - for example if commissioned in social care, some of the benefits would be realised in healthcare and vice versa. Whilst this is a reality commissioners routinely manage, it is critical to understand, particularly when considering policy on an integrated health and care basis.

To overcome these issues, a project within the Tunstall research programme has also developed a new integrated and unified multi-stakeholder outcomes framework for identification and quantification of telecare outcomes. This has been used to frame each of the programme’s research projects and we believe it has wider potential applicability for policy makers, commissioners and analysts working in this field. Specifically the model;

- Enables the full range of benefits per stakeholder to be considered in context and with the ability to drill down to progressive levels of granularity.
- Spans reactive through proactive, personalised and predictive levels of telecare so that opportunities at each tier, or in progressing to different tiers can be considered.
- Aligns with the ‘Quadruple aim model’<sup>1</sup> to reflect outcomes which improve health and care results, cost efficiencies and user/carer experience.
- Enables new (or existing) research to be reflected in full context such that the findings can progressively build to a more complete overall evidence base.
- Is particularly helpful for integrated health and care analysis and planning for telecare at policy and commissioning levels.

This paper presents the framework and discusses the key themes for each of the stakeholder groups; users and family/friend carers, social care, healthcare and allied services.

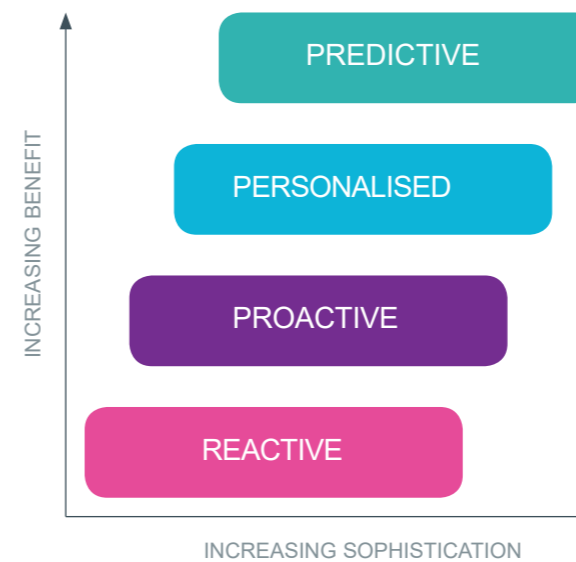
<sup>2</sup> Tunstall “The transformational potential of telecare” March 2020

<sup>3</sup> Tunstall “Demand management from care homes” March 2018

## 2.0 Core concepts

The term “Telecare” spans a range of technology enabled care services from reactive personal emergency response (telealarm) through advanced proactive and personalised services designed to reduce or prevent adverse events arising. This is a significant spectrum and one which can be extended further with data-driven predictive analytics.

Figure 1: Telecare tiers



With each incremental tier the potential range of benefits increase along with the degree of service sophistication. As such, benefits accessible via higher order services many not be realisable at lower tiers. However, to ensure the framework can be used for all potential options and scenarios (whether measuring and extending performance at one tier or evaluating the further opportunities at other tiers) the structure has been developed on a unified basis which is applicable across this spectrum.

At the personal emergency response level (**reactive** telecare), installed sensors, worn pendants or other devices ensure user or system triggered alarms can rapidly identify issues to the monitoring centre. Once triggered the monitoring centre will establish contact, triage the issue and deliver the necessary support or external responses as needed.

**Proactive** telecare incorporates reactive capability but extends this on a preventative basis with the objective being to avoid or reduce critical situations arising in the first place. Delivered as an integrated programme of outbound calls, follow ups, home care visits, along with advice and guidance, proactive telecare provides much broader and holistic support for service users, and their informal (family and friend) carers.

The benefit of a proactive approach can be enhanced when the service is **personalised** to the specific situation of the service user/carer through an ongoing needs stratification methodology. As well as better meeting individual’s needs the approach enables far greater support to be directed to the cohort of users with the highest needs, risks and/or service usage. It is of course this group who are most likely to place higher demands on social care and healthcare systems and by improving their support these impacts can be reduced.

Use of data-driven **predictive** analytics extend the proactive/personalised capability to facilitate even earlier identification of potential issues such that interventions can be made more quickly reducing the impacts on the service user and their support systems.

### 3.0 Telecare outcomes model

In each of these scenarios, the common objective is to provide better support to help manage service user's evolving situations throughout their time using telecare. By contributing to helping keeping service users in 'normal range' or returning them to 'normal range' more quickly, more acute and ultimately critical emergency situations can be avoided. However, where a service-user's situation progresses outside of the appropriate range then the time for interventions intended to remedy the situation can be limited before an emergency situation arises. Whilst a range of responses may be involved, the risk of a full emergency health response is ever present. Commencing with an ambulance mobilisation, potential conveyance and emergency department attendance, the potential for hospital admission and later complex discharge processes is an all too familiar sequence of events.

Building on the core concepts, the outcomes framework is centred on the dual premise of using telecare to support users to live safely and independently for longer and thereby, delaying or avoiding more costly social or healthcare services.

The potential benefits per stakeholder have been developed based on insight from the research programme and discussion/refinement with Tunstall's thought leaders. They define where benefit is most likely to accrue depending upon the level and maturity of the telecare programme under study.

In addition to the defined benefit levels (as shown in figure 2) it is also possible to extend these further, to sub-segment each benefit as applicable in particular situations. However, by retaining the top level structure as presented, comparability of aggregated results can be maintained.

#### 3.1 Potential benefits for Service Users

For service users, the central themes include an increased sense of safety, independence and self-sufficiency with consequent impacts in terms of peace of mind. The degrees of benefit will vary according to the level and extent of the telecare service under consideration. However, in all cases, the principal is the areas of benefit remain consistent within the model and the degree of benefit in each will vary accordingly.

In research funded by Tunstall in Spain, the user perceptions of each of these aspects have been investigated in a patient reported outcomes measures (PROMS) study<sup>4</sup> involving 1200 respondents. This compared ratings for users of proactive telecare compared to a control group who met the criteria for telecare to be provided, but had not yet had it deployed. The results showed 96.1% of users indicated an improvement in their perceptions of their safety. Prior to telecare a mean rating of 5.9 (on a 0-10 scale) was reported for perception of safety, with this increasing to 7.9 with proactive telecare. The full findings can be seen in 'The transformational potential of telecare' whitepaper<sup>2</sup>.

#### 3.2 Potential benefits for Carers

For family and friend carers, peace of mind is critical. This can be influenced by their knowledge of the increased independence and self-sufficiency of the service user and the reassurance that facilities are in place to identify and rapidly respond to issues arising. It can also be driven by the support they received directly.

Advanced services (at proactive/personalised levels) can support informal carers to help them to cope with the stress and wider impacts that caring may incur. Unless resolved, some of these risk secondary impacts on the carer's own health and wellbeing which may also place higher burdens on the systems. 'Carer enablement' considers the benefit of tools and guidance to help carers provide

care more effectively and efficiently. Collectively with 'carer support' this can help reduce burnout related breaking points which can otherwise threaten both the carer's own wellbeing and their ability to continue providing care.

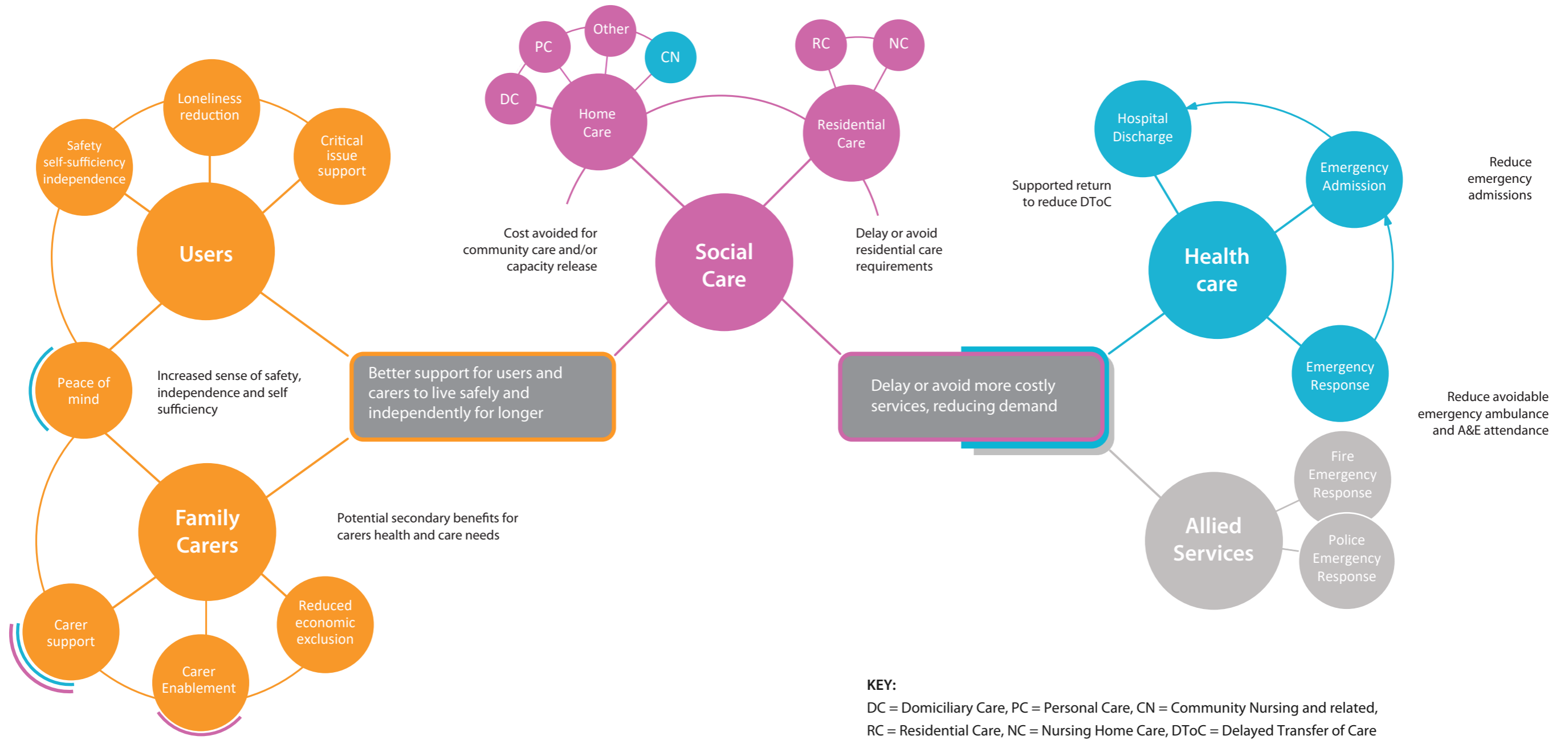
The further potential theme for family carers, and ultimately society, is reduced economic exclusion. With carers frequently having to dedicate time to caring which may otherwise have been used for paid employment, the lost earning potential can be considerable. This may also have further costs for social care systems funding carer social payments<sup>5</sup>, and ultimately taxation revenue. Each of these factors can be considered within this theme.

In the PROMS based research in Spain<sup>5</sup> noted earlier, it is striking that the improvement of peace of mind for families was the highest rated benefit across the service user perceptions. With proactive telecare in place, the share of service users indicating a benefit for their families was 98%, and the degree of benefit improvement was also the largest (rating 5.7 prior to telecare and 7.8 once this was enabled – both on a 0-10 scale). The full findings can be seen in 'The transformational potential of telecare' whitepaper<sup>2</sup>.

<sup>4</sup> The impact of Telecare services on Elderly People and their family, Foundation for Health and Ageing at the Universitat Autònoma de Barcelona (FSIE-UAB), 2016, funded by Tunstall Televida

<sup>5</sup> These costs normally being born by Social Care

**Figure 2:**  
Telecare outcomes framework showing the benefit domains per stakeholder grouping



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### 3.3 Potential benefits for Social Care

In the centre of figure 2, the potential benefits for social care are identified in two broad classifications; home and residential care.

For service users living independently in their own homes, this is focussed on the potential change in the costs/capacity of other home care service requirements as the result of telecare. Domiciliary and personal care delivered into users' homes are the principal aspects, but there can be other more specialised support services depending on the particular care system.

Community nursing is a health service as denoted in the (blue) colour coding, but with multiple cross dependencies between social care and nursing delivered into the home, these benefits are reflected in the branch linking community based home care.

When service users are no longer able to live independently then transition to residential or nursing home care is often the next step. Telecare can be used in residential care settings and a separate stream of the Tunstall research programme has investigated the specific impacts. This has been published in the Tunstall 'Demand Management from Care Homes' whitepaper<sup>2</sup>. In this framework however, where the focus is on people continuing to live independently, the principal potential benefit is the extent to which telecare may be able to delay or even avoid the need for residential care.

Based on the Tunstall research, in the UK with reactive telecare, the costs avoided in home care with telecare compared with a cohort with matched needs but without telecare was approximately £4.5k<sup>6</sup> per service user per annum. Further work in Spain analysing the impacts of proactive and personalised telecare identified an

extension in the time before residential care was required. This released residential capacity valued at £5.9k<sup>7</sup> per telecare service user based on the 2011-2018 transition<sup>7</sup>.

### 3.4 Potential benefits for Healthcare

When emergency situations arise, healthcare is frequently engaged. In the first instance this includes emergency ambulance attendance, then potential conveyance and emergency department attendance. Where the situation necessitates, this can also lead to an emergency hospital admission, and then ultimately discharge when the patient is clinically fit. In practise however, discharge can be much more complex for the frail and elderly leading to delayed transfer of care (DToc) when the patient is clinically fit, but where the care facilities are not in place to enable their discharge.

Telecare has the potential to influence all of these aspects. Supported post discharge programmes using telecare can help reduce DToc. Most significantly however, reduction in emergency situations and the consequent chains of activity can offer significant potential. As an example, in Tunstall's research programme, the study of impact of progressively more proactive/personalised telecare in Spain found a 36%<sup>7</sup> reduction in emergency ambulance mobilisations per person, per annum over the 2011-2018 study period.

<sup>6</sup> YHEC research for Tunstall investigating the impacts on social care costs of reactive telecare with Lancashire County Council, as published in "The transformational potential of telecare", Tunstall, March 2020

<sup>7</sup> Igenetica research for Tunstall, on the benefits realised through proactive and personalised telecare in Spain 2011-2018, as published in "The transformational potential of Telecare", Tunstall, March 2020

### 3.5 Potential benefits for Allied Services

Social care and healthcare are of course not the only public services potentially beneficially impacted by telecare. Although smaller in terms of economic and operational impact, the fire and police services can also be involved in emergency responses, the volume of which may be reduced through the application of telecare. The police service for example may be called out to make entry when access can't otherwise be secured (such as through a remotely controlled lock or key safe). The fire service may similarly be called out in the case of directly linked fire alarms, which may be triaged via a telecare alarm to eliminate false alarms etc.

### 4.0 Benefit measurement and realisation

The structure provides an integrated framework for the identification of potential telecare outcomes with the specific means of quantification being developed locally as appropriate based on the specific situation and data sources. We would however suggest using a per-person/per-annum (pp/pa) basis to enable simple comparison between other findings and for scaling to different potential user populations.

Whilst the structure provides clarity on the potential outcomes, realisation of these is enabled by a range of factors spanning the underlying technology, the effectiveness of the delivered telecare services and the wider telecare programme itself. Creating an approach to assess the levels of maturity is a current focus and we hope to be able to share a methodology for this in due course. The proposed approach would use assessment of current states and from this to identify opportunities to increase benefits realisation.

## 5.0 Recommendations

The outcomes framework provides a readily applied structure for identification and quantification of potential telecare benefits. This reflects the system wide context and supports the development of common terminology, structure and approach for telecare evaluation and/or planning.

For Tunstall's own part, this approach has been used to frame all current research programmes with the conclusions from each progressively building an ever more complete perspective for each stakeholder and each area of benefit. We recommend that analysts and researchers also make use of the approach to enable industry wide evidence to be developed more effectively and on directly comparable terms.

We recommend its use by policy makers and commissioners to help support health, care and wider public service planning approach using telecare to contribute to addressing challenges of an ageing population.

The model has been developed to cater for a wider range of telecare situations. However, based on ongoing development of telecare capabilities and consequent changes in beneficial outcomes, the framework will adapt and develop accordingly.

## Further information

Tunstall is committed to an ongoing research programme to help inform and support the most effective application of telecare in addressing the challenges arising from ageing populations. With over 60 years of telecare innovation experience, Tunstall has the expertise and capability to help policy makers, commissioners/payers and practitioners maximise the potential. To learn more, please contact your account manager or alternatively call +44 01977 661234 or email [enquiries@tunstall.com](mailto:enquiries@tunstall.com)