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1. Introduction

Telecare and assisted living technologies are increasingly being used to help support people to live more independent lives at home and when out and about in their community.

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This training resource has been developed to promote the positive contribution this technology can make to individuals' independence, well-being, lifestyle and opportunities. It aims to increase workers knowledge and confidence, engage and excite them to the opportunities technology can offer as part of health, housing and social care support in Wales. Supporting the implementation of the *Social Services and Well-being (Wales) Act 2014* it promotes a workforce who can work creatively and collaboratively to find solutions to support and achieve positive outcomes for individuals.

The resource has been designed to help those who provide training to people working in social care, health and housing. Due to the nature of the subject and the potential for differences in local services, the courses should be delivered by facilitators who have knowledge of the subject and of local services and processes.

The training resources consist of **two half-day courses;** one on **awareness**, which offers a broad overview of assistive technology and telecare and another more advanced course covering **assessment** in more detail. Each course can be run separately or together as a full-day course.

2. Who is this guide for?

This facilitator's guide is for anyone who needs to navigate around these learning resources, for example learning and development managers, and in particular for learning facilitators who need to deliver training based on these materials.

The learning materials include PowerPoint presentations, handouts, exercises, suggested group discussions, points of reflection and case studies that facilitators can use either in their entirety or to pick and choose from as they see fit when designing a learning programme.

3. How to use these training resources

It is recommended that you read this Facilitator's guide thoroughly before starting out. This guide will explain what resources are available, and will suggest how to use them to create an effective learning experience.





3.1 List of resources

The course materials are based around two half-day courses; one on **awareness** and a second on **assessment**. The method of course delivery is primarily a presentation-style format but with ample opportunities for group-based discussions, tasks and exercises to mix up the learning styles. The following table lists the resources that are available to support the delivery of these courses.

Awareness course	PowerPoint presentation
	Facilitator's notes
	Participant's guide
Assessment course	PowerPoint presentation
	Facilitator's notes
	Participant's guide
Common resources	Facilitator's guide (This document)
	Exercise - The Technology We Use Everyday
	Have a Go! - Card-based exercise
	Glossary of terms
	Course evaluation form

3.2 Course delivery options

Each course consists of four sessions of approximately 45 minutes each and can be run as two separate half-day courses or as a single full-day course depending on local requirements.





There is some flexibility allowing sections (and presentation slides) to be omitted, amended and added to according to both the local situation and the composition of the audience. This also applies to possible modules on different user groups (children, learning disability, dementia, etc.) and on different technologies.

Example timetable for morning delivery:

9.15	Registration	
9.30	Session 1	
10.15	Session 2	
11.00	Break	
11.15	Session 3	
12.00	Session 4	
12.45	End of training	

Timings are of course indicative and should be adjusted as needed.

3.3 Room and equipment requirements

We recommend that the room chosen is sufficiently large to seat up to 20 participants. To facilitate group-based exercises, it is recommended that the seating arrangement for the room is in a cabaret/half-moon arrangement as shown below, although this is not essential.



The room will require a projector capable of displaying PowerPoint slides onto a screen or wall (assuming that the presenter is providing their own computer – otherwise a computer will also be necessary). It is recommended that a system capable of displaying a separate image to the projector is available so that the computer screen can be placed in Presenter View which is particularly useful.



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Social Services and Well-being (Wales) Act



To facilitate the Exercise – The technology we use every day and also to perhaps record questions or issues as the course progresses, a number of flipcharts should be available. We recommend three. Alternatively, magic whiteboard sheets could be used and temporarily attached to the walls of the room.

Equipment checklist

- Screen/large white wall
- Projector
- Computer with PowerPoint and linked to speakers
- Seating for up to 20 delegates
- Flipcharts x 3 or Magic Whiteboard¹ sheets
- Flipchart pens (various colours)
- Whiteboard pens (if using magic whiteboard) and eraser
- Post It Notes (for Exercise)
- Pens
- Notepads

¹ For example: http://www.amazon.co.uk/Magic-Whiteboard-MAGICWHITE/dp/B001P5UAV8/







3.4 Housekeeping notes

Prior to beginning the course, it may be necessary for the presenter to provide instruction on:

- Location of facilities
- Fire alarms
- Escape routes
- Use of mobile phones
- Taking of notes
- Arrangement of groups
- Tea/coffee break
- Course evaluation forms

The exact details to be provided here depend on those relevant to the venue. The presenter should know if a fire alarm test is due but should anyway indicate escape routes and procedures, the location of toilets and arrangements for the break and the organisation of seating within the room.

The availability (or not) of a hearing loop should be noted, and anyone with a vision problem invited to come closer to the front. It may be necessary to ask if everyone is warm enough, or if they want any windows to be opened. If translation facilities are to be provided, then people who will require translation should be invited to collect a headset and to check that they are functioning correctly.

3.5 Feedback and handling difficult questions

We suggest that, at the end of a training session or learning programme, you take time to reflect on the learning experience with participants and to help them identify their next steps and key actions. This should include asking learners, either individually or in pairs, to consider some of the points below:

- What has struck you most about this course?
- How will the course impact on how you perform your role?
- What are likely to be the biggest challenges for you?
- What actions will you need to take?
- What further support do you need?





During the training session it is likely that participants will ask questions about the details of implementation in their local area. There may be many occasions when you as a facilitator are unable to answer these questions or address some of the tricky issues that arise. One way of managing this is to have a flip chart for 'tricky issues and unanswered questions'. The issues and questions can be written on the flip chart and then used to provide feedback to the people who have commissioned the training. As the training develops over a number of sessions it might be useful to develop a handout of Frequently Asked Questions with the official responses.

3.6 Tailoring the course to local circumstances

There is scope within the courses to introduce information on local telecare and community equipment services and procedures. This information should include the referral routes, any limitations on service provision (e.g. whether out-of-hours installations are possible, and the availability of emergency response service). Eligibility for free services should be noted (if appropriate) and the approximate weekly cost for those who are self-funding.

3.7 Course evaluation

It is important to obtain feedback from the participants who attend the courses. This is to ensure that the training is appropriate and is working for people who are attending. Reviewing feedback received is important to ensure that the course remains relevant and addresses any concerns or issues that are raised during the sessions.

An evaluation form has been developed and is available for printing. It is advisable to hand out the evaluation forms towards the end of the course.

4. Context and background information

Technology can and does make a real difference to people's lives every single day. Where would we be without all those gadgets and apps that help make our lives easier, more convenient or more fun? Stop and think for a moment about the technology you've already used today...

Maybe it started with a bedside alarm clock (or an app on your smartphone) and then perhaps you switched the light on in your bedroom, and appreciated how nice and warm it felt thanks to the central heating. Perhaps you then used the toilet (where would we be without that piece of technology!) and had a nice warm shower before taking the towel off your towel heater to get nice and warm and dry.





You get the point by now I'm sure. We all use technology to make our lives easier. We just take so much of it for granted, sometimes we don't even consider it to be 'technology' anymore especially when we compare it to the most recent Internet connected thingamajig in our gadget collection – and the fact that it rarely goes wrong!

This course is called, **The Difference Technology Can Make** – only we are looking specifically at a range of technologies that are designed to help keep people with additional needs independent. These needs may be related to the person's age, a dementia, diabetes, general frailty, social isolation, a learning disability, a sensory impairment or various combinations of factors, including the environmental impact of their home. In these circumstances, technology, and any associated services built around it, is designed to help people to live their lives to the full either in their own home and/or when out an about in their local neighbourhood. Sometimes the technology used will be specifically designed for this purpose; other times it may be more generally available technology that everyone uses.

4.1 A note on terminology

This course is not about assistive technology (AT) in the traditional sense. Assistive technology is such a broad field, that it encompasses many different uses and types of technology. Figure 1 shows four quadrants, where we have split AT into four different groups:

- 1. **Fixed AT** this includes products such as grab-rails, walk-in baths and stair lifts i.e. physical products that are fixed to the home.
- 2. Portable AT this includes tap turners, kettle tippers and walking frames.
- 3. **Electronic AT** including products such as environmental control systems to help individuals to automate or control various items in their home; and
- 4. **Connected AT** this includes products which tend to link with others such as fall alarms, epilepsy alarms, gas alarms, medication dispensers and other digital care and telecare applications/services.

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It is this final quadrant that this course is mainly focussed on (shaded in blue), although due to the nature of AT, there is a small overlap with the other areas occasionally. Unfortunately, there are so many sub-categories of product or service and various different ways of categorising them that the terms used to describe these technologies can sometimes be a little confusing.

For example, some terminology focusses on the underlying enabling technology (e.g. Internet of Things). Other terms focus on the support model which is enabled (e.g. *plesiocare* – which means 'near' care as opposed to *telecare* - which means care at a distance. So, plesiocare refers to a situation where technology is being used to directly notify a carer who lives in the home as opposed to telecare where it would typically be routed through a monitoring centre first). Sometimes terminology describes whether the technology is available when on the move (e.g. wearables, mCare, mHealth – where m is for *mobile*).



It is important not to get too hung up on all of these terms but at the same time, it is probably a good idea to be aware of them and what some of the differences are. We have developed a glossary of terms to help with this (available as a separate document). **The most commonly used Equipment to be aware of are:**

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- Telecare² 'Telecare is support and assistance provided at a distance using information and communication technology. It is the continuous, automatic and remote monitoring of users by means of sensors to enable them to continue living in their own home, while minimising risks such as a fall, gas and flood detection and relate to other real time emergencies and lifestyle changes over time.'
- Telehealth³ 'Telehealth is the remote exchange of data between a patient at home and their clinician(s) to assist in diagnosis and monitoring typically used to support patients with Long Term Conditions. Among other things it comprises of fixed or mobile home units to measure and monitor temperatures, blood pressure and other vital signs parameters (and the answering of targeted questions) for clinical review at a remote location using phone lines or wireless technology.'

Both of these can be considered under the umbrella term 'Technology Enabled Care' (TEC) which is a relatively new term. Often, the word 'services' is appended to this term to form TECS, although this does not then cover products that work in a stand-alone fashion where there is no on-going service component. We're glad to have cleared that up!



² https://www.tsa-voice.org.uk/consumer-services/what-is-telecare

³ https://www.tsa-voice.org.uk/consumer-services/what-is-telehealth



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4.2 The drivers for change

Why are we looking increasingly to use technology to help people to stay independent for longer? Part of the answer is because the technology is better now and offers more opportunity to support people to get on with their lives. The next section will discuss the wide spectrum of technological applications that are available. Some people will say it is because it is cheaper than the alternative (i.e. people-powered care). There may be some truth in that, lower-cost options are always tempting in times of austerity; but technology used in isolation and without a proper consideration of the needs of the people who will use it will not produce successful outcomes. It is important that local services are structured to take advantage of the opportunities that technology can provide. Technology is not a universal panacea. It must be used responsibly and ethically and its benefits must not be oversold. There are some things that technology does very well but there are countless of instances where real-life carers are, and always will be, the best option.

There are an estimated 384,056 people who provide unpaid care for a disabled, seriously-ill or an older loved one in Wales, saving the state £8.1 billion a year. Not only are more people caring, but they are caring for longer. Since 2001, the number of people providing 20-49 hours of care a week has increased by almost a third (31 per cent) and those providing 50 hours of care or more a week has increased by nearly a quarter (23 per cent)⁴. The number of people needing care, and those needing care for longer periods of time, has increased significantly since 2001. However, as the Welsh population continues to age and local authority funding is in decline, leaving families to increasingly step in to fill the gap.

Wales has a population with the highest proportion of older people in the UK. The population of Wales is approximately 3.1 million of which approximately 615,000 people are aged 65 or over. Of these, approximately 197,000 are aged between 75 and 84 and about 79,000 are aged 85 or over⁵. Approximately 6 per cent of those aged 65 and over live alone⁶.

This situation is only going to get worse as:

• the number of people in Wales **aged 16-64** is projected to **decrease** by 95,000 (5.0 per cent) between 2014 and 2039; whilst over the same period

• the number of people aged 65 and over is projected to increase by 292,000 (44 per cent).

These figures are used to calculate the dependency ratio (i.e. the ratio of the number of people of working age to the number of people of state pension age). It provides an indication of the number of people of working age who will be able to support and care for people who have retired. The following chart shows quite dramatically the projected fall in the dependency ratio for Wales over this period.

- ⁴ Valuing Carers 2015 the rising value of carers' support [2015] University of Sheffield, University of Leeds and CIRCLE, published by Carers UK
- ⁵ https://statswales.wales.gov.uk/Catalogue/Population-and-Migration/Population/Estimates/ nationallevelpopulationestimates-by-year-age-ukcountry
- ⁶ http://www.wales.nhs.uk/sitesplus/922/page/75838





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As the population ages, so it will be affected more by various chronic and long term illnesses. For example, one in sixteen people over 65 and one in six over the age of 80 will be affected by dementia. Current estimates are that approximately 43,000 people in Wales are experiencing dementia and this is projected to increase by 2021 by an average of 30 per cent and by as much as 44 per cent in some rural areas⁷. Similarly there will be increasing numbers of people with physical and sensory disabilities who will likely benefit from some form of technology specific to their condition(s).

So with the capacity of informal care being reduced and the ability of local authorities to provide sufficient care, there is a clear need to better manage the resources that are available more effectively and one of the mechanisms by which this may be achieved is with technology.

As demand for technology enabled care grows, and the market increases, it should influence equipment manufacturers to introduce new and better products that meet the needs of individuals who wish to remain independent. Moreover, as digital technologies converge and become increasingly commonplace within the home and across public places, new ways of providing these services will be devised.

⁷ Welsh Government (2012) Together for Mental Health A Strategy for Mental Health and Wellbeing in Wales.





The combined effect of the **increasing need to support people to live healthy and fulfilling independent lives** (the 'market pull') with the **development of more and better technological solutions** (the 'technology push') will result in technological solutions that **better** meet the needs of a **greater** number of people.

4.3 Models of Technology Enabled Care

There is a broad spectrum of technology enabled care which ranges from medical alarms through to the ability to easily obtain information or receive entertainment with plenty of others inbetween!



These applications of technology enabled care can be considered as being related to one of two main groups:

- 1. **Support and assistance** applications which help people to get on with their lives by making things easier; and
- 2. **Safety and well-being** applications which help to keep people safe and which will contact appropriate responders automatically in the event of a problem or perceived problem.



The former includes systems that provide a simplified user interface for accessing web-based services perhaps on the television and for using video communication with loved ones or care professionals. It could also include reminder devices, special clocks for individuals with dementia to help them know the time of day in a format which makes sense to them or it could include a GPS tracking device which could guide them home if they get lost. Perhaps a simplified mobile phone which is easy to use with very simple options would provide the necessary confidence to support independence, knowing that help could be raised if the need arises.

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The latter includes both active and passive systems i.e. systems which require the interaction of a person to initiate a response and those that will automatically raise an alarm if there is a potential problem. They can also be split into reactive and predictive which means systems that raise an alarm after a problem has occurred and those which raise an alert prior to a significant problem occurring based on an interpretation of current data and events when compared with historically established norms.

It may be evident that the nature of the technology deployed will vary greatly depending on the circumstances of the individual user. For instance, the type of equipment deployed for an individual with only a single issue that requires the intervention of technology and who has a live-in carer available at all times might be very simple. In such circumstances, a single sensor paired locally with an alerting device might be all that is required. However, for an individual with complex needs who lives alone, a more intricate package may be required.

Figure 4







It is often apparent from the issues that individuals face that many of them relate directly to their risk of an accident or illness or are risks associated with lifestyle choices or their coping strategies. In each case, the risks need to be managed either by reducing the likelihood of an adverse incident occurring or by reducing the impact of such an event. An effective means of supporting an improved outcome is through early detection and identification of an incident leading to an appropriate response. Typically then, this leads to the following common deployment models for safety and wellbeing packages:

- **Basic Telecare** the traditional monitoring centre model, where alarms are routed through to a call handling centre and an operator is responsible for determining the needs of the individual and of arranging for, or contacting the most appropriate responder, following a personalised response protocol with appropriate escalation procedures. This basic provision is for people with low needs and is sometimes referred to as a basic, core or entry-level package and will typically consist of a pendant, smoke alarm(s) and perhaps one or two other simple devices.
- **Complex Telecare** this is the same as basic telecare, except the needs of the individual are much more complex resulting in a more involved assessment process and larger telecare package. The package is likely to consist of more 'personal' telecare sensors and associated peripherals.
- **Plesiocare** this is where a local carer is capable of responding to alarms and requests for help. This typically refers to a situation where an individual is living with a spouse or other individual who is capable of offering support for some or all of the day. It may also refer to a small supported housing environment where one or more on-site carers are available to assist (e.g. learning disabilities). The system deployed may therefore not require any link with the outside world; although in practice, such a link is often desirable as a backup. This approach often results in a lower cost option, both in terms of the upfront cost of the equipment and on-going monitoring costs; however, its limitation is a lack of historical information on the nature and frequency of the alarms generated, which may offer an important insight in terms of preventing further problems.
- mCare this is where the alarm-based functionality is based around technologies that work when the individual is out and about. They often depend on the use of a mobile telephone or smartphone app but also include GPS location finders (some of which are integrated into a phone). Basic mCare can be implemented using standard mobile telephone handsets or using a low-cost unit with a dedicated alarm button programmed through to a monitoring centre or other informal responder network. More advanced mCare is possible as the take-up of smartphones increases in the target market and the development of more apps to support alarm-based functionality takes off (e.g. reminders and prompts, falls and epileptic fit detection). A further advantage of smartphones is their ability to communicate over the Internet and their inbuilt GPS receiver, which makes finding the user easier in the event of a problem when out and about.



4.4 Assessment processes

People rarely enter the health and social care system unless they or their families recognise that they are having difficulties coping with living independently. In some cases, it follows an incident such as a period of illness, an inpatient hospital experience for surgery, the death or indisposition of a spouse or an accident. But for others, it follows a long period of slow decline which ultimately affects the way that they are able to perform everyday tasks, their employment, their leisure or the ways that they have previously coped with life's challenges. Under the former circumstances, decisions tend to be taken quickly, and without a full understanding of the options; this can lead to future regrets if they subsequently relearn some of their life skills and are then able to take care of themselves. There remain many examples of people who move out of their homes and into residential care following a fall, or if their main carer becomes ill, because this approach appears as an immediately accessible means of managing risks - but often at the expense of a loss of long term independence.

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There are other options, including domiciliary care, meals services, day centres and visiting services that can compensate, in part, for some of these losses; technology can provide an ever-present means of support that can work alongside (and increasingly often instead of) other care provision to ensure that the solutions are robust and always available. However, assessments of care and support needs and risks to independence undertaken at (or shortly after) a time of crisis have sometimes focused on the traditional agendas of care, shown on the right-hand column of the following table, rather than on a person-centred approach (on the left-hand column). The approach to person-centred care..

ls	ls not
Person-centred	Practitioner-based
Strengths-based	Problem-based
Skill acquisition	Deficit focus
Collaboration	Professional dominance
Community integration	Acute treatment
Quality of life	Cure/Improvement
Community-based	Facility-based
Empowerment/Choices	Dependence
Least restrictive	Episodic
Preventive	Reactive



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A more person-centred approach is consistent with the use of individually prescribed technologies and services that embrace the use of assistive devices, but which also consider an individual's interests, their abilities, and their values. Very often, the idea of promoting lower-cost and more progressive options involving advanced technologies requires a cultural change both from individual assessors and from the general population who, without a far greater level of understanding, will be unaware of the enormous progress made in digital care products and how they can address specific issues.



It must be assumed that every person being assessed will need to overcome a number of issues and manage several risks. They need to be prioritised to ensure that they are offered a system which will keep them safe and give them an opportunity to improve their quality of life.

The diagram describes the steps that may be taken to select appropriate solutions and then build the service required to provide, install and maintain the relevant elements.

5. Part 1: Awareness course

5.1 Introduction

This awareness course provides a broad overview of assistive technology. It aims to increase workers knowledge and confidence, engage and excite them to the opportunities technology can offer as part of health, housing and social care support in Wales. It is appropriate for workers with little or no knowledge of the subject. The course should be adapted to include basic information about the telecare and community equipment services that are available locally.



5.2 Who is this course for?

This course is intended for anyone who is involved in the health, care and housing whether as frontline staff delivering care and support to individuals, managers who have to organise resources, or advocates who need to understand the increased choice and availability of suitable technology.

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The intended audience might include:

- managers who wish to add technology to individual care plans
- front-line staff who need to identify how technology could fit the needs of the people that they support
- assessors who need a basic grounding in the relevant technologies before embarking on further courses to increase their knowledge
- reablement service providers who may improve their service and prevent or delay the need for long term care by the timely provision of technology
- specialist providers of support for vulnerable groups
- registered Social Landlords and their staff who may wish to advise their tenant of options that are based on technology
- supported housing providers who offer services to people with learning disabilities who might be able to increase their independence through an extended use of technology
- members of the emergency services who need to appreciate the potential for technology to reduce the demands made on them
- representatives of third sector organisations who need to advise their members of the opportunities that are available through technology, and
- NHS employees who may be able to recognise the importance of technology in supporting safe discharge from hospital and an avoidance of readmission

5.3 PowerPoint presentation notes

Facilitator's notes for this course are included in the PowerPoint presentation file.

6. Part 2: Assessment course

6.1 Introduction

It is assumed that people attending this course will already be familiar with the topics covered in the awareness course. This course is specifically intended for anyone who will be responsible for undertaking an assessment of care and support needs of individuals and carers and provide preventative services. Assessors will need to be aware of the range of technologies that are available to help support people and will need to understand how to assess a person's needs and circumstances to establish their suitability for technology-based support – whether this is in the form of a product, set of products or a technology enabled care service. The course should be adapted to include information about the telecare and community equipment services that are available locally and the procedures for assessing for telecare/technology enabled care.

6.2 Who is this course for?

This course is intended for anyone who is involved in the health, care and housing whether as front-line staff delivering care and support to individuals, managers who have to organise resources, or advocates who need to understand the increased choice and availability of suitable technology.

The intended audience might include:

- managers who wish to add technology to individual care plans
- front-line staff who need to identify how technology could fit the needs of the people that they support
- assessors who need a basic grounding in the relevant technologies before embarking on further courses to increase their knowledge
- reablement service providers who may improve their service and prevent or delay the need for long term care by the timely provision of technology
- specialist providers of support for vulnerable groups
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6.3 PowerPoint presentation notes

Facilitator's notes for this course are included in the PowerPoint presentation file.

7. Other resources

7.1 Exercise – The technology we use everyday

There are two variants of this exercise – one for the awareness course and one for the assessment course.

Awareness course variant

The awareness course involves splitting participants into teams of three or four, each with sets of small post-it notes, and a big picture of a house with garage and garden shed.







Give participants 10 minutes to think of as many items of technology that they might have in their home. Ask them to write each item on a separate post-it note and stick them on the picture of the house on the room where it is most likely to be found.

This game, which is fully described on the accompanying slide, is aimed at making participants appreciate that technology is all around them in their homes. A small prize may be offered to the team which names the largest number of devices. Alternatively, it could be the largest number found in a specific room such as the bedroom or the kitchen. The facilitator can merge the contributions of the individual groups highlighting the ones which only one team thought of. The facilitator can also have their own product ideas which may be unusual and related to care and support. These might be an electronic reclining bed or chair or an electronic potato peeler or tin opener.

Assessment course variant

The assessment course involves asking delegates to list on to post-it notes items of technology that they use in their lives – either on their person or in their homes and garden. Once the list is generated, they are invited to place them against topics listed in one of three main subject areas, namely: 1) Activities of Daily Living; 2) Instrumental Activities of Daily Living and 3) Providing Quality of Life.



The aim is to illustrate just how much technology we use in our everyday lives and how they often help with Instrumental Activities of Daily Living and Quality of Life issues. It will also help identify areas where there are gaps that technology has not yet made a significant impact. Some preparation is required ready for this exercise. Using three separate flipcharts or magic whiteboard sheets (or any combination thereof), mark out the following grids:





Activities of Daily Living

On a 2 x 3 grid, list the following Activities of Daily Living:

- Dressing
- Bathing
- Transferring
- Using the toilet
- Walking
- Eating



Instrumental Activities of Daily Living

On a 3 x 3 grid, list the following Instrumental Activities of Daily Living:

- Grocery shopping
- Using the telephone
- Doing the laundry
- Chores in the home
- Managing medication
- Preparing meals
- Managing finances
- Personal grooming
- Getting out







Providing quality of life

On a 2 x 5 grid, list the following aspects which help provide a good Quality of Life:

- Entertainment
- Leisure
- Giving care
- News and Info
- Relationships
- Education
- Safety
- Security
- Comfort
- Company

Ask the question

"In groups of three or four, think about the technology you use every day... whether it's technology you carry with you or have in your home or garden. Write your answers down on the Post It notes provided."

Allow about five minutes for this exercise, and then ask people to list their answers.

"Now I would like you to place the items of technology on your post it notes against the most appropriate area on these three grids of Activities of Daily Living, Instrumental Activities of Daily Living and Quality of Life."

Discussion points

- Talk through where technology has made a significant impact on everyday lives especially in relation to automating aspects of performing housework.
- What technology would people not be able to do without? (People may suggest their smartphone, TV, the Internet, telephone, lighting, heating, washing machine, computer BUT what about their toilet?)
- How have smartphones/tablets been adopted by people in the session? Do they watch TV on their portable device? Do they use reminders or calendars? GPS Navigation? Augmented reality? For example where they can point their smartphone at a building or even an aeroplane in the sky and it will provide real-time information about it. Or do they just mostly play games?







• Where are the gaps? What technology would people like to see invented to make their lives easier? How about a robot personal assistant? One that does the ironing for them? Or which cooks their dinner? Or one that looks after Mam or Dad?

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7.2 Exercise – Have a Go! Card Game

The objective of this exercise is to help participants to reflect on what they have learned during the course. It will enable them to consider various case studies and identify issues that need to be addressed. It will also allow them to select a number of different AT or TECS technologies/services that support people and their carers to get on with living their lives to the full.







A case study will indicate a number of issues that will need addressing. Some of these may be successfully managed or supported using AT and Technology Enabled Care and Support (TECS). Delegates may then select the most appropriate 'Issue' cards and go on to consider what technological approaches could be used to support the individual(s) in the case study – taking into account their individual needs and circumstances – and linking through to the most appropriate responders (where relevant).

This approach will allow participants to consider all of the options and will allow them to build up their own packages of AT and TECS. This exercise provides a fun way of applying some of the knowledge covered in the course and will help participants to practice thinking about using different approaches to manage various issues and conditions.

The cards

This resource comes with four case studies, 12 issue cards and 20 product cards. These must be printed preferably onto good quality card. Lamination will help prolong their useful life. The cards are provided in a separate document. Issue and product cards have a QR code on the top right hand corner. If you scan these with your smartphone or Tablet, it will link you through to the corresponding page on Vivo where you can find out more **(refer to 8. Finding out more)**.





Example cards





is more energy when the sun shines. She enjoys nothing more an sitting in her front room with the sun beating down on her she drinks her afternoon tea. She doesn't drink much these hys, even during the summer, as it makes her go to the toilet ore often – but she does enjoy a large gin if she gets a chance.

T-CUDED





Case studies

- 1. Margaret Awareness course
- 2. Simon Assessment course
- 3. Carol Assessment course
- 4. Tudor Assessment course

Issue cards

- 1. Doorstep crime
- 2. Falls
- 3. Getting lost
- 4. Home safety
- 5. Hypoglycaemia
- 6. Impaired vision
- 7. Incontinence
- 8. Keeping cool
- 9. Keeping warm
- 10. Medication management
- 11. Short-term memory problems
- 12. Social isolation

Product cards

- 1. MemRabel 2
- 2. Nightlux
- 3. buddi
- 4. C500 Keysafe
- 5. Nocturnal Hypoglycaemia Alarm
- 6. Memo Minder Plus







- 7. Tynetec Reach Telecare DAU
- 8. Tynetec Worn Fall Detector
- 9. Tynetec Bed Sensor
- 10. Tynetec Temperature Extremes Sensor
- 11. Tynetec Advance Pill Dispenser
- 12. Tynetec Smoke Detector
- 13. Tunstall Lifeline Vi Telecare DAU
- 14. Tunstall iVi Pendant with Fall Detection
- 15. Tunstall Bogus Caller Button
- 16. Tunstall Smoke Detector
- 17. Tunstall Temperature Extremes Sensor
- 18. Tunstall Enuresis Bed Sensor
- 19. Eclipse Bedwetting Alarm
- 20. BackTrack D-Tour GPS Tracker

Introducing the exercise

Get people to work in groups of three or four and provide them with a case study card to consider. Let them choose the Issue cards which best match the circumstances of the individual in the case study. Ask them to select the products which will best meet the needs of the person in case study, taking into account all that is known about their needs and circumstances.



Basic case study – Margaret

Backstory

Margaret is a 90-year-old widow from Llanelli who lives in a terraced house half a mile from the town centre. She has three children, a daughter who lives in Swansea, a son in Cardiff and another who lives in the USA. She also has six grandchildren and ten great-grandchildren, some of whom live locally and call on her quite often – at least often enough for her to appreciate that she is lucky compared with many of her friends, who complain to her that they see nobody some weeks.

She has no income other than her state pension and an attendance allowance that she was able to claim last winter after falling in her back yard, fetching coal to make the fire in her living room. She owns her house but it has no central heating. The house still has its original windows though the sashes have broken and can't be opened. They are draughty when the wind blows.

Margaret considers that she is well for her age, perhaps because she has been active throughout her life, and has never been described as overweight. Her arthritis has limited her mobility in recent years, especially during the winter, but she hasn't put on any weight, probably because she doesn't eat as much as she should. She has various medications to be taken four times a day with meals to help with her circulation, her arthritis, and her difficulties in getting to sleep, but rarely eats more than two meals a day – often only to prevent her daughter from nagging her on the phone or when one of her grandchildren calls with fish and chips. It's not that she forgets to eat, but more that she hasn't got the appetite, and can't afford large and frequent meals.

She is looking forward to the summer because she feels that she has more energy when the sun shines. She enjoys nothing more than sitting in her front room with the sun beating down on her as she drinks her afternoon tea. She doesn't drink much these days, even during the summer, as it makes her go to the toilet more often – but she does enjoy a large gin if she gets a chance.

Main issues to address

- Falls
- Medication management
- Keeping cool
- Keeping warm

Facilitator notes

Margaret's real problem is her frailty which is the result of her age, her arthritis and her meagre existence. It means that she is at risk of falling and, because she has no daily callers, a likelihood





that she would suffer a long lie. Her memory is good – but with an increasing amount of medication needed, she is likely to forget to take them on time, or to overdose unless she is reminded several times a day.

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Her house is at the centre of her other problems. In the winter, it is cold and drafty, so Margaret needs to keep warm. The opposite is true in summer – she needs to keep cool because the windows won't open and she likes to have an alcoholic drink.

In each case, the problem situations need to be detected and identified, and for a remote source of support to provide help or advice. This is ideal for a conventional telecare system comprising of a dispersed alarm unit and relevant sensors. A fall may be detected automatically using a worn fall detector or an alarm may be raised manually through a pendant device. It is unclear whether Margaret will wear a fall detector or, for that matter, an alarm pendant, so the assessor must make a judgement call. Some fall detectors (and all pendants) can be worn on the wrist. It is important to ensure that the selected sensors are compatible with the dispersed alarm unit.

Falls at night may be detected using a bed occupancy monitor that will provide an alarm if she leaves bed during the night and fails to return within a programmed period of time. An automatic light might also help her see her way to the bathroom during the night.

Margaret doesn't need an automated pill dispenser, but does need reminders to ensure that she doesn't forget her pills, especially in the morning and at night. Fortunately, multiple reminders can be issues through her dispersed alarm unit, with the monitoring centre providing back-up if she fails to confirm that she has heard the reminders and actioned them.

Finally, it should be noted that Margaret has no family responders who can guarantee that they will attend quickly with a key in the event of an emergency. It follows that a key-safe needs to be provided on the outside of her property with an access code that can be issued by the monitoring centre to the emergency services so that they can enter if and when Margaret needs them.

Suggested products

- Tynetec Reach
- Tynetec Touch
- Tynetec worn fall detector
- Tynetec temperature extremes detector
- Philips movement activated light
- Supra Key safe



Complex case study - Simon

Backstory

Simon is 22-years-old and has Down's syndrome. He lived at home in Brecon with his family until he was 18. He went to the local school where he was popular with his class-mates who used to look after him. Many of them left school at 16 to go to technical college or to a sixth form college, so Simon and his parents were pleased when he was offered a place at a special educational centre 20 miles from his home. He liked it there but found the travel quite tiring. His parents were also scared that he might miss the bus home and become lost as his sense of direction was poor, and he was reluctant to ask for directions. So when he finished at college and was offered further training in catering and an opportunity to live in supported housing with four of his college friends, they were all thrilled and saw this as an opportunity for him to increase his independence.

It all worked well for a year. Then Simon was offered a part-time job in a bakery. The hours were anti-social and meant that he had much less chance to meet with his friends. At the same time, his housing providers offered him the opportunity to move out of his current shared home and move into his own new one bedroom house. He was initially excited about having his own tenancy, but he became a little nervous when his parents asked who would be looking after him. He was advised by his support workers that he was able and ready to take on more responsibility and no longer needed as much support.

Unfortunately, Simon's new house is not on a bus route, and is at the edge of a housing estate where there have been complaints about anti-social behaviour recently. Only one friend lives nearby, and his job means that they are rarely home at the same time. Although living here may limit many of his opportunities for going out, his parents tell him that they will drive over to see him every other Saturday. The property is fully furnished; the kitchen includes a fridge/freezer, an electric hob, a microwave oven and a built-in sink and cupboards. His bedroom has an ensuite toilet and a level access shower. The house is also equipped with a modern Tunstall dispersed alarm unit linked with smoke and heat detectors. He has a panic pendant that he can press if he has a problem and this would be answered by a 24-hour monitoring centre based in Merthyr. It also has satellite TV and a broadband facility.

Main issues to address

- Social isolation
- Doorstep crime
- Getting lost



Facilitator notes

It is clear that Simon is mobile and should not spend all his time at home. However, he also has issues while at home including social isolation and exposure to potential criminals who might target him and his property.

He needs a dispersed alarm unit to give him rapid access to support through pressing his panic pendant. Fortunately, this is already available in the property. He also needs a switch by his front door to enable him to open up a telephone line silently so that call handlers can hear, check and record any claims made by visitors who want to come in.

It isn't clear if Simon carries and is able to use the features of an advanced smart phone. Therefore, it would be useful for him to be provided with a GPS locator device which he could use to raise an alarm to his parents if he becomes lost, or if he enters an area where he might be considered to be unsafe. There are lots of different models to consider but all will need to be recharged every night or so in order that they are available to take with him when he goes out. The areas of safety will need to be agreed with Simon (probably in consultation with his parents).

Finally, social isolation is not an issue that can be addressed by technology alone. However, he may benefit considerably by having access to a computer or a tablet device that enable him access to online services including Skype or Facetime. These will allow him to speak with his friends irrespective of where they live, as well as to have his own Facebook account that enables him to easily share pictures and other information with his friends. Due to his vulnerability, provision should be made to ensure that he doesn't befriend people who might try to exploit him.

Suggested products

- Tunstall bogus caller button
- BackTrack D-Tour GPS Tracker



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Complex case study - Carol

Backstory

Carol is 75 years old and has had poorly managed Type 2 diabetes for over 30 years – but she doesn't consider herself to be old. She has struggled to change her lifestyle to manage the disease and continues to eat too many cakes, chocolates and other carbohydrates without increasing her level of exercise. She has put on weight and blames her medication, which is one reason why her adherence levels are poor. Another reason that she struggles to self-care is that her eyesight has been declining over a number of years due to retinopathy; it not only affects her quality of life but also means that she has become poor at reading the labels on packages.

She had an emergency hospital admission last year by ambulance when she collapsed on the street. Her blood glucose levels were found to be dangerously high along with her blood pressure and cholesterol levels. She is now receiving a combination of oral medications for her diabetes and is being told to test her blood glucose levels regularly, and also to take a number of other medications up to four times a day.

Carol was widowed over 40 years ago and now lives alone in a neat three bedroomed semidetached house which she has owned without a mortgage since the death of her husband. She has entered and left a number of relationships in recent years for a variety of reasons which is happy to discuss. She isn't clinically depressed and has a wide group of friends with whom she goes out every week for a meal or to other social events. They organise these events using an app on their smartphones. It is unlikely that Carol is prepared to change her lifestyle but she has agreed to accept technology that will help her to help herself.

Main issues to address

- Hypoglycaemia
- Falls
- Impaired vision
- Medication management

Facilitator notes

Carol needs support to come to terms with her long term health conditions and to appreciate that she needs to play a role in improving her well-being. She may need some health coaching or she may want to attend a self-help group where she can share experiences and issues. However, her greatest asset is her circle of friends. With their help, and some practical support from technology she could turn her life around.



At the heart of Carol's problems is her poor medication adherence. It is easy to blame her memory or her poor eyesight for not complying with her prescriptions, so technology can help her to not only remember her medication, but also to take the right ones at the right time. She needs more than reminder devices or messages presented through a telephone device. She needs a medication dispensing system that will not only remind her when it's time to take her tablets, but will also present them to her in a way that prevents overdosing. By choosing a linked device, a monitoring centre may be alerted to her failure to collect the medication during the selected window and may remind her before the opportunity is lost. This approach can also be used to monitor adherence and to allow her GP or support group to be informed of changes in her success. The medication carousel would need to be filled every week either by her pharmacist or Carol herself or by one of her friends. This would give them an opportunity to give her practical support. They could also make sure that she measures her blood glucose regularly. She would need a telecare service and a dispersed alarm unit as the hub of home provision, though her friends are likely to hold a key to her property and to support her quickly in the event of an emergency.

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By managing her diabetes, the other issues in her life may be controlled but it remains a possibility that she will eat too little at times in an attempt to reduce weight, and might suffer a hypoglycaemic incident which is very difficult to predict. There are, however, wrist-worn devices available that can help alert her to the symptoms of an impending "hypo" before she passes out.

A failure to read labels can be dangerous for many reasons, including cooking safety, but it might also lead her to select the wrong ingredients when cooking. There are many electronic aids available include devices that can speak to her when a special label is applied. She could use a smart phone to magnify or read out labels to ensure that she is following the instructions correctly.

Finally, the chances of Carol having a fall will be considerably reduced if her medication adherence improves. However, she lives alone and might take a fall anywhere and at any time. Outside, she would be found quickly but could use an app on her phone to contact one of her friends automatically. In the house, she is more likely to have her phone on charge so a worn fall detector might be useful. She wouldn't want to wear a device around her neck as it would be stigmatising. She could choose between a wrist worn automatic fall detector and an alarm pendant worn on her wrist. These come in several colours and can also be worn in the shower and in bed at night.

Suggested products

- Tynetec Reach
- Tynetec Touch
- Advance pill detector
- Hypo alert wrist band



Complex case study - Tudor

Backstory

Tudor is 40 years of age. Five years ago he suffered a terrible accident on his motorbike while driving south on the A470. He was thrown off and his head collided with a wall. He was in hospital in a coma for three weeks, and when he came round he was unable to speak or to fully control his hands and legs. He underwent a long period of rehabilitation with painful physiotherapy, speech therapy and occupational therapy. After six months he returned home to his wife and young daughter, with pain medication and a number of ongoing issues

His previous employer was unable to offer him his old job back. Tudor's wife claimed that he was not the same man; he went to the shops to fetch a few groceries in the morning, and was brought home without them at 5pm by a police officer from a village five miles away. He would present her with a cup of tea with milk, sugar and water, but no sign of tea. He was asked to look after his daughter so that his wife could go shopping with her friend, but he forgot to make her food and went out for a walk leaving her home alone. Tudor started having nocturnal enuresis (bedwetting). After a terrible argument with his wife, he demonstrated anger that she had never seen before, and was forced to leave home. Now living on his own in a small flat, Tudor is supported by friends and care workers. Some technology may support him to live more independently.

Main issues to address

- Getting lost
- Home safety
- Medication management
- Short term memory
- Incontinence

Facilitator notes

Tudor is struggling to cope with independent living because of the head injury which continues to affect his short term memory. It impacts on so many aspects of his life that he is likely to need a personal assistant or the support of many friends and carers for many years until new therapies emerge that enable his condition to improve. In the meantime, his self-esteem may be boosted if he is given the opportunity to live more independently supported by technology.



He will go out but may become lost and disoriented. A GPS alarm device wouldn't help him because it would inform others of his dilemma rather than Tudor himself. On the other hand, a GPS back-tracker can be used like a compass to point him in the direction of home, enabling him to find his way back without the need to call emergency services.

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A conventional telecare service could be the basis of his home safety package. It can also provide him with reminder prompts for medication and link in other smart sensors that detect smoke or high temperature as well as falls. The choice of dispersed alarm is Tunstall or Tynetec – and the sensors must be compatible with this alarm.

It's possible to have a bed pad that detects moisture to provide an alert to an incidence of incontinence. However, as this would inform a monitoring centre, Tudor's dignity could be maintained by using a stand-alone enuresis alarm which would wake him if he wet the bed.

His short term memory issues could be managed by using devices such as the MemRabel 2 which also provides a display of time, and by Memo Minder which can play a recorded message when approached. For example, when Tudor is going out, it could play "Don't forget your keys, your backtracker and your mobile phone".

If he changes his basic mobile for a smartphone, then a number of new and emerging apps will be available to help him manage his life.

Suggested products

- GPS backtracker
- Tynetec Reach and Touch Pendant
- Tynetec smoke detector
- Tynetec temperature extremes
- Memrabel 2
- Memo Minder
- Enuresis alarm

Other cards for alternative approaches

- Tunstall Connect
- Tunstall iVi fall detector
- Tunstall Bed incontinence alarm
- Tunstall smoke detector
- Tunstall temperature extremes device



7.3 Case study notes

David and Mair Jones

Backstory

- Mair has a diagnosis of tonic clonic epilepsy and has several seizures a week, some during the day, and some at night; she lives with her husband who works long hours in a factory 10 miles away from their home in the Rhondda.
- Mair is very independent and spends the days on her own at home often cooking and tending to their pets and garden. Rescue medication is not required when a seizure occurs but her epilepsy has previously resulted in admissions to hospital.
- David is considering giving up work to ensure that his wife comes to no harm if she has a seizure.

Issues

Risks relating to daytime seizures

• Mair has not been alerting anyone to her seizures and carries on with daily activities when she comes round from an episode. It is only when her husband returns from work that help is provided. There is a risk of personal harm when the seizures occur.

Risks following night-time seizure

• David Jones is sleeping poorly because he needs to wake up if his wife has a seizure. He is tired during the day and may have an accident at work. He will sleep well only if he's confident that he'll wake up when his wife is unwell.

Risk of fire

• Mair Jones enjoys cooking breakfast, dinner and supper. If a seizure occurs whilst carrying out these tasks then there is a high risk of fire in the home.

Possible solutions

- It's not necessary to provide an m-Care solution (though these exist) because she doesn't go out alone.
- A telecare fall detector may be fine a wrist-worn device may work well for her because it is less likely to get in the way when she's cooking.





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• Heat and smoke detectors linked to a call centre through a dispersed alarm may help manage the cooking risk.

If Mair wanted to go out alone and wanted her seizures to be monitored then she would have needed a device that linked into a mobile network to raise the alarm. Smart epilepsy watches can respond in this way and can also give the location. Their limitation is the battery life of both the sensor and the smartphone which couples with the sensor.

In this case, a telecare system with full coverage of the house and garden is ideal. The battery will last several months before it needs to be replaced.

There are several devices that detect convulsions during the night. Some use a thin polymer sensor sheet while others (including the one shown in the slide) can be placed under the mattress of the pillow.



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8. Finding out more

If you want to find out more about telecare and other Technology Enabled Care products and services, these websites might be useful:

- TelecareAware (**www.telecareaware.com**) General news and information about the telecare, telehealth and related industry.
- TSA (www.tsa-voice.org.uk) the industry body for Technology Enabled Care.
- UK Telehealthcare (http://www.uktelehealthcare.com/) a membership based organisation for Telecare and Telehealth professionals, service providers and service commissioners.
- Disabled Living Foundation (www.dlf.org.uk) a national charity providing impartial advice and information.
- Care Council for Wales (www.ccwales.org.uk) for further resources and relevant information.

Vivo

Vivo is an independent online resource that helps people to find the right technology enabled care solution to meet their needs. You can access Vivo with this QR code or the web address **www.vivoguide.co.uk**. If you do not have a QR reader on your phone or tablet, you can download a free app for your device. Here are some examples:



Norton Snap	Download on the App Store	https://itunes.apple.com/gb/app/ norton-snap-qr-code-reader/id471928808
Norton Snap	ANDROID APP ON Google Play	https://play.google.com/store/apps/ details?id=com.symantec.norton.snap &hl=en_GB
QR Code Reader	Windows Phone	https://www.microsoft.com/en-gb/ store/apps/qr-code-reader/9wzdncrfj1s9

Vivo is designed to be used on desktop, laptop, tablet and smartphones. It is currently optimised for use with a web browser running on a desktop or laptop computer.

Enter the following log-in details to access the site:

Username: vivobeta

Password: V1v0betag0!

Please note that the password is case sensitive and must be entered exactly as shown above.

Vivo has two levels of access:

1) Standard – free access to basic information about technology enabled care products and services; and

2) **Pro** – a subscription based service that provides detailed product selection guidance and in-depth reviews.

Vivo allows you to search using an intelligent search engine with filters that allow you to tailor the search to the features you require in the products. You can initiate a search using a free-text search or use a guided search according to conditions, issues or a particular product group of interest.







