BUSINESS CASE		south AYRSHIRE COUNCIL
Proposed project: Digital Telecare migration from Analogue to Digital (Telecare A2D)		**Version:** 1.1 **Date:** 27 Jan 2022
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1. Introduction

SAHSCP currently offers an analogue telecare service through our Emergency Response Team (ERT) and Sheltered Housing Units (SHU). The equipment used to deliver these telecare services use analogue dial-up protocols to carry status and alarm signalling between the alarms devices in citizen's homes to an Alarm Receiving Centre (ARC). Connectivity between homes and the ARC is provided by a citizen's home telephone line, or less commonly, a mobile (GSM) radio embedded in the users' telecare alarm device.

By 2023, analogue telephone services in the UK will be switched off and replaced by digital systems using internet protocol (IP) technology. Telecommunication suppliers are well on their journey to making this switch to 'IP networks'. Any systems relying on 'voice band data', such as telecare, will be affected by this change and citizens' equipment must be updated for them to continue to receive a safe and reliable service.

The shift to digital telecare is not only a technical requirement but an evolution of existing analogue telecare services. The reasons for implementing digital telecare falls under three broad categories:

- *Ensuring the continued ability to deliver reliable telecare services*

  Telecare services must be highly reliable; although interruption to the service could result in harm to the user, no system is infallible, and a degree of disruption is to be expected.

  By 2025, telecoms companies will have replaced analogue telephone lines with digital equivalents. Analogue telecare equipment cannot be guaranteed to operate reliably over digital telephone lines and Digital Telecare aims to address this issue.

  A digital telecare service is anticipated to provide improved monitoring so that any issues with an alarm device can be quickly identified and resolved.

- *Meeting increased demand for telecare services*

  The number of telecare users in Scotland is expected to rise, both as a result of an increase in those with care and support needs, and a rise in people using smart technology to support themselves and family members.

  Current services are resource intensive, meaning telecare staff must spend a sizable proportion of their day completing administrative tasks, rather than providing support to users.

  Digital telecare equipment enables changes to the telecare delivery model providing efficiencies. It also provides a level of automation that has the potential to reduce the resource impact associated with scaling telecare services, meaning telecare staff can be used more efficiently, concentrating on user-facing tasks, rather than administration.

- *Developing and improving the range of telecare services that are offered to users*

  A digital telecare service utilises higher capacity, always-on, connections to users' homes which means that the telecare service offerings can be both increased and improved. This could include:

    o More sophisticated sensors/monitors in users' homes. Monitoring of smart-home and Internet of Things (IoT) devices, such as heating, door entry, lighting, wearables, etc. (This may require additional software modules).

- o Proactive services.
- o Greater use of consumer technology and 'bring your own', with customers own devices connected into the service.
- o Integrated telecare and telehealth services.
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2. Where are we now?

There are 31.22 FTEs within the ERT team, including telecare officers, providing analogue Telecare service to approximately 2,200 service users and out of office hours support to approximately 600 sheltered housing residents. We utilise a software system, (Tunstall PNC version 8.3), to provide this service. This software system has recently been upgraded however is unable to provide a digital ARC solution. In addition, for stock management we have System Manager, also provided by Tunstall. Both solutions are hosted on council's data centre (on-prem). Almost all the consumer devices (hubs and peripherals) are procured through Tunstall.

Telecare service offers a basic package which includes an alarm hub, a pendant and a smoke alarm. There are additional peripherals installed such as flood detector, heat detector, bed sensors, etc. The basic package charges are £4.41 per week per service user.

As part of the process, we also provide a quality assurance to each service user, every six months. It is either a home visit or a phone call.

In addition, ERT team supports out of office hours calls for Sheltered Housing Units, Housing and Property maintenance, road light fault and provide service to North Ayrshire Domestic Abuse Alarms.

Our approximate costs per annum providing the telecare service is £1.28m and the revenue from the service is £0.5m. Annual budget includes £175k for the purchasing of hubs/peripherals   and £42k for maintaining the alarm responder software system.

As highlighted earlier, with the current service provision, if not moved to a digital solution there is a higher risk of missed or failed alarm calls.

The reporting process is manual and getting the required information is time-consuming. This also limits our ability to support the reporting on the national minimum data care set.

Reliance on only one provider for devices, restricts the ability to try new products and very recently has been affected by shortage of devices causing delays in alarm installation.

Reliance on a telephone line at service user's home to provide telecare service.

3. Where do we need to be?

The primary objective behind this project is to replace the existing alarm hubs to use digital connections and upgrade our analogue ARC software system to a digital arc solution to de-risk the missed/failed alarm calls for the service users who will have a digital connection from their telecom provider. The chosen solution should be future-proofed to adapt the Telehealth service.

We should have the capability to offer telecare services to all residents who require such service, without reliance on an analogue telephone line.

The software platform needs to be consumer device agnostic, offering better value for money by not restricting ourselves to one supplier.

The system should have open APIs to consume and use data and other capabilities like workflow case management.

To manage the digital alarm hubs, we will need a software system (device management platform) that offers the capability of managing the devices remotely. The assumption is that the programming of the digital hubs is simplified in comparison to the management/deployment of the analogue hubs. If the assumption is correct, it will offer faster deployment of devices, reduced home visits and a better customer experience.

The reasons for implementing digital telecare fall under a few broad categories:

- Ensuring the continued ability to deliver reliable telecare services.

- Meeting increased demand for telecare services.

- Has the potential for data links with wider social care systems, NHS systems and the national digital platform.

- Developing and improving the range of telecare services that are offered to users.

- Adapting an ARC system that is hosted by the system provider as a Hosted (Software as a service (SaaS)) solution.

4. How do we get there?

We need to define the requirements and approach the ARC system providers via a compliant procurement route for the selection of a Digital ARC solution. The primary and core requirement of the engagement is to set the market our high-level requirements for a platform to deliver the functions highlighted above, within the specific constraints of a financial envelope.

Initially, we will only focus on identifying the right ARC system provider. We will conduct a pilot with the preferred ARC system provider after the procurement exercise is complete. This will form part of the evaluation process before the supplier is awarded the contract to provide the ARC system.

This will be followed by the testing of various consumer devices available in the market on the new system.

Following government guidelines for SaaS, we would look at the contract period of 3 years with allowance for 2 additional years.

A separate procurement exercise will be conducted for the consumer hardware to ensure that we are not tied in with just one supplier.

The migration will cost approx. £1.2m for implementation of the ARC system and replacement of the alarm hubs and peripherals at service user's home. It is likely that two separate procurement will be conducted. There will be additional costs of approx. £100k per annum for the sim charges.

5. Strategic fit

Council Plan 2018-2022:

Objective 3 - Health and care systems that meet people's needs – ARC software system and the devices are on analogue signalling protocol. This will need to be addressed so that we can continue to provide the Telecare service. In addition, move to digital solution may allow us to provide proactive care.

SAHSCP Plan 2021 - 31

Objective 1 - We focus on prevention and tackling inequality – Digital technology will help to provide Technology enabled care.

National Alignment –

Scotland Digital Health and Care Strategy Vision - To improve the care and wellbeing of people in Scotland by making best use of digital technologies in the design and delivery of services.

Supporting People at home - The introduction of digital telecare will support a shift to a more proactive and preventative approach with the potential to integrate and use citizens' data to assess, anticipate and even predict needs enabling earlier intervention and improved resilience and wellbeing.

6. High level options appraisal

- **Do Nothing** - This option is included to provide a benchmark against which other options can be evaluated. Under this option the existing telecare solution will continue to be used without any upgrade or digital enablement works being completed.

  - Pros:
    - No effort required

  - Cons:
    - The current telecare system is not capable of accepting digital connections. Current users will not be able to reliably connect to the telecare system following the digital upgrade of users' phone lines, introducing a risk to user safety

- o Costs – No change (TBC when finance informs)
- **Upgrade / Replace In-House Solution** - Under this option the existing in-house telecare solution will be replaced with a more modern equivalent (also hosted in-house) which is supportable and capable of receiving digital connections from users. The new solution could be from one of several suppliers. It is likely that a procurement exercise would be required to select and contract with the best value supplier.

  To support the new telecare solution and digital connections, there would be a need to make changes to the IT architecture that supports the solution. This will require various ICT resources and as it will be on premise option, we will need to ensure that software is up to date carrying our regular updates.

  Once the new solution is in place, it would be capable of supporting a mix of analogue and digital connections from users, allowing a phased migration of users to digital to be completed. This shift to digital will require the alarm units in users' homes to be replaced with new equipment.

  - o Pros:
    - ▪ Solution allows the 'dual running' of analogue and digital users, meaning that a managed migration to digital can be completed
    - ▪ Provides a future-proofed and digital ready telecare solution
    - ▪ Can take advantage of efficiencies and service improvements offered by digital technology.
  - o Cons:
    - ▪ Does not fit with IT strategy as on-prem solution.
    - ▪ A digital solution requires several changes to its supporting IT infrastructure.
    - ▪ Likely, that it will not support Bring your own device framework due to secure access.
    - ▪ End-user alarm equipment must be replaced to allow a move to digital connections. Purchase cost of equipment and on-going cost of SIM card.
    - ▪ Privacy issues need careful consideration and appropriate controls given that digital solutions send sensitive user data over the internet
    - ▪ Ongoing software upgrade will be required and we may have to provide resources to carry out the upgrade.

- **Hosted (Cloud-based) Solution** - This option is like on-prem solution, however, instead of procuring a new in-house telecare solution, telecare ARC would be procured as a service, delivered from a cloud-based solution which is supportable and capable of receiving digital connections from users. The new solution could be from one of several suppliers. It is likely that a procurement exercise would be required to select and contract with the best value supplier.
  - o Pros:
    - ▪ Provides a future-proofed and digital ready telecare solution.
    - ▪ Telecare is procured as a service, not a system, meaning technical issues are the responsibility of the supplier.
    - ▪ Fits with IT strategy.
    - ▪ Ongoing software upgrade will be included in the contract.
  - o Cons:
    - ▪ The number of digital "true" cloud-based telecare solutions is currently limited.
    - ▪ May attract dedicated connection costs.

- Cloud-based solutions vary in the extent to which they support the 'dual running' of analogue and digital users.
- End-user alarm equipment must be replaced to allow a move to digital connections.
- Purchase cost of equipment and on-going cost of SIM card needs to be considered.
  - Costs: Implementation costs of £1,231,565 with annual running costs of £134,865. This assumes that SAHSCP would get another device supplier on board and will replace the peripherals in user's home.

7. Indicative costs/budget

Costs are for Hosted Solution:

Cost Elements	Low Estimate	Likely Estimate	High Estimate	Notes
Internal Resources - 1 Project Manager, 1 Project Support and 3 Installers	£193,224	£291,865	£323,149	This is based on the duration of the project and includes 1 Project Manager, 1 Project Support and 3 Installers.
Hardware - Alarm Hub	£415,233	£415,233	£498,280	This is based on Tunstall Alarm Hub. High Estimate is assuming that the newer model will be expensive by at least 20%. Alarm hub cost used is £189 per device. Service User numbers do not increase beyond 2197
Hardware - Peripherals	£0	£424,094	£508,913	Low estimate is for the options where we procure the alarm hubs from Tunstall Likely Estimate is based on that we change our preferred supplier for alarm hubs, this will lead us to change the peripherals in service users home; This estimate is based on the basic package peripherals and is estimated costs from one of the manufacturers, with additional £200k for peripherals which are in addition to the basic package and may need to be changed. Higher Estimate is similar to Likely estimate and additional 20%.
System Implementation	£25,000	£35,000	£50,000	Based on the lowest estimate from one of the suppliers. Likely estimate is based on lessons learned that additional needs could be identified at a later stage and we may want to do a pilot for the ARC solution. High Level estimate is based on the costs of pilot, increased training requirements.
Contingency	£43,645	£65,373	£74,630	20% of Internal resources and system implementation.
Sub-total Implementation	**£677,102**	**£1,231,565**	**£1,454,972**	
Ongoing Sim Costs (per Annum)	£98,865	£98,865	£98,865	Assumes that the Service User numbers do not increase beyond 2197

				Lower estimate is based on one of the supplier's quote.
Ongoing System Support costs	£25,000	£36,000	£37,812	Lower estimate is based on one of the supplier's quote. Likely Estimate is based on our current ARC support charges and factors in additional costs like VPN, Telephone and Lone worker protection. High Estimate is based on one of the supplier's quote for System, Lone worker arrangements, PBX solution.
Sub-total running costs	**£123,865**	**£134,865**	**£136,677**	

Total Costs of Ownerships (TCO):

Cost Elements	Implementation Cost	Year 1	Year 2	Year 3	Year 4	Year 5	Total
Internal Resources	£291,865						£291,865
Hardware - Alarm Hub	£415,233						£415,233
Hardware - Peripherals	£424,094						£424,094
System Implementation	£35,000						£35,000
Contingency	£65,373						£65,373
Ongoing Sim Costs (per Annum)		£98,865	£98,865	£98,865	£98,865	£98,865	£494,325
Ongoing System Support costs		£36,000	£36,000	£36,000	£36,000	£36,000	£180,000
Total	**£1,231,565**	**£134,865**	**£134,865**	**£134,865**	**£134,865**	**£134,865**	**£1,905,890**

Please note that:

- The system support costs already exist in the current business plan.
- Any increase in the number of service users and related costs will be part of general demand, this is factored in annually as part of the budget process and reviewed annually.
- There is already be some budget for replacement of devices and peripherals in the current business plan.
- ARC software system is interoperable with different manufacturer hardware devices.
- It assumes that the GSM technology will work for all service users.
- It assumes that the UPS units will not be required, and battery provided with the alarm hubs will be sufficient.
- It assumes that there will be no dedicated connection required between the software provider and our site.
- It assumes that the charge for Telecare service users is not increased.
- It assumes that there will be no delay in delivery of the devices/peripherals
- Assumed that there will be no interruption to the project due to force majeure

- This estimate excludes Telehealth proactive monitoring. It is understood that a specialist system may be required to provide the monitoring.
- It excludes increase in the number of telecare service users.
- It excludes any changes required for Sheltered Housing Units.
- It excludes any costs for upgrading smoke alarms to interlinked fire/smoke alarm system.

8. Benefits realisation

Benefit	Owner	Measure
Continue to provide reliable Telecare service	SAHSCP Telecare Service	Number of users on digital telecare connection
No new SIM charges for the service user. (Assumed - SAHSCP to confirm)	Eddie Gilmartin	No increase in charges; Citizen experience;
"Heartbeat" feature improves diagnostic of alarm hub and assures connection guarantee which can assist with early detection of failed devices.	Telecare Service Lead	Reduced failed calls due to alarm hub failure.
Reduced failed calls	Telecare Service Lead	Number of failed calls
Reduced waiting time between connection of home device and alarm receiving centre.	Telecare Service Lead	Waiting time in connection from alarm hub to ARC system.
Improved quality and voice clarity of calls between the device in the citizen's home and the alarm receiving centre.	Telecare Service Lead	Citizen experience
Allow remote working	Telecare Service Lead	All ERT team can work from home.
Reduction in 'desk space' and physical office infrastructure costs, when remote working is adopted.	SAC ICT/ SAHSCP	
Remote programming, re-programme and diagnostics of in-home devices, supporting workforce capacity release.	Telecare Service Lead	Citizen experience as devices configuration will not need home visits; Staff availability to attend alarm calls
Improved opportunity to create more robust business continuity plans, with remote network diversion.	Telecare Service Lead	Business Continuity Plans
Reduction in SAC ICT support with server and hardware for SaaS model.	SAC ICT/ SAHSCP	

Benefit	Owner	Measure
Disaster Recovery offered by supplier, improving resilience and removing manual divert features.	Telecare Service Lead	Quicker Divert Procedures

9. Major risks

Title	Risk Description & Cause	Risk Impact
Service User's phone line is migrated to Digital phone line which can lead to a failed call.	Risk is that after the alarm hub is fixed to digital connection, it may not send the alarm call. The hubs are designed to work with analogue phone lines and there is a high chance that the hubs may fail.	May result in failed call.
Telecom companies can ramp up the roll out of digital phone lines	There is a risk that the Telecom providers ramp up the roll out of digital connections which will result in increased failed calls	Failed calls.
Shortage of alarm and peripherals may leave vulnerable people without telecare service.	There is a delay in obtaining devices / peripherals from the service provider (Tunstall). This is causing a backlog on the installation and leaving vulnerable people without a telecare device. Shortage of devices with Tunstall; No other supplier devices have been tested;	Backlog of service users without a telecare device.
Migration to Digital ARC may lead to service outage	As the Arc is upgraded, there may be a risk that service is offline during the migration process. This is due to switching off existing software system and move to digital software system.	Failed calls; service offline;
Digital Alarm hubs may fail in event of power failure.	Digital alarm hubs are powered by mains. They have approx. 48 hours battery life. There is a risk that power failure at service user's home can lead to failure of alarm system. If the digital alarm hub is connected via ethernet, there may be a further challenge that the battery pack is required not only for hub but for router as well.	Failed/Missed calls; Increased costs for power packs.

10. Project Funding Source

Funding Available	Value 22/23	Value 23/24	Value 24/25	Value 25/26	Value 26/27	Total
ICT Capital	£300,000	-	-	-	-	£300,000
Digital Office PM post funds	£80,000	-	-	-	-	£80,000
Alarm Hardware and Peripherals Budget (Revenue - Recurring) *	£475,000	£475,000	£475,000	£475,000	£475,000	£2,375,000
Ongoing Sim Costs Budget (Revenue - Recurring)**	£105,000	£105,000	£105,000	£105,000	£105,000	£525,000
System Maintenance (Revenue - Recurring)	£42,000	£42,000	£42,000	£42,000	£42,000	£210,000

	Total	£1,002,000	£622,000	£622,000	£622,000	£622,000	£3,490,000

* Budget has been increased in 22/23 by £300k from Winter Pressure investment from Scottish Government to meet costs of technology enabled care

** Budget has been increased in 22/23 by £105k for Sim Costs identified in budget process in 21/22.

* There is potentially a shortfall of £194k in year one (22-23) if all equipment is purchased in year and go live for all SIM costs is from 1st April 22.

* This is highly unlikely, however any shortfall in year will be funded from reserves.

11. Recommendations

Recommendation is to approve Hosted Solution cost options and confirm the above source of funding for the implementation of Telecare service and recurring charges. So that a request for procurement can be raised to engage with the market and implement ARC system and assess/procure other manufacturer's consumer hardware.

It is recommended that the ICT capital is utilised to fund the resource cost and other revenue funding available to fund the alarm hubs and peripherals including the ongoing SIM charges.

It is also recommended that a provision is made in the business plan for the device replacement every 5 years. This is due to advancement in technology and the shelf life of digital alarm hubs, which is reduced when compared to analogue hubs.

12. Project plan

- Plan assumes that:
  - o The required approval will be given on-time.
  - o There is no delay with recruitment, and we find suitable candidates.
  - o The Pilot is successful.
  - o There are no issues with implementation.
  - o There are no delays with procuring the devices.
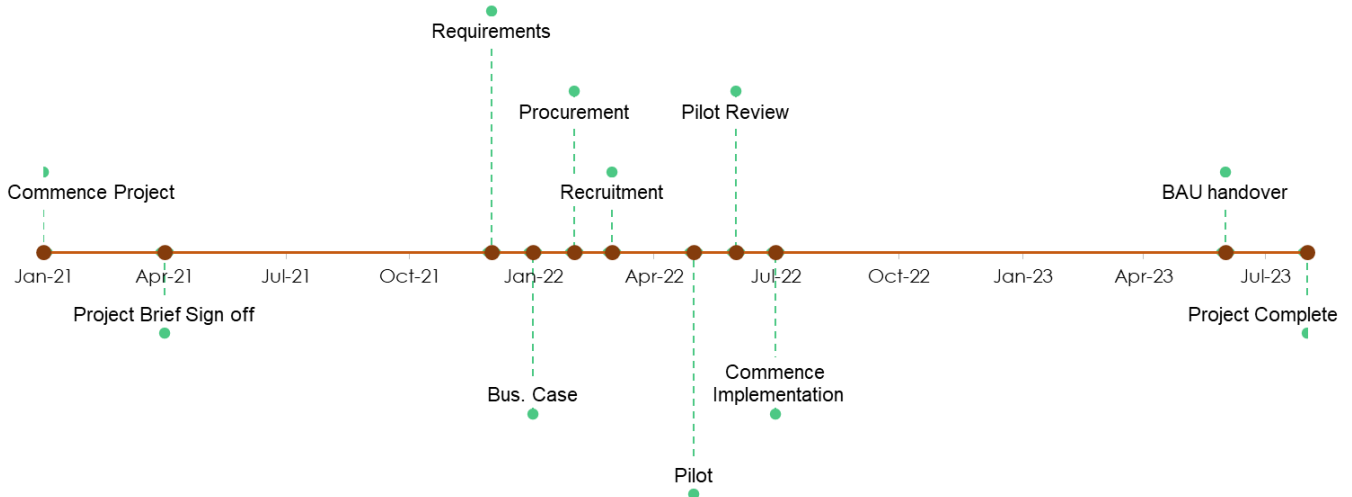
13. Glossary

Glossary of the acronym and terms used in the document:

ARC – Alarm Receiving Centre

TSA – Telecare Service Association

TEC – Telecare services

DO – Digital Office

SaaS – Software as a Service

Alarm Equipment – equipment used to raise an alarm, including alarm hub and peripherals like pendant, sensors, etc.

API - stands for Application Programming Interface and is a connection between computers or between computer programs.