

# **Guidance on Procurement of Technology through Application of EN 301 549**



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## Introduction

All public bodies are required to include accessibility as a mandatory requirement in the procurement of products and services that are to be used by people. The aim of this guidance document is, after an overview of this mandatory requirement, to describe how it may be addressed in the procurement of technology products through use of and reference to two European standards documents, CEN-CENELEC Guide 6 / ISO/IEC Guide 71 and EN 301 549. It also provides a worked example of the use of these two European standards documents in identifying technology products to meet the needs of users in a project conducted by ALONE.

This document:

- describes the benefits of using both CEN-CENELEC Guide 6 / ISO/IEC Guide 71 and EN 301 549 when describing users' needs and the functional performance of Information and Communications Technology (ICT) products, respectively.
- demonstrates how EN 301 549 "Accessibility requirements for ICT products and services" can be used in the **evaluation, selection** and **procurement** of technology to support older people.
- demonstrates how applying the accessibility requirements in EN 301 549 can extend the range of people who will be able to use the technology in the context of the ALONE Sláintecare project.

## Accessibility as a Mandatory Requirement in Public Procurement

The public procurement directive of 2014<sup>1</sup> requires that all public procurement for a product or service intended for use by people must include accessibility as a mandatory requirement in its technical specifications. They also require that, where a standard has been used in EU regulations, this may be used to define accessibility in the technical specifications. EN 301 549 is such a standard.

The approach of using a technical standard to define accessibility in public procurement aligns with that used in other jurisdictions and regions. For example, the Section 508 standard in the USA is mandated for use in all procurement funded by the federal government. Both EN 301 549 and Section 508 are equivalent, meaning a piece of technology that is compliant with one of these standards is also compliant with the other standard.

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<sup>1</sup> [Directive 2014/24/EU of the European Parliament and of the Council of 26 February 2014 on public procurement](#), transposed into Irish law by [S.I. No. 284/2016 - European Union \(Award of Public Authority Contracts\) Regulations 2016](#).

Many technology companies publish reports on the compliance of their products and services with Section 508 and EN 301 549 to assist federal authorities and others to identify accessible products and services when conducting market research<sup>2</sup>. Section 508 and EN 301 549 are considered by the ICT industry to be stable and achievable accessibility standards. Both standards contain widely agreed and harmonised accessibility requirements that are clear, unambiguous and achievable. These requirements are also precisely testable, ensuring that both procurers and ICT companies can be confident that when an ICT product or service complies with the standard, it can be deemed to be accessible to users with a wide range of accessibility needs.

## European Standard EN 301 549

### Using EN 301 549 to specify mandatory accessibility requirements

Directive (EU) 2016/2102, the ‘Web Accessibility Directive’ or ‘WAD’<sup>3</sup>, requires public sector bodies to make their websites and mobile applications (apps) accessible.

EN 301 549 “Accessibility requirements for ICT products and services” is a technical standard that was developed by the European Standards bodies, CEN, CENELEC and ETSI.

EN 301 549 is cited in the Web Accessibility Directive as the ‘harmonised’ European standard that may be used by public bodies to show a presumption of conformity with the directive. This means that public bodies can meet their legal obligations under the Web Accessibility Directive by implementing this standard.

EN 301 549 is designed to be used in a number of ways, but was **first developed to be used to specify in a procurement exercise the requirements and features that mainstream ICT products must have in order to be accessible to persons with disabilities**<sup>4</sup>. Therefore EN 301 549 is suitable for use by public bodies when specifying accessibility requirements in the procurement of ICT products and services.

EN 301 549 is designed to be applicable to **all** ICT products and services, from smart phones to PCs, from smart watches to home monitors.

### Overview and structure of EN 301 549

EN 301 549 “specifies the functional accessibility requirements applicable to ICT products and services, together with a description of the test procedures and

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<sup>2</sup> <https://docs.microsoft.com/en-us/compliance/regulatory/offering-home?view=o365-worldwide>

<sup>3</sup> The EU Web Accessibility Directive was transposed into Irish law under “S.I. No. 358/2020 - European Union (Accessibility of Websites and Mobile Applications of Public Sector Bodies) Regulations 2020”

<sup>4</sup> <https://www.edf-feeph.org/standards/>

evaluation methodology for each accessibility requirement in a form that is suitable for use in public procurement within Europe.”<sup>5</sup>

EN 301 549 contains:

- a list of 11 high-level and easily understandable **Functional Performance Statements** that describe the needs of the widest range of users when using ICT products, services or documentation,
- a comprehensive set of detailed and testable **Technical Accessibility Requirements**. These are accessibility requirements that must be met by ICT components that users interact with directly. They are categorised in chapters that cover common interface components such as screens, keyboards and other input and outputs controls, as well as software, websites and mobile apps.

The structure of EN 301 549 enables it to be used in a number of ways including:

- Defining the functional performance that a piece of technology must have so that it can be accessed, understood and used by a specific cohort of users with accessibility needs, or by the widest range of people possible
- Evaluating the suitability and accessibility of a piece of technology against a commonly agreed and accepted set of accessibility requirements
- Specifying accessibility in a precise and testable way in a procurement exercise.

The **Functional Performance Statements** contained in clause 4.2 of EN 301 549 “are intended to describe the functional performance of ICT enabling people to locate, identify, and operate ICT functions, and to access the information provided, regardless of physical, cognitive or sensory abilities. Any differences in ability may be permanent, temporary or situational.”

Functional Performance Statements describe that an ICT product or service must enable:

1. Usage without vision
2. Usage with limited vision
3. Usage without perception of colour
4. Usage without hearing
5. Usage with limited hearing
6. Usage without vocal capability
7. Usage with limited manipulation or strength
8. Usage with limited reach

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<sup>5</sup> Scope of EN 301 549

9. Minimize photosensitive seizure triggers

10. Usage with limited cognition

11. Respect privacy

Put another way, the Functional Performance Statements describe the features that the ICT product needs to provide when a physical, cognitive or sensory capability is not available or cannot be used.

However, the Functional Performance Statements are very high level. They do not contain requirements that are detailed or testable in any way.

However the **Technical Accessibility Requirements** contained in Clauses 5 to 13 are very detailed. They, and their associated tests, are designed to be used to demonstrate that an ICT product or service meets all relevant Functional Performance Statements.

For example, the Technical Accessibility Requirement in the first sub-clause of Clause 8.4 states: “Where provided, physical numeric keys arranged in a rectangular keypad layout shall have the number five key tactilely distinct from the other keys of the keypad.”



Each of the 11 Functional Performance Statements has a corresponding set of Technical Accessibility Requirements that describe in detail the features and functions an ICT product or service must have.

A series of tables in Annex B of EN 301 549 ‘map’ each of the Technical Accessibility Requirements (Clauses 5-13) to the high-level Functional Performance Statements contained in Clause 4.2.

### **Benefits of using EN 301 549**

- EN 301 549 clearly describes the functional performance of ICT products so they can be accessed, understood and used by the widest range of people possible.
- EN 301 549 is a commonly accepted and harmonised European standard that is referenced in EU law. It is suitable for specifying accessibility requirements in the procurement of ICT product and services.
- The Functional Performance Statements provide a high-level, easy-to-understand overview of how an ICT product or service must perform to be accessible.

- The Functional Performance Statements can be used to conduct a high-level evaluation of the suitability of a product and/or service.
- The Technical Accessibility Requirements contain detailed and testable specifications that can be used to ensure compliance with the standard and EU regulations such as the Web Accessibility Directive and the upcoming European Accessibility Act.
- It is widely accepted and used by the ICT industry as a standard on accessibility.

## **Referencing EN 301 549 in procurement**

Accessibility should be considered throughout the procurement process. Below is guidance on how to address accessibility in the following four stages of procurement of ICT:

- Writing a call for tenders
- Evaluating tenders
- Evaluating deliverables
- Managing contracts

This guidance is drawn from the ‘Accessible ICT Procurement Toolkit’ published by CEN, CENELEC and ETSI in 2014. The toolkit was based on the contents of EN 301 549 and was developed to facilitate procurers in incorporating accessibility as a criterion in the procurement of ICT products and services.

## **Writing a call for tenders**

Accessibility can be addressed in a call for tender in each of the:

### 1. Selection Criteria

- a) Define and ask for Selection Criteria for accessibility. This may involve requiring the supplier to provide a statement of their capacity to supply or develop accessible ICT, such as that in Appendix A, and providing evidence in the form of a declaration.
- b) Evaluate supplier statements on accessibility capacity and ability.
- c) Ask for references from previous work to check for accessibility.

### 2. Technical Specifications

- a) Define accessibility in the Technical Specification.  
This can be done with reference to the Functional Performance Statements, where the needs or requirements are known but the type of technology required is not known. Where the type of technology is known, the Functional Accessibility Requirements can be used.
- b) Ask the tenderer to supply evidence of conformance.  
There are different types or levels of conformance attestation that can be requested, which vary in terms of credibility and detail, from a statement by the tenderer (a ‘first party declaration’) that a product complies with a requirement, to a third party conformity attestation.

Where the procuring body decides to require a declaration of conformity with EN 301 549 as evidence, tenderers can do this in three ways:

- i. They can declare that they have met the user needs expressed in the functional performance statements and provide the necessary additional evidence to support this claim. This evidence could include the results of user trials, evidence from previous installations of similar ICT, or any other evidence that the supplier believes supports their assertion.
- ii. They can declare that they have met all of the applicable testable requirements that appear in clauses 5 to 13 of the EN. These requirements specify a minimum, but testable, set of requirements that support the functional performance statements. ICT that meets these requirements is deemed to have met a level of accessibility consistent with the functional performance statements that describe the user needs.
- iii. They can declare how many of the testable requirements which appear in clauses 5 to 13 of the EN they have met. If they have not met all of the testable requirements, they can provide additional evidence to show how they have fully met the user needs that are addressed by the testable requirements that they have not met.

### 3. Award Criteria

#### a) Include accessibility in the Award Criteria

Accessibility should be one of the Award Criteria for determining which tender offers the best value for money. Accessibility Award Criteria can, for example, be based on range of people gaining benefit, range of disabilities gaining benefit, interoperability with assistive technologies, and innovativeness of a proposed technical solution. Procuring bodies should consult organisations of and for disabled people for getting advice on areas and technologies where accessibility should be improved. Where tenders are to be evaluated on the basis of the Most Economically Advantageous Tender (MEAT), it is typical that a matrix of weighted criteria is defined in the Call for Tenders. There are a number of ways to include accessibility requirements in the matrix:

- i. group all of them together within a separate 'Accessibility' criterion;
- ii. include them as part of a more general 'Usability' or 'Ease of use' criterion; or
- iii. spread them across criteria such as 'Quality and technical merit' or 'Expertise and skills of assigned personnel'.

#### b) Ask the tenderer to supply evidence of fulfilment of accessibility Award Criteria.

As previously, the types or levels of conformance can vary from a first party statement to a third party conformity attestation.



## **Evaluating tenders**

One of the key activities in the procurement process is to assure that the product or service offered by the tenderer actually has the characteristics and qualities specified in the Technical Specifications and Award Criteria.

In principle, where a declaration has been requested as evidence, it should be assumed that the content of the declaration is correct. The evaluation should in this case be limited to checking that the evidence provided is valid and relevant for the subject-matter of the procurement. In some situations, it may be considered appropriate to not rely on a Supplier's Declaration of Conformity, and to evaluate the accessibility independently, through auditing or user testing.

## **Evaluating deliverables**

The deliverables should be evaluated and tested to ensure that they meet the accessibility requirements included in the Call for Tenders and contract and that they are usable by persons with disabilities. This can be done by independent evaluators. The procurement plan will need to account for the cost and time required for evaluation, including the time for any remedial actions to address problems identified in the evaluation.

## **Managing contracts**

Accessibility of the delivered product or service should be maintained, or improved, during the course of the contract. There are many things that may change during the course of the contract, such as: the needs of the organisation or end user; the age, abilities or other characteristics of the user(s); technological developments (which could, for example, impact interoperability of devices); and the evolution of standards. These changes may impact on the accessibility of the product or service. It is therefore important to consider accessibility within the whole lifecycle of the product or service, rather than just the buying phase.

Ensure that the contract enables verification that the delivered product or service fulfils specified accessibility requirements during the course of the contract. Provisions for monitoring accessibility could be added to the contract, such as testing, or recording customer satisfaction. Improvements could then be linked to sanctions or incentives.

## **Identification of user needs using CEN-CENELEC Guide 6 / ISO/IEC Guide 71**

It is important to be able to identify and to describe a user's characteristics and abilities for identifying the required functionality of a technology product for that user. CEN-CENELEC Guide 6 / ISO/IEC Guide 71:2014 'Guide for addressing accessibility in standards'<sup>6</sup> provides standardised terminology to describe personal

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<sup>6</sup> The 'Guide for addressing accessibility in standards' is published as the European standard CEN-CENELEC Guide 6 and as the international standard ISO/IEC Guide 71 – they are equivalent.

abilities and characteristics, and aligns with the World Health Organization's International Classification of Functioning, Disability and Health (ICF).

Clause 7/ of CEN-CENELEC Guide 6 / [ISO/IEC Guide 71:2014](#) has:

- A description of a human ability and characteristic
- Examples of limitations of that ability and characteristic
- Design considerations for addressing the limitations of that ability and characteristic

The sensory abilities and characteristics are covered in four sections:

- Seeing functions
- Hearing functions
- Touch functions
- Taste/Smell functions

Physical abilities and characteristics are covered in the following sections:

- Body size
- Movement: Functions of the upper body
- Movement: Functions of the lower body
- Muscle power & muscle endurance
- Voice and speech

Cognitive abilities are covered in the following sections:

- global mental functions
- specific mental functions

It is important to note that, “although some impairments are minor in nature, combinations of impairments can impose significant limitations, as is often the case in ageing. While not all older persons have impairments, the prevalence of disability or limitations is highest among this demographic group. It is also important to recognize that children with impairments can have specific requirements based on their disabilities; they also have general needs and preferences that are similar to those of other children.”<sup>7</sup>

The benefits of using CEN-CENELEC Guide 6 / ISO/IEC Guide 71 are:

- It provides commonly accepted terminology related to accessibility
- It provides clear descriptions of human abilities and characteristics

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<sup>7</sup> CEN-CENELEC Guide 6:2014 / ISO/IEC Guide 71:2014, Clause 7.1.2.

- It uses standardised terminology from the World Health Organization's International Classification of Functioning, Disability and Health (ICF) 2001<sup>8</sup>, which has been adopted by over 190 member states and is used across broad sectors including health, disability, rehabilitation, community care, insurance, social security, employment, education, economics, social policy, legislation and built environment design and modification.

## **Evaluating suitability of technology products using EN 301 549 in the ALONE Sláintecare project**

### **Project overview**

The ALONE Sláintecare project aims to provide technology and a broad range of services that work together in a collaborative and coordinated way to support older people to manage their own health and wellbeing, and to improve their local community's capacity to meet their needs.<sup>9</sup>

The project has two key objectives:

1. To provide technology and services to support older people to better manage their health and remain living at home for longer.
2. To improve the community's capacity to meet the growing needs of older people through alignment, collaboration, common service models and training.

The Centre for Excellence in Universal Design (CEUD) is part of the National Disability Authority. It is dedicated to enabling the design of environments that can be accessed, understood and used regardless of a person's age, size, ability or disability. The CEUD supports the development of standards, guidelines and toolkits for the implementation of Universal Design in a wide range of spheres of practice.

The CEUD engaged with ALONE in January 2020 as part of the ALONE Sláintecare project to provide guidance on the use of standards when identifying user needs and evaluating the accessibility of technology products.

The CEUD ran two workshops with ALONE staff, in February and September 2020, in which two practical exercises were conducted (see Appendix B for agenda of workshop on 3 September). The first exercise focused on people. It considered how to describe the abilities and characteristics of older people in relation to their use of technology based on the CEN-CENELEC Guide 6 / ISO/IEC Guide 71 'Guide for addressing accessibility in standards'. A second exercise focused on the suite of technology being used in the project. It considered how to describe the functional

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<sup>8</sup> World Health Organization. International Classification of Functioning, Disability and Health (ICF), available at: <http://www.who.int/classifications/icf/en/>

<sup>9</sup> 'ALONE's Sláintecare Project' – project information document provided by ALONE

performance of the technology based on the harmonised European standard [EN 301 549](#) “Accessibility requirements for ICT products and services”.

This section is based on the practical exercise conducted in the CEUD/ALONE workshop in September 2020 and follow on exercises. A copy of the exercise sheet is provided in Appendix C.

The exercise demonstrates how EN 301 549 was used to identify appropriate technology products for users. The exercise included the following steps:

- identifying the user’s needs
- mapping the user’s characteristics and abilities to the Functional Performance Statements of EN 301 549
- assessing the functional performance of technology products to determine whether the technology products may meet the user’s needs, using the Functional Performance Statements.

### **Identifying user abilities and characteristics**

The user in this case example is Maureen, a persona developed during the exercise. For this exercise, we do not need to know the reasons that technology is being sought for Maureen; we need to assess Maureen’s abilities and characteristics, and identify any limitations to her abilities or characteristics, and thus her needs when using a technology product. This will identify the functional performance statements that the technology product being considered will need to align with so that it meets Maureen’s needs.

The limitations that Maureen experiences with respect to her abilities and characteristics are described using Clause 7, CEN-CENELEC Guide 6 / ISO/IEC Guide 71. Maureen experiences the following limitations:

- reduced ability to reach distant objects, or objects on the floor due to limited range of motion of shoulder joint and/or elbow joint (Clause 7.4.3.2)
- reduced ability to manage heavy or bulky objects due to weakness or musculoskeletal temporal injury in the upper body (Clause 7.4.3.2)

The identification of limitations that Maureen experiences with respect to her abilities and characteristics are used to identify her needs with respect to the design features of a suitable technology product:

- product is light (“manufacturing materials of lighter weight or lower density to reduce the weight of products” – Clause 7.4.3.3)
- the product does not rely on movement of upper body (“alternative controls for accommodation of upper body movement impairments – Clause 7.4.3.3); this could be in the form of voice-activation controls

## Mapping functional performance statements with user needs

The Functional Performance Statements that are relevant for the selection of a technology product that will be suitable for Maureen are identified using EN 301 549:

- Usage with limited manipulation or strength (Clause 4.2.7)
- Usage with limited reach (Clause 4.2.8)

## Assessing products

The technology products that are being considered for Maureen must be assessed in relation to the relevant functional performance statements identified.

In order to carry out the assessment, ALONE used their existing knowledge of the technology products.

Here, as an example, three different technology products are assessed for their suitability for Maureen. That is, whether they would be usable by Maureen.

- Technology Product Example 1: Amazon Echo with Alexa voice assistant
- Technology Product Example 2: Pebbell personal alarm device
- Technology Product Example 3: minifinder emergency alarm watch

**Table 1 Assessing products against Functional Performance Statements**

Technology Product	4.2.7 Usage with limited manipulation or strength	4.2.8 Usage with limited reach
Amazon Echo (no screen) with Alexa voice assistant	✓	✓
Pebbell personal alarm device	✓	✓
Minifinder emergency alarm watch	?	✓

The simple assessment above reveals that the technology products in Examples 1 and 2 would be usable by Maureen, and that further enquiry is required to assess the suitability of Technology Product Example 3.

## Using EN 301 549 to evaluate the accessibility of each technology product in the BConnect technology catalogue

Relating to ALONE's specific Slaintecare project, ALONE made an assessment of how well each of the technology products used in the project met each of the Functional Performance Statements identified in Clause 4.2, and hence the user's needs. This enabled us to understand the suitability of products provided as part of

the project for different users, and so empowered us to better allocate devices to a person according to their specific needs.

ALONE's Technology Engagement Officers assessed how well each device met the functional performance statement on a scale of 1-5, using requirements set out in Clauses 5 – 12, Table B.2 of EN 301 549 and their understanding of the products.

Table 2 shows the assessment score given to each of the technology products corresponding to each of the Functional Performance Statements. Some devices in Table 2 have a reference to devices that may require family support to receive total benefits. These are marked with (w/FS) showing that the accessibility is considered assuming family support is available.

All devices mentioned in this section are shown in Appendix D 'Devices used in ALONE's Sláintecare project'.

**Table 2 Evaluating technology products used in the project against the Functional Performance Statements in EN 301 549**

	4.2.1	4.2.2	4.2.3	4.2.4	4.2.5	4.2.6	4.2.7	4.2.8	4.2.9	4.2.10	4.2.11
<b>Alexa</b>	4	5	5	1	2	1	5	5	5	3	2
<b>Tablets</b>	1	2	3	3	3	4	4	5	3	1	3
<b>Smart watch</b>	1	3	4	4	5	5	3	4	5	3	3
<b>Doro 4080</b>	1	2	3	3	3	4	4	5	3	1	3
<b>Smart doorbell (w/FS)</b>	4	4	4	2	3	4	5	5	5	4	2
<b>Kardia ECG (w/FS)</b>	2	4	5	5	5	5	4	4	5	2	3
<b>Minfinder</b>	1	3	4	3	3	2	3	4	5	3	3
<b>Omron BP watch</b>	2	3	4	5	5	5	2	4	5	3	3
<b>Sensors (w/FS)</b>	5	5	5	5	5	5	5	5	4	5	2
<b>BPM (w/FS)</b>	2	3	4	5	5	5	2	4	5	2	3
<b>pebbell</b>	3	4	5	2	3	3	4	4	4	3	4
<b>Doro 518</b>	2	4	5	3	4	5	4	4	5	4	4

## **Evaluating the accessibility of the technology products in the BConnect catalogue against the needs of the Sláintecare project participants**

A weighting based on the percentage of project participants with needs for each specific functional performance statement was calculated by dividing the number of users by the total number of project referrals.

This weighting was applied to each corresponding functional performance statement score and then used to calculate a total score based on these weightings. This created a very high level view of the accessibility relevant to the participants in this project for each technology product included in ALONE's technology catalogue.

The exercise discussed above displays how EN 301 549 informed a process that may be used as a tool to identify what assistive technologies might be most appropriate for people with specified needs, at a high level.

The exercise highlights that certain technology products and solutions provide benefits for people with varying needs.

### **Conclusions**

This project showcased how EN 301 549 can be used as a tool to assess the accessibility of technology products based on Functional Performance Statements and how technology products that meet the needs of individuals may be identified.

When providing assistive technology, a range, or suite of technologies is required to support older people to age at home, in order to meet diverse needs of the demographic.

The devices provided through this project require adequate installation support and training in order to maximise the effectiveness and impact of the solutions. Without this support, there is likely to be low engagement by older people and their families.

Currently there is no specified funding available for assistive technologies to support older people to live at home independently. Through ALONE's Sláintecare project, the benefits of assistive technologies to older people and their families were displayed. ALONE recommends specified funding for assistive technology is made available to enable older people and their families to receive such benefits, without the barriers of cost and access to technology affecting their quality of life.

### **Conclusions and recommendations for using EN 301 549 for procurement of technology**

The previous section demonstrates how EN 301 549 can be used to conduct a quick and simple exercise to assess if a technology product may meet the accessibility needs of a particular individual.



A more common application of EN 301 549 is to specify accessibility in a precise and testable way in the procurement of ICT products. Although this was not within the scope of CEUD's role in the ALONE Sláintecare project, the use of EN 301 549 in procurement is described here as it may be applicable to future iterations of this project and/or have wider applicability to the procurement of more mainstream ICT products or services by ALONE or the HSE. It also provides more general guidance on considering accessibility during all stages of a procurement process.

The conclusions and recommendations for using EN 301 549 in procurement of ICT are as follows:

- The Functional Performance Statements of EN 301 549 are useful for identifying user needs and defining technology requirements.
- It is recommended to use EN 301 549 to specify the requirements of a technology product in its procurement.
- It is recommended to use ISO/IEC Guide 71 / CEN-CENELEC Guide 6 as a reference in recording a user's abilities.
- The use of EN 301 549 and its Functional Performance Statements provides a way to assess the suitability of different products for certain users and provides a means to focus on choosing and procuring a suite of products that will meet the widest range possible of user needs.
- NDA should engage with the Office of Government Procurement on integrating reference to EN 301 549 in its guidance material on procurement of ICT.
- NDA should engage with the HSE, government departments and public bodies to raise awareness of their obligations in relation to the procurement of ICT, and promote and support their use of EN 301 549 in meeting those obligations.

## Appendix A: Supplier Statement of Accessibility Capacity

The Tenderer shall indicate which of the following statement best describes his capacity and experiences.

<b>Level of Supplier's Accessibility Capacity</b>	<b>Brief comments to support statement</b>
1) The tenderer has not come across accessibility issues and has no particular knowledge of accessibility issues.	
2) The tenderer is aware of the need for accessibility, but the issue is not a corporate priority. The supplier has not found sufficient customer demand to acquire a basic knowledge. If an accessibility problem arises, it will be solved from scratch.	
3) The tenderer is aware of accessibility and is to some extent prepared for action. The actions will, however, be taken on an ad hoc basis. The supplier may know of accessibility guidelines and has contact with accessibility expertise externally or upstream in the company.	
4) The tenderer has competence and an organisational unit at its disposal, either internally or externally. There is a commitment by the top management level to promote accessibility. Usability knowledge is applied. One or more staff members may be assigned to monitor the field of accessibility and have basic knowledge of the field. Access to further expertise may exist upstream in the company, or the supplier may have an agreement with an external expert who can act as a subcontractor.	
5) Accessibility is one of the activities of the tenderer. A corporate policy on accessibility is established, enforced and well-known by the staff. A competent organisation unit is established in-house. Accessibility guidelines are well-known and applied.	
<b>Indicate level of Accessibility Capability</b> (1-5 – choose one value only)	

## Appendix B: Agenda of ALONE/CEUD workshop of 3 September 2020

10:00 – 10:15	Welcome, Ger Craddock   Chief Officer, CEUD Introductions from all
10:15 – 10:25	Workshop and partnership objectives   CEUD
10:25 – 10:40	Universal Design
10:40 – 10:55	A Universal Design Framework <sup>10</sup>
10:55 – 11:05	-----Break-----
11:05 – 11:20	Exercise Part 1: Identifying users' needs and preferences
11:20 – 11:35	Universal Design for Technology – defining functional requirements
11:35 – 11:45	Exercise Part 2: Requirements to extend the range of users
11:45 – 11:50	Communications Toolkit
11:50 – 12:00	Next steps, assigning key personnel to actions based on work package

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<sup>10</sup> The European standard [EN 17161: 2019 'Design for all – Accessibility following an Design for All approach in products goods and services – Extending the range of users'](#) ('EN 17161') is used by ALONE as a framework to demonstrate that they are addressing accessibility and usability.

# Appendix C: Exercise sheet used in workshop of 3 September 2020

Name: Maureen



“Often heard by Maureen...”

User’s abilities and characteristics described by ISO Guide 71

Brief description of the person, their interests, likes and dislikes (in general)

\_Chats, bowls, golf, lunch, spending time with grandkids, talking about family, cooking, hosting\_\_\_\_\_

### Personal

- Age:75\_\_
- Gender: Female\_\_
- Level of education: \_\_Secondary level
- Job title/role: Air hostess\_\_(retired)

### Technology experience:

- Devices used: (primary, secondary) \_\_\_\_\_
- Landline, mobile, TV \_\_\_\_\_

### Motivation

- What is Maureen motivated by?  
Wants to feel secure as her needs change  
Her life to remain as much the same as possible  
Confidence and independence

### What are her abilities and characteristics?:

- 1.\_ Impairments and limitations: reduced ability to reach distant objects, or objects on the floor due to limited range of motion of shoulder joint and/or elbow joint; (7.4.3.2)
- 2.\_ Impairments and limitations: reduced ability to manage heavy or bulky objects due to weakness or musculoskeletal temporal injury in the upper body;

### Main barriers experienced by Maureen in using technology

- 1.\_Reduced ability to lift heavy devices\_\_\_\_\_
- 2.\_Reduced moving ability to reach, stretch or react to devices\_

### Features that technology must have to support Maureen?

- 1.\_Avoidance of surface level obstacles\_\_
- 2.\_Ample time for reactions\_
- 3.\_Voice control\_\_\_\_\_
- 4.\_Located in convenient place
- 5.\_Interaction without physical movement\_\_

### Relevant Functional Performance Statements

- 1.\_Usage with limited manipulation or strength (4.2.7)
- 2.\_Usage with limited reach (4.2.8)

Functional performance of technology described by EN 301 549

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# Appendix D: Devices used in ALONE's Sláintecare project

## Health monitoring devices



11



1



2



## Communication and information devices

3



## Safety and security devices



5



4



**Table D-1 List of technology products used in project**

**Technology products used in the project**

1. Tablet
2. Doro 4080, Doro 518
3. Alexa
4. Pebbell
5. Minifinder
6. Sensors
7. Ring smart doorbell
8. Smart watch
9. BPM
10. Kardia ECG
11. Omron BP monitor

**Table D-2 Number of users and respective weighting used in calculation**

	Abbrev.	Description	No. users	Weighting
4.2.1	WV	Usage without vision	0	0
4.2.2	LV	Usage with limited vision	12	0.23
4.2.3	WPC	Usage without perception of colour	3	0.06
4.2.4	WH	Usage without hearing	2	0.04
4.2.5	LH	Usage with limited hearing	15	0.28
4.2.6	WVC	Usage without vocal capability	1	0.02
4.2.7	LMS	Usage with limited manipulation or strength	15	0.28
4.2.8	LR	Usage with limited reach	7	0.13
4.2.9	PST	Minimize photosensitive seizure triggers	2	0.037
4.2.10	LC	Usage with limited cognition	43	0.81
4.2.11	P	Privacy	-	