Living Labs and Open Toolkit for the co-design of accessible IT systems and tools

PROJECT

Living Labs and Open Toolkit for the co-design of accessible IT systems and tools

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Author(s)	Ioannis Poultourtzidis, Joe Cullen
Contributor(s)	Savvas Anastasiadis, Stavroula Makroglou
Reviewed by	Paul Flynn
Approved by	Panos Bamidis, Project Coordinator

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- Aristotelio Panepistimio Thessalonikis (AUTH), Greece
- Arcola Research LLP (ARC), United Kingdom
- National University Of Ireland Galway (NUIG)
- Universidade Catolica Portuguesa (UCP), Portugal

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List of Acronyms

Acronym	Description
PwCD	People with Cognitive Disabilities
AUTH	Aristotle University of Thessaloniki
ARC	Arcola Research LLP
NUIG	National University of Ireland Galway
UCP	Catholic University of Portugal

1. Executive summary

The COVID-19 pandemic has brought into light issues around digital inclusion. Measures and mitigation actions indirectly revealed discrepancies in the digitalisation of our world. While people were being advised to interact digitally for their daily needs and activities presenting a sometimes-easier way to accomplish procedures with authorities or purchases or even working without having to leave your home, simultaneously these decisions had the opposite result in a great amount of the population. People who had no prior IT literacy, older people or people with cognitive disabilities were excluded. Before COVID-19 the choice to accomplish interactions in a non-digital way was present, but there is a question on whether we will eventually return to this previous status, or whether this was just a step to where we are standing now and from now on.

It is essential to come up with new ways in which we can support the resilience of our communities and our people. LIVE IT aims at identifying digital tools and environments that support people with cognitive disabilities in their digital activities through co-designing possible solutions. This is a key concept of the project, and it aims to counter the traditional 'top-down' approach where the IT community, content experts and designers try to impose their ideas on the end-users' community. Additionally, LIVE IT aims to map the relationship between cognitive disabilities and digital inclusion to tailor tools to support web accessibility for people with cognitive disabilities

The success of the LIVE IT project is related to a sustainable exploitation strategy to promote widespread use of its innovative outcomes and technology-enabled services.

The aim of this document is to report on all processes and effort made towards making the LIVE IT project sustainable after its funding period. LIVE IT is a 1-year PPPA project (Pilot Projects and Preparatory Actions) that collects the lived experience of PwCD through co-creation labs' activities, interviews, observations, focus group discussion and hackathons and directs them into the creation and implementation of a digital toolkit – the 'Open Toolkit' – that helps people with cognitive disabilities make decisions on which accessibility tools best suit their needs, as well as providing an extensive repository of resources for other stakeholders.

This deliverable has been extensively revised following recommendations made by the project external reviewers at the project final review. Additional work carried out, and additional information provided in this report on that work, covers:

- Measures to make LIVE IT information, data and results publicly available, accessible and easy to find (Section 9.1)
- Concrete steps taken to support sustainability (Section 9.2)
- Additional economic analysis of the benefits attributed to LIVE IT– based on Cost Benefit Ratio analysis (CBR) (Section 6.1).

Intended audience

This document should be used as a reference by:

- European Commission agencies
- Policy makers

- Relevant stakeholders, including organisations providing services for people with cognitive disabilities; researchers; IT designers and developers
- all consortium members of LIVE IT
- members of the public

Structure of the deliverable

The report presents:

- LIVE IT Sustainability aims, objectives and methodology (section 2)
- LIVE IT sustainability analysis (sections 3 to 7)
- Conclusions and Implementation Plan (section 8)
- Additional work carried out ex-post covering measures to make LIVE IT information, data and results publicly available, accessible and easy to find, and concrete steps taken to support sustainability (section 9).

Relation to other WPs & tasks

The Sustainability Plan and Recommendations (D5.3) is a process running parallel to all other deliverables and activities and guides the delivery of the project results to organisations which will adopt them, use them and build upon them. Thus, it identifies outcomes of all previous Work Packages and Tasks and exploits them to define what is to be transmitted and how it will be easier and more efficiently transmitted to adopters and stakeholders to use them. Specifically, user needs' mappings developed through the state of the art baseline reviews in WP1, lifeworld analysis and co-creation labs (including the analysis of data generated within them) in WP2, the mapping of user needs to existing tools and necessary innovations that fed the Open Toolkit in WP3 and the Hackathons that assessed and improved the Open Toolkit along with the "Makerspace" in the WP4, all created the data to be transmitted, but also set the basis and provided information on where they should be transmitted.

2. Introduction

2.1 Approach and definitions

Sustainability is a slippery concept, with little consensus on what it means or how to implement it in practice (Johnston et al., 2007). However, reviewing the literature, three main themes – or 'catchments' - on sustainability stand out. First is a body of theory, policy and practice on what is broadly considered as 'environmental sustainability'. This is generally seen as probably the most significant 'wicked problem' threatening humanity's future and is currently the focus of a raft of policy initiatives at national, trans—national and global levels – for example the European Green Deal (Brussels, 11.12.2019 COM(2019) 640), which sets the EU's climate ambition for 2030 and 2050, including clean, affordable and secure energy, the circular economy, sustainable and smart mobility, designing a fair, healthy and environmentally-friendly food system and restoring ecosystems and biodiversity. Linked to the Green Deal is the New European Bauhaus initiative that connects it to 'living spaces and experiences' with the aim of supporting a movement to "facilitate and steer the transformation of our societies along three inseparable values' – sustainability, aesthetics and inclusion (Link). Virtually all the literature on sustainable development – including the UN's Sustainable Development Agenda, 2015 and its associated 17 Sustainable Development Goals (Link) - starts with a quotation from the seminal Bruntland Report (1987) which inspired the UN Goals: "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs". The message from this environmental sustainability theme is two-fold: first, we need to consider in a sustainability plan how our project can contribute to supporting the 'transformational future' envisioned in policies like the UN Sustainability Agenda and goals and the European Green Deal. Second, we need to ensure that our project contributes to improving the lives of future generations.

A second theme in the literature focuses on what might be termed 'business sustainability'. Most of the literature on this theme has a 'business-to-consumer' focus and concentrates on aspects like how to sustain consumer demand – particularly nowadays for sustainable products (Sharma et. al., 2020). A key concept in business sustainability is 'value creation' – understanding the combination of attributes of the project and its outputs that creates value for users, and how to ensure that this value is maintained going forward. Value creation is typically defined as policies and practices that have the dual objective of increasing a company's competitiveness while at the same time contributing to improving the economic and social conditions in the communities in which the company operates (Porter and Kramer, 2011). In recent years value creation has been linked to two key ideas – the engagement of multiple stakeholder interests in creating and maintaining value, and the integration of five key dimensions - economic, governance, social, ethical, and environmental (EGSEE) dimensions – into sustainability strategies (Rezaee, 2016).

The third main theme identified in the literature focuses on technological sustainability. Since LIVE IT is about the impact of technologies on humans, and its key output is a technical artefact – the 'Open Toolkit' – our approach to sustainability also necessarily needs to refer to the concepts, frameworks and practices typically used in technological development – especially software development. The literature on software sustainability references similar themes to those highlighted in business sustainability generally, i.e., an emphasis on representing stakeholder and user interests, and the importance of maintaining value by

adapting to evolutionary changes in the technology landscape. As Bachman et. al. (2003) put it sustainability is *the ability ... to modify a software system based on customer needs and deploy these modifications".* This definition brings more emphasis to the improvements and changes that need to be implemented for the product to remain sustainable throughout time and not just the fact that updates need to be implemented.

Integrating these three themes together a systematic review of the literature carried out by Moore et. al. (2017) suggests five key elements that need to be embedded in an effective sustainability plan:

- a prospective element – the plan needs to be bounded by a clear timeframe which provides a realistic chance for its goals to be achieved
- a continuity element - the program, clinical intervention, and/or implementation strategies continue to be delivered in ways that retain their key objectives
- a behaviour change element – the expected/desired outcomes of the intervention are maintained
- an adaptive element – the sustainability strategy nevertheless allows for adapted behaviour change to emerge
- a beneficial element – any scaling up/out strategy in the plan must continue to produce benefits for individuals/systems.

Drawing on the main themes outlined above, our approach to developing a sustainability plan for LIVE IT incorporates the following principles:

- It focuses on value creation for prospective users of LIVE IT products and services
- A stakeholder and user orientation – it reflects user and stakeholder needs, as well as the involvement of stakeholders and users in the previous development of LIVE IT products and services through the project's co-creation activities
- It aims to support UN Sustainability Goals – in particular Goal 3: Good Health and Well-Being – and Goal 10: Reduced Inequalities – and the goals of EU policies like the Green Deal and New Bauhaus
- It aims to set clear and achievable objectives within a realistic timeframe
- A focus on change – it aims not only to support the project's original goals of improving web accessibility for people with cognitive disabilities through supporting positive changes in system and tools design and service delivery, but to expand the impact of these goals through scaling LIVE IT up and out.

2.2 Methodology

To put these principles into practice the LIVE IT sustainability plan has been developed using a methodology that draws on a range of good practices including: Guidelines and tools produced by the European Commission across a spectrum of its funded programmes (see for example Link); the World Bank Toolkit on dissemination and exploitation of research findings (Link); the 'Social Replication Toolkit'' (Link); the UK 'Big Lottery' guide to generating evidence (Link); the NESTA Toolkit on growing social innovations (Link) and the 'Designscapes' Toolbox (Link). These share a number of common understandings on what a sustainability plan should cover, i.e.:

- A definition of what is intended to be sustained – the product, service etc. – and what its 'value attributes' are
- A specification of the target audiences – consumers, users etc. – and how their needs will be satisfied
- An assessment of the capacity of the product, service etc. for scaling up and out
- An economic analysis, including the costs likely to be incurred for sustainability activities together with the potential return on investment
- An assessment of the institutional and organisational factors that need to be considered, including partners and networks, integration of the innovation into existing structures and systems, the organisational processes and systems needing to be set up and the human resources implications involved
- An assessment of the challenges to sustainability, including competitors, and potential external and internal risks that might need to be resolved
- Integration of the above into a sustainability implementation plan.

This methodology is summarised in Figure 1. As Figure 1 shows the methodology follows six stages and activities:

- Stage 1: product definition and value proposition
- Stage 2: Target audience & needs analysis – this was done using stakeholder mapping
- Stage 3: Scalability Analysis – this was done using 'Replication Analysis'
- Stage 4: Economic Analysis – this was done using a combination of Cost Consequence Analysis and the Business Model Canvas. The Business Model Canvas included an assessment of the institutional factors – the human and organisational resources needed to take the project forward
- Stage 5: Challenges - this was done using SWOT analysis
- Stage 6: Implementation plan – this integrated the results of the preceding stages, using a 'storyboard' technique.

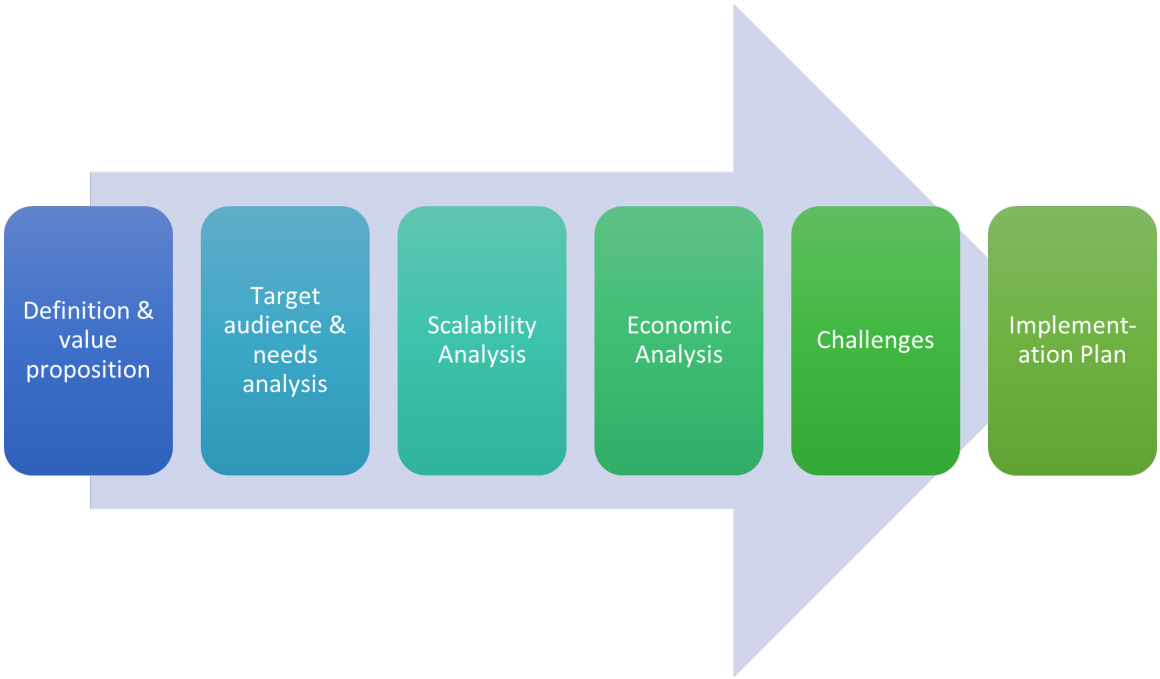


Figure 1: Sustainability Plan Methodology

Each of these stages is presented in detail in the following sections.

In addition, following recommendations by the project external reviewers as a result of its 'Final Review' one other stage and set of activities – Stage 7 - was implemented at project end. This focused on, firstly, taking steps to make LIVE IT information, data and results publicly available, accessible and easy to find and, secondly, reporting on the concrete steps that have been taken to support sustainability.

3. Stage 1: Product definition and value proposition

3.1 The Product

LIVE IT's key product is the Open Toolkit'. The Toolkit brings together all of the results and learning generated in the project and makes it useful for stakeholders by providing guidelines, tools and good practice examples to support web accessibility for people with cognitive disabilities. As Figure 2 shows, the LIVE IT Open Toolkit combines three sets of tools:

- 'Knowledge-gathering' tools. These cover:
    - Directories of cognitive disabilities, IT platforms, services and tools
    - A Directory of key people, organisations and places in the field
- 'Sense-making' tools. These cover:
    - The LIVE IT 'Advisor Tool'. This offers users a selection of tools that have the potential to help people with cognitive disabilities meet their digital challenges, on the basis of their needs and profile
    - Guidelines to support a range of stakeholders to deliver better web accessibility – from designers and developers of platforms and software tools through to policymakers with an interest in supporting digital inclusion agendas

- Co-design tools. These cover:
    - A ‘Knowledge Community’ to support knowledge sharing between the LIVE IT Community Labs and cognitive disability groups
    - An online ‘Makerspace’ that reinforces the co-design work being carried out in the Labs through supporting the broader community of people with cognitive disabilities to explore and experiment with the ideas and tools coming from the Labs, as well as A series of ‘Hackathons’ that focus on co-producing solutions to specific issues for people with cognitive disabilities.

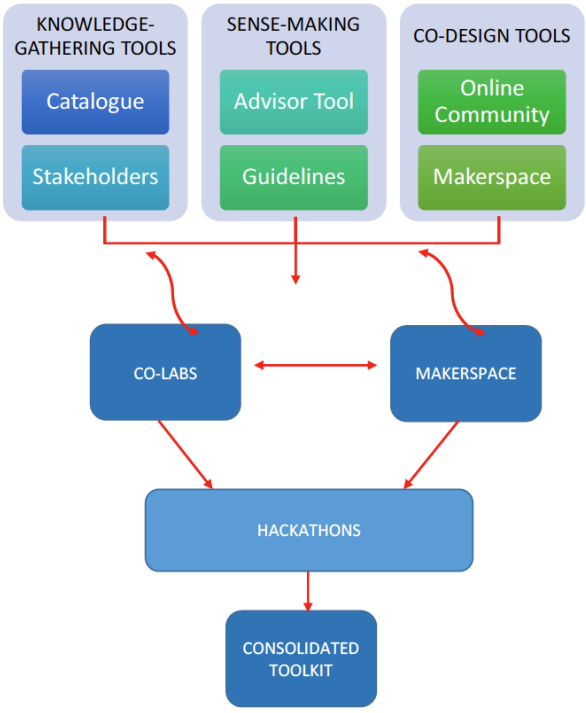
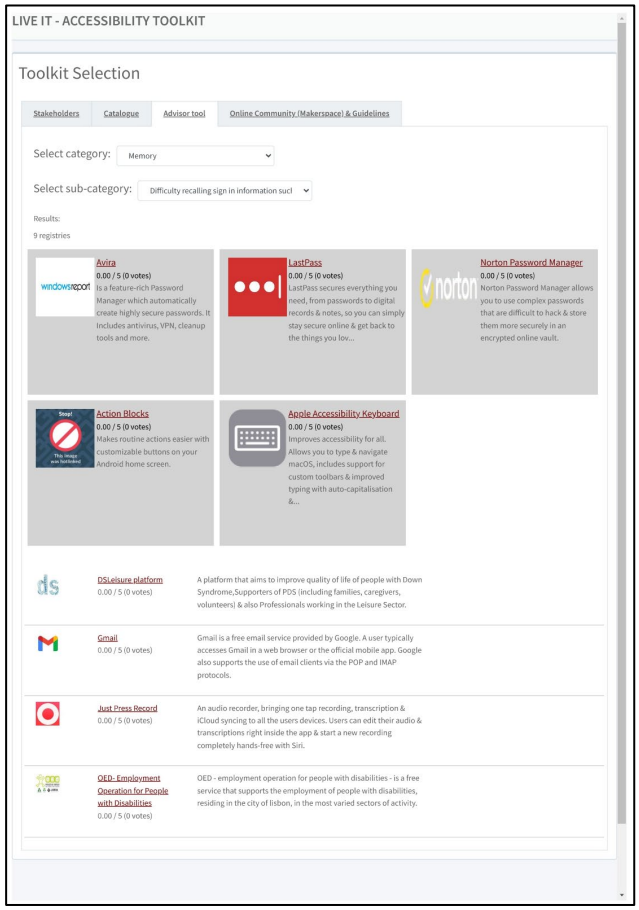


Figure 2: LIVE IT Open Toolkit

A core feature of the Open Toolkit is the ‘Advisor Tool’. This a WebApp hosted on Microsoft Azure cloud space. Its main purpose is to provide advice to users on combinations of web accessibility tools – which are stored in the Advisor Tool database – that are most likely to help them address accessibility challenges they face. Users choose from one or more drop-down menus, where applicable, the challenge that they need assistance with. Answers are fed to the Advisor Tool algorithm, which determines the best assistive tool(s) from the LIVE IT database that best fit the user’s requirements. The top 5 tools are displayed first, followed by the rest, and a star system evaluation provides ranking in terms of acceptance, usability and security for all proposed tools. The Advisor Tool provides users with a set of tools, all with a simple description of their features and, when possible, a video demonstrating them or an easy how-to manual.

Apart from the Advisor Tool, a Guidelines section gives hints to what any expert on the field should follow when creating new digital content for it to be accessible, a set of recommendations coming from findings and results, or lessons learnt during the project lifecycle. As mentioned above, the Open Toolkit includes a list of Stakeholders, sorted by country or type for interested parties to view and find what they need. The list currently holds above 200 European entries and is constantly expanding. The types identified and implemented in the Stakeholders' list are IT, Designers, User Representatives and Policy with the first two to have their origins in the digital world, people creating digital contents, the third including PwCD, caregivers, NGO's, associations, organisations and other clubs or societies that are related to the cognitive disability spectrum, and, also, Policy including representation of governmental and regional stakeholders of public authorities that could be involved in the digital accessibility of end users. All stakeholders are enlisted along with some basic contact details, such as emails (not private) and social media profiles (Facebook, Twitter, LinkedIn, YouTube) and their official websites. Thus, it is easier for people to get in contact with local (or not) experts.



The Catalogue of the Open Toolkit aggregates a package of papers, publications and research studies, all in relevance with the cognitive disabilities' issue. Apart from these, a list of Grey literature and various useful resources are presented in this section. The whole Catalogue tab is again offered with a Sort by and a Filter by functions for easier navigation (Sort by Target Population, Theme and Country, Filter by Theme and Target Population).

Finally, the Online Community with its Makerspace brings users to the Circle.so profile of the LIVE IT project, where they can get in touch, discuss problems, challenges and craft solution through co-design processes.

3.2 Value proposition

Product Benefits

Depend on the user. For people with cognitive disabilities, the key benefit is an increase in access to and usability of web tools and services, which ultimately will improve daily life. For IT tools and service designers, the key benefit is an increased understanding of what works in improved product and service design, ultimately leading to better product and service

usability and user satisfaction. For policymakers the key benefit is an evidence base on what works to support better policymaking.

Product Features

An integrated suite of resources and tools to improve web accessibility, supported by navigational and user profiling features that allow seamless access to what a particular user needs.

Product experience

The user experiences enlightenment, reassurance and improved skills.

Customer Wants

The emotional drivers of the product depend on the user. For people with cognitive disabilities the emotional drivers are isolation and exclusion. For IT tools and service designers the drivers are based on the need to improve things. For policymakers the drivers are primarily around justice and equity.

Customer Needs

The rational motivators for people with cognitive disabilities are improved knowledge and improved access to digital tools and services. For IT tools and service designers the motivators are increased usability, user-friendliness and quality. For policymakers the key motivators are access to tools and evidence to contribute to reducing digital inequality.

Customer Fears

For people with cognitive disabilities the undesired outcomes are information overload and lack of trust in the solutions offered. For IT tools and service designers the undesired outcomes are increased costs. For policymakers the undesired outcomes are difficult choices and policy trade-offs.

4. Stage 2: Target audience and needs analysis

4.1 Background

Analysis of the broad background of cognitive disability within the digital world highlights a number of key needs for people with cognitive disabilities that are currently not being met. The COVID 19 pandemic has shone a spotlight on the prevailing problem of 'dual exclusion' – the situation in which people who are structurally disadvantaged, through factors like low income, ethnicity, disability, gender – are further disadvantaged through digital exclusion. As the pandemic accelerated the migration of daily life online through things like online shopping, contactless payments, remote working, distance learning groups who were already digitally disadvantaged were left even further behind (WEF, 2020). Research also shows that people with cognitive disabilities are particularly vulnerable to the physical, mental and social effects of the pandemic. Cognitive impairments can limit people's understanding of information to protect them – which increases their reliance and dependency on other people, for example carers, to act on their behalf during quarantine. Restrictions on normal daily activities induce mental stress, leading to an escalation in challenging behaviours and increased use of psychotropic medication. People with cognitive impairments are vulnerable

to exploitation by others in situations where the usual community supports no longer function to protect them (Courtenay and Perera, 2020).

LIVE IT research on the challenges faced by people with cognitive impairments against this background contributed to understanding their digital needs with greater specificity. This research confirmed many of the issues referenced in research and policy. One set of issues speaks to the 'everyday' challenges of digital life, for example people with impaired short-term memory who find it difficult to remember passwords; the struggle with poorly designed and wordy web pages experienced by people who find it challenging to process complex information; the vulnerability of people with cognitive impairments to when using on-line commercial services. Another set of issues highlighted by LIVE IT's research focuses on stereotyping. A key problem is that people with cognitive impairments are frequently bundled together as a homogenous group, so that designers and developers impose a 'one size fits all' solution. However, the LIVE IT research revealed a diverse spectrum of people whose digital challenges and needs stem from varied and often complex origins and reflect a wide spectrum – and intensity – of impairment, from very mild to very severe. This 'multiplicity of presenting needs' was a key finding of the Lab experiments LIVE IT carried out. A third set of issues speaks to the limited, or lack of, understanding by other key stakeholders of the challenges people with cognitive disabilities face. There is a body of evidence to show that technology designers and developers have little or no knowledge of the challenges people with cognitive disabilities face when using technologies (Disability Rights Commission, 2004). This is related to the lack of scientific evidence on the relation between cognitive disability and technology (Barnard and Beyer, 2009), which is in turn linked to the fact that people with cognitive disabilities very rarely participate in research, design or development (Borg et. al., 2015).

4.2 User Mapping and needs

Against this background we carried out a mapping exercise which aims to situate key LIVE IT user groups and their needs against the tools provided in the Open Toolkit. This is summarised in Table 1.

Table 1: Open Toolkit tools by User Group

Tool/User Group	PwCD/ Support services	IT Designers/ Developers	IT Suppliers/ providers	Resear-chers	Policy-makers
Catalogue	✓	✓	✓	✓	✓
Stakeholder database	✓	✓	✓	✓	✓
Advisor Tool	✓	✓			
Guidelines	✓	✓	✓	✓	✓
Online Community / Makerspace	✓	✓		✓	
Hackathons	✓	✓			

As Table 1 shows an additional target group – the research community – was added to the three main target groups discussed in the preceding section (people with cognitive disabilities and their support services; IT designers/developers and service providers; policymakers). The needs met by the Open Toolkit vary for each group.

- People with cognitive disabilities and their support service providers. This group presents with a wide range of unmet needs, including: access to information databases on available tools to support web accessibility; provision of advice on which tools will best meet these needs; knowing who to go to for advice and support on digital challenges experienced in daily life; access to a supportive community and environment in which exchange of knowledge and experience can help people with cognitive disabilities meet their daily challenges, as well as supporting feelings of belonging; the opportunity to actively contribute to the design and development of new tools to support web accessibility. These needs are supported by the full range of tools available in the Open Toolkit.
- IT designers/developers and service providers – the LIVE IT research reinforced the conclusion from the literature that the industry appears reluctant to engage with users on the ground to pursue a 'co-creation' agenda with the ultimate aim of improving IT design. Whilst we have worked with the 'Design for All' community in LIVE IT, it has been much harder to encourage commercial IT designers, developers and producers to participate. The same goes for providers of services, including public authorities. We therefore assume that the needs of this stakeholder group, as set out in the literature, focus on two main areas: access to an evidence base on key digital challenges faced by people with cognitive disabilities (The 'Catalogue' of validated accessibility tools), support and tools to engage collaboratively with other stakeholders – particularly people with cognitive disabilities and their support providers (The Stakeholder Database and the Online Community and Makerspace)
- Policymakers – LIVE IT has had limited success engaging with this stakeholder group and identifying its needs. From the evidence we have collected, policymakers are likely to be interested in the 'Catalogue', the 'Stakeholder Database' and in the policy recommendations and guidelines produced by LIVE IT.
- IT Suppliers / providers – Content created by designers and developers needs to be published and uploaded in the digital world for users to use. People responsible for this should also validate created content and ensure that accessibility is maintained and preserved. This group could benefit from the 'Catalogue', the 'Stakeholders Database' and the 'Guidelines' section of our Open Toolkit.
- Researchers – The researchers' community may find relevant information and insight fed into the Open Toolkit under the tabs of 'Catalogue', 'Stakeholders Database', 'Guidelines', 'Online Community' and 'Hackathons'. Using these tools, they can form bases upon relevant studies for further research actions and get in touch with others sharing common interest.

5. Stage 3: Scalability Analysis

5.1 Analysis methodology

The European Commission defines exploitation and sustainability as "the upscaling of best practices to create a wider impact and influence systemic change by maximising the potential of the funded activities, so that the results are used beyond the lifetime of the project, can be tailored to the needs of others; transferred to new areas; sustained after the funding period has finished; or used to influence future policy and practice". Scaling up is typically defined as increasing the capacity and spread of a product or service – for example by

providing it to more people. Scaling out is typically seen as similar to 'transferability' – i.e., widening the scope and context of a product or service into other areas: "making good practices available to a wider audience of the targeted group in a wider geographical area" (Smith and Colvin, 2000).

It is broadly agreed that successfully 'growing' an innovation depends on how the innovation is configured in relation to five key factors (NESTA, 2008), as shown in Figure 3 below.

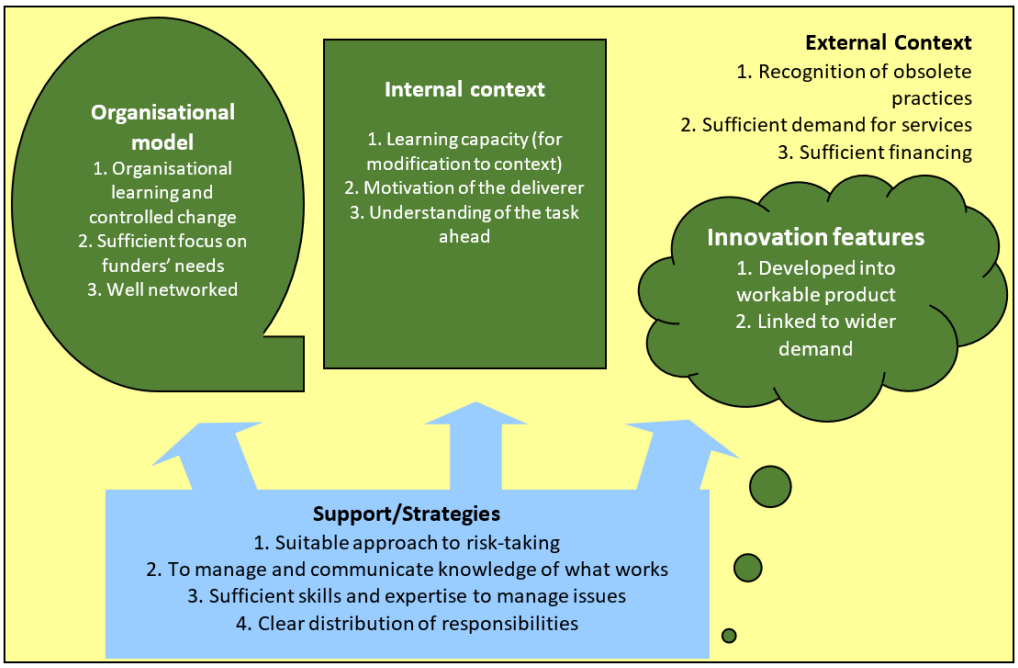


Figure 3: Growing an innovation (NESTA, 2008)

As Figure 3 shows, the key ingredients for scalability are:

- A favourable external context – obsolete practices already exist and can be replaced; there is sufficient service demand, and sufficient financing
- A favourable internal context – with learning capacity; delivery motivation; understanding of the tasks needed to be done going forward
- A supportive organisational model to deliver the innovation going forward – with good networks, organisational learning and a sufficient needs' focus
- Innovation features that work in terms of developability into a product and linkage to wider demand
- Support strategies – the right risk-taking approach; knowledge of what works; management skills and expertise; distribution of responsibilities.

Building on the NESTA principles, we carried out a 'scalability analysis' for LIVE IT using a framework that combined methods and practices from World Bank Toolkit, the UK 'Big Lottery' Guide, the 'Social Replication Toolkit' (International Centre for Social Franchising) and the 'Designscapes' Toolkit. The analysis scores LIVE IT across a range of 'replication readiness' criteria. Each criterion has a maximum score of 3 and a minimum score of 1. This analysis is shown in Table 2 below.

Table 2: Replication analysis, Open Toolkit

Replication readiness criteria		**LIVE IT Rating (1 low 3 high)**
What is the nature of the project?	3 Straightforward design with a logic model and/or a manual describing it and how it should be implemented 2 Straightforward / simple design that is well explained – but no manual 1 Several activity strands, no logic model or manual that describes the project and there are several hard to define components	3
How much do you know about what the essential parts of your project are that make it successful?	1 No knowledge about which parts make the intervention successful 2 Some knowledge (e.g., from introducing the project into different contexts or theory of change) 3 Strong evidence and evaluation-based knowledge about aspects of the intervention that are responsible for its impact	2
Will your project work in other contexts?	1 The project is culture or context specific 2 There is some evidence of the project working elsewhere 3 There is strong evidence that the project will work elsewhere	2
What evidence do you have that your project has an impact?	1 The impact is unknown or unclear 2 Reasonable evidence from evaluation or other measurement 3 Strong and rigorous evidence from rigorous evaluation relevant to the scale and nature of the intervention.	3
Replication plans, strategies and structures		
What is the main reason or motivation to replicate the intervention?	3 To increase scale: the delivery setting allows rapid scaling 2 To increase financial returns: is there robust cost / benefit data? 1 No reasons specified	1
What is your business model for replication?	1 No business model 2 Outline business model 3 Detailed business model	2
Is there a clear owner of the replication project?	1 No 2 Yes - there is one individual with relevant skills and experience 3 Yes, the project owner is an experienced individual with previous experience in scaling and is trusted by stakeholders.	1
What understanding and evidence do you have of the match between the social, economic and environmental needs of the local and replication contexts?	1 No understanding 2 Some understanding 3 In-depth field research implemented to understand differences and similarities in needs	1

Replication readiness criteria		**LIVE IT Rating (1 low 3 high)**
What evidence do you have of the supply or people or organisations willing to deliver the intervention	1 No interested parties or only some initial contacts 2 There is evidence of a supply of people or organisations willing and qualified to take on the replicated project 3 There is strong evidence of several people or organisations eager and qualified to take on the replicated project	1
Organisational culture, capability, capacity		
Are the functions and organisational values necessary for replication (relating to process, systems, training, legal agreements, procedures and ensuring quality) well defined	1 No 2 Yes, a few are defined and developed 3 Yes, all are accurately defined and developed	1
What is the quality of staff involved in the replication effort?	1 They generally display a low level of curiosity, and willingness to learn. 2 They display some degree of curiosity, and willingness to learn 3 They display a high degree of curiosity, and willingness to learn and may have prior experience of replication	3
What is the seniority of staff involved in the replication effort?	1 mainly junior and not able to take many autonomous decisions 2 have some degree of autonomous decision-making ability 3 sufficiently senior to work autonomously and take decisions	3
To what extent are organisational and project technologies transferable to different contexts?	1 They are specific to the context in which they were created. 2 With some changes, they can be used in different contexts. 3 There is evidence to show that they can be used in a different context.	2
What is the nature of communication patterns within the project and with external stakeholders?	1 Communication is siloed and technocratic. 2 Cross team communication is possible but not 'habitual' 3 Individual, team and cross team communication patterns are fluid	3
To what extent do staff and external stakeholders support replication?	1 Most are hostile to replication 2 Most are supportive of replication 3 All are supportive of replication	2
Is the brand understood and valued by your audience (beneficiaries, customers, funders etc.)?	1 No or very little understanding 2 Brand is partially understood and valued 3 Brand and organisational values are clearly documented.	2

As Table 2 shows, LIVE IT scores 32 out of a possible maximum score of 60 (53%). Whilst this indicates some replication potential, it suggests significant work is needed to support replication and sustainability going forward. This work is needed in the following areas:

- a clearer analysis of potential transferability sectors and areas
- partnership building
- financial/business analysis and planning
- organisational structures and systems (putting into place systems and tools to support process, systems, training, legal agreements, procedures and ensuring quality)
- establishing a brand and working on brand consolidation and recognition.

6. Stage 4: Economic Analysis

6.1 Cost Consequence and Cost Benefit Analysis

Our original intention was to use Social Return on Investment to assess the economic potential of LIVE IT and the Open Toolkit. SROI measures social, environmental and economic outcomes and uses monetary values to represent them (Source: 'A Guide to Social Return on Investment'. SROI Network, 2012) using the following formula:

> **SROI = (social impact value – initial investment amount) ÷ initial investment amount x 100%**

For example, an SROI ratio of 5:1 indicates that for every euro invested, an intervention delivers 5 euro in value (defined as economic, social and environmental value). However, SROI requires financial proxies - indirect indicators that approximate for a direct indicator for which data is difficult to obtain. Proxies are normally obtained either through established databases – e.g., national data on unit health costs for an individual presenting with cognitive disabilities – or through primary data collection – for example a survey of people with cognitive disabilities. Since neither proxy sources were available for LIVE IT we used 'Cost Consequence Analysis' (CCA) as an alternative to SROI. The big difference between CCA and SROI is that CCA "does not attempt to summarise outcomes in a single measure (such as the quality-adjusted life year) or in financial terms. Instead, outcomes are shown in their natural units (some of which may be monetary) and it is left to decision-makers to determine whether, overall, the treatment is worth carrying out" (Link). CCA is generally used to compare two scenarios – the current status quo and an alternative scenario represented by the intervention for two key areas – User benefits and Business Impact. To do this for LIVE IT we reviewed and integrated evidence from desk research and from the evaluation data derived from LIVE IT's Lab activities and Hackathons. The results are summarised in the Table below.

Table 3: LIVE IT CCA comparing 'implementation' and 'do-nothing' scenarios

Impact Area: User benefits	
Implementation scenario	**Do Nothing scenario**
Evaluation data from the LIVE IT Lab experiments shows that the use of tools to support increased web accessibility for PwCD has potentially significant user benefits. As an example, the responses of 50 PwCD to 26 different tools (e.g., Text to speech, Natural Reader, Speechify) across five LIVE IT Labs were collated and compared for usability and usefulness and emotional response. The mean score (on a maximum 100) for the tools combined was 76 on 'ability to meet my needs', 72 on 'ease of use' and 75 on 'ability to carry out tasks'. Low scores (below 50) were also recorded on the 'emotional response' indicators measuring stress, lack of control, distraction and frustration. These positive findings were reinforced through observational analysis carried out in the Labs. Scaling these benefits up and out would likely make a significant contribution to improvements in mental well-being for people with cognitive disabilities. It would likely lead to improved access to digital tools and services, increased quality of life and life opportunities and reduced social isolation. Ultimately this contributed to improved social inclusion	Current estimate is 142 million Europeans with a cognitive disability – dementia, dyslexia, ADHD, autism, learning and comprehension -19% of the population (Sources: WHO, European Parliament, Eurostat, PISA). 54% estimated to be digitally excluded. That's 77 million people – over 10% of the total population (Sources: Eurostat; EU SILC) This represents an enormous challenge to EU digital inclusion goals. The EU's digital targets for 2030 ('2030 Digital Compass') set a minimum of 80% of the population with basic digital skills, with ambitious targets for digitisation of public services – 100% access to e-health records; 80% citizens using digital ID. The underlying 'digital principles' that support these targets include 'freedom of choice' (a fair online environment) 'solidarity and inclusion (universal access to internet, to digital skills, to digital public services and to fair working conditions) and 'participation' (all citizens engage in the democratic process at all levels). None of these principles will be fully operationalised and targets met if a significant segment of the population – PwCD - remains digitally excluded.

Impact Area: Business Impact	
Implementation scenario	**Do Nothing scenario**
The LIVE IT Lab activities and experiments, supported by evaluation of the 'Hackathon' series suggests that participating PwCD increased basic digital skills, expanded access to online tools and services and had benefits for participants in terms of increased sense of self-efficacy and locus of control. Although difficult to quantify there is strong evidence to suggest these benefits have a significant economic multiplier. As an example, a 2018 Report by the Good Things Foundation, UK suggests the economic benefits over a ten-year period for the UK are: Time savings through online transactions - £0.11b per annum Earnings benefits from increased skills - £57m p.a. Employability benefits - £31m p.a. Transaction benefits - e.g., online shopping - £0.11b p.a. Health - e.g., online booking £14m p.a. Communication benefits - £40m p.a. Digital efficiency - £48m p.a. Corporate - e.g., reduction in skills shortages £0.15b p.a.	If no additional EU-level action is taken to support the digital transformation, the cost is estimated at €315 billion in 2021, and would be expected to grow over time to reach €1.3 trillion by 2033. (Source: European Parliament Thinktank, 2022). The economic impact of mental health problems – including cognitive issues - is estimated at more than €600 billion across the EU. This is accounted for by spending on health care, about 1.3% GDP or €190 billion, and social security programmes (1.2% or €170 billion euros. But the most important economic impact is due to lower employment and productivity of people with psychological disorders – which accounts for 1.6% GDP or €260 billion. (Source: OECD, 2021)

As the Table shows there is a strong case to support the proposition that promoting the scaling up and out of the Open Toolkit could potentially contribute to significant user and economic benefits.

It should be emphasised that CCA is a 'broad brush' methodology that aims to paint a picture of how LIVE IT could contribute to the over-arching returns at the societal level that could be realised if comprehensive changes were made to increase accessibility for people with cognitive disabilities within the IT industry, through policymaking and through changes in the ways in which online public services are delivered. The CCA is ***not*** intended to calculate the return on investment of LIVE IT itself. As noted above, to do this requires a more granular level of analysis that would normally be done using social return on investment (SROI). As also noted above, we don't have access to the data needed to carry out an evidence-based SROI analysis – in particular the 'proxy indicators' required – e.g., national data on unit health costs for an individual presenting with cognitive disabilities.

However, in response to the project external reviewers' request for an indication of LIVE IT's return on investment, presented below is an analysis that uses a more basic cost-benefit ratio (CBR) methodology. An important caveat is that the data used are 'imperfect' in that they use

values based on available evidence drawn mainly from the literature rather than from established proxy databases or primary data collected from people with cognitive disabilities. How it works is as follows:

- From the LIVE IT evaluation data, a list of 'benefits' is established. These benefits reflect positive outcomes either self-reported by people with cognitive disabilities who participated in LIVE IT activities, or identified through project observation, or both. These benefits include outcomes like increased digital skills, increased use of online services. The benefits are set against data drawn from secondary data sources – including statistical databases (e.g., OECD, Eurostat); key research reports (e.g., Good Things Foundation; 2018; Centre for Economics and Business Research, 2018) and relevant academic literature (e.g., Liddy et. al., 2015; Snoswell, 2020; Agha et. al., 2022) to establish a set of key benefits indicators
- Monetised values are attached to these benefits where there are data available
- The number of LIVE IT beneficiaries are calculated
- The estimated overall financial benefit from the project is calculated by aggregating individual benefit values
- The resultant financial benefit is set against the project costs to produce a crude CBR.

Table 4 shows the results of the analysis.

Table 4: Basic CBR calculation for LIVE IT

Benefit	**Estimated value per capita in euro**
Savings banking transactions	895.71
Savings government transactions	732.86
Savings shopping online	170.24
Increased earnings	1048.23
Reduced digital skills training costs	361.90
Increased cultural activities	417.86
Health consultation savings	350.00
Total financial benefit	**3976.80**
Total participants in LIVE IT	555
Total estimated aggregate financial benefit	2207127
Project cost (including co-funding)	571540
CBR on total cost	**3.86**
% participants reporting positive benefits	51
Adjusted CBR on total cost	**1.97**

As Table 4 shows seven benefits indicators were used in the analysis, based on participant responses in the evaluation and availability of evidence-based data from the literature. These cover:

- Savings in banking transactions – using data based on estimated costs in time saving per individual accrued through using online financial services

- Savings in government transactions - using data based on estimated costs in time saving per individual accrued through using online public services like applying for unemployment benefit and pensions
- Savings in shopping online - using data based on estimated savings per individual through savings made in categories such as insurance and mortgage payments, holidays, electronics and clothing, where the internet has facilitated the search for the best available deals on products.
- Increased earnings – using data based on estimating the average increase in annual wage per capita attributed to the acquisition of basic digital skills
- Reduced digital skills training costs – using data based on savings in estimated costs per individual of providing basic digital skills training for people with disabilities
- Increased cultural activities – using data estimating the value of participating in cultural activities as a result of increased social inclusion through online networking
- Health consultation savings – obtained by triangulating a range of data estimating the % reduction in health costs attributed to using online health services, in terms of reduced GP visits, time savings, consultation efficiencies.

The aggregated estimated financial benefit per individual from these benefits is calculated at 3,976.80 euro.

Just over 550 people with cognitive disabilities participated in LIVE IT activities. The aggregate total financial benefit of this participation is calculated as just over 2.2 million euro.

The total cost of implementing LIVE IT is 571,540 euro. This includes the co-funding provided to the project by partners.

The 'gross' cost benefit ratio of LIVE IT is calculated at 3.86 – i.e., a return of 3.86 euro for every euro of project funding.

However, this assumes that all participants benefited equally from participation.

A more realistic – adjusted – CBR was therefore calculated using evaluation data that showed 51% of participants reported significant benefits from their involvement. This adjusted CBR is calculated at 1.97.

The analysis presented above needs to be accompanied by a 'health warning'. Although every effort has been made, through the methodology adopted, to be as rigorous as possible in producing the calculations for the CBR analysis, the analysis reflects a degree of selectivity and subjectivity, shaped by the availability (and non-availability) of suitable data. It is therefore intended as an indicative illustration of the potential economic benefits that can be attributed to LIVE IT, rather than a rigorous statement of fact. It should also be noted that this calculation does not include any assessment of 'additionality', i.e. calculating the economic impact that would have happened anyway (without LIVE IT) or impact that can be attributed to other factors (deadweight, displacement, leakage and attribution) - because of the lack of availability of necessary data.

6.2 Business Model Canvas

The purpose of the Business Model Canvas is to clarify and assess the economic and financial viability of the Open Toolkit. The approach used the 'service model' business canvas developed by Jukka and Katri Ojasalo (2018) (which adapts the 'classical' business model canvas developed by Alexander Osterwalder to a 'service' rather than 'product' context), and

added two further elements, drawn from the 'triple-layered business model canvas' (Joyce and Paquin, 2016), covering environmental impact/benefit and social impact/benefit.

This adapted *Business Model Canvas* visualises the financial building blocks of the Open Toolkit, as well as the social and environmental components, covering:

- Customer's world and desire for ideal value: who are the users? what kinds of benefits do they aspire to?
- The Value Proposition and Value Creation**:** why should customers engage with Open Toolkit? Which challenges need to be solved?
- Key Resources: what strategic assets must the Open Toolkit have to be successful?
- Key Partners: who are key partners and what are their roles?
- Customer relationships – what kind of engagement and relationships with do customers expect?
- Customer's world – who are the customers? What do they buy? What do they need?
- Mobilising resources and partners: how do we co-ordinate partners to create value? What are the institutional and organisational arrangements needed to deliver the Open Toolkit?
- Cost Structure: what are the Open Toolkit's major cost drivers?
- Revenue Streams: how does the Open Toolkit earn revenue from the value proposition?
- Environmental Impact: what negative impact on the environment does the Open Toolkit have?
- Environmental benefits: what positive contribution to the environment does the Open Toolkit make?
- Social Impact: what is the likely negative social impact of the Open Toolkit?
- Social benefits: what positive contribution to social outcomes does the Open Toolkit make?

The Business Model Canvas is shown below.

<table>
<tr>
<td rowspan="2">Key Partners
Aristotle University Thessaloniki, EL
Arcola Research, UK
National University of Galway, IE
Catholic University of Portugal, PT
ADFP Foundation, PT
Design for All Europe (EIDD)
European Network of Living Labs (ENoLL)
LLM Care (Long Lasting Memories Community)
Designscapes network (EU)
EC DG-CNCT
EC JRC-Seville
Digital Skills partnerships - EU and national
Major commercial actors - e.g., IT companies
Public services
EU Organisations representing socially vulnerable groups
National and Regional Public Policies Strategy - for Digital Inclusion
 </td>
<td>Key Resources Required:
From us – Physical infrastructure, CO-Labs; platform continuity
From partners – specialist expertise; infrastructure; access to experts; technical tools; funding
From customers - commitment, open-mindedness

Activities Required:
Improvement to Open Toolkit functionality & usability
Expansion of Community
Development & Implementation of Events programme (webinars, seminars)
Consultancy services
Partnership Agreement
Organisational entity legally constituted
Promotional/outreach campaign
 </td>
<td rowspan="2">Value Proposition
Unique resource base and Open Toolkit on cognitive disability & digital inclusion
Robust evidence base of what works in the field
Extensive set of resources for users to adapt and customise
Consultancy services - advice to policymakers, technology designers & developers and digital service providers improves policymaking and technology design, ultimately contributing to increased European digital inclusion
 </td>
<td>Customer Relationships
Institutional users - e.g., large corporations; large Foundations - need to feel they are part of an ‘exclusive club’ that has access to state of the art data that will give them leverage on possible competitors
Individual users - e.g., academics, small NGOs - need to feel they are part of a network and growing ecosystem that will have an impact on reducing inequalities, identify gaps and work for policy changes to digitally include all groups
Policymakers - e.g., national government departments - need to feel they have access to ‘the science’ on cognitive digital inclusion and that the information coming from LIVE IT is trustworthy and credible and work for policy changes and service development to support digital inclusion for all
 </td>
<td rowspan="2">Customer’s World
Who are the customers?
The IT industry – who need evidence-based results to inform their strategic and operational development, as well as tools to design more inclusive products and services
Policymakers - at transnational, national, regional and local levels, who want information on state of the art, trends, gaps, and advice on delivering more inclusive services
Academia and researchers, who want evidence-based results
Foundations, charities who want to know where to place their social investment (using SROI)
Providers of digital inclusion support services, who want to showcase their projects as well as learn from others
Digital Inclusion Networks, who can use the LIVE IT evidence base to inform their strategic development with specific reference to PwCD and other socially vulnerable groups
 </td>
</tr>
<tr>
<td>Mobilising Resources
EU, national and regional development programmes – Horizon Europe, Erasmus+ and their successors. Consultation workshops with key prospective partners
 </td>
<td>Channels
Existing networks; recommendation & word of mouth; EU programmes; conference promotions; social media; specialist press; regional / national / transnational DI agencies
 </td>
</tr>
</table>

Cost Structure ***Capital costs - initial: (euro)*** Equipment, 60000; Legal – entity set-up costs 12000 Total: 72,000 ***Operational costs: (euro)*** Running costs, 4 Co-Labs – 80,000. Staff costs – 4 FTE's - 128,000. Communications, publicity, outreach – 30,000. Indirect costs – management, office – 15,000. Total: 253,000 p.a. €	**Revenue Streams** Unlikely users will pay for membership of Knowledge Community or use of the Open Toolkit – which is Open Source according to the GA in any case More likely revenue streams are: Market Intelligence reporting - institutional actors - e.g., telecoms companies; big-spending government departments; big Foundations – could pay for customised 'niche' reports Training – it is possible companies, large public entities would be willing to pay for training - e.g., on 'design for all' aspects of platform/tools development; replicating good practices - there are possible new streams of training - e.g., staff development programmes on design for all 'Bespoke' consultancy - advising organisations on digital inclusion policy and strategy Network membership - if LIVE IT could develop a large enough ecosystem, it could command membership fees – EIDD is a model for this Research - EU-funded programmes; national and regional programmes Foundations - securing funding to expand the Open Toolkit Sponsors (e.g., big foundations) and/or EU funds for increasing awareness of digital divide and closing gaps for socially vulnerable groups
Environmental Impacts Negligible.	**Environmental Benefits** No clear contribution to reducing carbon footprint. However, LIVE IT contributes to UN Sustainability Goals – in particular Goal 3: Good Health and Well-Being – and Goal 10: Reduced Inequalities – and the goals of EU policies like the Green Deal and New Bauhaus
Social Impacts (negative) None envisaged	**Social Benefits** Cost Consequence Analysis (CCA) suggests significant benefits – difficult to quantify

7. Stage 5: SWOT analysis

We carried out an analysis of the Strengths, Weaknesses, Opportunities and Threats (SWOT analysis) of the LIVE IT project. This is shown below.

Strengths	**Weaknesses**
No comparable offer currently in the cognitive disability field Extensive evidence base on what works already developed Open Toolkit a unique source of resources and advice Positive user feedback on the results including Open Toolkit Strong stakeholder and network community solid foundation for future growth Co-Labs infrastructure already in place as springboard for future development Strong academic/research profile and credibility	Evidence base variable in quality and robustness Industry (IT) stakeholders difficult to persuade on board AI and machine learning element not sufficiently developed Advisor Tool needs improved functionality and usability Weak institutional embedding – lack of commitment from transnational / national political and policy actors No significant funding base on which to build Small staff base
Opportunities	**Threats**
COVID-19 has increased interest in digital inclusion and highlighted importance of design for all to build resilience Increased policy interest in digital inclusion supports the LIVE IT vision. EU / national / regional programmes support the LIVE IT vision Transferability potential of the Open Toolkit supported by replication analysis	Cognitive disability seen as less important compared with physical disabilities like sight loss Rapid advances in AI and machine learning make Open Toolkit and Advisor Tool obsolete Powerful players from industry colonise the field and change/dilute the LIVE IT offer

The SWOT analysis suggests that the strengths of LIVE IT are offset by a number of weaknesses. The positive aspects identified, focusing on the uniqueness of the LIVE IT offer, particularly the Open Toolkit; strong positive user feedback; the presence of a potentially strong and extensive stakeholder and network base on which to build and the Lab infrastructure and credible research profile, have to be set against some significant challenges, chief of which are the limited involvement and commitment of key players like the IT industry and political and policy decision-makers; the need for improved functionality and usability of the Toolkit and the lack of a significant funding base on which to build.

Set against these weaknesses, a number of opportunities were highlighted by the analysis. There is an increasing awareness in political and policy circles that the digital inclusion agenda, at national and transnational level, has moved forward very slowly in recent years and needs more energy injected. This perception is reinforced by the experiences of the COVID-19 pandemic, which spotlighted the contribution of the 'digital divide' to the pandemic's negative impacts – particularly for people who were already disadvantaged, including through disability. This augers a more receptive climate for the products, tools and services LIVE IT is in a position to deliver. Another major plus for LIVE IT is its transferability potential. As the scalability analysis – discussed above – shows, there is evidence that LIVE IT could both scale up, in terms of its consumer, user and stakeholder reach and scale out, in terms of a broader geographical coverage and the migration of products, tools and services to other sectors and domains, for example into additional areas of interest to people with non-cognitive disabilities and into other areas where digital exclusion is a persistent problem, for example the health sector.

The analysis highlighted comparatively few threats to LIVE IT's sustainability. A key potential threat is associated with the 'downplaying' of the cognitive disability issue across the relevant stakeholder constituencies – including the commercial IT sectors, and policymaking actors – and the perception that cognitive disability is somehow a 'less pressing' problem compared with, say, physical disabilities associated with access to technologies. Conversely, it is possible that the IT industry recognises cognitive disability as a pressing issue and moves into the field, bringing its considerable resources, for example in AI and machine-learning to rapidly overtake the technical advances made by LIVE IT.

8. Stage 6: Implementation plan

The Sustainability Plan set out below integrates the results of the preceding steps of the sustainability analysis. Its starting point is the key messages from that analysis.

8.1 Key Messages from the sustainability analysis

- LIVE IT's main product, and the core of its value proposition is the Open Toolkit. The Toolkit brings together all of the results and learning generated in the project and makes it useful for stakeholders by providing guidelines, tools and good practice examples to support web accessibility for people with cognitive disabilities. It is a multi-functional offer comprised of three main components: 'Knowledge-gathering' tools; Sense-making' tools and 'Co-design' tools.
- A clear message from the product definition and value proposition is that both product and value proposition are relatively undifferentiated. The user mapping and user needs' analysis shows five potential user groups, each of which have different needs, wants and fears. Although there is intrinsic value in creating a 'meta-environment' in which all the results and outputs from the project are housed under one roof, which is what was done in LIVE IT, the downside of this strategy is that The Open Toolkit therefore runs the risk of trying to please everyone at the same time and failing everyone.

- The scalability and replication analysis, though indicating some replication potential, suggests that the Open Toolkit is currently not sufficiently ready for scaling up and out. Work is needed to analyse more clearly potential transferability sectors and areas; build the partnerships and networks necessary to stimulate supply and demand; develop the structures needed to carry out financial / business analysis and planning; put into place the organisational structures and systems needed to deliver the Toolkit to a broader range of users and carry out the training, legal and quality measures that are necessary as well as establishing a brand and working on brand consolidation and recognition.
- The Cost Consequence Analysis shows there is a strong case to support the proposition that promoting the scaling up and out of the Open Toolkit could potentially contribute to significant user and economic benefits. This analysis fed into the development of a Business Model Canvas for the Open Toolkit. The Canvas suggests that the capital costs for sustainability are relatively light with the annual operational costs estimated at just over 250k euro. We do not have sufficient data to quantify the revenue streams identified for the Open Toolkit, although the main streams identified are market intelligence; training; consultancy; network membership; research and sponsorship.
- The SWOT analysis suggests that the strengths of LIVE IT and the Open Toolkit – a unique offer; a strong evidence base on what works; solid infrastructure and research capabilities - are offset by a number of weaknesses, including relative lack of involvement of key industry and policy players. Set against this, a number of opportunities are highlighted by the analysis, set within a background of increasing political and policy recognition that much more needs to be done to deliver on the 'no-one left behind' agenda. The analysis also highlighted comparatively few threats to LIVE IT's sustainability.

Taking these key messages together, it is hard to avoid the conclusion that, overall, the sustainability potential of the Open Toolkit, and its positive evolutionary development trajectory, are currently not sufficiently supported. This is hardly surprising given two key factors: the mechanism under which LIVE IT was funded and the compressed time frame in which it was implemented. As a Pilot Project and Preparatory Action, LIVE IT is experimental in nature and designed to test the feasibility of a concept and its potential usefulness. PPPAs are essentially designed to prepare new actions like EU policies, legislation and research programmes. Set within a 12-month implementation timeframe – extended by an additional two months – LIVE IT was always likely to struggle to lay the foundations for seamless transition to a product capable of meeting an existing demand. It could be argued in this context that the key added value of the Open Toolkit is the unique evidence base and research results that underpin it.

8.2 Recommendations and implementation actions

As a result, the main recommendations for sustainability that follow from the analysis focus on implementation actions to better prepare the Open Toolkit for future scaling up and out. These actions can be divided into six main strands.

Strand 1: Product Consolidation, Revision and Upgrading.

This strand of the plan combines a number of activities. First - more work on product differentiation. As noted above the 'meta-environment' in which the Open Toolkit is situated creates issues for user group and product differentiation. There is a need to either de-couple the different value services incorporated in the Open Toolkit and develop / market them separately or do further technical work on the configuration of the meta-environment and how it is accessed by different types of users / consumers so as to allow clear differentiation of and access to the range of products and services in the Toolkit. Second, a number of technical and functionality improvements need to be made, particularly to the Advisor Tool.

Eventually, regarding the LIVE IT project, sustainability refers to the viability of the Open Toolkit, since it is the outcome that consolidates most of the project's activities. It is also expected and anticipated that through the use of the Open Toolkit, future administrators, adopters and users will undertake and respect the methodology of co-creation of knowledge and results that created the Toolkit. Sustainability will be considered successful in the case that the platform is being kept updated and error-free. The development of specific strategies and action plans that address the financial and social / usability challenges are the long-term goals of the Open Toolkit sustainability.

The preservation of the platform and its maintenance are key elements of the viability. The first refers mainly to its financial support, i.e., paying for hosting the Toolkit online and providing technical solutions, while and maintenance refers to keeping it up-to-date content wise.

The first issue is partially addressed since the Azure platform Hosting services have been prepaid and will be active until the last months of 2026. The second issue should be more explained, since the Open Toolkit includes multiple tabs, thus multiple content that needs to be updated. These tabs are specifically:

1. a Stakeholder Database, essentially a directory consisting of relevant IT stakeholders, Policymakers, Designer related community and user representatives (e.g., PwCD associations) that could be used to bring this network together, or to facilitate a user to find a certain stakeholder near to his whereabouts,

2. a Catalogue, which provides a resource of good practices, research results and tools to support web accessibility for PwCD. A list of items has been collected to be included, validated using a methodology to increase their use value for users,

3. the Advisor Tool, the central element of the Toolkit, which points users to tools and services that may have the potential to help support their needs and faced challenges,

4. a Guidelines section that aims to support future exploratory actions and programmes by applying the knowledge generated through LIVE IT to producing recommendations that will support better and more user-driven digital tools and services – aiming to change mind-sets and behaviours of policymakers, technology designers and developers and providers of digital services,

5. a "Makerspace" online community that aims to create and curate a knowledge space to support knowledge sharing between the Co-Labs and stakeholder groups, implemented in the Circle.so platform.

This content requires assessment for outdated elements to be withdrawn and new ones to be added. The stakeholders' database should keep growing but at the same time check for entries that may need to be deleted, so does the Advisor tool. In the Advisor tool, a constant check on applications included is required so that it does not include any applications that may have cancelled support or stopped their services in general, and in parallel, add any newly emerged tools, new applications that address the challenges as they are identified and implemented in the Open Toolkit. These changes will be easily implemented through the Admin tool of the Open Toolkit which offers the features of adding, removing or editing tools and stakeholders.

Strand 2: Partnership, network and Community development.

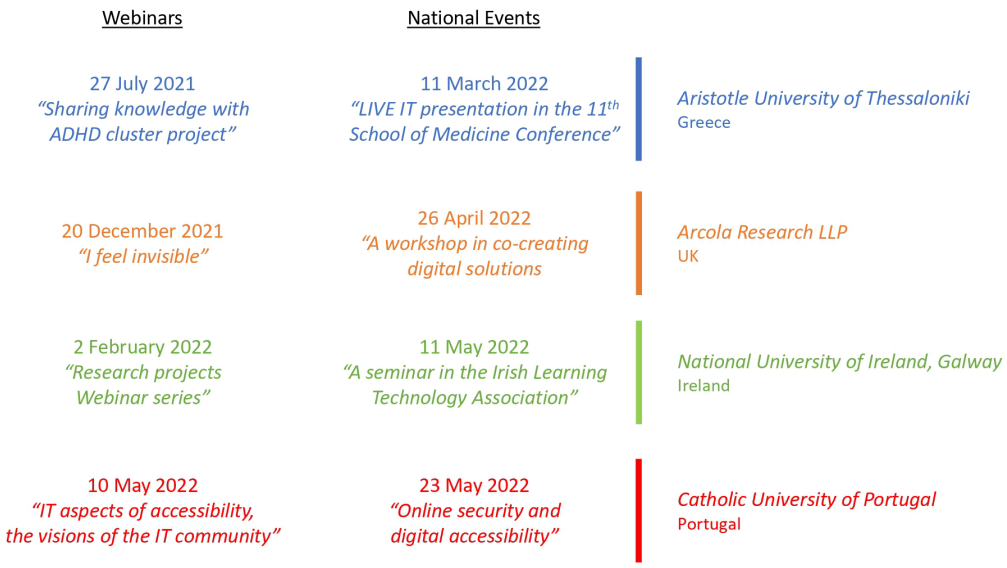
Although LIVE IT has laid the foundations for an embryonic 'cognitive disability digital ecosystem' through its activities in Task 4.1 On-line community set-up and management and Task 4.2 Network building the active participation of key stakeholders in the Community – and in the Makerspace – has not been at a sufficient level to act as a sustainability 'launch platform'. This means that work on expanding the Community – and the Makerspace – needs to not only continue but gather in pace. There are a number of strategies for growing the community – none of these intrinsically incompatible. One strategy is building an alliance with one or two strong players in the field. These players could be drawn from the IT industry – for example telecoms providers, or large global entities like Microsoft (who already expend significant resources to support digital inclusion through their 'foundation' arms); established organisations working to promote digital inclusion, for example ALL Digital (Link), Good Things Foundation (Link), Somos Digital (Link), Muda (Link), ACEPI (Link); and established organisations working specifically in the field of disability, for example European Association of Service providers for Persons with Disabilities (EASPD) (Link). A second strategy is to establish a network of policymakers and other stakeholders in different countries and regions that will support the sustainability of the Open Toolkit. This could be based on the existing involvement of Europe Design for All (EIDD) and could expand to include the Living Labs network ENoLL. ENoLL counts today with 155 active members worldwide (480+ historically recognized Living Labs over 14 years), including in 18 of the 26 EU Member States, and with 20% of members based outside of the European Union (Link). AUTH is an active member of the European Network of Living Labs (ENoLL) with the Thessaloniki Active and Healthy Ageing Living Lab (ThessAHALL) having strong bonds and contacts within the ENoLL network. AUTH also participates in the European Initiative on Active and Healthy aging as a 2-starred Reference Site of EPIonAHA as well as its Greek localised network activities. Additionally, the Lab of Medical Physics and Digital Innovation, coordinator of the LIVE IT project, has established the LLM Care ecosystem in 2012 featuring numerous partners (Link).

Strand 3: Awareness-raising, outreach and knowledge sharing.

This strand builds on the programme of dissemination activities already delivered through LIVE IT, including its webinars and multiplier events. This task follows the MAST methodology (Sayers, 2006), defined as "Message, Audience, Strategy, Timing". For a dissemination activity to be successful in reaching out, raising awareness and knowledge sharing, it needs to initially define its goals and message, then define the intended audience, prepare the material and implement it following a plan. Ensuring partnerships with others through knowledge sharing activities and keeping in touch with relevant stakeholders creates a set of bilateral benefits, such as capacity development, innovation, adaptation, financing and skills and to this aim,

knowledge sharing events are usually hosted to share recent experiences and findings (Janus, 2016), in the case of LIVE IT a series of four Webinars and four National events.

The reason for differentiating Webinars from National events, is the possibility of communication failures because of Language differences, Cultural differences, Personal differences and Lost information (Sayers, 2006). Having multiple pan-European Webinars, hosted by all four members of the LIVE IT consortium and also conduct National Events aims to this end. A list of these 8 events is presented in below.



Strand 4: Fund-raising.

This strand includes potential sponsors and funding from national and EU programmes. Networking and communities could raise interest and attract offers. According to investeurope.eu, "*Total fundraising in Europe during 2021 reached €118bn, 7% above 2020's figure and the highest level ever recorded. A record number of 841 funds raised capital during the year, the highest number of funds recorded ever. This number is 33% above the average number of funds raising capital over the previous five years*". This implies a trend towards sponsorship that could benefit the project, while funding could also origin through Grants from Agencies, from national or European programmes. Given that the LIVE IT is a PPPA project set to prove that further research and action is needed, a future project could base upon LIVE IT, aiming to develop findings, results and outputs further and, simultaneously, contributing to LIVE IT's sustainability.

Strand 5: Institutional and Organisational systems development.

This strand involves a range of activities. It starts with a mapping of the IPR in the Open Toolkit and the identification of 'foreground' and 'background' rights, leading to the development of an appropriate Partner IPR agreement with provision for additional stakeholders joining the sustainability effort in the future. It also requires decisions to be made on the extent to which future material in an expanded Open Toolkit is Open Source. A second activity requires the design and setting up of a suitable development and business vehicle for the Open Toolkit. This vehicle depends to a large extent on the nature of the partnership arrangements developed in Strand 2 – for example a company vehicle, a partnership vehicle, a Foundation vehicle, a social enterprise vehicle. A third activity will focus on the organisational

arrangements needed to deliver the scaled up and scaled out Toolkit, i.e., offices and Labs (online and offline); team structures, management and decision-making systems; quality systems. A fourth activity will focus on the human resources aspects required, including number and skills base of required staff and training requirements.

Strand 6: Recommendations for Programme Action Lines

This strand speaks directly to the status of LIVE IT as a Pilot and Preparatory Action (PPA), designed to prepare new actions like EU policies, legislation and research programmes. In this context, our key conclusion is that LIVE IT has demonstrated the need for further action to increase web accessibility for people with cognitive disabilities. On the basis of LIVE IT's research, it is estimated that there are 142 million Europeans living with a cognitive disability – a number the size of the combined populations of Italy and Germany (WHO; PISA; ELINET; Eurostat). Of these we estimate just over half can be classified as 'digitally excluded' – around 77 million people (Eurostat; EU SILC). Such a significant population demands more effort needs to be put into improving web accessibility as a 'design for all' imperative. We recommend that any future programme that stems from the results of this PPA should cover five main 'action lines' as summarised in Figure 4 below.

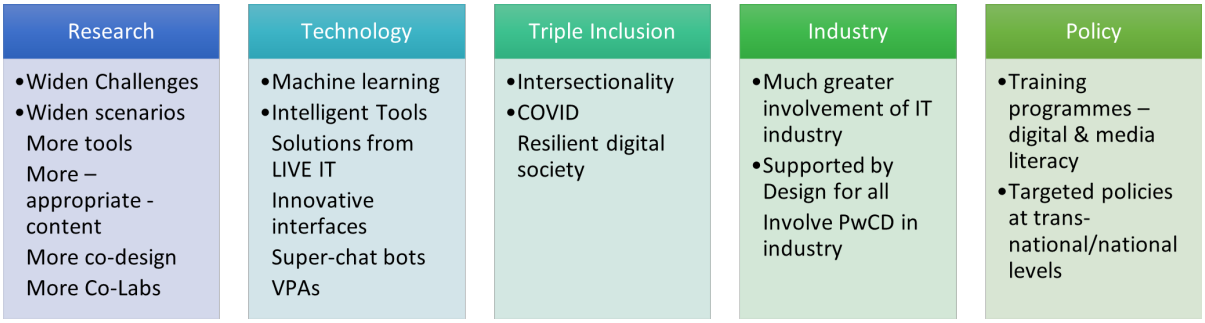


Figure 4: Recommended programme action lines

- Action Line 1: Research actions. It could be argued that although LIVE IT has made a significant contribution to expanding the evidence base on cognitive disability and digital life, it has also revealed numerous gaps in our understanding. More challenges to inclusive web accessibility need to be identified and unpacked. More tools need to be experimented with – in particular tools that have been developed by people with cognitive disabilities themselves – 'garage tools'. LIVE IT has demonstrated that the 'Co-Lab' model works, supporting the need for a programme of collaborative co-design Labs to be further rolled out.
- Action Line 2: Technological research and development. It has become clear that further work needs to be done in exploring the opportunities afforded by AI and machine learning methods and tools to develop web accessibility solutions that are closely attuned to the needs and lived experience of people with cognitive disabilities. Although this was one of the objectives of LIVE IT, it became clear as the project developed that we had neither the time nor resources needed to explore AI and machine learning capabilities in any depth. In addition, LIVE IT's Co-Lab experiments and Hackathons have identified a number of promising avenues for

technological research and development, in particular novel user interfaces that adapt to user behaviours, intelligent tools that learn from user behaviours, guidance and support tools like intelligent 'super chat bots' and virtual personal assistants (VPAs).

- Action Line 3: Triple Inclusion. As noted above in this Report the COVID 19 pandemic amplified already existing systemic inequalities that connect social and digital exclusion through 'dual exclusion'. As highlighted in our lifeworld analysis research, cognitive disability is associated with a wide range of negative externalities – including 'material' factors like lack of economic resources to purchase or rent digital devices because disability restricts employment opportunities – as well as more 'intangible' factors – like feelings of low self-worth associated with the self-perception of 'being a burden'. Moreover, cognitive disability brings into play 'intersectionality' dynamics that amplify these structural forces. An intersectional perspective aims to expose the interlocking systems that define the lives of excluded and marginalised people (Crenshaw, 1989). It considers people's overlapping identities and experiences in order to understand the complexity of the discrimination and inequalities they face. More research – including action research – is needed on how these intersectional dynamics operate and how they can be addressed.
- Action Line 4: The IT Industry. LIVE IT aspired to engage professionals from the IT industry – designers, developers, service providers – actively in the project's work. This aimed to address a consistent theme from the literature that highlighted persistent and prevailing issues around lack of understanding of user needs, the imposition of 'top down' solutions for accessibility from above, lack of representation of people with cognitive disabilities in hardware and software design and development. Although some IT professionals did take part in LIVE IT's Hackathons and dissemination actions, for example the webinars, industry involvement was minimal. The voice of people with cognitive disabilities still remains silent in the commercial IT sector and new actions are needed urgently to address this, involving closer involvement between industry and cognitive disability networks and broader design for all networks.
- Action Line 5: Policy actions. Greater involvement of the commercial IT sector in improving web accessibility for people with cognitive disabilities in turn requires more comprehensive and better targeted policy initiatives at all levels, from trans-national to local. It is clear from LIVE IT's work, and from the research we covered in our review of state of the art, that people with cognitive disabilities face discrimination at the workface. More people with cognitive disabilities need to be recruited as designers, developers and specialists. In order to make this happen, effort needs to be put into developing appropriate training programmes that will support people with cognitive disabilities to acquire the digital and media literacy skills they need to make a difference in the commercial sector.

9. Stage 7: Ex-post sustainability work

As noted above in the Introduction to this deliverable, following recommendations by the project external reviewers as a result of its 'Final Review', one other stage and set of activities – Stage 7 - was implemented at project end. This focused on, firstly, taking steps to make LIVE IT information, data and results publicly available, accessible and easy to find and, secondly, reporting on the concrete steps that have been taken to support sustainability. These additional activities are reported on below.

9.1 Making LIVE IT results publicly available

In line with the project reviewer recommendations, all of the project deliverables have been expanded to provide more extensive information, data and results, including new 'results reports' added to the deliverables. More broadly, all of the project 'assets' – including deliverables, datasets, results reports, presentations and an extensive set of resources, including video and learning material, have been collected and collated.

All these assets have been reviewed to ensure compliance with accessibility guidelines and all have been issued with a creative commons licence. All of the following are available through the LIVE IT website (Link), the LIVE IT Github (Link) and Zenodo (Link). Also, the APIs of the Open Toolkit are available through this link.

A list of the assets publicly available is provided below.

Deliverables

In line with the external reviewer recommendations, the following deliverables have been extensively revised, including additional results, data, conversion to accessibility formats and provision of creative commons license:

- D1.1 - State of the Art and Audit. Converted to accessible format and creative commons license added.
- D1.2 - Baseline Catalogue. Converted to accessible format and creative commons license added. Additional "Results Digest' report added on problems faced by users after using accessibility tools. List of developers' tools and web-authoring tools added to the Advisor Tool added. List of all 'Open Toolkit Catalogue' entries for developers / designers added.
- D2.2 - LIVE IT Scenarios. Converted to accessible format and creative commons license added.
- D2.3 - IT and AI Implications. Converted to accessible format and creative commons license added. Additional "Results Digest' report added on problems faced by users after using accessibility tools. List of developers' tools and web-authoring tools added to the Advisor Tool added. List of all 'Open Toolkit Catalogue' entries for developers / designers added.
- D2.4 – additional Task 2.4 review report. Converted to accessible format and creative commons license added. "Results Digest' reports added on 'Diagnosis Spectrum Analysis of LIVE IT'; 'The Gender Dimension in LIVE IT'; 'Problems faced by users after using accessibility tools'. Revised recommendations for policymakers, designers and developers added.

- D4.3 Hackathon Outcomes. Converted to accessible format and creative commons license added. Revised Chapter 3, specifying which Hackathon feedback has been already implemented in the Toolkit and which has not. “Results Digest’ report added on ‘Summative evaluation of LIVE IT Hackathons’.
- D5.2.2 – additional Final evaluation report. Converted to accessible format and creative commons license added.
- D5.3 – Sustainability Plan and Recommendations. Converted to accessible format and creative commons license added. Additional economic analysis carried out and reported based on ‘cost benefit analysis’ (CBA). Report on actions taken to increase public availability and accessibility of project results. Report on steps taken to promote project sustainability.

Datasets

‘Raw’ data collected through LIVE IT’s research activities, including experimental observation data, interviews, focus group transcripts, anonymised to comply with GDPR, have been collected and collated.

- ‘Summative evaluation of LIVE IT co-labs (D2.2)
- ‘Makerspace data overview in LIVE IT (D4.2)
- ‘Summative evaluation of LIVE IT Hackathons’ (D4.3).

Results reports

Additional short reports on key LIVE IT findings on topics of interest to stakeholders have been produced. These are incorporated within relevant deliverables as follows:

- ‘Problems faced by users after using accessibility tools’ (D2.3, D2.4)
- ‘The gender dimension in LIVE IT’ (D2.4)
- ‘Diagnosis Spectrum Analysis of LIVE IT’ (D2.4).

These reports are also available as stand-alone reports.

Hackathons presentations

A collection of videos, presentations and related data produced through implementing LIVE IT’s five ‘Hackathons’ has been collated. This is accessible through a curated ‘blogpost’ site built on ‘WordPress’ (the link is available through the project website).

Presentations

A collection of PowerPoint presentations covering LIVE IT key results has been produced. These cover:

- The four webinars delivered by LIVE IT
- The overview of LIVE IT results presented at the Final Conference in Turin in July 2022
- The presentation given to the Aristotle University of Thessaloniki Medical Conference in March 2022
- The presentation given to the ‘ID-Gaming’ project meeting in March 2022.

- The presentation given to the 'CP-Ageing' project meeting in December 2021.

Learning resources

Material developed to help researchers and other stakeholders design and deliver experiments involving the participation of people with cognitive disabilities, including 'Lab Packs' and infographics has been collated.

All these assets are available through the LIVE IT website and the LIVE IT GitHub and Zenodo.

In addition, requests have been made to the following entities to host all the above assets:

- COGA Task Force, W3C (Link)
- A-Step (Link)
- W3C WAI Interest Group mailing list,
- International Association of Accessibility Professionals, Europe (IAAP Europe) (Link)
- International Association of Accessibility Professionals, Germany (IAAP-DACH) (Link).

In addition, the following deliverables were also revised following the reviewers' comments but have not been made publicly available in compliance to the project Grant Agreement:

- D3.1 Pilot testing report. The Deliverable is revised to include existing web accessibility solutions for PwCD, and web accessibility innovations still needed
- D3.2 Open Toolkit. The Open Toolkit has been re-designed to comply with accessibility standards and has gone through checkers to comply with protocols. Also, a review of stakeholders links has been undertaken to ensure all links are working properly, the advisor tool's list with all tools has been reviewed – all incorrectly mapped tools have been fixed, tools such as social media have been removed following the reviewers' suggestion, new subcategories have been added, new tools especially for development and web-authoring, new useful resources in the catalogue have been input mainly for developers and designers and recommendations on creating accessible content and API and GitHub provision of the code and databases is completed.
- D4.2 Makerspace Report. The Makerspace has been extensively re-designed with additional functionalities. Accessibility improvements include: simplifying language and jargon; improved site navigation (site map image; Quick start video and infographic guide); content and information display (more audio, visual, audio-visual and interactive content including T2S narration; animated gifs); encouraging more user-generated content through interactive tutorials)
- D5.4 Final Progress Report. Following the reviewers' suggestion, the risk table has been revised to better reflect reality.

9.2 Steps taken to support sustainability

As outlined in Section 8.2 above, six 'Implementation Action' strands have been proposed to support the sustainability of LIVE IT going forward. The project has already implemented various actions in these different strands. These are summarised in Table 5.

Table 5: Steps taken to support LIVE IT sustainability

Strand	Focus	Actions taken
Strand 1: Product Consolidation, Revision and Upgrading	Marketing the Open Toolkit. Implementing technical and functionality improvements, particularly to the Advisor Tool.	Open Toolkit Azure hosting platform paid for and supported for 5 years. Extensive improvements to Toolkit and Makerspace functionality implemented, including improved accessibility
Strand 2: Partnership, network and Community development.	Expanding the LIVE IT Community and the Makerspace	Actions carried out at international and local level to develop networks, collaboration and sustainability. Steps taken at national and local level to embed LIVE IT results and tools in policy and service delivery
Strand 3: Awareness-raising, outreach and knowledge sharing	Making LIVE IT information, data and results publicly available, accessible and easy to find	All project 'assets' – including deliverables, datasets, results reports, presentations and an extensive set of resources, including video and learning material, collected, collated and uploaded to range of delivery platforms. All publicly available assets accessibility compliant and creative commons licensed
Strand 4: Fund-raising.	Identifying and securing potential sponsors and funding from national and EU programmes	3 project proposals submitted to EU funding bodies, totalling €1.3m in funding
Strand 5: Institutional and Organisational systems development.	Setting up a development vehicle for the Open Toolkit	Association set up in Portugal to promote the LIVE IT Open Toolkit and support its use Europe-wide
Strand 6: Recommendations for Programme Action Lines	Recommending and promoting future programmes to take forward the results of the LIVE IT pilot action	Recommendations for 5 programme actions lines proposed. Additional recommendations for LIVE IT 'follow up' projects proposed

As Table 5 shows, progress has been made in five of these six implementation action strands. Strand 6 - Recommendations for Programme Action Lines – is contingent on LIVE IT's status as a PPPA (pilot project and preparatory action). PPPAs are designed to prepare new actions like EU policies, legislation and research programmes. LIVE IT partners have no direct influence in taking the results of the project forward into new policy actions, although the project has proposed five 'action lines' for future work. This is discussed further below, which also provides more detail on the activities carried out in the five other implementation action strands.

Strand 1: Product Consolidation, Revision and Upgrading.

This strand covers two steps: supporting access to and use of the Open Toolkit and Makerspace, and implementing technical and functionality improvements, particularly to the Advisor Tool. With regard to supporting access to the Open Toolkit, the Azure platform Hosting services have been prepaid and will be active until the last months of 2026. As noted above, further steps have been taken to ensure the LIVE IT website and Open Toolkit fully complies with W3C accessibility Guidelines. This has involved obtaining accessibility certification from an external accessibility consultant. Revision of the Open Toolkit content has focused on expanding the assets publicly available, including providing a creative commons licence for each, as noted above in Section 9.1. Moving forward, additional revision and upgrading of LIVE IT content is implemented through the 'Admin' tool of the Open Toolkit which offers the features of adding, removing or editing tools and stakeholders. In tandem, as noted above in Section 9.1, the 'Makerspace' has been significantly upgraded with additional functionalities and accessibility improvements include: simplifying language and jargon; improved site navigation (site map image; Quick start video and infographic guide); content and information display (more audio, visual, audio-visual and interactive content including T2S narration; animated gifs); encouraging more user-generated content through interactive tutorials).

Strand 2: Partnership, network and Community development.

This strand speaks to the ambitious LIVE IT aim of preparing the ground for a 'web accessibility ecosystem' that aims to improve web accessibility for people with cognitive disabilities by capitalising on existing relevant networks and adding value to them through advocacy, collaboration, knowledge-sharing and supporting people and organisations to use LIVE IT's results in their own activities. Steps taken to develop this strand have covered two areas:

- Local actions
- International actions.

Local actions

Local actions are intended to encourage the use of LIVE IT results, in particular the Open Toolkit, within partner countries and at the community level, in order to embed them in organisational practice. A key objective is to add value to existing services for people with cognitive disabilities. This is expected to support the sustainability of LIVE IT by promoting scaling up and out of the project results. The local actions implemented include the following.

In Portugal: submission of LIVE IT to the 'INCODE 2030 seal'. The INCoDe.2030 Programme is an integrated public policy initiative aimed at enhancing the digital competences of citizens and the workforce in Portugal. Another key objective of this national programme includes the promotion of digital inclusion and literacy for all. The INCoDe.2030 seal is an

accreditation that recognises the contribution an organisation, project or individual makes to the programme objectives. At the local level, actions have included: incorporation of the Open Toolkit within a training course on Advanced Support Technologies delivered by the Institute of Health Sciences at Catholic University of Portugal; distribution of the Toolkit to associations and organizations working in the area of cognitive impairment (Inovar Autismo Association, FPDA); use of the Open Toolkit in ADFP Foundation training programmes.

In the UK: the strategy has been to use LIVE IT as catalyst to bring together a disparate group of local organisations and service providers around the core theme of digital inclusion and web accessibility, including bringing them into closer contact with the IT industry and digital skills providers. In London, LIVE IT ran a workshop series in association with Lambeth Learning Disability Assembly (LLDA), within the Lambeth Learning Disabilities Resource Centre, which included the LIVE IT Open Toolkit. LLDA worked with local community groups and service providers – Certitude, Stockwell Park Community Trust – and hardware and coding skills providers – e.g., Millennium Community Solutions; Clear Community Web. Stockwell Park Community Trust – an important service provider for the South London community, which runs digital skills courses for the community, has now installed accessibility apps and the LIVE IT Open Toolkit on the devices it provides community access to.

In Ireland: the main strategy has been to promote the use of LIVE IT's outputs within the University student academic support service – the Academic Skills Hub. The LIVE IT team have submitted a proposal to the NUIG Widening Access and Participation Committee to develop a section of the hub dedicated to support students with cognitive impairments and using the Open Toolkit. However, as is the case everywhere, the academic bureaucracy moves slowly, and the proposal is unlikely to become operational until summer 2023.

In Greece: as with the UK the main local effort has been in working with local service providers to improve their delivery. The 'special needs' school EEEEK Aleksandreias is installing shortcuts to LIVE IT and the Open Toolkit on its systems as well as to preinstalling some basic assistive apps to their laptops and tablets. This is also being done in the 'AMEN' organisation – which provides care for the elderly - in Cyprus. This work is supplemented by awareness-raising and promotional work with other entities to achieve similar objectives. The programme includes webinars with EPSEP (quality of life of people belonging to special social groups service provider); EPIONI (Greek caregivers' network) and the Municipality of Papagou-Cholargou to present the LIVE IT results to schools of their district and add shortcuts to LIVE IT and our toolkit in schools' PCs, as well as raise awareness about the policymakers' material in the Open Toolkit.

International actions

We have explored a number of avenues for international collaboration and co-operation, aiming to build an alliance to take LIVE IT forward as part of a pan-European 'web accessibility ecosystem'. We have approached organisations like ALL Digital (Link) and Good Things Foundation (Link) to explore taking LIVE IT forward. A key actor in our international effort is EIDD. EIDD Design for All Europe (Link) - is an international platform for different organizations with a common goal: a more inclusive Europe for everyone. Design for All aims to enable all people to have equal opportunities to participate in every aspect of society. To achieve this, the built environment, everyday objects, services, culture and information – in short, everything that is designed and made by people to be used by people – must be

accessible, convenient for everyone in society to use and responsive to evolving human diversity. EIDD have been involved in LIVE IT as a sub-contractor in the following activities:

- Advising on improving accessibility for people with cognitive disabilities in the LIVE IT ACTIONS
- raising awareness of the project through its networks
- participating in the LIVE IT Hackathons, including designing the 5th and final Hackathon
- presenting the project results through hosting LIVE IT's final conference at its General Assembly in Turin in May 2022.

The presence of EIDD offers the consortium the opportunity to generate tangible medium-to long-term sustainability for the processes developed by the LIVE IT project and the results achieved. In this respect, it is essential to consider those results not as final in themselves, but as an interim milestone along a route towards increased inclusion that should never be expected to reach a final destination, since the nature of the ever-increasing degrees of human diversity that are a fundamental characteristic of contemporary society in Europe (and indeed elsewhere) is that of a system in constant organic evolution that will always require creativity and innovation in order to remain abreast of humanity's changing needs and aspirations.

The EIDD network, comprising nearly fifty member organisations, mostly in Europe but increasingly also in other continents, all committed to the innovative and out-of-the-box use of holistic design methods to tackle the often unexpected challenges of this rapidly evolving human diversity, is very well placed to offer both a testing ground for new ventures, with its ready-made partnership for exploring and developing new ideas, and a channel for the dissemination and iterative reuse of the LIVE IT project results and future developments triggered by their further study and application, including the possibility of a cognitive disability web accessibility ecosystem.
In order to be truly sustainable, such an ecosystem cannot exist in splendid isolation, but must be fully integrated into an overarching design and accessibility community that tackles the inclusion of all such ecosystems in the mainstream of design agendas. EIDD is the world's only international organisation with a primary focus on Design for All, whose stated aim is precisely this: to privilege not a well-intentioned, yet counterproductive, exclusive focus on individual disabilities, but the pressing need to maximise the baseline of mainstream users, experiencers and other stakeholders to include situations (and hence their challenges for design) that have conventionally been considered – to their detriment – to be "special needs" and thus intrinsically the preserve of the perceived "other", emarginated in conceptual ghettoes and expensive to cater for.
The very fact that many of EIDD's member organisations do not focus on issues of cognitive disability, but partner creatively with other members who do, is tailored to favour the innovative cross-fertilisations that can ensure that issues of cognitive accessibility are not restricted to "cognitive silos", but duly integrated into proposals for all fields of the design spectrum, from places and products to communications, services, systems and strategies. This cross-fertilisation will continue beyond the formal end of LIVE IT.

Strand 3: Awareness-raising, outreach and knowledge sharing.

As noted above, in Section 9.1, the key step taken to raise awareness of LIVE IT and support knowledge-sharing has been making the project results publicly available and easy to find. All

of the project 'assets' – including deliverables, datasets, results reports, presentations and an extensive set of resources, including video and learning material, have been collected and collated. These assets are classified into six categories:

- Deliverables – the 'formal' outputs of the project, as required and specified in the project Grant Agreement
- Datasets – 'raw' data collected through LIVE IT's research activities, including experimental observation data, interviews, focus group transcripts, anonymised to comply with GDPR
- Results Digests – (relatively) short reports on key LIVE IT findings on topics of interest to stakeholders, for example 'The gender dimension in LIVE IT'
- Hackathons – videos, presentations and related data produced through implementing LIVE IT's five 'hackathons'
- Presentations – a collection of PowerPoint presentations covering LIVE IT results
- Learning resources – material developed to help researchers and other stakeholders design and deliver experiments involving the participation of people with cognitive disabilities, including 'Lab Packs' and infographics.

All these assets have been reviewed to ensure compliance with accessibility guidelines and all have been issued with a creative commons licence and are available through the project website (Link).

The abovementioned assets, the Open Toolkit, its databases and API (API Link) are uploaded in the LIVE IT GitHub (Link) and Zenodo (Link) accordingly.

Strand 4: Fund-raising

This strand covers identifying and securing potential sponsors and funding from national and EU programmes, in order to valorise the key learning, results and products that have been developed through LIVE IT. In this area, the following funding proposals have been implemented.

'*CORE-LABS'.*

The four LIVE IT partners – Aristotle University of Thessaloniki, UCP, NUIG and Arcola Research – jointly submitted a proposal to the European Media and Information Fund (EMIF) – an initiative co-ordinated by the Calouste Gulbenkian Foundation and the European University Institute – in response to the Call for Proposals 'Supporting Research into Media, DisInformation and Information Literacy across Europe'. The main objective of the Call is to support wide and deep studies on the disinformation phenomenon, encompassing its causes, societal impacts and possible responses. The proposal – CORE-LABS' (Countering disinformation through co-design – Community Information Resilience Labs) – further evolves the 'Collaborative Lab' concept developed in LIVE IT in order to: map out the boundaries of information ecosystems in different communities, the dynamics that shape and feed them and the 'theatres of disinformation' they represent; further understanding of the psycho-social processes involved in how people make sense of disinformation and incorporate it into their world view, and engage citizens themselves as co-designers of potential antidotes to disinformation. The learning from LIVE IT will be used to set up four community-based 'Co-Labs', using the LIVE IT Living Lab and design-led innovation approaches. These Labs work with disinformation scenarios to carry out scientific experiments involving citizens as co-designers, focusing on identifying key combinations of

scenario attributes-user behaviours, including using machine learning tools to document attribute-outcomes patterns, to explore which 'disinformation antidote tools' work best, for whom and under which circumstances. As with LIVE IT the aim is to develop an 'Open Toolkit' to provide policy recommendations, design guidelines, templates and tools for a range of stakeholders in the information and related fields.

Budget: €399,637

MYSTIC

Arcola Research and UCP have developed and submitted a proposal to the EU Erasmus+ programme for funding for a 'KA3' action, MYSTIC – 'Mobilising Youth and Youth Service Talent through Immersive Co-design'. MYSTIC transfers the co-design and Community Lab approaches developed in LIVE IT to the youth work field with the main objective of training youth workers and volunteers as 'Community Mediators'. The project uses a 'cascade' approach where newly trained Community Mediators then support young people with fewer opportunities to become 'Community Leaders'. MYSTIC sets up 'Co-Design Labs' in local areas for Mediators and Leaders to work together to address problems of trans-national yet local interest. MYSTIC's developmental and training programme combines an on-line Foundation course and interactive game with an immersive residential mobility programme incorporating interactive workshops, case-based practical exercises and an 'outward bound' element to challenge participants and get them to think out of the box. It develops 5 Co-Labs set up in different EU locations, which will deliver 25 community-based action research projects to improve communities. Using the LIVE IT model, a key output of the project is an 'Open Toolkit' - including a Catalogue of good practice cases on what works, policy recommendations, design templates and tools and detailed evaluation results.

Budget: €499,850

MIC-MAC

MIC-MAC is a proposal submitted to another EMIF Call 'Media and Information Literacy for Citizen Empowerment' by UCP and Arcola Research. MIC-MAC - 'Using micro-learning to train educators - a cascade approach to media and information literacy' aims to address the problem of a growing 'infodemically vulnerable' population with not enough of the media and information literacy skills needed to distinguish between reliable and unreliable and information. This vulnerability has been linked to structural social inequalities around age, gender, education and income and highlights a broader set of issues around how citizens – particularly those from 'vulnerable groups' – distinguish online fact from fiction, what gaps exist in their media and information literacy skills and how these gaps can effectively be addressed. To help address these gaps MIC-MAC takes a 'train the trainers' approach – supporting educators who work with vulnerable groups – including people with cognitive and learning disabilities - to acquire the media and information literacy competences needed to work more effectively in teaching and learning situations, so as to in turn improve the media and information literacy competences of these groups. MIC-MAC aims in particular to apply the insights and learning gained from working with the 'online challenges' identified in LIVE IT to develop its programme of media and information literacy.

Budget: €396,480

Strand 5: Institutional and Organisational systems development.

The focus of this strand is setting up a suitable development vehicle for the Open Toolkit. A key step taken in this direction is the setting up of an Association in Portugal 'Associação Godinhela - Investigação e Desenvolvimento Social' (AGID). AGID is a joint venture by UCP and Arcola Research. Its over-arching mission and aim is to address social exclusion by researching its causes and carrying out projects and programmes to improve opportunities for a range of groups with fewer opportunities. As part of this mission, the inaugural Implementation and Business Plan for AGID includes work to promote the LIVE IT Open Toolkit and support its use Europe-wide. It will do this in two ways. Firstly, AGID will promote the LIVE IT Open Toolkit through its networks, website and social media channels. Secondly, the AGID Implementation and Business Plan includes a set of 'residential innovation programmes'. These aim at transferring knowledge in key areas that affect our ability to solve wicked problems. AGID's premises hosts small-group residential programmes focusing on social innovation and design thinking for policymakers, business leaders, social innovators and community leaders. The programmes combine interactive workshops with action learning. AGID's 'School of Excellence' aims to not only help programme participants increase their innovation skills, but it also expects to support them in developing new ideas for innovative products and services that they will subsequently develop in their home locations. The Open Toolkit will be used in three of these immersive residential programmes. The firs programme 'Inclusive web accessibility' directly aims to support IT designers and developers to improve their practice to increase web accessibility for people with cognitive disabilities. In two additional programmes, LIVE IT and the 'Open Toolkit' are used as key case studies to deliver learning outcomes. The first programme - 'Design Thinking' - focuses explicitly on developing the design thinking skills of innovators in any sector. The second programme - 'Social Innovation' - helps social innovators and social entrepreneurs understand and apply design-thinking methodologies and tools to apply out-of-the box thinking to design innovative solutions to wicked problems in health, social services and ecological contexts.

Strand 6: Recommendations for Programme Action Lines

As a Pilot Project and Preparatory Action (PPPA), LIVE IT is a pilot project that is experimental in nature and designed to test the feasibility of a concept and its potential usefulness. PPPAs are essentially designed to prepare new actions like EU policies, legislation and research programmes: "Pilot projects and preparatory actions (PP/PAs) are tools introduced in the European Union (EU) budget that aim at testing new policy initiatives and/or preparing the ground for the adoption of future measures. Such PP/PAs give Members of the European Parliament the possibility to initiate innovative policies and fund them in advance of a legal basis being set" (Link).

If a pilot project is deemed successful, it may evolve into a preparatory action, with funding for up to three further years, during which time a legal base needs to be established if the policy is to become a fully-fledged EU policy. Not many PPPAs evolve into programmes. In the 2010 EU budged there were 40 pilot projects and 37 preparatory actions, but there is no clear evidence that these funded PPPAs led to major funding programmes. One PPPA 'success' example is in the field of internal and external 'security research' which started as a small pilot project in 2004 and soon after was given seven-year (2007-13) funding of € 1.4 billion under the Union's seventh Framework Programme for research and development policy (Link). More recently, in 2020, a PPPA Call was launched with a focus on 'exchanges

and mobility in sport'. 95 applications for funding were received under this Call and 10 PPPAs were funded. The results from these projects fed into the design and implementation of the Erasmus+ 'mobility opportunities and enhanced international co-operation in sport' programme (2021-27) (Link). In 2022 there were four Calls issued for PPPAs – in the fields of sport, culture and pig slaughtering.

As noted above, LIVE IT has demonstrated the need for further action to increase web accessibility for people with cognitive disabilities. However, essentially, LIVE IT as a project has no control over whether further action will take place, and in what form. Decisions as to whether to take its results forward through a preparatory action and beyond, as a programme, are made by European Union agencies. In Section 8.2 above we have set out recommendations for specific 'action lines' that could be taken forward as preparatory actions or programmes in the future. We can provide any further inputs that would be useful in supporting EU agencies to design such actions.

In addition to these generic action lines proposed, a lot of the outputs generated by LIVE IT could be thought of as 'unfinished business'. As a pilot project operating within a tight timeframe of 12 months, there were significant limitations on how far the rich insights being generated through the Co-Labs and Hackathons could be taken forward. There is enough rich material and unresolved questions generated by LIVE IT as a pilot to feed one or more follow-up projects in the future. Some of the things that could productively be further explored include:

- Fully validating and making the Open Toolkit truly user friendly. This could entail, inter alia, creating an interactive 'virtual library' experience (with audio visual options, signposting, alternate text and imagery or enabled accessibility plug in features); developing a 'virtual assistant' to help users search and find what they need, including having the opportunity to see and try an app in 'action' without having to download and install it first
- focusing on built in tools in Google, Apple IOS, Microsoft and Windows, and a selection of others identified by LIVE IT research as particularly promising- and creating a series of video summaries and 'how-to's'
- exploring in more detail the use of specific authoring tools to enable people with cognitive disabilities to create their own content
- developing advisor tools to enable web designers and developers to support inclusive web accessibility for people with cognitive disabilities
- curating and valorising the huge amount of 'ethnographic' material – including audio-visual material co-produced by Hackathon participants that LIVE IT has generated to further contribute to technological, research and policy solutions to improve web accessibility for people with cognitive disabilities.

References

Brundtland, G. (1987). Report of the World Commission on Environment and Development: Our Common Future. United Nations General Assembly document A/42/427.

Calhoun, A., Mainor, A., Moreland-Russell, S., Maier, R. C., Brossart, L., & Luke, D. A. (2014). Peer Reviewed: Using the Program Sustainability Assessment Tool to Assess and Plan for Sustainability. *Preventing chronic disease*, *11*.

Codagnone, C., Liva, G., Gunderson, L., Misuraca, G., Rebesco, E., 2021, Europe's Digital Decade and Autonomy,Publication for the committee on Industry, Research and Energy, Policy Department for Economic, Scientific and Quality of Life Policies, European Parliament, Luxembourg.

Crenshaw K (1989) Demarginalizing the intersection of race and sex: A black feminist critique of antidiscrimination doctrine, feminist theory and antiracist politics. University of Chicago Legal Forum 140: 139-167.

Janus SS. Becoming a knowledge-sharing organization: A handbook for scaling up solutions through knowledge capturing and sharing. World Bank Publications; 2016 Oct 28.

Johnston, P., Everard, M., Santillo, D., & Robèrt, K. H. (2007). Reclaiming the definition of sustainability. *Environmental science and pollution research international*, *14*(1), 60-66.

Joyce, Alexandre, and Raymond L. Paquin. 2016. "The Triple Layered Business Model Canvas: A Tool to Design MoreSustainable Business Models." Journal of Cleaner Production 135 (November): 1474–86.

Jukka Ojasalo, Katri Ojasalo, (2018) "Service Logic Business Model Canvas", Journal of Research in Marketing and Entrepreneurship, Vol. 20 Issue: 1, pp.70-98, https://doi.org/10.1108/JRME-06-2016-0015

Moore, J. E., Mascarenhas, A., Bain, J., & Straus, S. E. (2017). Developing a comprehensive definition of sustainability. *Implementation Science*, *12*(1), 1-8.

Morris ZA, Zaidi A, McGarity S. The extra costs associated with a cognitive impairment: Estimates from 15 OECD countries. Eur J Public Health. 2021 Jul 13;31(3):647-652. doi: 10.1093/eurpub/ckab011. PMID: 33615369

NESTA (2008). Growing social innovations Making it big: strategies for scaling social innovations. NESTA

Rezaee, Z. (2016). Business sustainability research: A theoretical and integrated perspective. Journal of Accounting Literature. 36. 10.1016/j.acclit.2016.05.003.

Sayers R. Awareness-Raising. Bangkok: UNESCO Bangkok; 2006.

Sharma A. (2020). Sustainability research in business-to-business markets: An agenda for inquiry. *Industrial Marketing Management*, *88*, 323–329. https://doi.org/10.1016/j.indmarman.2020.05.037