Deliverable 7.2

Proofs-of-Concept Assessment Reports

D7.2

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D7.2

DLT4EU Proofs-of-Concept Assessment Reports

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DISSEMINATION LEVEL

✓ **P** **Public**

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STATEMENT OF ORIGINALITY

This deliverable contains original unpublished work except where clearly indicated otherwise. Acknowledgement of previously published material and of the work of others has been made through appropriate citation, quotation or both.

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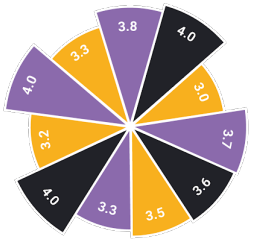
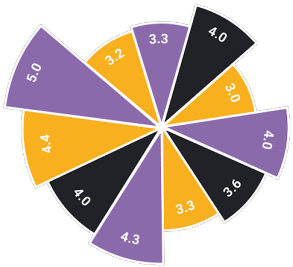


Convergence Tech



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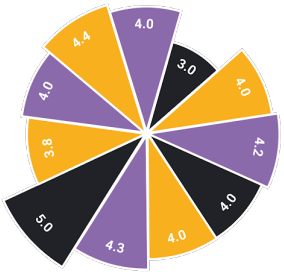

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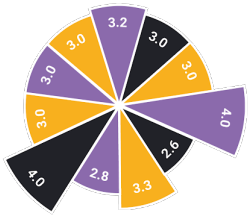

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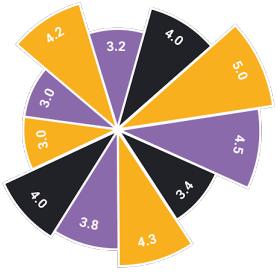

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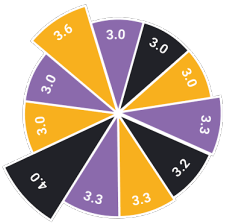

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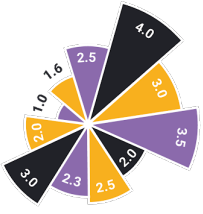

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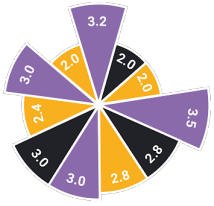

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1. DLT4EU Programme Introduction

DLT4EU aims to stimulate the development of cutting-edge Distributed Ledger Technology (DLT)-based applications that address pressing social and environmental challenges and drive positive change for the public good.

The DLT4EU accelerator programme is built upon the 'Virtual Field Lab' (VFL) concept of bringing together DLT developers alongside Challenge Owners, to create and trial Proof-of-Concept prototypes. The selected candidates have developed their applications within a VFL: a virtual environment for DLT experimentation curated to an appropriate real world challenge. Each VFL has a 'Challenge Owner' who scoped, guided and defined the problem, alongside a network of mentors, subject matter experts, as well as a designated VFL Coach from the DLT4EU Consortium.

Each VFL has benefitted from a curated accelerator programme covering specialist topics such as GDPR Privacy by Design, Open Source Licences, Innovative Finance, Value-Sensitive Design, and the Pentagrowth Method from Ideas for Change.

As a result of the programme, Venture Teams have developed Proofs-of-Concept - in the form of functional prototypes - that demonstrate the value of DLTs in the public good sector.

These proofs-of-concept (PoCs) have been assessed by an Evaluation Jury with three applications awarded follow-on funding.

2. Scope of D7.2 Proofs-of-Concept Assessment Reports

This document provides the results of the DLT4EU Venture-Level Impact Assessment, as introduced in D7.1 DLT4EU Impact Assessment.[1]

This report is structured as follows: Section 3 provides an overview of the Venture-Level Impact Assessment. Section 4 focuses on the research method employed and specifically provides the details on how it has been updated over the course of the DLT4EU programme. Section 5 is dedicated to the comprehensive outline of the results of the impact assessment for each Proof-of-Concept (PoC) submitted by the Venture Teams.

Each Proof-of-Concept impact assessment report will provide:

- An overview of how the Challenge Area developed in the course of the DLT4EU Accelerator;
- A description of the Proof-of-Concept submitted in January 2021;
- An assessment of each Proof-of-Concept, measured against eleven objectives along with supporting evidence;

[1] Coudard, A., MacNeil, A. and Corbin, L. (2020). 'D7.1 DLT4EU Impact Assessment Framework'.

- A visual illustration of the Proof-of-Concept impact against each objective.

3. Overview of the Venture-Level Impact Assessment: Objectives and Key Performance Indicators (KPIs)

The purpose of the Venture-Level Impact Assessment was to track and assess the performance and impact of the Proofs-of-Concept (PoCs) developed through the accelerator programme. The Venture-Level Impact Assessment makes up one half of the overall DLT4EU Impact Compass - the other being the D7.3 Programme-Level Impact Assessment, which will be submitted in M17.[2]

The impact assessment covers four core 'Impact Areas' - Social, Environmental, Knowledge, and Economic. These four categories capture a holistic overview of the different types of impact possible through the DLT4EU programme. In further detail:

1. **Social** is about the inclusion of civil society and the increased access to public goods, public health, and basic services;
2. **Environmental** covers how the DLT solutions developed through the programme affect energy and material use, contribute to the protection of biodiversity, the management of common natural resources, and support the monitoring and reduction of greenhouse gases emissions;
3. **Economic** regards the extent to which the use of DLT has created holistic value, met the defined needs of beneficiaries, and acquired validation and additional resources;
4. **Knowledge** focuses on enabling new capabilities needed for public and private sector organisations to learn from these DLT pilots and the broader programme to adopt further strategic, policy, and innovation initiatives.[3]

These four impact areas are linked to the eleven overall objectives, each with KPIs that have been measured across the duration of the accelerator. The eleven objectives cover impacts that need to be measured across the four categories in a composite manner through independent KPIs. Please refer to Table 1 below for the complete overview of the objectives, KPIs, and impact areas.

4. Research Method

Over the course of conducting the Venture-Level Impact Assessment, the framework, data collection, and analysis methods were updated from those described in the D7.1 Impact

[2] Ibid.
[3] Ibid.

Assessment Framework deliverable.[4] This was due to feedback from programme participants and changing data needs. Sections 4.1, 4.2, and 4.3 explain the evolution of the methods against the original design of the Venture-Level Impact Assessment.

4.1 Design of the Venture-Level Impact Assessment

Over the course of DLT4EU, it became clear that the Key Performance Indicators (KPIs) for the Venture-Level Impact Assessment needed to be revised, as shown in Table 1 below. For a full explanation of the Evaluation Criteria used in the Venture-Level Impact Assessment, please refer to D4.1 Evaluation Criteria.[5]

Table 1: Venture-Level Impact Assessment Framework

Venture-Level Impact Assessment Framework					
Category	**Objective**	**KPI**	**Impact Area**	**Updated KPI or Objective**	**Reason**
Challenge-Solution Fit	The PoC provides a highly relevant solution fit to the challenge identified by the challenge owner.	High score in relevance factor on PoC Evaluation.	Social	PoC score on the 'Challenge-Solution Fit' criteria of PoC Evaluation	Naming update due to revision in Evaluation Criteria as part of D4.1
Inclusiveness	The Venture Team engages with a highly diverse set of beneficiaries and end-users throughout app development.	Venture Teams have considered and engaged with the individual needs of a diverse range of end-users, including issues of gender, disability, language,	Social	n/a	n/a

[4] Coudard, A., MacNeil, A. and Corbin, L. (2020). 'D7.1 DLT4EU Impact Assessment Framework'.
[5] MacNeil, A., (2021), 'D4.1 DLT4EU Evaluation Criteria'.

		background, and nationality.			
Impact Ambition	Venture teams expand their impact by connecting to SDGs.	Number of SDGs Venture Team cites as part of impact targets.	Social Environmental	Quality of SDGs and / or impact targets cited in PoC Submission	Venture Teams have also developed their own impact targets separate to the SDGs. Quality instead of quantity emerged as a more meaningful assessment approach
Open Source	Venture team widely shares its innovation, innovation is readily scalable and replicable by others.	Quality and breadth of team's public open license / open or semi open patent / open business model; ease of future deployment and integration into/alongside existing infrastructure	Knowledge	PoC score on the 'Open Source' criteria of PoC Evaluation	This evaluation criteria captures the original KPI, as it is an assessment of the Venture Teams' plan to release part or the entirety of the PoC (DLT application) under an open source license of their choice, as well as the quality of the license.

Innovation	New knowledge is generated / advanced regarding the application of DLT for public sector contexts.	The novelty and quality of technical solution is high - PoC scores highly on Novelty and Technical criteria within PoC evaluation	Knowledge	PoC score on the 'Innovation' criteria of PoC Evaluation	Naming update due to revision in Evaluation Criteria as part of D4.1
Compliance and Transparency	Venture teams and their PoCs are transparent and accountable	PoCs are GDPR compliant Use and production of Open Source License / Software	Knowledge Social	PoC score on the 'Compliance and Transparency' criteria of PoC Evaluation	'Compliance and Transparency ' criteria captures original KPIs
Technical Feasibility	Venture team advances their technology through the programme	TRL advancement of the PoC (in all its varied components) during the programme	Economic Knowledge	PoC score on the 'Technical Feasibility' criteria of PoC Evaluation	PoC evaluation assesses TRL output and progression over the accelerator; PoC scope prevented assessment of entry and exit of TRL progression

Venture Growth	The DLT4EU programme supports the growth of the venture team / business	New team members Investment New partnerships (i.e., for pilot, for R&D, for investment) Numbers of new deals/sales made during the programme Growth rate of user groups	Economic	Quality of strategic roadmap	As often the KPIs were not applicable to some Venture Teams, the strategic roadmap of the Venture Teams provided insight into the growth of the Venture Team
Scalability	Venture teams develop a highly scalable PoC	Venture team identifies and validates a sufficient market size for PoC using the Total Addressable Market, Serviceable Addressable Market, and Serviceable Obtainable Market frameworks	Economic	PoC score on the 'Technical Feasibility' criteria of PoC Evaluation	Venture Teams did not use the original given framework to carry out market assessments, however Venture Teams needed to address this within their PoC Submission

Replicability	Venture teams develop a highly replicable PoC	Breadth, quality and accessibility of documentation.	Economic Knowledge	Extent to which the Venture Team has identified and addressed the barriers to PoC replication	Due to replication with objective four in data input, this KPI was updated to be focused on the extent to which the Venture Team addressed barriers that prevent replicability
Adoption Potential	Venture teams produce a PoC with high adoption potential	PoC scores highly on User Experience and Accessibility criteria within PoC evaluation	Economic	PoC score on the 'Usability and Inclusiveness' criteria of PoC Evaluation	Naming update due to revision in Evaluation Criteria as part of D4.1

4.2 Data Collection

Table 2 describes the monitoring methods that were used to collect the necessary data across the duration of the DLT4EU programme, including additional methods developed.

Table 2: Venture-Level Impact Assessment: Monitoring Methods

Venture-Level Impact Assessment: Monitoring Methods		
Monitoring Method	**Original / New Method**	**Purpose**
Venture Acceleration Action Plan	Original	A standardised report that Venture Teams completed at the end of every month during

		the accelerator. This report was gathered through an online survey and check-in calls to track their progress in developing the PoC.
D4.1 PoC Evaluation Criteria	Original	The Venture Teams had to submit deliverables that will be used by the Evaluation Jury to assess their PoC. The jurors assess their PoC against a set of evaluation criteria that were developed in WP4.[6]
Research Interview	Original	The main purpose of the research interview was to assess the level of knowledge development stemming from the DLT4EU programme, from a business, technical, and social perspective.
Proof-of-Concept Submission	New	Each Venture Team submitted an overview document and live pitch for their PoC Submission, which were assessed by the Evaluation Jury as part of WP4.[7]

4.3 Data Analysis

During the analysis phase of the impact assessment, it became clear that there was a need to employ the Likert scale as a standardisation method to enable comparison between quantitative KPIs, such as the Evaluation Criteria score, and qualitative KPIs, such as team development over the accelerator.

To enable a direct comparison with the scoring rubric of the PoC Evaluation, the scale was aligned to that used in D4.1 Evaluation Criteria for the Evaluation Jury in their assessment of the Proof-of-Concept Submissions (see Table 3).[8]

For the KPIs that refer to the Evaluation Jury (see Table 1 above), a single score was derived as the average across all five Jury Member scorecards. The research team then cross-referenced the output of the Evaluation Jury with analysis from all monitoring methods. This was to mitigate against significant variation in scoring approach between the Evaluation Jury and the research team.

[6] MacNeil, A. (2021). 'D4.1 DLT4EU Evaluation Criteria'.
[7] Ibid.
[8] Ibid.

Table 3 below provides a high-level overview of the 0-5 Likert scale that was used by the research team in the assessment of each Proof-of-Concept. Please refer to Appendix 1 for the full scoring rubric of the Likert scale for each objective.

Table 3: Venture-Level Impact Assessment: Likert Scale

Venture-Level Impact Assessment: Likert Scale					
0	**1**	**2**	**3**	**4**	**5**
Not demonstrated	Very poorly demonstrated	Poorly demonstrated	Demonstrated	Well demonstrated	Very well demonstrated

5. Proof-of-Concept Impact Assessment Results

This section will provide the results of the impact assessment of each Proof-of-Concept developed by the Venture Teams.

For each Venture Team, an explanation is provided of how the Challenge Area and Proof-of-Concept have matured throughout the DLT4EU programme. A summary table for each PoC lays out the score per KPI under each Objective, with selected evidence to demonstrate the score.

5.1 Convergence Tech

Challenge Area

This Challenge Area - 'Track and Trace: Supply Chain Transparency' - was led cooperatively by the UNDP Alternative Finance Lab and UNDP Morocco. The initial focus of this challenge was to develop a solution to improve the circularity of materials, components, and products throughout local supply chains.

The challenge area grew from a prior collaboration between the UNDP AltFinLab and FairChain Foundation - 'The Other Bar'.[9] This project had previously tested the hypothesis that consumers will choose to reward sustainable business practices and brands over those that are less sustainable. Additionally, via a DLT-enabled token, consumers are incentivised to re-invest in this production chain beyond their purchase. For example, with The Other Bar chocolate bar, consumers can reinvest in farmers who brought them their chocolate bar by contributing to the purchase of more cocoa trees. This tokenisation provides the additional benefit of enabling consumers to see when and where the cocoa tree gets planted.[10]

[9] 'The Other Bar', [https://www.theother.bar], accessed 18 February 2021.
[10] MacNeil, A., Corbin, L., Higueras, A. (2020), 'D3.3 Progress Report'. p.12.

As part of DLT4EU, the opportunity was to first develop the one-module infrastructure for a track-and-trace solution and, following this, to pilot the solution with one of the following use cases: 1) helping smallholder farmers to realise resilient business models and supply chains for food production; or 2) enabling transparency for consumers in material flows for textiles.[11]

Over the course of the DLT4EU accelerator, Convergence Tech identified the opportunity for a traceability use case for sustainably-produced argan oil in South West Morocco with their two challenge owners (UNDP AltFinLab and UNDP Morocco).[12] Field research conducted with UNDP Morocco identified an opportunity to co-develop a DLT solution for the main producers of argan oil - local women's cooperatives - to help these organisations capture more value for their products. Currently, these cooperatives receive only a fraction of the market value of argan oil - a high-value commodity, used in the cosmetics and food industries in particular. This is due to their distance from the end buyer through a complex web of middlemen players as well as an administrative burden for certification of origin.

Additionally, Convergence Tech identified the opportunity to generate positive environmental impact by helping to facilitate the marketability for sustainable argan oil with already-existing ecolabel certification, which incentivise specific and tangible environmental health behaviours by individuals, organisations, and communities. [13]

The Proof-of-Concept

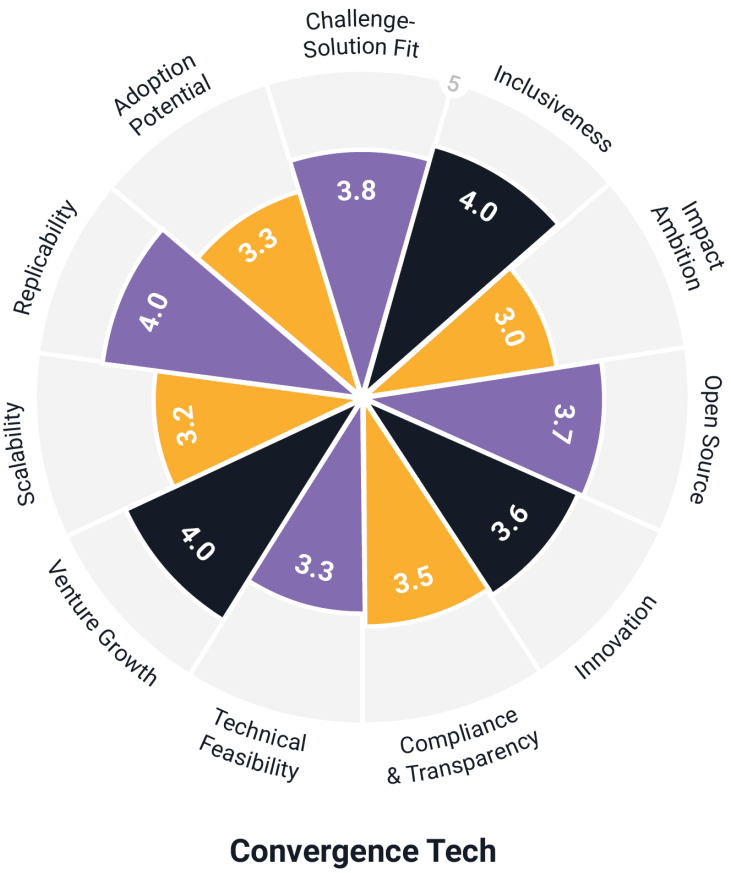
In the development of the Proof-of-Concept, Convergence Tech focused on shortening the supply chain for the main producers of argan oil - women's cooperatives - through a traceability solution. This platform is intended to help the cooperatives better market their products directly to exporters and buyers, rather than the numerous local middlemen currently involved in the sale of argan oil.

To do so, the platform helps to track and verify certified products in real-time by creating a 'data passport' for each good. Better, more direct market access could also help women's cooperatives facilitate ecommerce sales and branding uplift through the verification of sustainable goods.[14]

Additionally, by supporting the verification and marketing of ecolabel goods, the solution could help better incentivise the protection of the argan forests as sustainable products gain market value and competitiveness against existing products.[15]

[11] Ibid.
[12] Ibid.
[13] Zvaigzne, E. (2021). Convergence Tech Proof-of-Concept Submission.
[14] Zvaigzne, E. (2021). Convergence Tech Proof-of-Concept Submission.
[15] Zvaigzne, E. (2021). DLT4EU Research Interview. 19 January.

Figure 1: Convergence Tech PoC Impact Compass



Convergence Tech

Table 4: Convergence Tech PoC Impact Assessment

Venture-Level Impact Assessment					
Category	**Objective**	**KPI**	**Impact Area**	**Score**	**Evidence**
Challenge-Solution Fit	The PoC provides a highly relevant solution fit to the challenge identified by the challenge owner.	PoC score on the 'Challenge-Solution Fit' criteria of PoC Evaluation	Social	3.8	The argan oil industry is crucial for the livelihoods of the women in local cooperatives. However, they only make €25/litre of finished oil. The PoC allows the women's cooperatives to receive more value and

					improve the marketability of their product.[16]
Inclusiveness	The Venture Team engages with a highly diverse set of beneficiaries and end-users throughout app development.	Venture Teams have considered and engaged with the individual needs of a diverse range of end-users, including issues of gender, disability, language, background, and nationality.	Social	4.0	During the research phase, with UNDP Morocco, Convergence Tech conducted several interviews with the women-owned cooperatives. Convergence Tech aimed to select 1-3 local cooperatives to work closely on refining the PoC concept and supporting the idea.[17]
Impact Ambition	Venture teams expand their impact by connecting to SDGs.	Quality of SDGs and / or impact targets cited in PoC Submission	Social Environmental	3.0	SDGs addressed: 1) No Poverty; 2) Gender Equality; 8) Decent Work and Economic Growth; 9) Industry, Innovation, and Infrastructure; 10) Reduced Inequalities; 12) Responsible Consumption and Production; 15) Life on Land Other impact targets include improving the livelihoods of the women-owned cooperatives, providing better access to premium customers, and reducing the administrative burden in claiming certification. [18]
Open Source	Venture team widely shares	PoC score on the 'Open Source' criteria	Knowledge	3.7	Convergence Tech intends to use an Apache 2.0 license for

[16] Zvaigzne, E. (2021). Convergence Tech Proof-of-Concept Submission.
[17] Zvaigzne, E. (2020). Monthly Venture Acceleration Action Plan. November.
[18] Zvaigzne, E. (2021). Convergence Tech Proof-of-Concept Submission.

	its innovation, innovation is readily scalable and replicable by others.	of PoC Evaluation			the PoC. Additionally, the team are considering mechanisms to incentivise the use of their solution, including partnering with already existing, at scale ecolabel providers and researching applicability to other high-value, low-volume commodities[19]
Innovation	New knowledge is generated / advanced regarding the application of DLT for public sector contexts.	PoC score on the 'Innovation' criteria of PoC Evaluation	Knowledge	3.6	The PoC accelerates the digitisation of the argan oil supply chain. It enables women-owned cooperatives to shift from a paper-based system to one providing trusted real time-verification. This reduces the administrative burden for the women-owned cooperatives in certifying their products. [20]
Compliance and Transparency	Venture teams and their PoCs are transparent and accountable	PoC score on the 'Compliance and Transparency' criteria of PoC Evaluation	Knowledge Social	3.5	Convergence Tech's PoC contains no central registration or sign-up process for individuals. No PII (including direct hashes thereof), in the credentials, tokens, or otherwise, is stored on chain in the PoC implementation.[21]
Technical Feasibility	Venture team advances their technology through the programme.	PoC score on the 'Technical Feasibility' criteria of PoC Evaluation	Economic Knowledge	3.3	Convergence Tech has achieved TRL5 for the certificate-based traceability. Although they have missed their technical progress expectation due to their late

[19] Zvaigzne, E. (2021). DLT4EU Research Interview. 19 Jan.
[20] Zvaigzne, E. (2021). Convergence Tech Proof-of-Concept Submission.
[21] Ibid.

					start on the programme, they have met their expectations in designing the concept of the PoC.[22]
Venture Growth	The DLT4EU programme supports the growth of the venture team / business	Quality of strategic roadmap	Economic	4.0	Convergence Tech's focus for business development is to seek grant and funding opportunities to help run an expanded pilot of the concept and the technology in Morocco after the DLT4EU programme has ended. The ambition is to scale the PoC to help certification bodies with data validation, and programme administration to help make the business case for their digital solution.[23] In the long term, Convergence Tech sees the need to provide education for the women cooperatives on the use of technology to help facilitate uptake.[24]
Scalability	Venture teams develop a highly scalable PoC	PoC score on the 'Commercial Feasibility and Scalability' criteria of PoC Evaluation	Economic	3.2	Convergence Tech has outlined the importance of sufficient access to technology and digital literacy in order to grow adoption. Furthermore, exploring the willingness of the market to pay for sustainable sourcing from the buyers is important to set the pricing model.[25]

[22] Ibid.
[23] Zvaigzne, E. (2020). Monthly Venture Acceleration Action Plan. November.
[24] Zvaigzne, E. (2020). DLT4EU, Convergence Tech, UNDP Morocco weekly meeting. December.
[25] Ibid.

Replicability	Venture teams develop a highly replicable PoC	Extent to which the Venture Team has identified and addressed the barriers to PoC replication	Economic Knowledge	4.0	Convergence Tech has identified the main barrier to progress as gaining support from middlemen in some channels. The Venture Team has mitigated this barrier by focusing on building a working relationship with UNDP Morocco to overcome this challenge. Convergence Tech is also trying to cut out middlemen in other aspects - for example, by directly working with a European buyer and / or exporter.[26]
Adoption Potential	Venture teams produce a PoC with high adoption potential	PoC score on the 'Usability and Inclusiveness' criteria of PoC Evaluation	Economic	3.3	Convergence Tech has closely collaborated with the women-owned cooperatives to understand their needs and will continue to involve them in the remainder of the UX and UI design. [27]

5.2 Prosume

Challenge Area

This Challenge Area - 'Peer-to-Peer (P2P) Energy Solutions' - was co-led by the UNDP Alternative Finance Lab and UNDP Serbia.

The initial focus of this challenge was to explore one of the following use case opportunities: 1) enabling citizen co-investments in renewable energy infrastructure, whether those are community microgrids or a public-owned renewable energy park; 2) creating tradable renewable energy certificates which verify the providence of energy supplies and thus facilitate the shift of energy production and usage to renewable energy; or 3) development of a marketplace that

[26] Zvaigzne, E. (2020). Monthly Venture Acceleration Action Plan. November.
[27] Zvaigzne, E. (2020). DLT4EU, Convergence Tech, UNDP Morocco weekly meeting. December.

connects and incentivises buyers - whether individual households or utility organisations - to renewable energy supplies.[28]

Over the course of the DLT4EU accelerator, it became clear that due to the complexity of the local regulatory context, a pilot was no longer possible with UNDP Serbia until 2021. Instead, Prosume started to scope a pilot within an existing collaboration in Carloforte, Sardinia to develop their PoC. In this context, the challenge area evolved into a focus on facilitating local energy communities - 'prosumers'. [29]

Additionally, Prosume has been able to draw on insights from their involvement in the REACT Consortium to deploy a related solution in Berchidda, Sardinia. This pilot will involve the entire ecosystem of the energy sector as well as the city municipality who owns the local energy infrastructure.[30]

The Proof-of-Concept

Prosume's Proof-of-Concept (under testing in Carloforte, Sardinia) enables - through a DLT-based wallet - a community of thirty 'prosumers' to monitor their energy generation, consumption, as well as exchange 'energy credits' among the community members. A key benefit for participants is a reduction in energy costs as sourcing becomes highly localised and administrative burdens are automated with the DLT solution.[31]

[28] MacNeil, A., Corbin, L. and Higueras, A. (2020). Progress Report. pp.13-14.
[29] D'Elia, A. (2021). DLT4EU Research Interview. 22 January.
[30] D'Elia, A. (2021). Prosume Proof-of-Concept Submission.
[31] Ibid.

Figure 2: Prosume PoC Impact Compass

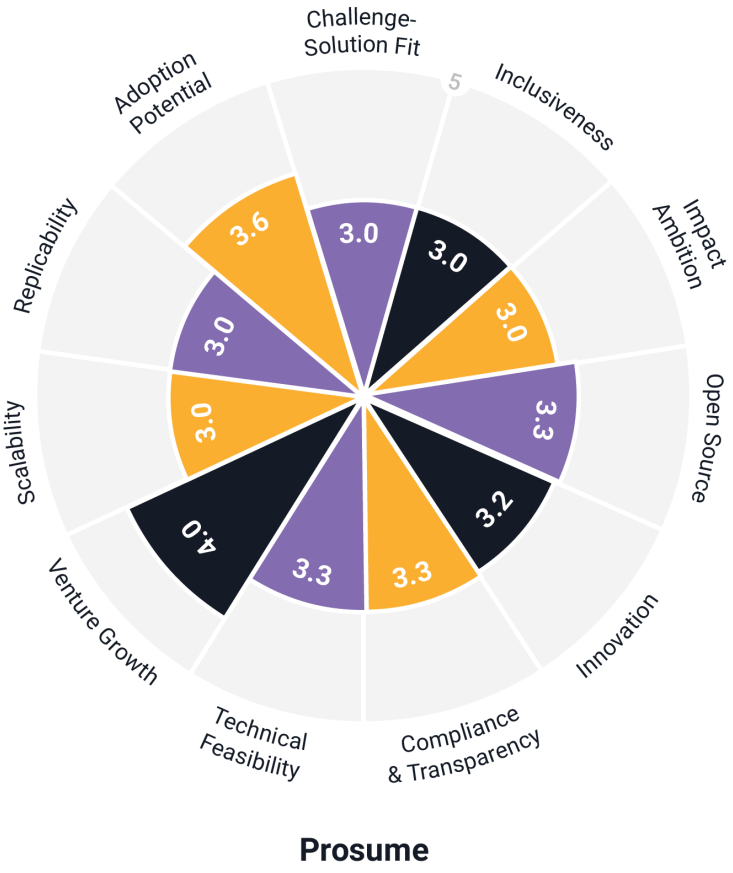


Table 5: Prosume PoC Impact Assessment

Venture-Level Impact Assessment					
Category	**Objective**	**KPI**	**Impact Area**	**Score**	**Evidence**
Challenge-Solution Fit	The PoC provides a highly relevant solution fit to the challenge identified by the challenge owner.	PoC score on the 'Challenge-Solution Fit' criteria of PoC Evaluation	Social	3.0	The PoC facilitates flexibility of renewable energy production and distribution, whereas the current system is still highly centralised. Prosume provides Local Energy Production and Smart metering and monitoring for a

					more resilient energy ecosystem. [32]
Inclusiveness	The Venture Team engages with a highly diverse set of beneficiaries and end-users throughout app development.	Venture Teams have considered and engaged with the individual needs of a diverse range of end-users, including issues of gender, disability, language, background, and nationality.	Social	3.0	Throughout the DLT4EU programme, Prosume has engaged with multiple municipalities such as those of Shabat and Sardinia. However, Prosume has not engaged with the final end users, namely Prosumers, as their current focus is B2B. Yet they have made a step forward in their value proposition and are focusing to develop their B2C strategy.[33]
Impact Ambition	Venture teams expand their impact by connecting to SDGs.	Quality of SDGs and / or impact targets cited in PoC Submission	Social Environmental	3.0	SDG 7) Affordable And Clean Energy; SDG 11) Sustainable Cities and Communities Other impact targets have been mentioned which include increasing renewable energy access for Prosumers and increasing active participation of Prosumers providing Community Aggregation and Decentralised Governance.[34]
Open Source	Venture team widely shares its innovation,	PoC score on the 'Open Source' criteria	Knowledge	3.3	All the software is open source and some components are free under the GPL license. Depending

[32] Ibid.
[33] Ibid.
[34] D'Elia, A. (2021). Prosume Proof-of-Concept Submission.

	innovation is readily scalable and replicable by others.	of PoC Evaluation			on the application and the solution, the Licensing Scheme differs. Prosume will choose any of these licenses and the ones approved by the Free Software Foundation. Interfaces that were developed in different languages are available as free and open source, such as Python, GO, PHP. [35]
Innovation	New knowledge is generated / advanced regarding the application of DLT for public sector contexts.	PoC score on the 'Innovation' criteria of PoC Evaluation	Knowledge	3.2	Prosume aims to increase community engagement in the energy sector by giving the flexibility to share distribution of energy. This provides an opportunity for increasing production from the independent energy market, creating a more resilient system.[36]
Compliance and Transparency	Venture teams and their PoCs are transparent and accountable	PoC score on the 'Compliance and Transparency' criteria of PoC Evaluation	Knowledge Social	3.3	The PoC platform facilitates applicability for multiple use cases and is easily integrated with the authorisation and identification components based on Decentralised IDentifiers in the eIDAS directive. It will be perfected with the new integration of the Zenroom VM. [37]
Technical Feasibility	Venture team advances their technology	PoC score on the 'Technical Feasibility'	Economic Knowledge	3.3	Throughout the accelerator, the Venture Team developed and tested the new Blockchain Software Suite

[35] Ibid.
[36] Ibid.
[37] Ibid.

	through the programme.	criteria of PoC Evaluation			which has achieved TRL7. As they are focusing on shifting from a B2B to a B2C model, they are at TRL5 and aim to reach TRL7 in mid-2021.[38]
Venture Growth	The DLT4EU programme supports the growth of the venture team / business	Quality of strategic roadmap	Economic	4.0	Prosume's current business development focus is transitioning to a B2B2C model and eventually operating in a B2C model. This mitigates the risk of Prosume falling into the "market monopoly" issue. To achieve that, Prosume needs to provide its first service of Automated Payments, Smart Billing, and Energy Community Management through strategic partners. Once completed, Prosume will become a market facilitator, allowing third parties to provide their own services to Prosumers. [39] Prosume also has formed a new knowledge sharing relationship with industry experts.[40]
Scalability	Venture teams develop a highly scalable PoC	PoC score on the 'Commercial Feasibility and Scalability' criteria of PoC Evaluation	Economic	3.0	With strategic partners, Prosume will be able to reach a greater audience and users. They aim to become an "Infrastructure Enabler", enabling third parties to provide their services directly to Prosumers.

[38] Ibid.
[39] Ibid.
[40] D'Elia, A. (2021). DLT4EU Research Interview. 22 Jan.

					They aim to shift from a B2B model to a B2C model, engaging more Prosumers in the market. [41]
Replicability	Venture teams develop a highly replicable PoC	Extent to which the Venture Team has identified and addressed the barriers to PoC replication	Economic Knowledge	3.0	Prosume has faced regulatory barriers in addressing P2P Energy Solutions, especially throughout the collaboration with the municipality of Shabat. However, Prosume faced fewer regulatory barriers when working with their pilot in Sardinia.[42]
Adoption Potential	Venture teams produce a PoC with high adoption potential	PoC score on the 'Usability and Inclusiveness' criteria of PoC Evaluation	Economic	3.6	Strategic collaboration with the REACT Project will facilitate engagement with the final users. This collaboration will help Prosume to accelerate the pilot and deployment of the technology. [43]

5.3 Social Impact Network (Acren)

Challenge Area

This Challenge Area - 'Digital Impact Coins' - was co-led by the UNDP Alternative Finance Lab and UNDP Lebanon.

The original focus of this challenge area was to develop a digital impact coin, built on prior collaborations of the UNDP AltFinLab (such as the CedarCoin), and then to test this coin with the Tadamon Community and other UNDP social innovation programmes. A digital impact coin

[41] D'Elia, A. (2021). Prosume Proof-of-Concept Submission.
[42] D'Elia, A. (2020). Monthly Venture Acceleration Action Plan. October.
[43] D'Elia, A. (2021). Prosume Proof-of-Concept Submission.

can serve as an economic incentive model mechanism, and thus encourage positive engagement for public benefits. This mechanism also encourages a long-term relationship that can be extended across ecosystem members who share common values, as well as be passed between community generations. This model can also integrate well into faith-based economic investment models.[44]

Early in the DLT4EU Accelerator, Acren and UNDP AltFinLab moved away from this initial project after identifying an opportunity to develop a financial investment solution to meet the desire for local renewable energy solutions with UNDP Lebanon. The new challenge area focused on how to incentivise citizens to financially contribute to these initiatives, an ambition that became even more pressing for UNDP Lebanon after the Beirut explosion in August 2020 and the COVID-19 pandemic, which put even more strain on local energy supplies.

The Proof-of-Concept

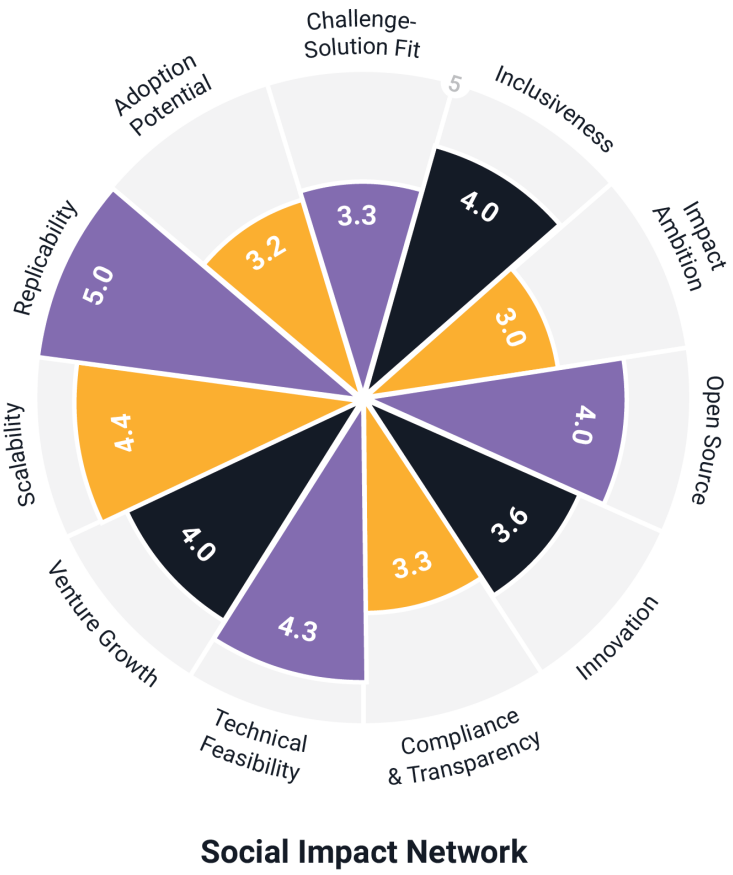
Through DLT4EU, Acren developed the 'Social Impact Network' (SiNetwork), which aims to encourage individuals to purchase Social Impact Tokens. These coins are then used to invest in solar energy projects in developing countries.[45] The solution also provides a transparent impact measurement system, so investors can see and understand in real-time how their investment has made a difference. The platform increases access to and liquidity in social innovation projects that would otherwise be difficult to contribute to as an individual citizen. [46]

Additionally, by driving new investment into local initiatives, the SiNetwork has the potential to facilitate spillover value for local communities and economies, that have been previously locked out of traditional financing. The linkage of investment to verifiable output through connection to IoT devices on the Solar PVs also helps to show the local community how the initiative has benefited them. [47]

In February 2021, the SiNetwork platform will be implemented in an operational environment in Lebanon with real customers, and Acren will continue their collaboration with UNDP beyond the duration of the DLT4EU programme.[48]

[44] MacNeil, A., Corbin, L., Higueras, A. (2020). D3.3 Progress Report, p.15.
[45] 'Social Impact Network' [https://social-impact.network/#product]. Accessed 24 February 2021.
[46] Markovic, N. (2021). Social Impact Network Proof-of-Concept Submission.
[47] Ibid.
[48] Ibid.

Figure 3: Social Impact Network PoC Impact Compass



Social Impact Network

Table 6: Social Impact Network (Acren) PoC Impact Assessment

Venture-Level Impact Assessment					
Category	**Objective**	**KPI**	**Impact Area**	**Score**	**Evidence**
Challenge-Solution Fit	The PoC provides a highly relevant solution fit to the challenge identified by the challenge owner.	PoC score on the 'Challenge- Solution Fit' criteria of PoC Evaluation	Social	3.3	The SiNetwork aims to tackle Lebanon's socio-economic challenges which include the energy crisis. This became more apparent when the energy crisis impacted hospitals, especially during the Covid-19 pandemic. By providing transparency and real-time

					traceability for impact investors, the SiNetwork aims to engage individual impact investors to contribute to a betterment of Lebanon's socio-economic development.[49] The PoC aims to solve the problems of traditional impact investment by finding high-quality investment opportunities, sophistication of impact measurement practice, increasing trust and transparency, and determining suitable exit options.[50]
Inclusiveness	The Venture Team engages with a highly diverse set of beneficiaries and end-users throughout app development.	Venture Teams have considered and engaged with the individual needs of a diverse range of end-users, including issues of gender, disability, language, background, and nationality.	Social	4.0	SiNetwork has considered a diverse range of individual needs throughout the PoC development. The choice of focusing on a school in Lebanon resulted from considering the needs of energy supplies of citizens in an economically disadvantaged group. [51]
Impact Ambition	Venture teams expand their impact by	Quality of SDGs and / or impact	Social	3.0	7) Affordable and Clean Energy; 13) Climate Action;

[49] Markovic, N. (2021). Social Impact Network Proof-of-Concept Submission.
[50] Ibid.
[51] Markovic, N. (2020). Monthly Venture Acceleration Action Plan. November.

	connecting to SDGs.	targets cited in PoC Submission	Environmental		8) Decent Work and Economic Growth Other impact targets include increasing trust and security between parties, increasing transparency, providing access to investment in community projects, and increasing renewable energy access to end users.[52]
Open Source	Venture team widely shares its innovation, innovation is readily scalable and replicable by others.	PoC score on the 'Open Source' criteria of PoC Evaluation	Knowledge	4.0	The full technical system of SiNetwork is open source under the MIT license.[53] The Social Impact Network consists of several components which are platform, token, impact measurement database, and tracking software.[54]
Innovation	New knowledge is generated / advanced regarding the application of DLT for public sector contexts.	PoC score on the 'Innovation' criteria of PoC Evaluation	Knowledge	3.6	The DLT-based solution provides more transparency and security compared to the traditional impact investment model. This enables the SiNetwork to reach a greater audience and wide range of potential investors. [55]
Compliance and Transparency	Venture teams and their PoCs are transparent and accountable	PoC score on the 'Compliance and Transparency' criteria of	Knowledge Social	3.3	As blockchain is the only database storage of the system, all data belongs to the user. The SiNetwork ensures data privacy for every interaction

[52] Markovic, N. (2021). Social Impact Network Proof-of-Concept Submission.
[53] Markovic, N. (2021). Monthly Venture Acceleration Action Plan. July.
[54] Markovic, N. (2021). Social Impact Network Proof-of-Concept Submission.
[55] Ibid.

		PoC Evaluation			with the end users, such as data protection notice and cookies information.[56]
Technical Feasibility	Venture team advances their technology through the programme.	PoC score on the 'Technical Feasibility' criteria of PoC Evaluation	Economic Knowledge	4.3	The SiNetwork has reached TRL6 at the end of the accelerator. They have exceeded their expectations and will test their technology under real-world conditions on a solar project in Lebanon.[57]
Venture Growth	The DLT4EU programme supports the growth of the venture team / business	Quality of strategic roadmap	Economic	4.0	During the DLT4EU programme, SiNetwork recruited two interns and have focused on developing their marketing strategy. Their goal is to educate investors and users on the value of the solution provided by the platform.[58] The PoC will be demonstrated in the first quarter of 2021 on a full-scale project with user testing. In the second quarter, SiNetwork will focus on piloting the tokenized bond. To achieve this, SiNetwork aims to attract impact investors or to integrate the project into existing green crowdfunding solutions. [59]

[56] Ibid.
[57] Ibid.
[58] Markovic, N. (2021). Monthly Venture Acceleration Action Plan. October.
[59] Markovic, N. (2021). Social Impact Network Proof-of-Concept Submission.

Scalability	Venture teams develop a highly scalable PoC	PoC score on the 'Commercial Feasibility and Scalability' criteria of PoC Evaluation	Economic	4.4	The SiNetwork has provided a clear strategic roadmap in scaling the PoC. In 2021, the SiNetwork will focus on refining the technical development and pilot the tokenised bond. In 2022, the tokenised fund will be piloted and followed by piloting the tokenised open-end fund until 2023. A clear funding strategy has also been provided. [60]
Replicability	Venture teams develop a highly replicable PoC	Extent to which the Venture Team has identified and addressed the barriers to PoC replication	Economic Knowledge	5.0	Several barriers to replicate the PoC have been identified. Firstly, financial regulatory barriers have been the main barrier for SiNetwork. To mitigate this, SiNetwork has been connected to advisors from Rabobank via the CiSe Venture Team and will partner with a financial institution in Germany.[61]
Adoption Potential	Venture teams produce a PoC with high adoption potential	PoC score on the 'Usability and Inclusiveness' criteria of PoC Evaluation	Economic	3.2	The SiNetwork has continuously tested and adapted their technology with user input and built the platform with a human-centered design approach. With their new partnership with GLS Bank, they are better able to understand impact investment principles, financial regulations, user needs, and process flows within the

[60] Ibid.
[61] Markovic, N. (2020). Monthly Venture Acceleration Action Plan. November.

					impact investment ecosystem.[62]

5.4 Alice

Challenge Area

This Challenge Area - 'Charitable Aid Accountability' - was initially co-led by Digital Future Society and the Spanish Red Cross. The original scope was specific to the barriers the Spanish Red Cross experiences in undertaking their charitable aid activities - such as the reporting, verification, and justification processes of how charitable aid is distributed and used by beneficiaries. The initial use cases explored were focused on the digitalisation of data, mapping workflows of resource allocation, automatic reporting of impact, and the integration of charitable aid partners into spending decision-making.[63]

Unfortunately, a regulatory restriction that obliged the Spanish Red Cross to collect paper receipts from supermarkets and stores directly, to prove how the donations were spent, prevented the organisation from proceeding with the project.[64]

Instead the Alice team brought in the Vodafone Foundation to focus on opportunities to support The Instant Network Schools (INS) - a collaboration between the Vodafone Foundation, UNHCR, and the UN Refugee Agency. The purpose of this programme is to provide young refugees and their teachers in Africa access to digital learning content and infrastructure.

Through scoping activities, Alice co-identified the opportunity to help the INS with their impact reporting and accountability priorities, and the inefficiencies the organisation faces in ensuring secure and reliable data storage and analysis.

With the increasing demand for accountability from the public and private sector, organisations have increasingly reported the impact of their work. At the same time, impact reporting is often time-consuming and the cost of a bespoke setup can reach up to 30% of a social and environmental project's budget. [65]

The Proof-of-Concept

[62] Ibid.
[63] MacNeil, A., Corbin, L., Higueras, A. (2020). D3.3 Progress Report, p.20.
[64] Kampyli, A. (2020). Venture Acceleration Action Plan. September.
[65] Kampyli, A. (2020). 'Barcelona Online Bootcamp Presentation'

Alice's Proof-of-Concept helps the Instant Network Schools's impact reporting by automating the analysis and visualisation of the organisation's data.[66] To do so, Alice has developed a Machine-Learning (ML) solution that works within a decentralised data ecosystem. By applying machine learning algorithms, Alice is able to predict and provide the Challenge Owner with prescriptive analytics on their performance in each school, refugee camp, and by country. Importantly, the solution will ensure that beneficiaries receive help in a dignified way, by protecting their data privacy.[67]

The successful implementation of Alice's solution could significantly create a positive social impact. The data insights that Alice provides creates a better understanding of the impact of charitable aid and therefore optimizes their humanitarian aid programme. For instance, by saving 30% of the project budget due to the bespoke cost of impact reporting, it enables the Vodafone Foundation to reallocate its funds for better and more efficient use by the beneficiaries. Furthermore, creating a trusted and decentralised data collaboration model will generate cross-programme learning.[68]

Figure 4: Alice PoC Impact Compass

Alice

[66] Kampyli, A. (2020). Venture Acceleration Action Plan.
[67] Kampyli, A. (2020). Alice Proof-of-Concept Submission.
[68] Ibid.

Table 7: Alice PoC Impact Assessment

Venture-Level Impact Assessment					
Category	**Objective**	**KPI**	**Impact Area**	**Score**	**Evidence**
Challenge-Solution Fit	The PoC provides a highly relevant solution fit to the challenge identified by the challenge owner.	PoC score on the 'Challenge- Solution Fit' criteria of PoC Evaluation	Social	4.0	With the increasing demand in disclosing impact investment activities, Alice digitises and automates the process for organisations such as the Vodafone Foundation to reduce the administrative burden of impact reporting. [69]
Inclusiveness	The Venture Team engages with a highly diverse set of beneficiaries and end-users throughout app development.	Venture Teams have considered and engaged with the individual needs of a diverse range of end-users, including issues of gender, disability, language, background, and nationality.	Social	3.0	Alice did not engage with the final end beneficiaries (i.e. students) however, worked closely with solution users at the Vodafone Foundation to better cater to their needs.[70]
Impact Ambition	Venture teams expand their impact by connecting to SDGs.	Quality of SDGs and / or impact targets cited in PoC Submission	Social Environmental	4.0	SDG 16) Peace, Justice, and Strong Institutions; SDG 17) Partnerships For The Goals Alice aims to achieve these SDGs by contributing to creating an inclusive society, creating efficient and

[69] Ibid.
[70] Kampyli, A. (2021). DLT4EU Research Interview. 21 Jan.

					transparent organisations, and accelerating knowledge sharing between organisations. [71]
Open Source	Venture team widely shares its innovation, innovation is readily scalable and replicable by others.	PoC score on the 'Open Source' criteria of PoC Evaluation	Knowledge	4.2	The backend code, with the decentralised storage and data processing logic, and frontend code, with its decentralised data visualisation deployment, are open source under the GPLv3 (General Public License Version 3).[72]
Innovation	New knowledge is generated / advanced regarding the application of DLT for public sector contexts.	PoC score on the 'Innovation' criteria of PoC Evaluation	Knowledge	4.0	The PoC provides a solution for the administrative burden of impact reporting which often costs up to 30% of a project's budget. Alice mitigates the cost through analysis automation, performance forecasting through ML, and decentralising data structures to ensure security.[73]
Compliance and Transparency	Venture teams and their PoCs are transparent and accountable	PoC score on the 'Compliance and Transparency' criteria of PoC Evaluation	Knowledge Social	4.0	As a UK data controller, Alice has an active registration with the UK's Information Commissioner's Office (ICO) as the supervisory authority. It complies with the UK GDPR and appoints a data protection officer. [74]

[71] Kampyli, A. (2020). Alice Proof-of-Concept Submission.
[72] Ibid.
[73] Ibid.
[74] Ibid.

					Alice acts as the data processor and the customers remain as the data controller. A binding contract with the customers needs to be done for the data controller to authorise any data transfer outside the UK.[75] Engaging another processor is not allowed unless specific agreement is signed in advance. [76]
Technical Feasibility	Venture team advances their technology through the programme.	PoC score on the 'Technical Feasibility' criteria of PoC Evaluation	Economic Knowledge	4.3	The PoC has achieved TRL7, where the system prototype has been successfully tested in an operational environment. Given the shortened period due to the switch in the Challenge Owner, the Alice Venture Team exceeded their expectations of technical development targets.[77]
Venture Growth	The DLT4EU programme supports the growth of the venture team / business	Quality of strategic roadmap	Economic	5.0	The learning opportunity from working with different Challenge Owners has been fed into the funding application for a governmental body which Alice has been successfully granted.[78] Alice aims to also apply for funding to the European Commission AI & Blockchain

[75] Ibid.
[76] Ibid.
[77] Ibid.
[78] Kampyli, A. (2021). DLT4EU Research Interview. 21 Jan.

					Investment Fund as well as private investors.[79] The business development activity focuses on increasing the customer acquisition. To achieve that, Alice intends to integrate impact measurement frameworks for different customer segments, making the solution applicable for different stakeholders. Furthermore, the three-tiered business model that Alice offers allows for greater adoption.[80]
Scalability	Venture teams develop a highly scalable PoC	PoC score on the 'Commercial Feasibility and Scalability' criteria of PoC Evaluation	Economic	3.8	To reach a greater customer base, Alice aims to integrate different impact measurement frameworks tailored to each customer segment. For instance, incorporating ESG principles for corporations or SDGs for foundations. [81]
Replicability	Venture teams develop a highly replicable PoC	Extent to which the Venture Team has identified and addressed the barriers to PoC replication	Economic Knowledge	4.0	The main barrier identified was the readiness level of the customer to change the system that has worked for a long period of time. This regulatory barrier was solved by changing to a new Challenge Owner. Another challenge that Alice has faced was the Challenge

[79] Kampyli, A. (2020). 'Barcelona Online Bootcamp Presentation.'
[80] Kampyli, A. (2020). Alice Proof-of-Concept Submission.
[81] Ibid.

					Owner's difficulty in understanding the DLT. [82]
Adoption Potential	Venture teams produce a PoC with high adoption potential	PoC score on the 'Usability and Inclusiveness' criteria of PoC Evaluation	Economic	4.4	The technology has been developed with a customer success mindset. The product's UI and UX was refined through user testing and continuous feedback from UI designers. A user-testing roadmap is also outlined.[83]

5.5 eReuse

Challenge Area

This Challenge Area - 'Collaborative eWaste Management' - was led by Sant Boi de Llobregat City Council in Spain.

The focus of this challenge area was to develop solutions for tackling the City's electronic waste flow as well as the current task-make-waste model of consumption. It is estimated that by 2050, the electronic industry will create up to 120 million tonnes of e-waste.[84]

Throughout DLT4EU, eReuse has collaborated closely with its Challenge Owner, Sant Boi de Llobregat City Council. The City of Sant Boi provides all the public facilities and services that contribute to meet the needs of the community. The City wants to foster the circular economy by refurbishing and redistributing obsolete devices to economically disadvantaged families.[85]

[82] Kampyli, A. (2020). Monthly Venture Acceleration Action Plan. September.
[83] Kampyli, A. (2020). Alice Proof-of-Concept Submission.
[84] Franquesa, D. (2020). 'Barcelona Online Bootcamp Presentation'
[85] MacNeil, A., Corbin, L. and Higueras, A. (2020). Progress Report, p.10-13.

With the COVID-19 pandemic, the forced digital learning environment made the city's digital divide more apparent for the Challenge Owner.[86] Additionally, as electronics usually lose their use-value through recycling, there is a need to prevent premature recycling so that more devices are available for those who need them.[87]

Together this Virtual Field Lab focused on how to empower communities - or "collaborative circuits" - to reuse and recycle electronic devices collected by the City.[88] Key to a solution was helping ensure accountability and impact measurement of participating organisations as well as the easy management of electronic material flow.

The Proof-of-Concept

eReuse's existing solution is to bring together electronic device refurbishers and provide them with the necessary digital platform to coordinate and measure the impact of their circularity.

During DLT4EU the City of Sant Boi collected and refurbished thirty electronic devices to be distributed to schools and families in economically disadvantaged groups. As part of the pilot, eReuse trained city workers to use the traceability digital platform to record the refurbishment. The City then rents the devices to schools who then - at no cost - loan the device to families who would benefit the most. Each device is given a code stored in the DLT-based platform, so that impact (such as usage and lifetime extension) can be measured without personal data being used. The eReuse solution provides a standardised protocol and accounting for the lifetime extension while securing privacy and data reliability. After the device has reached its full use, the school can return the device to the City for further refurbishment or recycling. [89]

Overall the PoC pilot saved 30 reused devices that would have been discarded into landfills.[90]When devices are distributed to schools and families, it doubles the timespan of the devices being reused, from 5,000 hours to more than 10,000 hours.[91]

[86] Franquesa, D. (2021). eReuse Proof-Of-Concept Submission.
[87] Ibid.
[88] Ibid.
[89] Ibid.
[90] Ibid.
[91] Franquesa, D. (2020). Barcelona Online Bootcamp Presentation.

Figure 5: eReuse PoC Impact Compass

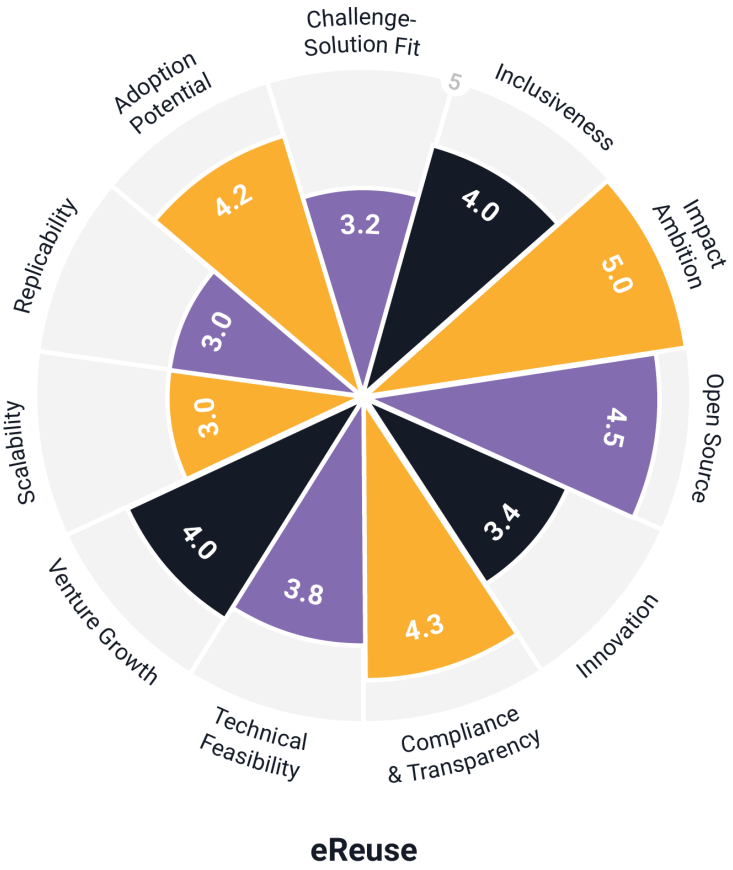


Table 8: eReuse PoC Impact Assessment

Venture-Level Impact Assessment					
Category	**Objective**	**KPI**	**Impact Area**	**Score**	**Evidence**
Challenge-Solution Fit	The PoC provides a highly relevant solution fit to the challenge identified by	PoC score on the 'Challenge-Solution Fit' criteria of PoC Evaluation	Social	3.2	eReuse provides a solution for reducing the environmental footprint of the electronic waste industry. To change the system, eReuse includes refurbishers and the City

	the challenge owner.				Council to collaborate in increasing recycling rate and prolongs electronics lifetime. [92]
Inclusiveness	The Venture Team engages with a highly diverse set of beneficiaries and end-users throughout app development.	Venture Teams have considered and engaged with the individual needs of a diverse range of end-users, including issues of gender, disability, language, background, and nationality.	Social	4.0	eReuse has not engaged with the final recipients of the electronic devices, as the City Council directly works with disadvantaged families. However, they have worked closely with the City Council to identify and revise their user experience of the platform. [93]
Impact Ambition	Venture teams expand their impact by connecting to SDGs.	Quality of SDGs and / or impact targets cited in PoC Submission	Social Environmental	5.0	SDG 4) Quality Education; SDG 10) Reduced Inequalities; SDG 13) Climate Action; SDG 15) Life On Land; SDG 16) Peace, Justice, and Strong Institutions. By the end of the pilot, the City Council is expected to save at least €500 and 200 KG of CO2 per reused device. [94] To date, 30 devices have been registered, refurbished, and in the process of distribution to schools in February.[95]

[92] Ibid.
[93] Franquesa, D. (2021). DLT4EU Research Interview. 8 February.
[94] Franquesa, D. (2021). eReuse Proof-Of-Concept Submission.
[95] Ibid.

Open Source	Venture team widely shares its innovation, innovation is readily scalable and replicable by others.	PoC score on the 'Open Source' criteria of PoC Evaluation	Knowledge	4.5	eReuse provides a public dataset about reuse of computing devices in eReuse under CCBY4.0 license. The original dataset has been anonymised and exported from the refurbishers' Devicehub. [96] eReuse also provides open code of the respective components that are part of the eReuse system with different TRL level, license, and link to the code and application.[97]
Innovation	New knowledge is generated / advanced regarding the application of DLT for public sector contexts.	PoC score on the 'Innovation' criteria of PoC Evaluation	Knowledge	3.4	eReuse has pioneered the standard traceability protocol in the e-waste refurbishment sector, facilitating transparency of impact. The DLT solution also ensures that personal data is secure and creates traceability and impact accounting.[98]
Compliance and Transparency	Venture teams and their PoCs are transparent and accountable	PoC score on the 'Compliance and Transparency' criteria of PoC Evaluation	Knowledge Social	4.3	The value proposition of eReuse is to implement traceability and transparency for impact accounting in the electronic industry. The eReuse end user application does not store personal data about the final users but only the timestamps of that data. eReuse also participates in the SMOOTH Project, an EU-based platform that focuses

[96] Ibid.
[97] Ibid.
[98] Ibid.

					on helping micro-enterprises to be GDPR compliant.[99]
Technical Feasibility	Venture team advances their technology through the programme.	PoC score on the 'Technical Feasibility' criteria of PoC Evaluation	Economic Knowledge	3.8	Below provides the technical development throughout the accelerator programme: 1. The Workbench Desktop has achieved TRL5; 2. The Devicehub has achieved TRL8; 3. The DLT has achieved TRL5.[100]
Venture Growth	The DLT4EU programme supports the growth of the venture team / business	Quality of strategic roadmap	Economic	4.0	eReuse has grown their team and significantly progressed their business activities during the DLT4EU programme. The eReuse solution has been chosen as a Good Practice for the SUBTRACT Project (Sustainable Reuse Centres) InterregEurope, have obtained grants to create public policies to support the reuse of digital devices, and worked with zerowasteeurope.eu to promote the certification of Product Owners and Refurbishers in Europe. [101]
Scalability	Venture teams develop a	PoC score on the 'Commercial Feasibility and	Economic	3.0	eReuse has recently won an NGI-Atlantic project (150K) to commercialize this

[99] Ibid.
[100] Ibid.
[101] Franquesa, D. (2020). Monthly Venture Acceleration Action Plan. November.

	highly scalable PoC	Scalability' criteria of PoC Evaluation			solution through the US OBADA Foundation. Obadada is an open blockchain for asset disposition alliance. eReuse is part of the board of directors and they are going to integrate their software and offer services to its members. This will allow eReuse to scale to millions of refurbished devices per year.[102]
Replicability	Venture teams develop a highly replicable PoC	Extent to which the Venture Team has identified and addressed the barriers to PoC replication	Economic Knowledge	3.0	The main barrier that eReuse faced were the administrative obstacles when the City Council had to transition to the new process of device refurbishment. This caused delays in the decision-making and the distribution of refurbished devices.[103]
Adoption Potential	Venture teams produce a PoC with high adoption potential	PoC score on the 'Usability and Inclusiveness' criteria of PoC Evaluation	Economic	4.2	eReuse provides a unique value proposition for Product Owners, such as City Councils or companies, to responsibly donate their e-waste. The go-to-market strategy should include Product Owners as end users and the revenue model should increase monetary contributions from Product Owners to accelerate traceability.[104]

[102] Franquesa, D. (2021). Email communication. 23 February.
[103] Franquesa, D. (2021). eReuse Proof-of-Concept Submission.
[104] Ibid.

5.6 CiSe

Challenge Area

This challenge area - 'Shared Mobility' - was co-led by the Greater London Authority and London Legacy Development Cooperation.

The initial focus of this challenge was on how decentralisation could better facilitate multimodal eMobility solutions that combine multiple public and private transport and infrastructure providers, while incentivising a shift to low-carbon modes of transport. Additionally, DLT-based solutions offer end users (i.e. citizens) secure and private payment and identification verification functions - two key barriers to scaling current eMobility options. [105]

Additionally, a shift to models based on servitisation - where the function of the product is sold instead of the product itself and the product ownership remains with the manufacturer - incentivises the extension of product life cycles. This new model motivates manufacturers to maintain and repair products to get more value out of it.[106]

Throughout the DLT4EU programme, CiSe has collaborated with the London Legacy, managers of the Queen Elizabeth Olympic Park in East London, to explore opportunities offered by decentralisation. Initially, the Proof-of-Concept - an integrated payment and identification solution - was to be tested in the Olympic Park with the public bike rental scheme.[107] However, the travel bans caused by the COVID-19 pandemic prevented an in-person pilot. Instead, CiSe found Mobeazy, a local Dutch mobility provider to collaborate with to progress the technical development of the PoC. [108]

The Proof-of-Concept

Overall, CiSe offers service providers a decentralised infrastructure for pay-per-use business models, and end users a privacy preserving means of identification to access the service. This solution includes micropayments and instant payment splitting, automatic execution and enforcement of contracts, and GDPR compliance for eMobility providers.[109]

CiSe identified a key user story to develop the PoC, where the user - Annais - needs an eScooter to go to a meeting. The CiSe solution enables Annais to find and register for the use of the

[105] Kuipers, H. (2021). CiSe Proof-of-Concept Submission.
[106] de Estarrona. U.M.,Seneviratne, D., Villarejo, R.,Galar, D. (2019). 'The New Asset Management: Implications of Servitization in Circular Economy'. Journal of Industrial Engineering and Management Science, Vol. 1, 109–120.
[107] MacNeil, A., Corbin, L. and Higueras, A. (2020). Progress Report, p.22-23.
[108] Kuipers, H. (2020). Venture Acceleration Action Plan. September.
[109] Kuipers, H. (2021). CiSe Proof-of-Concept Submission.

scooter, and then verify her identity, and preload a digital wallet for payment. The wallet enables for micropayments based on usage. During the pilot testing, CiSe was able to test real transactions, where a live bank account was integrated with the digital wallet.[110]

Figure 6: CiSe PoC Impact Compass

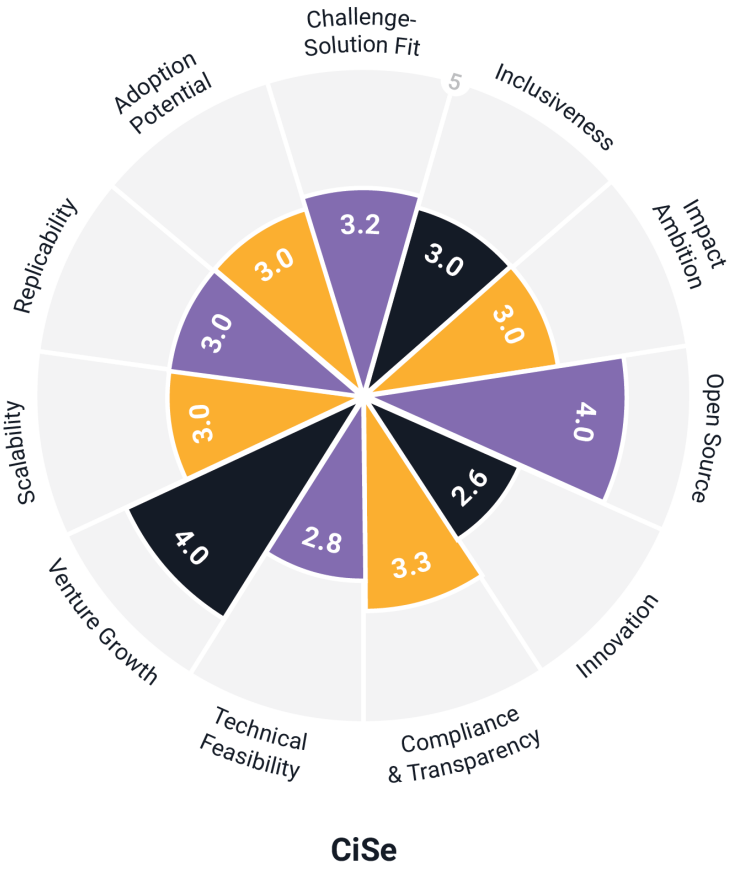


Table 9: CiSe PoC Impact Assessment

Venture-Level Impact Assessment					
Category	**Objective**	**KPI**	**Impact Area**	**Score**	**Evidence**
Challenge-Solution Fit	The PoC provides a	PoC score on the 'Challenge-	Social	3.2	CiSe offers cities a new way of mobility, providing

[110] Kuipers, H. (2020). 'Barcelona Online Bootcamp Presentation'.

	highly relevant solution fit to the challenge identified by the challenge owner.	Solution Fit' criteria of PoC Evaluation			an accessible and more sustainable alternative, using a pay-per-use model. At the same time, the DLT solution provides users, such as citizens, to ensure security and privacy friendly onboarding solutions. [111]
Inclusiveness	The Venture Team engages with a highly diverse set of beneficiaries and end-users throughout app development.	Venture Teams have considered and engaged with the individual needs of a diverse range of end-users, including issues of gender, disability, language, background, and nationality.	Social	3.0	Although CiSe has not had the opportunity to test the technology at the Queen Elizabeth Olympic park due to the travel ban, CiSe has successfully tested the solution with Mobeazy and Skopei, two Dutch eMobility companies.[112] CiSe also has been engaged with different stakeholders and identified key learning opportunities.
Impact Ambition	Venture teams expand their impact by connecting to SDGs.	Quality of SDGs and / or impact targets cited in PoC Submission	Social Environmental	3.0	No SDGs have been indicated. However, the intended impacts include reducing emissions and air pollution, increasing public health for citizens, and creating an inclusive society.[113]
Open Source	Venture team widely shares its innovation, innovation is readily	PoC score on the 'Open Source' criteria of PoC Evaluation	Knowledge	4.0	The CiSe infrastructure has been developed at the Rabobank Innovation Department. As getting the permission to open source the code takes a long time,

[111] Kuipers, H. (2021). CiSe Proof-of-Concept Submission.
[112] Kuipers, H. (2020). Venture Acceleration Action Plan. October.
[113] Kuipers, H. (2021). CiSe Proof-of-Concept Submission.

	scalable and replicable by others.				the infrastructure is not open sourced yet. However, CiSe intends to publish the open source code under the Apache 2.0 license.[114] The Identity Data functionality is however available under the Apache 2.0 license. The Github repository consists of the Universal Ledger Agent and the toolkit to generate Verifiable Presentations and Verifiable Credentials easily.[115]
Innovation	New knowledge is generated / advanced regarding the application of DLT for public sector contexts.	PoC score on the 'Innovation' criteria of PoC Evaluation	Knowledge	2.6	CiSe provides ease of administration, authentication, and payment of transport services which could be used by both public and private e-mobility companies while ensuring security for the users. The decentralised infrastructure also provides a new solution for the GLA. [116]
Compliance and Transparency	Venture teams and their PoCs are transparent and accountable	PoC score on the 'Compliance and Transparency' criteria of PoC Evaluation	Knowledge Social	3.3	While creating the wallet, CiSe has the GDPR in-mind, designing a function that helps citizens share information safely. CiSe addressed GDPR Article 17 - the right to be forgotten.[117]

[114] Ibid.
[115] Ibid.
[116] Ibid.
[117] Kuipers, H. (2021). DLT4EU Research Interview. 29 Jan.

					Some topics are currently under research such as the impossibility of deleting events on blockchain, solutions like dynamic references, and privacy preserving techniques. [118]
Technical Feasibility	Venture team advances their technology through the programme.	PoC score on the 'Technical Feasibility' criteria of PoC Evaluation	Economic Knowledge	2.8	CiSe has achieved TRL6, however, did not meet its expectation of achieving TRL7. This was due to the difficulty in carrying out full tests in London with the Challenge Owner.[119]
Venture Growth	The DLT4EU programme supports the growth of the venture team / business	Quality of strategic roadmap	Economic	4.0	Although the travel ban made it difficult to have a test bed in the Olympic Park, CiSe has successfully collaborated with Mobeazy and Skopei, two Dutch eMobility companies, to test the solution. The partnership with the GLA will be continued after the DLT4EU and conduct testing when the travel ban has been lifted. Testing will be the main focus of CiSe before finding investments and building the Beta-service and organisation.[120]
Scalability	Venture teams	PoC score on the 'Commercial	Economic	3.0	In order to scale the PoC, testing, investment, and

[118] Kuipers, H. (2021). CiSe Proof-of-Concept Submission.
[119] Ibid.
[120] Kuipers, H. (2021). DLT4EU Research Interview. 29 Jan.

	develop a highly scalable PoC	Feasibility and Scalability' criteria of PoC Evaluation			building Beta-service and organisation are deemed as important by CiSe. As the technology develops, CiSe wants to undertake more marketing activities and secure funding to attract more partners.[121]
Replicability	Venture teams develop a highly replicable PoC	Extent to which the Venture Team has identified and addressed the barriers to PoC replication	Economic Knowledge	3.0	Besides the travel ban and the difficulty to find a testbed, the working governance has been one of the challenges that CiSe faced. This is due to CiSe being founded by four different organisations. CiSe has looked into practical arrangements that can help them through the startup phase, which is mostly R&D.[122]
Adoption Potential	Venture teams produce a PoC with high adoption potential	PoC score on the 'Usability and Inclusiveness' criteria of PoC Evaluation	Economic	3.0	The CiSe infrastructure is built to be applicable for other use cases. For instance, smart contracts and payment integration allows profit and non-profit organisations to work together.[123] The CiSe infrastructure can be used to offer a great variety of equipment as a

[121] Kuipers, H. (2021). CiSe Proof-of-Concept Submission.
[122] Kuipers, H. (2020). Venture Acceleration Action Plan. October.
[123] Ibid.

					service and not only e-mobility equipment.[124]

5.7 AID:Tech

Challenge Area

This challenge area - 'Data Sovereignty for All Citizens - was led by the City of Helsingborg in Sweden. The initial focus of this challenge was to explore solutions to better enable citizens to own, share, and control their personal data in a secure way, as well as to help citizens 'port' their data from one city service to another. By doing so, one key benefit is to lower the barriers to access health and social services by vulnerable or marginalised communities.[125]

This challenge was also set against the backdrop of European efforts and legislation on personal data - such as GDPR (General Data Protection Regulation), eIDAS (electronic IDentification, Authentication and trust Services), the development of EBSI (European Blockchain Services Infrastructure), and ESSIF (European Self-Sovereign Identity Framework).[126] Initially, AID:Tech proposed a PoC that would empower users to decide what to do with their data including: who to share it with, complete control over access, potential to "loan" their data, and use their Decentralised Digital Identity as a verified credential to access government and local services including welfare and healthcare. AID:Tech is committed to the Sustainable Development Goal 16.9 where all citizens should have legal and digital identity. [127]

This proposal was re-scoped with the City as an API solution for the already-existing local citizen application - Mitt Helsingborg - that could be integrated with their digital wallet for citizen personal data - whether that is pension, financial, or health information. Together, AID:Tech and the City identified that "privacy, security and convenience" were the most important factors for end users of the application. [128]

The Proof-of-Concept

AID:Tech successfully built an API for the Mitt Helsingborg application, which enables simple, accessible, and personal interactions between the city and its inhabitants.[129]

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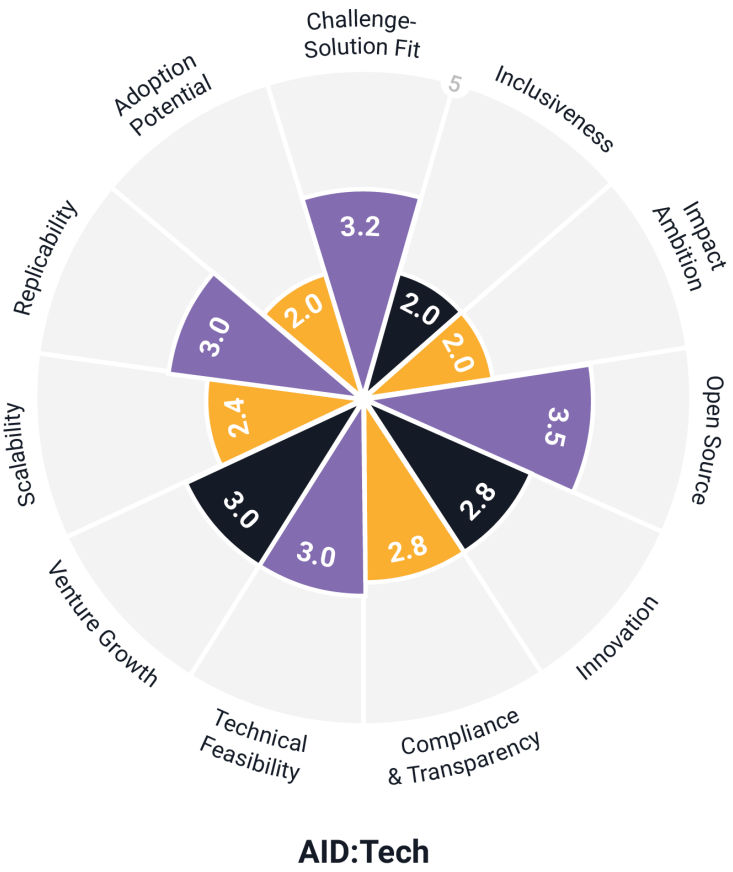
[124] Ibid.
[125] MacNeil, A., Corbin, L. and Higueras, A. (2020). Progress Report, p. 18-19.
[126] Ibid.
[127] Thomson, J. (2021). AID:Tech Proof-of-Concept Submission.
[128] Ibid.
[129] 'Mitt Helsingborg', [https://hbg.works/det-gor-hbg-works/produkter/mitt-helsingborg/], accessed 18 February 2021.

The City of Helsingborg identified four potential use cases for the API; they were:

1. The automatic saving of user data when a request / application is submitted, and then helping the user read information about how and where their data is saved from their device;
2. Recommendation of additional services for the user based on past data submissions, and the functionality of being able to quickly sign-up to or book the suggested service;
3. Anonymous data sharing functionality with the City to then use for predictive analytics;
4. Specific choice functionality around data sharing.

Unfortunately due to delays in prioritising a leading use case, AID:Tech was not able to fully integrate their API around a specific use case.[130]

Figure 6: AID:Tech PoC Impact Compass



[130] Thomson, J. (2021). AID:Tech Proof-of-Concept Submission.

Table 10: AID:Tech PoC Impact Assessment

Venture-Level Impact Assessment					
Category	**Objective**	**KPI**	**Impact Area**	**Score**	**Evidence**
Challenge-Solution Fit	The PoC provides a highly relevant solution fit to the challenge identified by the challenge owner.	PoC score on the 'Challenge-Solution Fit' criteria of PoC Evaluation	Social	3.2	Data sovereignty for citizens has been increasingly demanded by governmental institutions to allow citizens to own and control their own data. AID:Tech provides a DLT - solution for verifying digital identity that focuses on privacy, security, and convenience.[131]
Inclusiveness	The Venture Team engages with a highly diverse set of beneficiaries and end-users throughout app development.	Venture Teams have considered and engaged with the individual needs of a diverse range of end-users, including issues of gender, disability, language, background, and nationality.	Social	2.0	Due to redefined use cases, AID:Tech has not been working closely with the end users/beneficiaries nor adapting the solution to the users' needs. They worked with the Challenge Owner for the API development.[132]
Impact Ambition	Venture teams expand their impact by connecting to SDGs.	Quality of SDGs and / or impact targets cited in PoC Submission	Social Environmental	2.0	SDG 16.9 Peace, Justice, and Strong Institutions. The Venture Team cited an indirect impact target for the City to reach 60,000 users with the Mitt Helsingborg platform.[133]

[131] Thompson, J. (2021). AID:Tech Proof-of-Concept Submission.
[132] Thompson, J. (2021). DLT4EU Research Interview. 19 Jan.
[133] Thompson, J. (2021). AID:Tech Proof-of-Concept Submission.

Open Source	Venture team widely shares its innovation, innovation is readily scalable and replicable by others.	PoC score on the 'Open Source' criteria of PoC Evaluation	Knowledge	3.5	Although AID:Tech open sourced its code using the MIT License, they haven't had the chance to fully integrate the API they built for the Challenge Owner due to time & technical resource constraints.[134]
Innovation	New knowledge is generated / advanced regarding the application of DLT for public sector contexts.	PoC score on the 'Innovation' criteria of PoC Evaluation	Knowledge	2.8	AID:Tech has integrated multiple technologies such as DLT, machine learning, and verifiable credentials, which have not been commonly deployed by developers due to its complexity. The PoC aims to show that digital identity could prevent citizens from falling into the poverty trap by providing access to public services. [135]
Compliance and Transparency	Venture teams and their PoCs are transparent and accountable	PoC score on the 'Compliance and Transparency' criteria of PoC Evaluation	Knowledge Social	2.8	AID:Tech acts as a 'data processor' and not a data compiler. They have agreed to comply with the national Swedish data and regulatory guidelines with the City of Helsingborg, and therefore have been GDPR-compliant[136].
Technical Feasibility	Venture team advances their technology	PoC score on the 'Technical Feasibility' criteria of PoC Evaluation	Economic Knowledge	3.0	AID:Tech has achieved TRL5. The technology has been continuously progressed, however, the

[134] Thompson, J. (2021). DLT4EU Research Interview. 19 Jan.
[135] Thompson, J. (2021). AID:Tech Proof-of-Concept Submission.
[136] Ibid.

	through the programme.				Venture Team was unable to develop it with the Challenge Owner due to a redefined use case that changed throughout the program. [137]
Venture Growth	The DLT4EU programme supports the growth of the venture team / business	Quality of strategic roadmap	Economic	3.0	Potential different use cases to pilot the technology could include several public services, such as welfare, health, child support, education, and city planning. [138] Working with a city government has helped AID:Tech to secure Series A investment from an Asian sovereign wealth fund as well as investors in Silicon Valley.[139]
Scalability	Venture teams develop a highly scalable PoC	PoC score on the 'Commercial Feasibility and Scalability' criteria of PoC Evaluation	Economic	2.4	As there has been no final agreed defined use case for AID:Tech to pilot their technology, potential public services to scale the PoC include welfare, health, child support, education, and city planning. Several barriers to scale the PoC have been identified, such as regulatory barriers. However, working with a city government provides AID:Tech the advantage to

[137] Ibid.
[138] Thompson, J. (2020). 'Barcelona Online Bootcamp Presentation.'
[139] Thompson, J. (2020). DLT4EU Research Interview. 19 Jan.

					understand and mitigate them.[140]
Replicability	Venture teams develop a highly replicable PoC	Extent to which the Venture Team has identified and addressed the barriers to PoC replication	Economic Knowledge	3.0	Working with the City has provided AID:Tech the advantage to understand and manage the regulatory and legal issues.[141]
Adoption Potential	Venture teams produce a PoC with high adoption potential	PoC score on the 'Usability and Inclusiveness' criteria of PoC Evaluation	Economic	2.0	Due to regulatory barriers, AID:Tech has not interacted with any end users and without a use case, AID:Tech has not had the chance to pilot their PoC in an operational environment. The Challenge Owner has a group of test users to validate the app, before it goes live. However, the Venture Team still firmly believes that owning and controlling one's own data is highly needed in the EU.[142]

5.8 DisCO

Challenge Area

This Challenge Area - 'Citizen-Powered Circular Textiles' - was co-led by Waag Society and the City of Amsterdam. The initial focus of this challenge was to explore solutions to facilitate a

[140] Thompson, J. (2021). AID:Tech Proof-of-Concept Submission.
[141] Thompson, J. (2021). DLT4EU Research Interview. 19 Jan.
[142] Thompson, J. (2021). AID:Tech Proof-of-Concept Submission.

more circular, transparent and inclusive textiles sector for both citizens and businesses - a key pillar of the City of Amsterdam's new circular strategy. Every year, in Amsterdam alone, 14,000 tonnes of textiles are discarded, making it a sector of high-opportunity for circular solutions.[143]

In particular, the City of Amsterdam is exploring ways to extend producer responsibility, create higher levels of recycled content in products, and more dynamic methods for monitoring supply chains. With the Waag Society the City is already working to develop REFLOW OS: a decentralised, cryptographically secure network, that enables economic exchanges among actors and the tracking and tracing of materials.[144]

As part of DLT4EU, the opportunity was to expand the current REFLOW OS design and develop new modules to enable citizen-lead textile cycling and exchange as part of the City's 'Citizen Involvement Campaign'.[145] Initially, the Venture Team DisCO proposed the co-development of a governance model to ensure the fair distribution of value to those contributing to the challenge area - such as thrift stores, citizens, makerspaces, and the challenge owners - as well as software tools to make these contributions visible as a complement to the REFLOW OS module.[146]

However, through a series of user engagement sessions it became clear that a new governance model for textiles within Amsterdam wasn't the appropriate solution for the challenge. Instead it became evident that the city and its communities required a means for more effectively collecting and redistributing second-hand textiles in a way that incentivised increased citizen participation. DisCO moved from the initial idea of a governance model to producing an algorithmic system for quantifying community-generated value. The pilot was then scoped to be tested in Waag's Textile Lab, where a target user group and the challenge owners could test the solution together.[147] Unfortunately, the local situation with the COVID-19 pandemic prevented an in-person pilot. Instead, in order to carry out the Proof-of-Concept development and pilot, DisCO brought in the Valueflows teams - teams of DisCO who have enough understanding of the REFLOW project to facilitate a virtual PoC ideation and development process.

The Proof-of-Concept

With the involvement of the Valueflows team, user research identified three key friction points for the citizens of Amsterdam to participate in a circular textile system: first, that often the citizens do not know how to nor are incentivised to recycle their textile waste; secondly, existing textile recycling infrastructure in Amsterdam does not prioritize effective recovery and reuse; third that there is a lack of trust by citizens in the current system. This PoC therefore focused on

[143] Foster, L. (2021). DisCO Proof-of-Concept Submission.
[144] 'Enabling a Citizen-Powered Circular Textiles Sector', DLT4EU website, [https://www.dlt4.eu/enabling-a-citizenpowered-circular-textiles-sector] , Accessed 29 September 2020.
[145] MacNeil, A., Corbin, L. and Higueras, A. (2020). Progress Report, p.17.
[146] Ibid. p.18.
[147] Troncoso, S (2020). VFL Introduction for DisCO, DLT4EU Public Launch Event, [https://www.dlt4.eu/public-launch-event] , Accessed 29 September 2020.

building out the citizen involvement and engagement feature for REFLOW OS, as part of the City's 'Citizen Involvement Campaign'. This feature "provides practical logistical help, rewards, and educational material to encourage citizens to recycle textiles more frequently and more correctly". [148]

The PoC achieved this by first providing a configuration application that enables administrators of EveryCycle to quantify the value of textile categories for the tokenisation element - this function is important for attributing different valuations to donations. Second, the PoC provides an interactive map showing drop-off sites and local businesses who can accept donations, to help citizens to donate. Finally, a donation receipt function that supports workers to record textiles received. [149]

End users of the EveryCycle solution could be citizens who want to recycle or donate their used textiles, second-hand and charity shops who want to resell textiles, citizens wanting to buy second-hand textiles from independent shops, the City government, NGOs, and neighbourhood areas who have on-the-ground initiatives and involvement in developing the necessary physical and software infrastructure.[150]

Importantly, the use of a DLT enables the trusted coordination of participants in the material value flow - from citizens, to independent local shops, and organisations. Multiple build outs of the PoC were also identified by the Venture Team using DLT, including a token system for citizens to be rewarded for their circular behaviour and redeemed at local stores. This could act as an incentive to increase the recycling rate while at the same time enabling spillover value into the local economy.[151]

[148] Foster, L. (2021). DisCO Proof-of-Concept Submission.
[149] Foster, L. (2021). DLT4EU Final Live Pitch. 12 February.
[150] Ibid.
[151] Foster, L. (2021). DisCO Proof-of-Concept Submission.

Figure 8: DisCO PoC Impact Compass

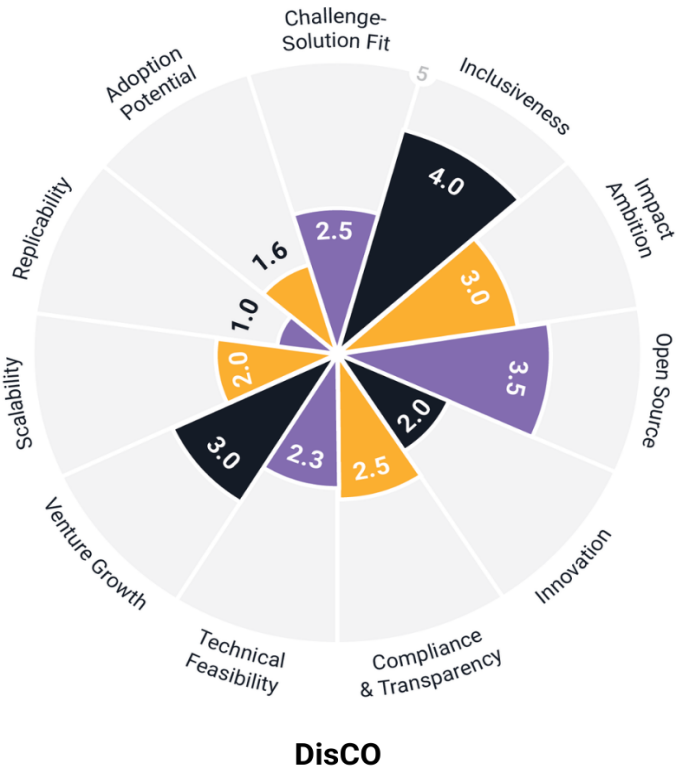


Table 11: DisCO PoC Impact Assessment

Venture-Level Impact Assessment					
Category	**Objective**	**KPI**	**Impact Area**	**Score**	**Evidence**
Challenge-Solution Fit	The PoC provides a highly relevant solution fit to the challenge identified by the challenge owner.	PoC score on the 'Challenge- Solution Fit' criteria of PoC Evaluation	Social	2.5	Textiles have become one of the most polluting industries in the world. This Venture Team aims to improve the textiles recycling system in Amsterdam as it has been proven to

					be highly linear and untransparent.[152]
Inclusiveness	The Venture Team engages with a highly diverse set of beneficiaries and end-users throughout app development.	Venture Teams have considered and engaged with the individual needs of a diverse range of end-users, including issues of gender, disability, language, background, and nationality.	Social	4.0	The Venture Team has consulted their users (WAAG, citizens, municipalities, etc.) in understanding their needs. This helped them in creating the user story and identifying parts of the codebase that can be used in other use cases. [153]
Impact Ambition	Venture teams expand their impact by connecting to SDGs.	Quality of SDGs and / or impact targets cited in PoC Submission	Social Environmental	3.0	SDG 11) Sustainable Cities and Communities; SDG 12) Sustainable Production and Consumption. Other impact targets include increasing citizen engagement and the recycling rate in Amsterdam.[154]
Open Source	Venture team widely shares its innovation, innovation is readily scalable and	PoC score on the 'Open Source' criteria of PoC Evaluation	Knowledge	3.5	Publishing all codes has been a standard practice for the Venture Team from the beginning of every project. All codes are licensed under APGL 3.0.[155]

[152] Foster, L. (2021). DisCO Proof-of-Concept Submission.
[153] Foster, L. (2020). Monthly Venture Acceleration Action Plan. 9 December.
[154] Foster, L. (2021). DisCO Proof-of-Concept Submission.
[155] Ibid.

	replicable by others.				
Innovation	New knowledge is generated / advanced regarding the application of DLT for public sector contexts.	PoC score on the 'Innovation' criteria of PoC Evaluation	Knowledge	2.0	The PoC helps Amsterdam to operate within the planetary boundaries as suggested by the doughnut economic model. It also supports the REFLOW project in accelerating the circular economy. The decentralisation and token system boosts the local economy. In addition to these, the PoC became a part of the Valueflows ecosystem. [156]
Compliance and Transparency	Venture teams and their PoCs are transparent and accountable	PoC score on the 'Compliance and Transparency' criteria of PoC Evaluation	Knowledge Social	2.5	The Venture Team has complied with the GDPR in their technical implementation.[157]
Technical Feasibility	Venture team advances their technology through the programme.	PoC score on the 'Technical Feasibility' criteria of PoC Evaluation	Economic Knowledge	2.3	The technical development is provided below: 1. The backend software, part of Bonfire, has achieved TRL7; 2. The UI of the citizen donation

[156] Ibid.

[157] Foster, L. (2021). DisCO Proof-of-Concept Submission.

					system has achieved TRL3; 3. The transfer of tokens to citizens has achieved TRL1-2. Although the team would have liked to achieve TRL7 for a citizen donation application, they have met the minimal demonstrable user interface.[158]
Venture Growth	The DLT4EU programme supports the growth of the venture team / business	Quality of strategic roadmap	Economic	4	The connection with the REFLOW project has immensely progressed the PoC. The collaboration has led to new connections to more partners such as WAAG. The Venture Team is planning to continue the PoC after the DLT4EU programme. [159]
Scalability	Venture teams develop a highly scalable PoC	PoC score on the 'Technical Feasibility' criteria of PoC Evaluation	Economic	2.0	The Venture Team aims to collaborate with strategic partners that could provide a bigger user group who could benefit from open source economic software. [160]

[158] Ibid.
[159] Foster, L. (2021). DLT4EU Research Interview. 20 January.
[160] Foster, L. (2021). DisCO Proof-of-Concept Submission.

Replicability	Venture teams develop a highly replicable PoC	Extent to which the Venture Team has identified and addressed the barriers to PoC replication	Economic Knowledge	1.0	The Venture Team has not clearly identified any barriers to replicate the PoC.
Adoption Potential	Venture teams produce a PoC with high adoption potential	PoC score on the 'Usability and Inclusiveness' criteria of PoC Evaluation	Economic	1.6	The Venture Team has not had the chance to test the PoC with end users or in any operational environment. Although several parts of the PoC are still in progress, the Venture Team aims to test it with users and iterate the design of the PoC after DLT4EU.[161]

[161] Ibid.

Appendix 1: Likert-Scale Scoring Rubric

Venture-Level Impact Assessment			
Category	**Objective**	**KPI**	**Likert Scale Measurement**
Challenge-Solution Fit	The PoC provides a highly relevant solution fit to the challenge identified by the challenge owner.	PoC score on the 'Challenge - Solution Fit' criteria of PoC Evaluation	See D4.1[162]
Inclusiveness	The Venture Team engages with a highly diverse set of beneficiaries and end-users throughout app development.	Venture Teams have considered and engaged with the individual needs of a diverse range of end-users, including issues of gender, disability, language, background, and nationality.	0: Not demonstrated. 1: The Venture Team explains how they have considered a diverse set of beneficiaries and end-users. 2: The Venture Team explains how they have considered a diverse set of beneficiaries and end-users but did not involve or consult them throughout the app development. 3: The Venture Team explains how they have considered a diverse set of beneficiaries and end-users and consulted for feedback, but does not necessarily include them in the app development. 4: The Venture Team explains how they have considered and engaged a set of beneficiaries and end-users and consulted for feedback. The Venture Team explains how they have incorporated the beneficiaries' input throughout the app development. 5: The Venture Team clearly explains how they have engaged with the

[162] MacNeil, A., (2020). 'DLT4EU Evaluation Criteria'.

			individual needs of a diverse range of end-users and incorporated a wider set of beneficiaries. How they have incorporated user feedback into the PoC development is clearly demonstrated.
Impact Ambition	Venture teams expand their impact by connecting to SDGs.	Quality of SDGs and / or impact targets cited in PoC Submission	0: Not demonstrated at all 1: The Venture Team has cited impact targets and / or SDGs but not explained how the PoC will achieve them. 2: The Venture Team has cited impact targets and / or SDGs but gives a poor explanation of how the PoC will achieve them. 3: The Venture Team has provided impact targets and / or SDGs and how the PoC will achieve them is well explained. 4: The Venture Team has provided a high-quality explanation of their intended impact with the PoC as well as quantified this impact against the SDGs and / or relevant impact targets. 5: The Venture Team has provided a high-quality explanation of their intended impact with the PoC as well as quantified this impact against the SDGs and / or relevant impact targets. The PoC Submission also explains how the pilot has already achieved some or all of these targets.
Open Source	Venture team widely shares its innovation, innovation is readily scalable	PoC score on the 'Open Source' criteria of PoC Evaluation	See D4.1[163]

[163] Ibid.

	and replicable by others.		
Innovation	New knowledge is generated / advanced regarding the application of DLT for public sector contexts.	PoC score on the 'Innovation' criteria of PoC Evaluation	See D4.1[164]
Compliance and Transparency	Venture teams and their PoCs are transparent and accountable	PoC score on the 'Compliance and Transparency' criteria of PoC Evaluation	See D4.1[165]
Technical Feasibility	Venture team advances their technology through the program.	PoC score on the 'Technical Feasibility' criteria of PoC Evaluation	See D4.1[166]
Venture Growth	The DLT4EU program supports the growth of the venture team / business	Quality of strategic roadmap	0: Not demonstrated at all. 1: The Venture Team's explanation of their strategic roadmap is poor and inconsistent. The explanation may not have sufficiently addressed key barriers to market adoption. 2: The Venture Team somewhat provides explanation and evidence of their strategic roadmap for the market entry of the PoC, but some information might be missing.

[164] Ibid.
[165] Ibid.
[166] Ibid.

			3: The Venture Team provides explanation and evidence of their strategic roadmap for the market entry of the PoC. Some key barriers are explained but a plan to mitigate them is not well articulated. 4: The Venture Team provides explanation and evidence of their strategic roadmap for the market entry of the PoC. The explanation also covers key barriers to market adoption and the plan to mitigate them. 5: The Venture Team provides an explanation beyond their strategic roadmap. The Venture Team explains additional information such as revenue projections, user growth rate, etc. that support the commercial feasibility of the PoC. The roadmap also considers the different routes to scaling their PoC, including the different improvement phases that will be developed.
Scalability	Venture teams develop a highly scalable PoC	PoC score on the 'Commercial Feasibility and Scalability' criteria of PoC Evaluation	See D4.1[167]
Replicability	Venture teams develop a highly replicable PoC	Extent to which the Venture Team has identified and addressed the barriers to PoC replication	0: Not demonstrated at all 1: The Venture Team mentions the barriers in replicating the PoC but did not provide any explanation how they have mitigated them nor how they will mitigate them in the future. 2: The Venture Team mentions the barriers in replicating the PoC and somewhat explains how they identified

[167] Ibid.

			them. But do not provide an explanation of how they have tried to mitigate them now or potential future barriers. 3: The Venture Team mentions the barriers in replicating the PoC and explains how they identified them. They provide an explanation of how they have tried to mitigate these barriers and possible future barriers. 4: The Venture Team mentions the barriers in replicating the PoC and provided a good explanation how they have mitigated them. The Venture Team has also been able to identify possible future barriers to replication. The Venture Team shows an understanding of the relative impact of different types of barriers (i.e. legal and regulatory versus organisational and cultural). 5: The Venture Team provides a clear, thorough explanation of how they identified and mitigated barriers in replicating the PoC. The Venture Team also provides a clear, thorough explanation of how they identified and plan to mitigate future barriers to replication. The Venture Team shows a very good understanding of the relative impact of different types of barriers (i.e. legal and regulatory versus organisational and cultural).