DLT4EU

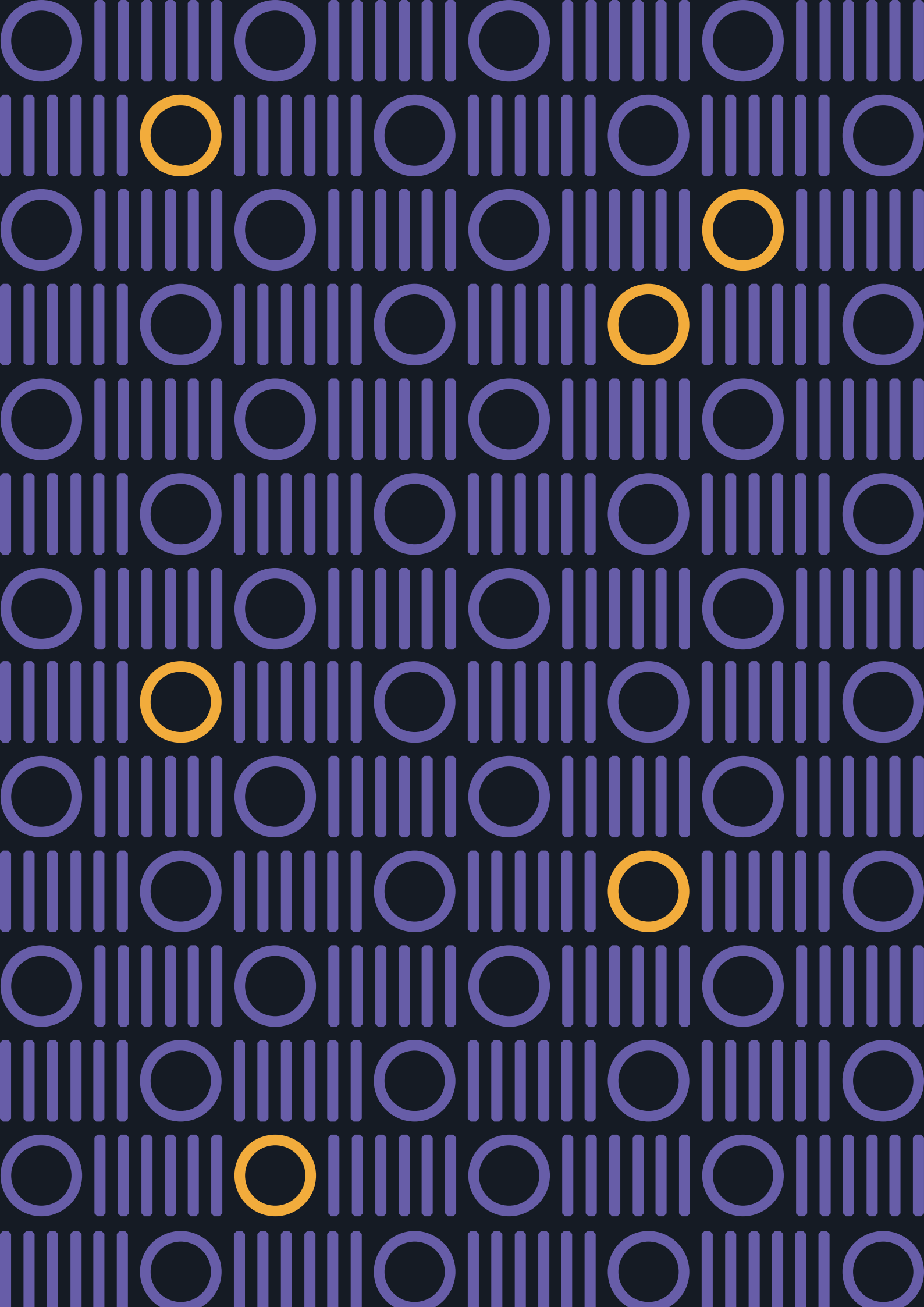
DLT4EU FINAL REPORT EXECUTIVE SUMMARY

Accelerating Early-Stage Innovation for Public and Social Good

IDEAS FOR CHANGE

CATAPULT Digital

METABOLIC INSTITUTE



INTRODUCTION TO THE DLT4EU PROGRAM

DLT4EU aims to stimulate the development of cutting-edge Distributed Ledger Technologies (DLTs) that address pressing social and environmental challenges and drive positive change for the public good. The programme has received funding from the European Commission under grant agreement no. LC-01349961.

The core objective of DLT4EU is to connect the expertise and resources of leading DLT entrepreneurs and developers with the real-world, unmet opportunities and challenges of public and social sector beneficiaries including: governmental, public, third sector, and civil society organisations. DLT4EU also addresses the desire of the EU to build scalable, efficient, and high-impact ventures that support the development, expansion, and use of cutting-edge DLT applications for social and public good.

Consortium partners - Metabolic Institute (NL), Digital Catapult (UK), and Ideas for Change (ES) - implement a European-wide incubation programme built upon the 'Virtual Field Lab' (VFL) concept of bringing together DLT developers alongside challenge owners, to create proof-of-concept prototypes. The selected candidates, referred to as the venture teams, develop their applications within a VFL — a virtual environment for DLT experimentation in response to an appropriate real world challenge. Each VFL has a 'challenge owner' who scopes, guides, and defines the problem, alongside a network of mentors and experts. These challenge owners are 13 public and social sector organisations.

The VFLs of DLT4EU are developed in response to two overarching high-impact sectors:

1. **Circular Economy:** A new economic model that is regenerative and waste-free by design -one in which resources are fairly distributed without undermining the functioning of the biosphere or crossing any planetary boundaries.
2. **Digital Citizenship:** The application of digital technologies to better facilitate and engage citizens in public decision-making, service improvement, and social impact initiatives. This can be at a local, municipal, or national-level.

The curated acceleration programme, co-designed and delivered by the partner consortium, cross-cuts each VFL with a taught programme covering DLT technical expertise, business model development, legal guidance and open source licensing, impact-driven investment, UX / UI design, and impact assessment.

Outcomes of the programme include:

- Eight proof-of-concepts in the form of functional prototypes that demonstrate the value and utility of DLTs in the public good sector. These proof-of-concepts (PoCs) are assessed by an independent evaluation jury, with three applications awarded follow-on funding.
- A vibrant and sustainable ecosystem of DLT for public and social good across the EU supported by an extended ecosystem of developers, beneficiaries, advisors, and investors.

To mark the end of the DLT4EU Programme, the final report answers the following questions:

- Why are programmes like DLT4EU needed for experimentation with Distributed Ledger Technologies (DLTs) in the public and social sectors?
- What is the Virtual Field Lab (VFL) model and why is it important for early-stage innovation with DLTs in the public and social sectors?
- How can we progress the experimentation and adoption of DLTs in the public and social sectors?
- How can an impactful accelerator be designed, implemented, assessed, and scaled?

By sharing the outcomes, best practice, and lessons-learned of DLT4EU, this report offers practical insight into how experimentation and adoption of DLTs in the public and social sectors can occur across Europe. It also acts as a 'playbook' for organisations interested in developing their own acceleration programme for emerging technologies using the Virtual Field Lab model. Lastly, it provides guidance for future participants of similar programmes -in particular venture teams and public sector challenge owners, and the DLT ecosystem more broadly.

KEY INSIGHTS OF THIS REPORT

Through the design, delivery, and assessment of the DLT4EU Programme, the following key insights were identified:

Early-stage experimentation with new digital technologies **requires deep engagement** from relevant stakeholders as well as **innovation structures** that are **agile, human-centric,** and do not preference a technocratic approach.

An **ecosystem-based innovation model** is an effective approach to early-stage innovation with DLTs - this is because early experimentation with DLTs requires a diverse set of beneficiaries and stakeholders to be engaged throughout the innovation process, with an **'independent orchestrator'** curating a de-risked programme of learning, training, network access, and piloting.

The Virtual Field Lab (VFL), is a key cornerstone of an ecosystem-approach: the VFL model is an effective model to make sense of and experiment with new digital technologies, while lowering the pre-identified barriers to experimentation. Importantly, the VFL model also helps to build **grassroots change** within organisations around DLT experimentation and use.

Pan-European collaboration is key to the experimentation and adoption of DLT applications. In particular, the European Commission has a critical role to play in laying the structural conditions for early-stage innovation and de-risking of these activities, via market-shaping, financing, and providing network access.

The **public and social sectors** have an **important and active role to play** in experimentation and adoption of emerging digital technologies more broadly, and much earlier in the innovation process than organisations may be used to.

It is key that the next iteration of DLT4EU moves away from the short-term accelerator model that mirrors the cyclical boom or bust of tech-driven solutions and towards a **long-term resilient innovation ecosystem.**

We imagine VFLs in every city in the EU incubating solutions to real-world challenges through placed-based prototyping. These VFLs are connected by a Pan-EU ecosystem of experts who can guide the development of meaningful DLT applications and transfer lessons learned by open sourcing successful solutions.

The following **conditions are important** for the continued successful experimentation and adoption of DLTs in the public and social sectors:

- **Frictionless, equity-free financing options** that are suitable in size and type for non-traditional business models;
- **Open, de-risked innovation environments** for active collaboration, such as the VFL model;
- A **structural approach to DLT education** and understanding in the public and social sectors that builds innovation capabilities within organisations.

And finally, while DLT4EU transitioned to a completely virtual programme due to the COVID-19 pandemic and generated positive impacts for participants, early-stage innovation still **requires in-person engagement.**[1]

[1] See Putri, A., MacNeil. A., and Singh, A., 'D7.2 DLT4EU Proof-of-Concepts Assessment Reports', (February, 2021), and Putri, A., MacNeil. A., Singh, A., and Corbin. L., 'D7.3 DLT4EU Final Programme Assessment, (May, 2021) for a complete impact assessment of DLT4EU.

THE DLT4EU CONSORTIUM

The DLT4EU programme was led by a consortium consisting of the Metabolic Institute (NL), Ideas for Change (ES), and the Digital Catapult (UK). The consortium partners are leaders within the fields of DLTs, social innovation, and venture development. To deliver the programme, the consortium brought together a strong, multidisciplinary team with proven expertise in the fields of blockchain and other DLTs, incubation and acceleration of emerging technology-based solutions, digital social innovation, and social impact investment from three strategic European geographies.

Figure 1: The DLT4EU Consortium

Metabolic Institute

The Metabolic Institute is a think tank working at the intersection of academic research and real-world experimentation, building collective intelligence around pressing global challenges - connecting society, policy, industry, and academia with knowledge and tools to navigate towards a sustainable future. The Institute is part of the Metabolic ecosystem, which has capabilities in creating circular economy strategies, venture development under systemic entrepreneurship, and software development to produce the necessary tooling for both public and private organisations to manage their transition. As well as providing expertise on the Circular Economy, the Metabolic Institute was the Project Coordinator for DLT4EU, managed the DLT4EU accelerator, facilitated the evaluation of the proof-of-concepts, and executed the impact assessment of the programme and its VFLs.

Ideas for Change

Ideas for Change is a strategy and research agency that works in the fields of digital social innovation, business and venture development, and co-creation. Through close collaboration, Ideas for Change has enabled partners and clients within the public sector (national governments, international policy groups, and NGOs), and civic sector (citizen-lead urban organisations, national societal campaigns, and international social innovation agencies) to transition towards business models that are more socially contributive and publicly accessible while sustaining competitiveness and a strong position in their markets. Additional to their expertise on Digital Citizenship, Ideas for Change led the communication and dissemination activities for DLT4EU, including the DLT4EU Final Event. Ideas for Change also hosted the last online bootcamp of the accelerator, which focused on storytelling and pitching skills.

The Digital Catapult

The Digital Catapult is a leading agency for the early-adoption of advanced digital technologies, with strong relationships with leading edge startups and high-growth potential companies that shape the future of the EU digital economy. By acting as the interface between the public and private sectors - where real-world challenges can be identified and validated - and the DLT field - where DLT innovations can be developed and deployed - the Catapult ensures DLT innovations go beyond the hype and become robust products and services that meet the demands and needs of their beneficiaries. As well as their expertise in Distributed Ledger Technologies, the Digital Catapult led the initial design of the accelerator and ran the open call. The mid-term bootcamp was also hosted online by the Digital Catapult, which focused on DLT technical development.

KEY COMPONENTS OF THE DLT4EU ACCELERATOR

Distributed Innovation

A key starting point in the design of DLT4EU was the belief that high-potential innovators located anywhere in Europe should be able to build a world-leading business without having to relocate. While most accelerators are located in one location, a single location can significantly drive up operational costs and represent a challenging cost-benefit for venture teams who are better suited to stay closer to their core development team and/or intended market.

DLT4EU therefore aimed to facilitate a distributed accelerator model wherein consortium partners, accelerator participants, mentors, and the wider DLT4EU ecosystem connect online and offline. To do so, originally, the accelerator programme was to have three main nodes: Amsterdam, Barcelona, and London, to be each led by a consortium partner. The original structure of the accelerator was for each partner to host a major bootcamp and external event in-person, at intervals across the accelerator. However, due to the ongoing COVID-19 pandemic, the DLT4EU consortium agreed early-on to move the accelerator fully online.

In addition to this distributed innovation, the ecosystem - or community - around the VFL is also critical. This is because creating DLTs for public good is not just a technical challenge - it is a highly complex space that requires a diverse set of experts. Through this networked innovation and building an ecosystem of experts around the VFLs, the barriers and uncertainties inherent within DLT development are reduced.

Challenge Areas and Challenge Owners

To ensure that the DLT applications developed within DLT4EU directly addressed common challenges felt by the public and social sectors across Europe, the end beneficiaries were established as a core role within the accelerator: the challenge owner.

Challenge owners were cornerstone actors within the DLT4EU accelerator and played the important hybrid role of mentors, early-adopters, and market testers. Throughout the accelerator, each challenge owner acted as lead beneficiary of their respective proof-of-concept (PoC): providing the venture team close connectivity and insight into the real-world challenge and requirements the PoC needed to meet and progress.

Over the course of three months in advance of the launch of the accelerator in July 2020, the DLT4EU consortium identified potential challenge owners and worked closely with them to scope a challenge area. Potential challenge areas were identified through the initial research the DLT4EU consortium carried out on the two high-impact sectors of the Circular Economy and Digital Citizenship. In parallel, a shortlist of challenge owners was developed by drawing on the networks of each consortium partner to identify public and social sector organisations who presented challenges that could be solved by DLT applications. Each challenge area set out specific and common problems faced by the public sector. These challenge areas also set out a list of potential opportunities for DLT applications.

The Virtual Field Lab (VFL)

The DLT4EU accelerator programme was built upon the 'Virtual Field Lab' (VFL) model of bringing together DLT developers (Venture Teams) alongside challenge owners from the public sector, to create and trial proof-of-concept (PoC) prototypes in real-world scenarios over the course of a six-month accelerator.

Challenge owners scoped, guided, and defined the challenge area that selected venture teams applied to solve. Venture teams were sourced through an open call process wherein DLT developers were first evaluated by an evaluation committee and then shortlisted for final selection by the challenge owner.

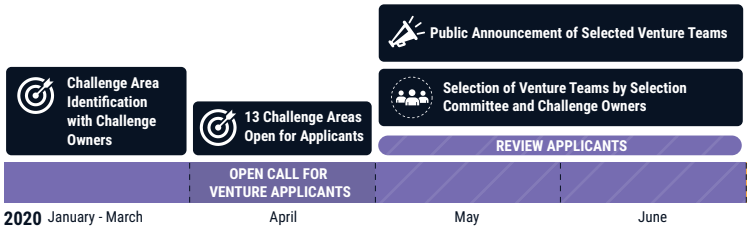


Figure 2:
The DLT4EU Programme Timeline

Through the VFL model, venture teams and challenge owners collaborated closely on the co-development of their proof-of-concept, including a pilot phase where the challenge owner provided the real-world environment for testing and end users to provide feedback. Importantly, the VFL provided a forum where public sector actors could contribute their expertise and insight directly to the DLT organisations - who rarely get hands-on, experienced input from public sector actors. This close collaboration provides the venture teams with input and validation from end beneficiaries and users of DLTs with a potential for a 'first customer' while the challenge owners also benefitted from the direct access to DLT providers without need for procurement.

The VFL model also acts as a vehicle for knowledge sharing and capacity building for both venture teams and challenge owners. The model encourages long-term relationships and engagement between DLT developers and end beneficiaries. Additionally, the challenge owner organisations also benefitted from building internal capabilities in leading innovation approaches and learning new collaboration-based models.

Curated Accelerator Programme

An important characteristic of the accelerator was that capacity building and knowledge transfer were foreseen as a continuous activity. A curated accelerator programme was provided for each VFL to benefit from specialist mentors and masterclasses on specific topic areas relevant to the PoC development - known as 'tracks.' The main tracks were:

- Public Sector Innovation
- Innovative Finance
- Open Source Licensing
- Value-Sensitive Design (UX / UI)
- The Pentagrowth Methodology
- Business Models and Strategy
- European Union and Public Funding
- EU Law and Regulation
- DLT Governance
- Storytelling and Pitching
- DLT Technical Development
- Impact Monitoring and Assessment

The proof-of-concept (PoC)

As a result of the programme, venture teams developed proof-of-concepts - in the form of functional prototypes - that demonstrate the value of DLTs in the public sector. The purpose of the proof-of-concept was to act as a showcase to broader beneficiaries, to increase engagement in the public and social sectors with this transformative technology, and to contribute to an EU-wide discourse regarding the application of DLT technology for public and social good across the EU. Importantly, a key requirement of entrance to the programme was for the DLT source code from each PoC to be released under an Open Source License of the venture teams' choosing.

At the end of the accelerator, all eight proof-of-concepts were assessed by an independent DLT4EU evaluation jury with three applications awarded follow-on funding to further develop their PoCs. The evaluation jury consisted of five jurors bringing expertise in public sector innovation, technical DLT development and application, impact-driven investment, and UX / UI design to assess each PoC submission.

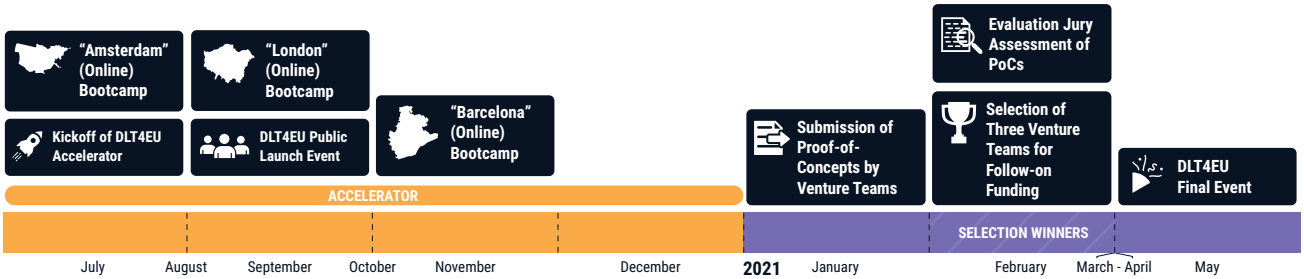
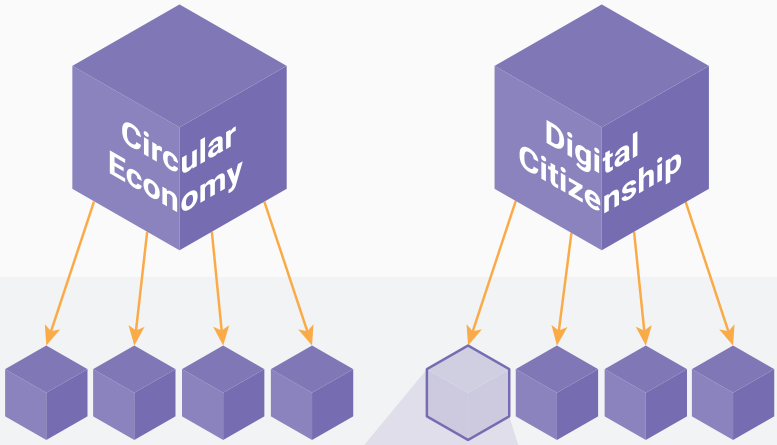


Figure 3

THE VIRTUAL FIELD LAB (VFL) MODEL

High Impact Sectors

Two Sectors



Virtual Field Labs

Virtual Field Labs by sector in key challenge areas

Virtual Field Labs

Zoom in

Multiple participants exploring common sub-challenge

- Challenge Owner
- Venture Team
- Policy and/or Regulator
- Mentors (DLT technology, business innovation, legal, digital social innovation)
- Social impact investor
- VFL Coach

Multiple proof-of-concept applications being prototyped per Virtual Field Lab

- Proof-of-Concept A
- Proof-of-Concept B

Programme

Across Virtual Field Labs network

Definition · Facilitation · Insights · Dissemination

Core tracks of the programme:

- Public Sector Innovation
- Innovative Finance
- Open Source Licensing
- Value-Sensitive Design (UX / UI)
- The Pentagrowth Methodology
- Business Models and Strategy
- European Union and Public Funding
- EU Law and Regulation
- DLT Governance
- Storytelling and Pitching
- DLT Technical Development
- Impact Monitoring and Assessment

Collaborative Tools and Methods

Check-ins, agile sprints, Miro, Zoom, Google Drive etc.

THE DLT4EU PLAYBOOK

The DLT4EU Playbook has been designed for anyone who would like to implement a similar innovation programme to DLT4EU. To this end, the Playbook provides an overview of each component of DLT4EU, best practices, and lessons learnt through this experience. This table shows a summary of the DLT4EU Playbook. Please refer to the DLT4EU Final Report for a detailed overview of the DLT4EU Playbook.[2]

SECTION 1

How to design an agile accelerator programme

An overview of how the DLT4EU consortium designed an agile accelerator programme. The phases taken to design the accelerator are explained, including: challenge area identification, challenge owner recruitment, challenge area validation, identification of accelerator objectives, identification and validation of accelerator tracks. The DLT4EU core tracks are also outlined.

SECTION 2

How to design and run a successful open call

An overview of the open call process, including: recruitment of high-quality applicants and creating the Venture Outreach Plan, as well as the criteria, assessment, and process for selecting applicants.

SECTION 3

How to implement a successful Virtual Field Lab (VFL)

An overview of how the Virtual Field Lab model was implemented in the accelerator, including: the daily workings of Challenge Owners, the work flow of venture teams, and a practical how-to guide for translating the VLF model from concept to effective, agile operational structure.

SECTION 4

How to implement an agile accelerator programme

An overview of how the DLT4EU consortium adopted a human-centred approach to ensuring an agile accelerator programme, including: the key components of the DLT4EU accelerator as well as how to incorporate emerging needs and build a diverse network of experts.

SECTION 5

How to build an effective communications ecosystem

An overview of the communication strategy that was adopted throughout the programme. As the DLT4EU accelerator was conducted fully online due to the COVID-19 pandemic, the communication strategy shows how the team has created a strategy that adapted to this change. Examples of the design identity are also provided.

SECTION 6

How to ensure an impactful programme

An overview of how the DLT4EU programme sought to ensure an impact-first approach, including: how PoCs, venture teams, and the programme were assessed as well as the evaluation criteria and impact framework developed by the consortium.

SECTION 7

Governance and management for consortia-based innovation programmes

An overview of how to run an effective governance and management model for consortia-based programmes, including: how to adopt an objective 'orchestrator' role and key operational tasks for delivering an agile and adaptive programme.

[2] MacNeil, A., Corbin, L., Learney, R., Baisle, P., Higueras, A., Putri, A., Hyde, I., Ramirez, A. (2021) 'D6.4 DLT4EU Final Report'.

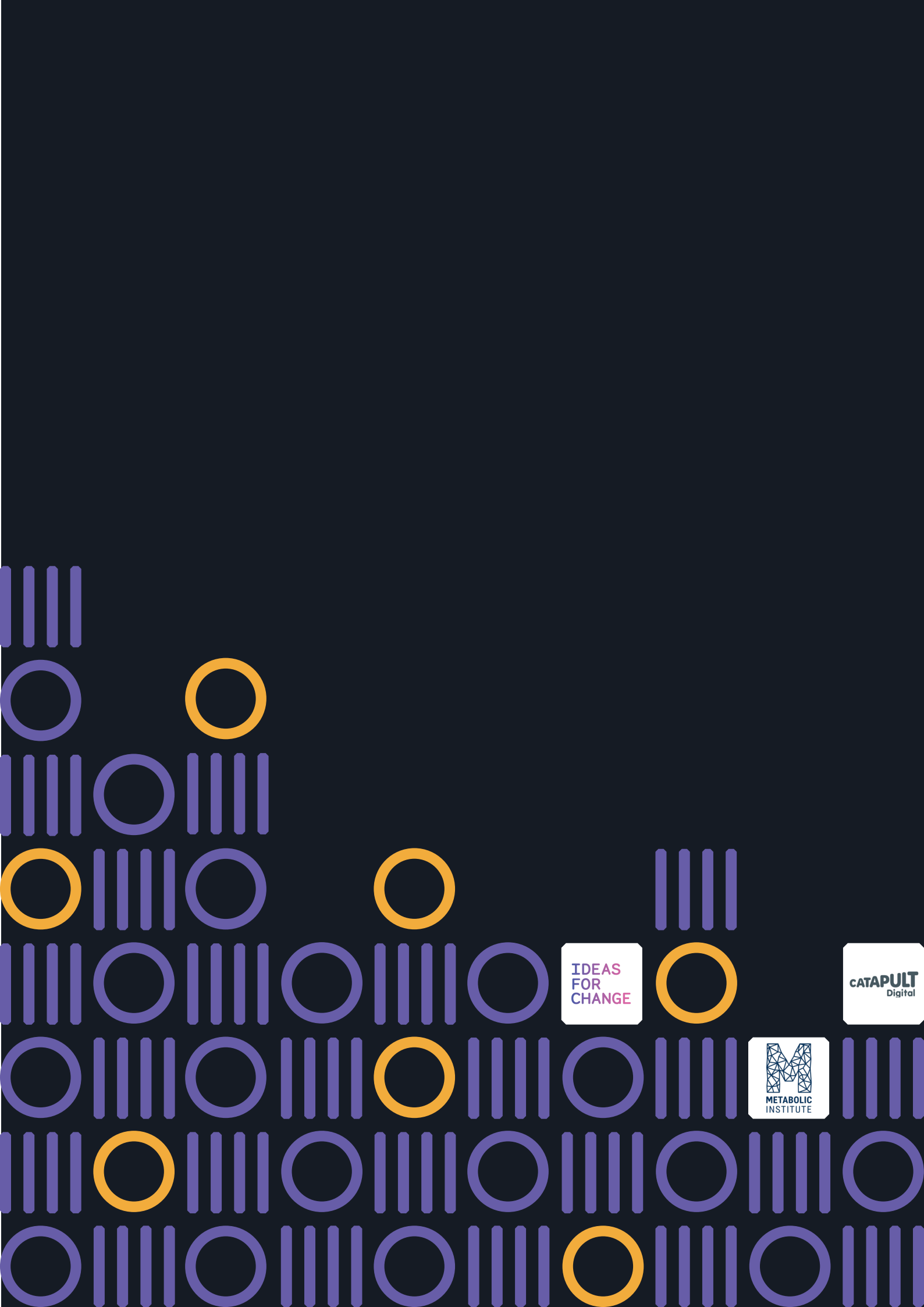
LESSONS LEARNT AND BEST PRACTICES

LESSONS LEARNT

- An **agile and human-centric design approach** meant creating an adaptive programme for the emerging needs of the cohort, balanced with a core set of tracks that had been pre-identified through research and consultation.
- It was important and powerful to design DLT4EU as a **collaborative accelerator** that built on prior and existing innovation programmes such as **LEDGER, Blockchain4EU, and the Odyssey Hackathon**, instead of competing for their participants.
- **Running an open call is not a passive process**. It is key to have a plan to reach and attract as many relevant candidates as possible. On the other hand, open calls are powerful tools to raise the profile of a programme, and its topics and objectives. In that spirit, we built a strategy to proactively build a list of companies and partners we wanted to be aware of to maximise the communications around the programme and ensure a good response to the call.
- **Preparation time for the challenge owners needed to be much longer** so that they could align people and resources internally and measure the level of commitment required to make it a success. The time between the open call and the start of the accelerator needs to be chosen carefully as the selection of venture teams by the challenge owners requires substantial facilitation and expectation setting. More preparation time would also help the challenge owners choose and define the right use case to provide the venture teams, with the support of the consortium partners who can feedback and advise thanks to their expertise, and knowledge of the venture teams.
- **Building and engaging an ecosystem is complex when exploring areas where there is not yet enough narrative developed**. This necessarily entails added work to unravel appropriate messages that appeal to the right audiences, as well as defining what are the key stories and channels for relevant topics.
- Both **formal and informal feedback mechanisms** to learn about what the VFL truly needed was critical. Often, the venture teams in particular struggled to identify what they really needed, and so it became critical for connections to mentors or resources to be made quickly and effectively.
- One of the key benefits of a consortium-based approach is that each partner can bring **specialist knowledge and expertise** to the accelerator programme, and importantly draw on their respective networks to facilitate the development of the ecosystem.

BEST PRACTICES

- Implementation of an **ecosystem-based model** which started with the core tracks to identify the required subject matter experts. Key to this ecosystem was to ensure a balance in the ecosystem between theoretical and practical expertise that the VFLs could draw on.
- The **venture scouting** strategy was created with lead generation in mind, and in turn, had the target to increase the number of applications to the programme. The consortium conducted a series of introduction calls to take the identified and/or validated leads through the programme objectives and to directly send them the application form for the open call. This proved to be a successful method of attracting talent to the programme.
- Carry out an **ecosystem mapping** early in the programme to allow for sufficient embedding of knowledge and relationships. As part of this, it is key to identify the different roles of the ecosystem - from mentors to advisors and knowledge partners. Update this **ecosystem map** as new stakeholders are engaged and brought into the ecosystem, and as new needs, barriers, and challenges are identified.
- Give permission to be **adaptive and emergent**: not everything needs to be planned out and in-place in advance. Set lead times that are agile, but de-risk the delivery. A well-curated ecosystem will be able to respond to accelerator programme needs when they emerge.
- Being able to understand and communicate DLTs to **a non-technical audience was key**, since the testing and success of these innovative solutions must appeal not only to the sector that develops them, but mainly to public and social sector organizations, with potential challenge owners that are often unfamiliar with the terminology.
- **Serendipity is also ok**: Given the nature and focus of the DLT4EU programme, generating and measuring impact needs to be balanced with common sense too - leaving room for impact tracking that doesn't strictly fall into the set criteria can also provide positive evidence of success. This mindset also ensures that qualitative aspects of the evaluation are put in perspective alongside the quantitative data.
- **The VFL coach was a cornerstone role** for the functioning of each VFL. This role was undertaken by a named person from one of the consortium partners and was heavily involved in establishing clear rules of collaboration and engagement within the VFL, common points of contact and communication, advising on subject matter areas, and mediation of emergent issues and risks. The journey of the VFL and development of the proof-of-concept became a process that the consortium not only helped to facilitate, but was actively involved in.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