



decode

D5.8



**DECODE Developers
Conference: Opening up the
DECODE App and tools to
third party developers and
entrepreneurs.**





Project no. 732546

DECODE

DEcentralised Citizens Owned Data Ecosystem

D5.8 DECODE Developers Conference: Opening up the DECODE App and tools to third party developers and entrepreneurs.

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PP	Restricted to other programme participants (including the Commission Services)	
RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

Approved by: Francesca Bria (DECODE Project Coordinator)

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This report is currently awaiting approval from the EC and cannot be not considered to be a final version.

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Introduction

This deliverable summarizes the efforts made in the last six months of DECODE, in order to enable and accelerate the adoption of the technological output of the project, from third party developers and users. The approach used included:

- Creating landing pages for the major individual components that would include:
 - o A marketing-like product description
 - o All links needed for developers to quickly get hands-on the source code
 - o Contact section for extended support and chat box
 - o Newsletter registration forms
- Setup workshops at the DECODE Symposium 2019 where:
 - o DECODE developers would explain the technology, while been recorded
 - o Key third-party developers who adopted DECODE technologies would present their developer experience, goals and expectations
- Devise a post-DECODE plan to generate awareness of the components and the pilots, gather feedback on the implementation and user-requirements and help translating the pilots to market-ready products.

Websites

Several websites and landing pages have been developed and placed online on different servers, based on these facts and considerations:

- There has been discussions regarding the future of current <https://decodeproject.eu> website, created, hosted and maintained by Nesta and built on the content management system (CMS) “Drupal”:
 - o For the time being, the site would require 3-4 maintenance intervention per year, therefore, the maintenance plan and the cost associated with it should be addressed.
 - o DYNE is willing to keep the site alive, after the end of the project, bearing the cost on its own, but its unwilling to host a Drupal based website on any of its servers for security reasons.

Therefore, DYNE has kindly offered to “render” the current <https://decodeproject.eu> to a “static version”, basically creating a frozen, HTML based cache of the website out of the CMS and host it on one of its internet servers for a period of at least three years, which has found the agreement of the coordination and Nesta as the owner of the copyright of the website. The rendering to HTML and the future hosting of the website will be executed outside the DECODE project planning, DYNE will be bearing the costs and will not be held liable for any issues, malfunctioning or off-line time that might occur. Furthermore:

- DYNE has knowledge of the CMS “Drupal” and has developed a website for its Zenroom component, that can be visited at <https://zenroom.org>
- DYNE has put online a new virtual private server (VPS) purposely aimed at hosting WordPress based.

Based on this situation, DYNE recommended any further web development effort to be performed on a new WordPress based website, which luckily found again the agreement of the coordination and Nesta. DYNE then offered to re-use for the upcoming website(s) and landing pages the “look and feel” designed and developed for the website <https://zenroom.org>. After careful consideration did Nesta, who originally designed the “look and feel” of the digital stationery, the infographics, the logos along with the <https://decodeproject.eu> website and its content, recommend creating a website with “look and feel” appearing coherent with the rest of the project’s design and offered to help develop a new WordPress based website.

The result is a joint effort of a team at Nesta, DRIBIA, EURECAT and a team at DYNE, the first result was a landing page collecting the main technical output of the project, hosted on DYNE’s new VPS: <http://tools.decodeproject.eu/>. DYNE has kindly offered to keep this new website alive and maintained for a period of minimum three years, along with offering minor progressive improvements, based on the recurring feedback and needs expected on DECODE’s technology, after the end of the project. Keeping the site alive will be outside the scope of DECODE Project, financed entirely by DYNE which won’t be held liable for any malfunctioning or off-line time.

The webpages built are aimed to help developers explore, understand and extend the key components developed within the project, and therefore include:

- A description of the purpose, target and feature of the component
- A technical description of the component
- Link to the component’s source code on github
- Link to a demo and/or to a build and/or the published app
- Link to technical resources
- (Planned) Link to commercial support offered to developers

DECODE Components

The owner of this task, Dyne.org has chosen to devise a dissemination strategy that puts forward individual software components. Generally speaking, most of the software produced in the project, appears to be sufficiently well written, maintainable and easy to extend, according to the current state-of-the-art best industrial best practices. Many of software components have been individually tested enough to reach a technology readiness level of 6 to 8¹, and have been tested in the pilots, whose inherent technologically complexity and whose legal sensitivity will still require more testing, before they can be put into full production.

Most of the pilots (All the Barcelona pilots as well as the “18+” Amsterdam’s pilot) have been architecturally designed and developed with modularity and extensibility in mind, running on top of a handful of general-purpose software components, namely:

- Zenroom
- DECODE-OS
- Zenbridge
- DECODE App
- BCNNow dashboard

The output of the project includes a rich, modular, general-purpose, open-source software stack, that easily can be embedded and re-used by third party developers in applications that have little or no connection to the pilots performed in the project, industry and target users.

At the end of the project we can confidently say that the size of the target group of the DECODE technical components, made mainly of third-party developers, constitutes a larger audience than the target of the pilots. We think this constitute a success of the project, since it shows its potential to move beyond the existing use-cases and to involve different type of users and clients in the future.

The DECODE pilots have been successfully targeted to public administrations, municipalities and bottom-up communities of citizens and entrepreneurs, while the software components have been targeted to at a broader audience of software developers, SMEs and industry- both individuals or companies of any size. We believe this enable the project to reach a very strong impact, both at policy level and with existing use cases, and with third party developers and the external industrial ecosystem.

In the context of this deliverable, we will mainly focus on the technical dissemination of the DECODE’s software components and the engagement of the developers’ communities beyond the project’s existing pilots that are documented in D5.9 and D5.7.

¹ Using EC TRL scale, page 21: https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2016-2017/annexes/h2020-wp1617-annex-ga_en.pdf

Components' landing pages

Below a description of the landing pages developed for the purpose of disseminating the individual components.

tools.decodeproject.eu

This website <http://tools.decodeproject.eu/> has been developed by Nesta and deployed by DYNE one of its servers. It is the main project's landing website to discover all the tools developed and how they have been tested in real action with a large community of users.

It was developed using Elementor as "builder" like <https://zenroom.org> and a similar set of plugins is installed on the website. The "look and feel" designed and developed for it has been re-used in the *DECODE app* and the *BCNNow dashboard* landing pages. A screenshot from the website:

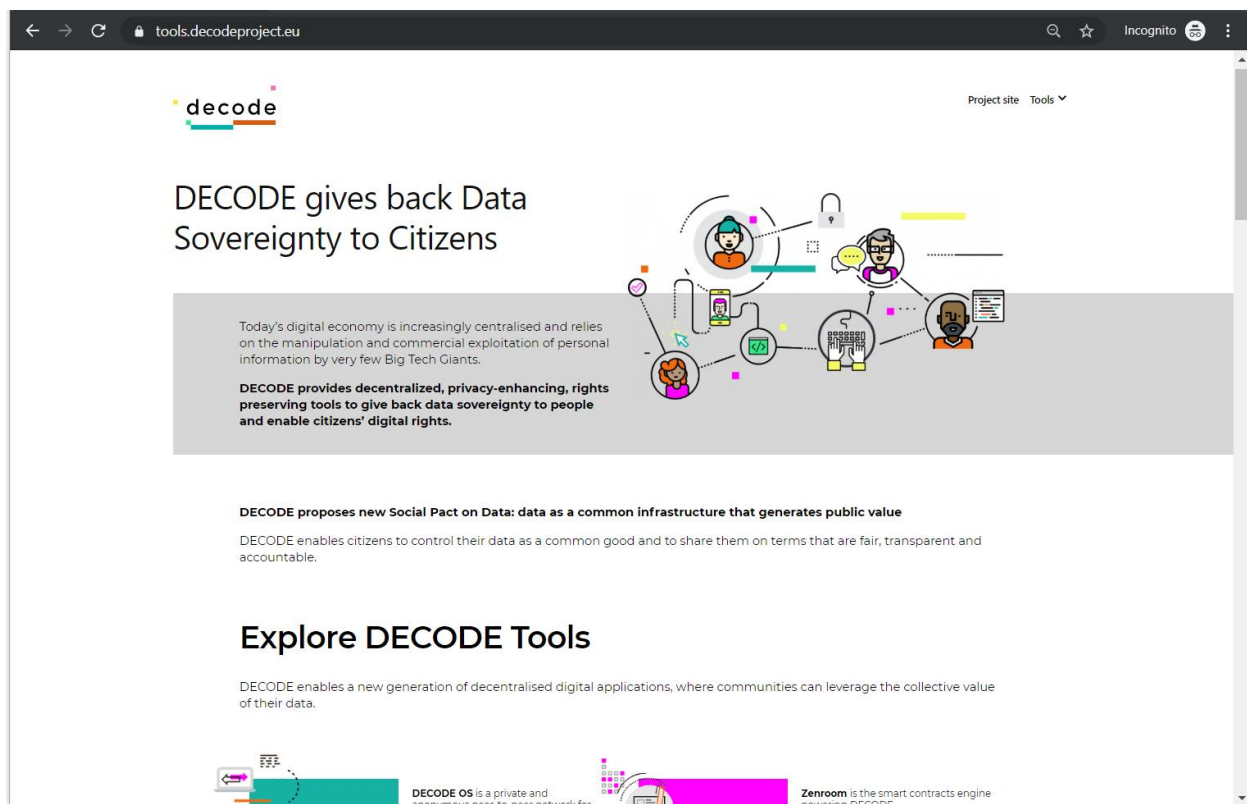


Figure 1: DECODE Tools homepage, [https:// tools.decodeproject.eu](https://tools.decodeproject.eu)

Zenroom

The <https://zenroom.org> website was developed and deployed by DYNE, to disseminate the Zenroom VM (described in D3.10²) on one of its VPS, using some infographics authored by Nesta, it consists currently of a single landing although a landing page for Zenbridge is already in the make. This is a screenshot of the page:

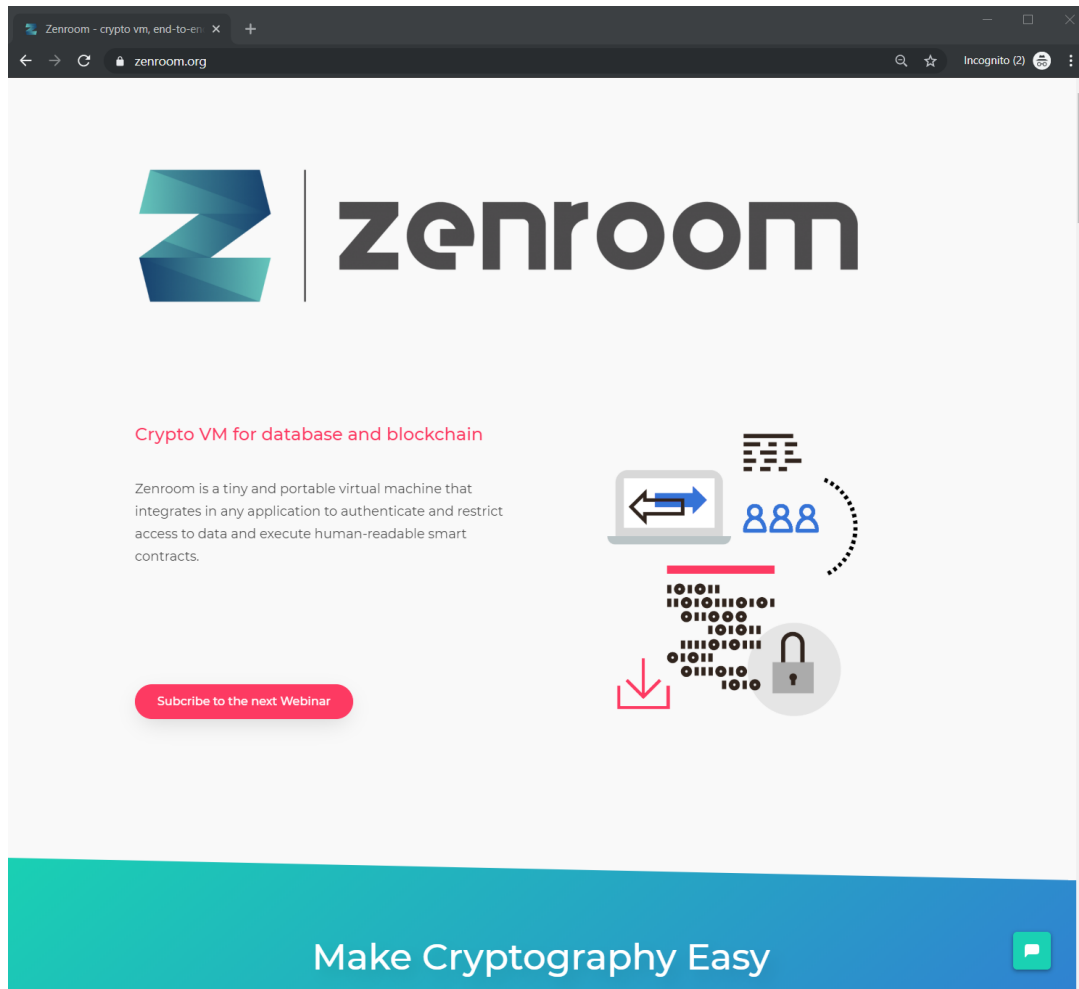


Figure 2: Zenroom's homepage, <https://zenroom.org>

The main plugins used in the website are:

- *Elementor*: this is the “builder”, a core component on the website, that allows for real-time front-end what-you-see-is-what-you-get (WYSIWYG) editing
- *Yoast SEO*: providing sitemaps, SEO scoring, integration with search engines and traffic analysis integration
- *Drift*: real-time interactive chat box
- *The Newsletter plugin*: this component allows visitors to subscribe to newsletters and the webmaster to send targeted newsletter from the dashboard of the website, in full compliance with GDPR

² D3.10 "Implementation of Blockchain platform and ABC in DECODE pilots" <https://decodeproject.eu/file/586/download>
H2020-ICT-2016-1

- *EU Cookie law*: provides a footer prompting the user to accept the websites privacy policy, fully compliant with GDPR

A screenshot of the website's dashboard:

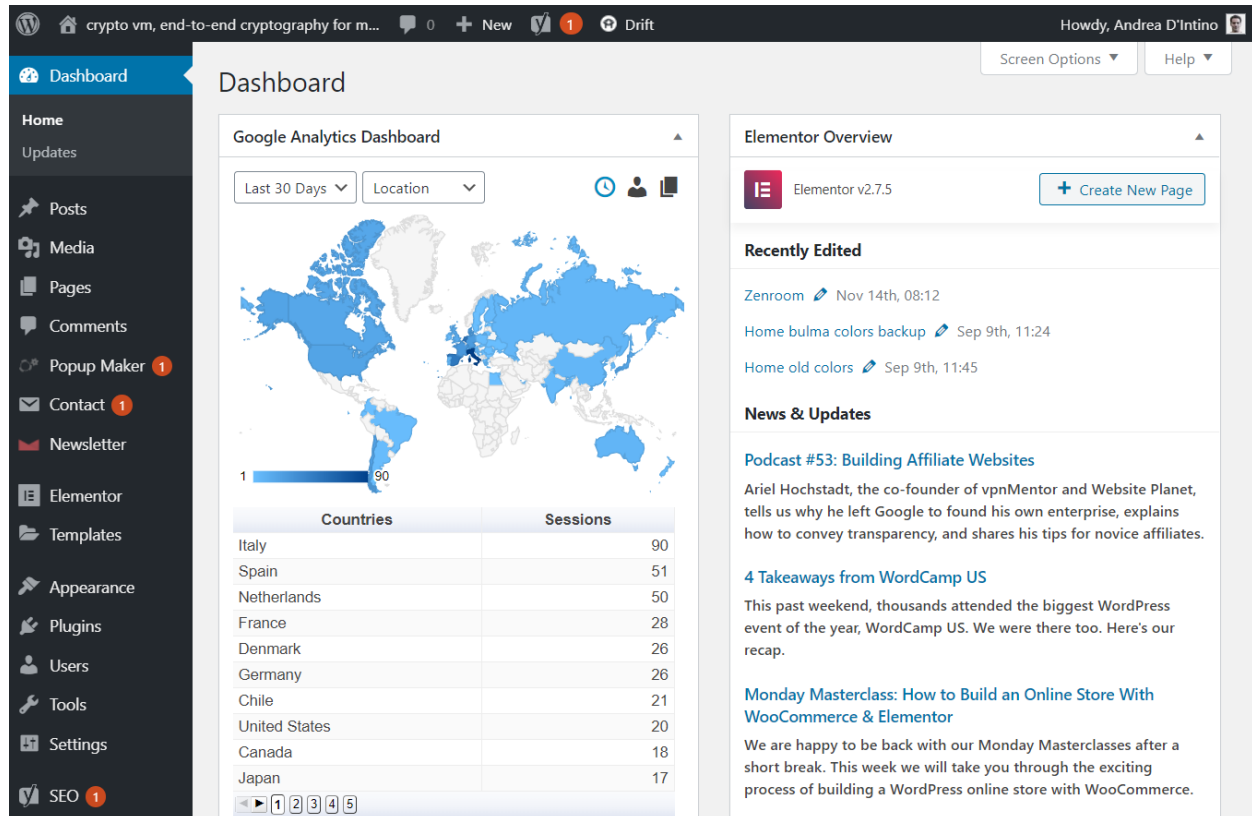


Figure 3: zenroom.org WordPress dashboard

DECODE App and BCNNow dashboard pages

Two more landing pages have been built, based on a copy of the <http://tools.decodeproject.eu/> for two key components used in the Barcelona pilots, documented in D5.6³ and D4.14⁴:

- 1) The <http://app.decodeproject.eu/> page, copywriting and infographics authored by DYNE. and DRIBIA. The copywriting was produced based on the principles:
 - a. It focuses on the advanced authentication features offered by app, along with its modularity and extendibility,
 - b. It targets primarily an audience of mobile developers, familiar with *JavaScript* and *React Native* technologies
 - c. It targets developers looking for an open-source multiplatform mobile app to provide secure and private authentication to a 3rd party back-end platform, that can be easily and efficiently extended and maintained

³ D5.6 “Deployments of pilots in Barcelona”: <https://decodeproject.eu/file/385/download>

⁴ D4.14 “Final DECODE app release”: <https://decodeproject.eu/file/670/download>

The page is being actively developed, and before the end of the projects further additions are planned:

- A newsletter signup button
- A real-time chat box
- Embedding the video recorded at the workshop for developers at the DECODE Symposium 2019
- Adding a box offering commercial support for third party developers

A screenshot on the page:

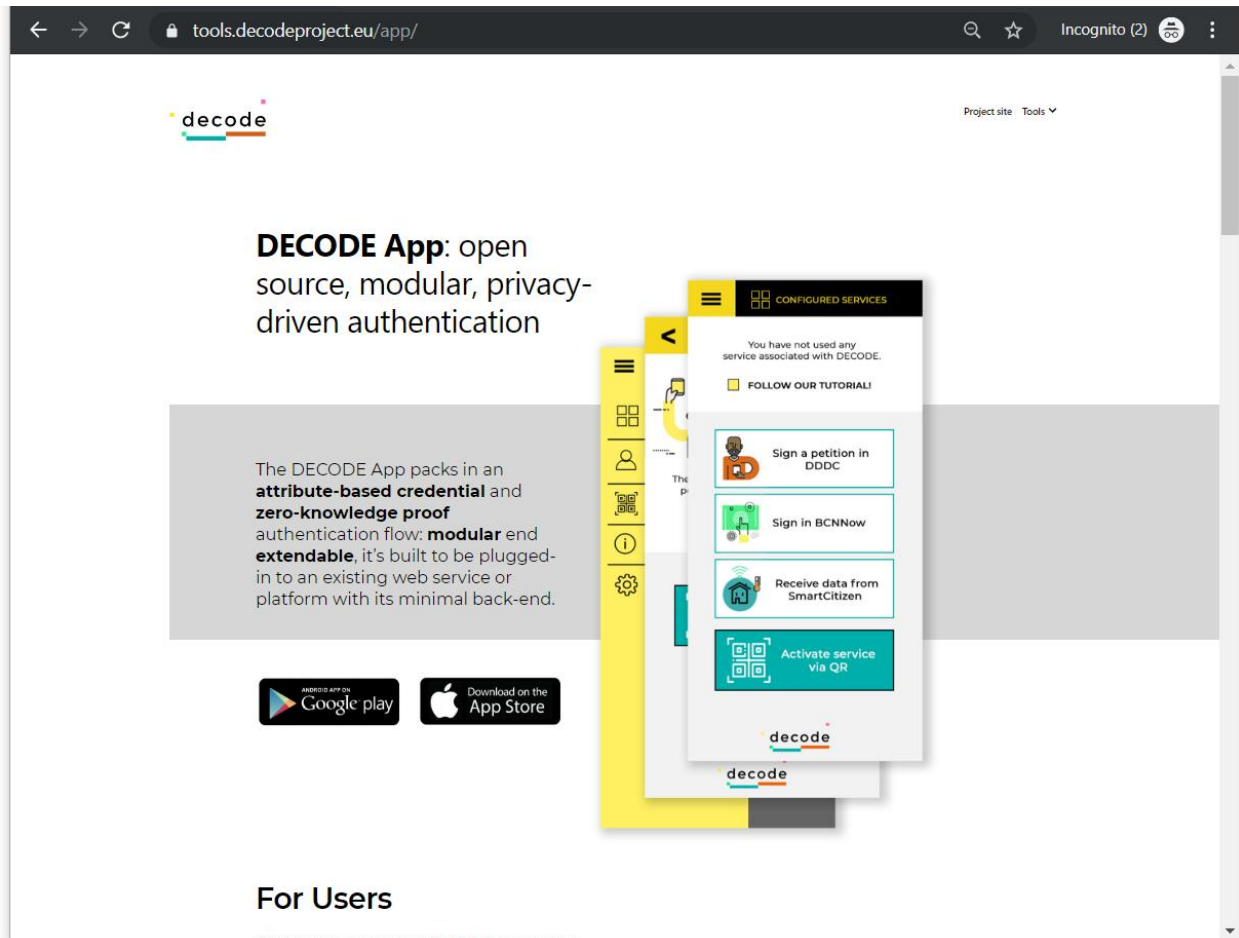


Figure 4: DECODE App's homepage, <https://app.decodeproject.eu>

- 2) The BCNNow dashboard homepage: <https://tools.decodeproject.eu/bcnnow/> developed by a joint effort of EURECAT and DYNE. The narrative here gathers to developers focusing on data visualization tools for public administrations. A screenshot of the page:

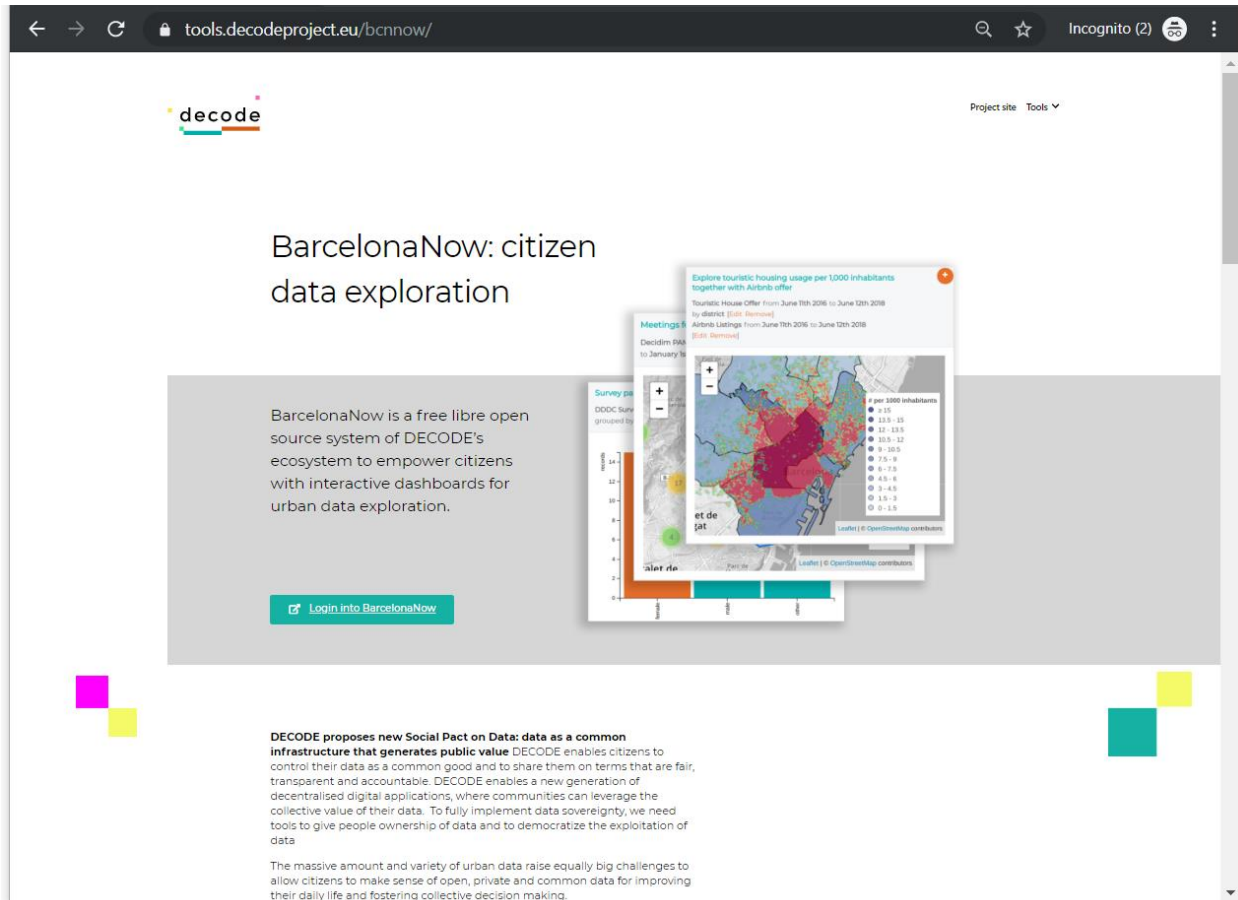


Figure 5: BarcelonaNow's home page, <https://tools.decodeproject.eu/bcnnow>

Decode Symposium 2019

During the DECODE Symposium 2019, we dedicated a specific space and time to showcase the DECODE technology and to enhance the collaboration with the European next generation Internet ecosystem of developers building decentralised and privacy-enhancing tools for data sovereignty based on the DECODE technology or with similar goals in mind. In order to reach this goal, we have been delivering the following activities, divided in three main areas: DECODE Tech Sessions,” the “Tech Talks” and the “Expo Area”.

:

- Organizing technical oriented workshop, focused on DECODE technologies
- Inviting existing and potential adopters of the technologies developed within the project
- Organize a more business-oriented section of the event, to be held along the main-stage programme of the event

We have been using workshop rooms for four hours on the first day, along with the use of the “Expo area” – a large area equipped with tables and electricity – for the full duration of the event.

The audio-video material of the technical sessions recorded at the event will be stored on DYNE’s cloud and publicly accessible at: <https://cloud.dyne.org/s/3rE7cXL6etHeSdq>

Decode Tech Sessions

The purpose driving the DECODE Tech Sessions was to offer themed workshops, aimed to developers interested in adopting DECODE technologies, aiming to have each workshop entirely recorded (camera footage, audio from microphone and screen recording) to be later assembled in a set of comprehensive training video, each focusing on one software component.

The allocated time was split in four, one hour each slot, and choice of the software tools to be shown was:

- 1) DECODE App: how to extend it and build it (delivered by DRIBIA)
- 2) BCNNow Dashboard: how to set it up and connect it (delivered by EURECAT)
- 3) Zenroom: how to setup a “Coconut” based zero-knowledge proof flow (delivered by DYNE)
- 4) The “18+” Passport Scanner: setup and code navigation (delivered by WAAG)

Exceptionally, showing a complete pilot was decided for the 18+ pilot (described in D5.5⁵), since the pilot is compact, self-contained and it was presumed (later confirmed) its demonstration would provide an easy to grasp and impacting effect on the audience.

The outcome is over 6 hours of mixed footage and screen capturing that is currently being edited and it’s scheduled to be posted on the <http://tools.decodeproject.eu/> website(s) within the end of the project.

The full planning of the session can be read here: <https://decodeproject.eu/events/our-data-our-future-radical-tech-democratic-digital-society/decode-tech-sessions>

⁵ D5.5 “Deployment of pilots in Amsterdam” <https://decodeproject.eu/file/452/download>

Tech Talks

The “Tech Talks” were devised as a combination of a pitching contest, typical of a start-up event (with 8-10 mins pitches followed by a short Q&A), with longer, more in depth presentations (25-30 mins long, so called “Masterclasses”), describing products or technology using DECODE tools or deeply connected to them. The Masterclass speakers were:

- Alex Puig⁶ (Caelum Labs): a prominent name in the European blockchain scene, co-founder of Alastria and Inatba, Alex is an early adopter of DECODE’s developed Zenroom that is currently using to provide a cryptographic flow, in their distributed id solution *Lorena*, for a local public institution in Barcelona and is working on Zenroom integration middleware⁷. Alex is also currently testing a beta build of DECODE OS for Raspberry Pi 3.
- Tom Fuerstner⁸ (Riddle & Code): another prominent blockchain name in the European space, Tom is in advanced testing phases of integrating DECODE’s developed Zenroom into multiple projects, and active in disseminating his results on social media, including:
 - An automated bitcoin paying solution developed for with the Swiss central bank⁹
 - Integrating Zenroom in *BigchainDB* meta-blockchain¹⁰
 - A hardware blockchain wallet, developed for Daimler AG¹¹
 - A blockchain based steel tagging solution, developed with Voestalpine AG
- Mike Scott¹² (Miracl): a distinguished cryptographer with five decades of academic and industry experience, Mike developed *Milagro*¹³, a core cryptographic component of Zenroom.
- Fabrizio Leoni¹⁴ (Infocert): the largest actor in the EU for digital identity and certificates, Infocert is developing DIZME¹⁵, a digital identity app that bears a strong resemblance to the the DECODE App. Infocert is currently investigating the use of Zenroom in several applications.

DYNE provided a camera crew that produced over 3 hours of combined footage and interviews of the main actors of the “Tech Talks” workshops, the audio-video material is currently being edited and scheduled for release before the end of the project. The full program can be found here: <https://decodeproject.eu/events/workshops-agenda-5th-november>

⁶ Alex Puig on LinkedIn: <https://www.linkedin.com/in/alexpuig/>

⁷ Caelum Labs’ Zenroom JavaScript library: <https://gitlab.com/caelum-tech/lorena/zenroom-lib>

⁸ Tom Fuerstner on LinkedIn: <https://www.linkedin.com/in/thomas-fuerstner-0797592/>

⁹ Twitter <https://twitter.com/tomfuerstner/status/1182611008034131971> and <https://twitter.com/tomfuerstner/status/1181594874908434432>

¹⁰ Twitter: <https://twitter.com/tomfuerstner/status/1168163001138077696> and <https://twitter.com/IPDBFoundation/status/1146420361883541504>

¹¹ Blog post: <https://www.riddleandcode.com/blog/2019/7/22/hardware-based-blockchain-car-wallets-to-enable-future-mobility-solutions>

¹² Mike Scott on LinkedIn: <https://www.linkedin.com/in/michael-scott-92b7bb78/>

¹³ Milagro’s documentation: <https://milagro.apache.org/docs/amcl-overview.html>

¹⁴ Fabrizio Leoni on LinkedIn: <https://www.linkedin.com/in/fabrizioleoni/>

¹⁵ DIZME, Infocert’s blog:

Expo Area

The Expo Area functioned as a small, light version of a traditional trade show, where the key companies and projects presenting in the Tech Talks were offered a table and space to place marketing material (roll-ups, brochures, etc) and interact with the event's audience. A total of 8 tables were assigned and filled by the guest partners for the duration of the event. A picture of DYNE's table in the Expo Area:



Figure 6: DYNE's booth at the DECODE Symposium 2019

Exhibitors

Prosume
Prosume provides utilities, aggregators and technology providers the blockchain software and support necessary for their product and solution offering to end-users, allowing them to regulate energy data management, trace all data flows and rest assured that all information provided is 100% verifiable and secure.

Meta-Press.es
Explore the press from your computer using Meta-Press.es, with no middlemen between the newspapers and you. Discover millions of results within seconds, and explore the ten last ones of each newspaper in Firefox via this add-on. You can also filter results by newspaper, date or a sub-query, or select some to create a press review and export it in RSS format.
Meta-Press.es is a free software project building an alternative to Google News for journalists and associations. It's developed by Simon Descarpentries (member of the French net neutrality defense association La Quadrature du Net and web artist) with already a few contributors. It has been backed by the WAUJ Holland Foundation. Any kind of contribution will be warmly welcome.

asvin.io
asvin (Sanskrit): The Healer of Gods
It's our mission to heal the broken security in the Internet of Things.
asvin.io provides a distributed ledger secured update solution for the Internet of Things. IoT vendors and operators can organize the distribution of updates from sender to the IoT devices via asvin.io cloud solution.

Caelum Labs
Caelum Labs is a blockchain development company based in Barcelona. Its members work together to develop the best prototypes and ideas for businesses and public administrations, solving problems and addressing new challenges of the industry and society.
The world's only user-friendly, single step Multi Factor Authentication (MFA) and Digital Signing service suitable for deployment to large desktop and mobile userbases.

MIRACL
Using the MIRACL Core Library and a Zero Knowledge Proof (ZKP) protocol - no personal data is ever stored or transmitted. This eliminates the risk of password database breaches, man-in-the-middle, phishing, credential stuffing & bot attacks.
Usability is paramount, no additional user enrollment steps are required and users authenticate and sign using a PIN. Without the requirement for hardware, mobiles or fiddly second steps, your users will love the simplicity and you will appreciate the reduction in support and maintenance overheads.
Eliminate the need for outdated security practices such as passwords, SMS Texts, push notifications and key-cards. See miracl.com/miracl-trust-multi-factor-authentication
MIRACL Core® Library
A multi-lingual and architecturally agnostic Cryptographic library that supports elliptic curve cryptography, pairing-friendly curve cryptography, RSA, AES symmetric encryption and hash functions. All code is entirely in the supported high-level languages. No assembly language and no third party code is required - these libraries are completely self-contained. MIRACL Core was designed from the ground up with side-channel attack resistance in mind. Multiple curves can be supported in a single application. See github.com/miracl/core

Decentralized Science
Through disruptive distributed technologies such as Blockchain, we both enable decentralization and relieve the pains of traditional publication processes. This is accomplished by providing a reputation system of peer reviewers that will improve quality and ensure faster reviews and distribution, helping editors, reviewers and authors.

Merits
Merits is a platform that helps all actors of society to develop an economy where financial prosperity is compatible with ecological sustainability and social harmony at local and global level. The employer, individuals and firms in their will 'to give back to society' and create participative welfare models. The key tools for generating social innovation are local, complementary currencies used to reward corporate and individual social responsibility. We implemented a pilot project with the municipality of Milano in 2018 - 2019 where the merits tokens have been used to reward refugees that have been volunteering in cleaning the periphery of the city. The merits, given to the refugees to reward their commitment to the community, were used as a voucher to buy goods and services at local shops. The system is conceived to reward any kind of behaviour and it creates strong synergy between public institutions, not for profit sector and business community transcending the concept of CSR and creating high-social impact marketing solutions.

Figure 8: List of exhibitors in the DECODE Symposium 2019 Expo Area



Figure 9 and 10: DECODE's booth at the DECODE Symposium 2019

Future software dissemination

DYNE is spearheading the present and future dissemination of the project's technological outcome following several tracks:

1. OEM partnerships: some of the components are already being tested in soon-to-be available commercial application, which would embed the software component within a larger solution targeted to a vertical. This is currently intended to be the primary exploitation path for DYNE's developed components (Zenroom, Zenbridge, DECODE OS) and DRIBIA (who is the product owner of the DECODE App) is currently evaluating a similar strategy. Revenue streams would derive from:
 - a. Offering paid support
 - b. Offering re-licensing for cases where the OEM product would breach the limits of the software licenses assigned to each tool (e.g.: a closed source solution using an AGPL3 licensed components).
2. Solution development: there is currently no clear indication of a vertical solution, outside the current pilots, where any of the software developers of DECODE could be involved in, for future dissemination of the project's software output. In case the current development state stays unchanged, the expected timeframe for this technology to go from mature to obsolete, is 12 to 36 months, so an acceptable time window to select a vertical is within the first 6 to 12 months from the end of the project.
3. Pilots dissemination: a partnership is being set up between DYNE and DRIBIA and other individuals and organizations, active or interested in the DECIDIM platform. The revenue stream would derive from offering paid support for the tools.

Current and future dissemination efforts of DECODE software components

DYNE has been actively pursuing partnerships with prestigious actors in the cryptography and blockchain spaces, such as:

- Sovrin foundation (member since 2019)
- ISO (member of the ISO TC/307 "Blockchain standardization" since 2019)
- OW2 (member since 2019)
- Hyperledger foundation (membership pending)
- Inatba (membership pending)
- Cosmos/Tendermint Foundation (a partnership is being discuss for targeted blockchain interoperability development)

Further partnerships are expected to be announced in the next following months.

Besides, DYNE is planning an active marketing campaign, to generate awareness of the project technological outcome (including but not limited to DYNE's own components) focusing on:

- Presence at open source events (e.g. FOSDEM)
- Presence at open source and software trade shows (e.g. Paris Open Source Summit)

- Presence at ad-hoc seminars, organized by partners (e.g. Zenroom seminar, scheduled by Caelum Labs to be held in Barcelona in first half of 2020)
- Presence at Linux and blockchain events, where DYNE's co-founder Jaromil is scheduled to deliver keynotes within 2020.
- Social media campaigns
- Partnerships with media outlets and news sites to publish press releases (e.g.: press release scheduled for the launch of Zenroom 1.0 in Q4/2019).
- Promotion and lobbying with national (e.g. CNIL in France) and EU and EC institutions (e.g. Euratom) to test and adopt project's software tools.

The broader dissemination and promotion activities are documented in the final dissemination Deliverable and Final project report.