

# NGI

Partnership for innovative technological solutions to ensure privacy & enhance trust for the human-centric Internet

Webinar, 22 January 2021



# Webinar – Agenda

Timing	Topic
10:30 – 10:35	Welcome <i>Jean-Luc Dorel, DG Connect, European Commission</i>
10:35 – 10:45	Introduction <i>Alasdair Reid, NGI Trust coordinator, EFIS Centre</i>
10:45 – 11:15	NGI_Trust Funded projects results <i>NGI_Trust Project managers</i>
11:15 – 11:45	Round table discussion and exchange - Q&A <i>All</i>
11:45 – 11:55	Next steps - showcasing of projects via case studies <i>Nicole Harris, Géant</i>
11:55 – 12:00	Wrap-up and close

# Welcome and Introduction: NGI\_TRUST in a snapshot

Jean-Luc Dorel, DG Connect & Alasdair Reid, EFIS Centre

## Project partners



## Key facts & figures

- Duration: December 2018 - November 2021
- 3 open calls :
  - 300 applications;
  - 448 applicants;
  - 36 countries.
- 3<sup>rd</sup> party funding: €5.6m:
  - 57 funded projects;
  - 84 funded third parties;
  - 20 countries.



## NGI\_TRUST objectives

1. Reinforce, structure and develop the community of researchers, innovators and technology developers in the field of privacy and trust enhancing technologies
2. Build on the state of the art in privacy and trust enhancing technologies by focusing support for third-party projects in a limited number of priority topics
3. Improve user trust and acceptance of emerging technologies by focusing on applications and solutions that develop a more open, robust and dependable Internet and strengthen Internet Governance
4. Foster the exploitation and commercialisation of the results of selected third-party projects through a tailored process of coaching and mentoring



TRUST

57 PROJECTS FUNDED  
12 THEMATIC AREAS



BEYOND PASSWORDS



BETTER PRIVACY



SAFER BROWSING



USER CONTROL



IMPACT OF AI



HUMAN-CENTRIC INTERNET



STRONGER TOOLS



EFFECTIVE IDENTITY



PERSONAL DATA  
MANAGEMENT



DATA ETHICS



SECURING THE  
INTERNET OF THINGS



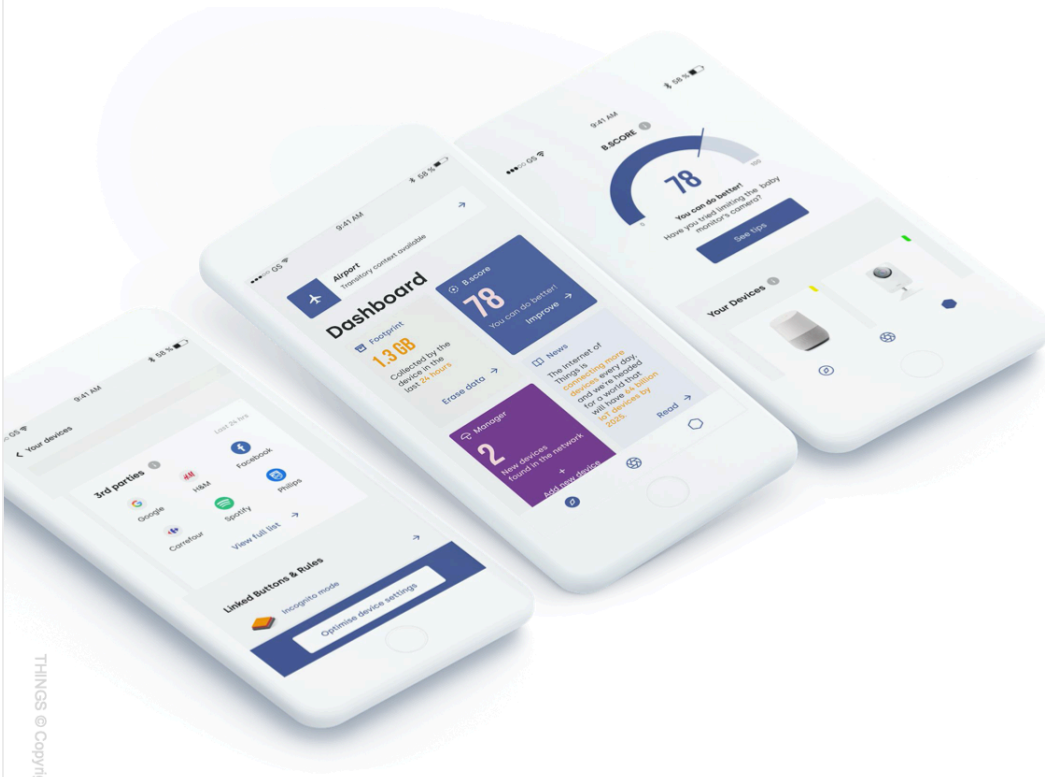
ADVANCING IDENTITY

# NGI\_Trust Funded projects results

Project	Third party
b.Smart	THINGS <i>Alessandro Bassi</i>
D4S	DTU <i>Tangui Coulouarn</i>
DECIDE	University of Stuttgart, IAT <i>Isaac Henderson Johnson Jeyakumar</i>
INSTANT - delivering personal data control to the user	Virtual Angle <i>Pedro Branco</i>
TCN - Trusted Content Networking	Athena Research and Innovation Center <i>Ioanna Angeliki Kapetanidou</i> <i>Christos-Alexandros Sarros</i>

**b.smart**

THINGS – *Alessandro Bassi*



## Concept, objectives & contribution

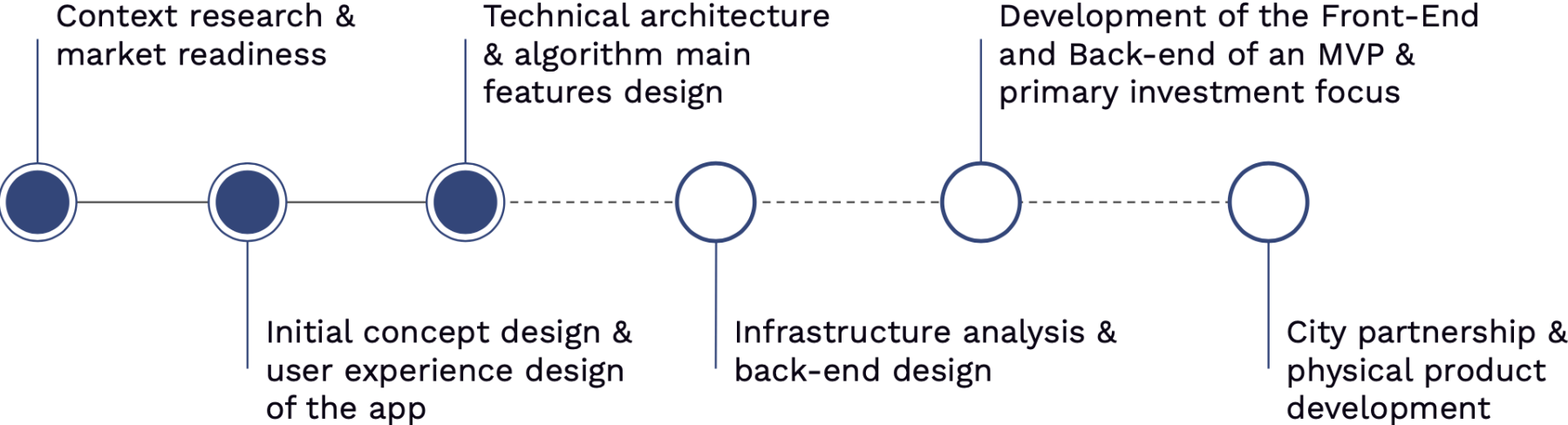
The NGI\_TRUST b.smart project pioneered the study of a mean to control privacy settings, enabling citizens to understand how much data is transmitted by connected devices, and to set reasonable privacy preferences. With our co-creation practices, we were able to design valuable and highly interesting means of propagation for a human-centric interface, capable to guide IoT owners with the right amount of understanding and help during the propagation of privacy settings on new devices.

B.smart doesn't just take the annoying task of propagating the privacy setting on new devices away; it also helps users navigate and respond to the complex topic of privacy policies and standards for companies and devices thanks to an ecosystem of interconnected, yet independently working, series of touchpoints.





# results and next steps



**D4S**

DTU - *Tangui Coulouarn*

**Internet security is crucial  
... yet available security  
solutions are not always  
used**

**What if we made them  
usable?**

Focus on VPNs



User centric approach

Co-design



12 months from September 2019

Interviews with users

Workshops in Copenhagen and Amsterdam

Implementation in apps for different OSes

COVID19 impact: fewer physical workshops, delays in the production of apps

General lack of knowledge regarding Internet Security  
**-> Raising awareness remains key!**

**New apps**  
 Change of flow, demanding minimal experience and knowledge  
 Same look and feel for all platforms

**Important growth in the higher education and research (HER) sector**

VPN solution in use by 100+ universities around the world

Adopted by 17 National Research and Education Networks

eduVPN now on list of FOSS recommended by the French State

**COVID19 Impact:** huge for deployers (limitations of proprietary solutions when all work remotely)

**Slower growth outside the HER sector**

Challenge for adoption of high quality FOSS in the absence of a clear support structure

# DECIDE

University of Stuttgart, IAT- *Isaac Henderson Johnson Jeyakumar*

# DECIDE – DECentralized Identity and User Experience

- **Decentralized Identity Management (DIdM) / Self-Sovereign Identity (SSI):** novel promising approach to **privacy friendly and trustable Identity Management (IdM)**
- Technical architectures and proofs of concept show that it is possible to realize such IdM solutions
- Experience shows, **that technical functionality and high levels of technical security as well as privacy are not sufficient** for the diffusion of IdM technologies (cf. Attribute Based Credentials, German “eID” etc. ...) – vs. Facebook Login
- Privacy enhancing technologies are often developed without considering **all relevant stakeholders**

## Approach of DECIDE

- Analyze **SSI solutions in the market** regarding user **mental models** and **overall usability**
- → **End user study** and **interviews with service providers** (importance of both stakeholders!)
- Design **improved UX solution in prototype**
- → **End user study** to evaluate the prototype(s)
- Give **design recommendations**

# DECIDE – Results and next Steps

## Results of the End User Studies of Wallets and the Prototype

- Existing identity solutions are not as intuitive and easy to use as they claim.
- Mental models were unclear to most users e.g. it was unclear how and where their data is saved
- Huge trouble understanding necessity and importance of backing up keys (“seed/recovery phrase”).
- Backup and restoration functionality was either not fully implemented, not very convenient, or relied on (a) central server(s)



## Best and worst Practices of current Wallets & Design Guidelines for Wallets

➔ Secure Digital Identities Project (ONCE) funded by the German Federal Ministry for Economic Affairs and Energy (with Bosch, Vodafone, Samsung, Deutsche Telekom Security and others)

## Catalogue of Economic Service Providers' Requirements

➔ Necessity for convenient Trust Management: EU H2020 NGI ESSIF-Lab Project TRAIN - Trust Management Infrastructure Component for the ESSIF-Lab Architecture

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# INSTANT - delivering personal data control to the user

Virtual Angle - *Pedro Branco*





## deliveriNg perSonal daTA coNTrol to the user

### Type 1 - Viability



#### Project Goals:

INSTANT will empower users with a transparent tool to manage the access to their personal data and to support due compensation by its use by third parties.

INSTANT is focused in delivering a common interface where users will be able to:

- store the information of each organisation to whom they delivered personal information;
- create, edit and revoke personal data access given to each specific organisation;
- manage potential financial compensations given by each organisation for using the user's personal data.





## deliveriNg perSonal daTA coNTrol to the user

### Type 1 - Viability



#### **Project results:**

- Technical Feasibility Analysis;
- Commercial, Economical and Legal Feasibility Analysis;
- Business Plan.

#### **Next steps:**

- To secure funding towards the development of a proof-of-concept (e.g.: Horizon 2020, national funding)
- Preliminary contacts with potential demonstration partners (data consumers segment- e.g.: private enterprises, banks).



# TCN - Trusted Content Networking

Athena Research and Innovation Center - *Ioanna Angeliki Kapetanidou/Christos-Alexandros Sarros*

## TCN Project

Trusted Content  
Networking:  
Reputation-based  
Trust for  
Information-Centric  
Networks



## Project Overview

- TCN aim and main objectives:
  - Provide trust and security for the Future Internet
  - Assess the feasibility of leveraging reputation-based trust to:
    - Achieve trusted content provisioning
    - Solve specific open security issues
- Focus on two NGI technologies:
  - Information-Centric Networking (ICN) paradigm
    - Named Data Networking (NDN) - most prominent ICN implementation
  - Blockchain
    - Proof-of-Prestige consensus algorithm - a reward system for unverifiable tasks
- Use cases:
  - Use case 1: *Content poisoning attacks* in NDN
  - Use case 2: *Bitrate Oscillation Attacks* in DAS over NDN

## TCN Project

Trusted Content  
Networking:  
Reputation-based  
Trust for  
Information-Centric  
Networks



## Results & Next Steps

- **TCN key results:**
  - Two reputation-based mechanisms - each one corresponding to a use case
- **Both mechanisms achieve efficient attack mitigation**
  - Evaluation results showed the scientific validity of the concepts
  - Proceeding to implementation is indeed meaningful
- **Future work**
  - Further development and evaluation of the TCN mechanisms with the aim to broaden their applicability and increase their market value
  - Integration of TCN outcomes into third party solutions
  - Continuation of the commercialisation and dissemination activities

More information can be found at: <https://www.athena-innovation.gr/en/enta-unit/projects/TCN>

## Round table discussion and exchange - Q&A

Experience and learning from the project  
– how can the NGI initiative further  
improve support third-party projects

What's next: the route to market – or  
scale-up - what can NGI do to help ?

Future NGI : what should we be focusing  
on in terms of privacy and trust in future  
initiatives for a human-centric internet

## More information/contact us

- Project coordinator : Mr Alasdair Reid @ EFIS Centre - [www.efiscentre.eu](http://www.efiscentre.eu)
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- NGL.eu website : <https://www.ngi.eu/about/>



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