NGI

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

Webinar, 23 April 2021

NGI TRUST

Webinar – Agenda

Timing	Topic
10:00 – 10:10	Welcome *Jean-Luc Dorel, DG Connect, European Commission*
10:10 – 10:15	Introduction *Alasdair Reid, NGI Trust coordinator, EFIS Centre*
10:15 – 10:25	NGI TETRA Opportunities *Iakovos Delioglanis, Q-PLAN International Advisors*
10:25 – 11:35	NGI_Trust Funded projects results *NGI_Trust Project managers*
11:35 – 11:55	Round table discussion and exchange - Q&A *All*
11:55 – 12:00	Wrap-up and close

NGI TRUST

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.

- 3rd 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

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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

Iakovos Delioglanis, Q-PLAN International Advisors

Louis Ferrini, FVA New Media Research

WHAT IS TETRA ABOUT?

TETRA is a **business accelerator** helping projects that have received funding through an NGI open call to successfully enter the market.

TRAINING

Bootcamps and webinars on different topics such as intellectual property, sales and new markets, leadership skills, investments, **pitching** and much more.

MENTORING

Individual mentoring from experts, startup founders and investors.

BUILDING NETWORKS

Access to **matchmaking**, **connect with investors and corporations.**

NGI TETRA

NGI TETRA SERVICE LIST

Access open for all:

- Webinars
- Training materials (website)
- Public tender portal subscription (Tenderio open call)

Access to bootcamp participants only:

- Hands-on trainings with dedicated coaches
- Networking and matchmaking, incl. tickets to large startup events
- Individual mentoring by international business experts
- Connections to local/regional DIHs and incubators
- Guidelines for skill development (TETRA master plans)

TETRA – an accelerator for NGI Innovators
See more at business.ngi.eu

NGI TETRA
CATALOGUE OF TOPICS

IPR Advisory, fx.

    fundamentals of IP

    IP management in open-source environment

Transversal competences and soft skills, fx.

    individual and team skill analysis

    team management and growth

    identification of unique selling points

New markets, sales and business models, fx.

    (new) market uptake strategy and tactics

    customer validation and commercialization

Investment readiness, fx.

    fundraising, incl. access to public and private investments

    financial portfolios and management

    pitching and investor relations

Build-up bootcamp	Scale-up bootcamp
IPR Advisory • Fundamentals of IP • Coaching during the day in case there are specific questions	**IPR Advisory** • IP licensing specificities • IP management in open-source environment • Coaching during the day in case there are specific questions
Transversal competence and soft skills • Individual transversal competences and skills • Team related transversal competences and skills • Methodologies to develop new solutions using design thinking techniques	**Transversal competence and soft skills** • Team management: analysis of strengths and weaknesses in the team; • Methodologies to complete a successful team • Unique selling points: Identify, map and communicate them • Key points to deliver a memorable online pitch
New markets, sales and business models • Business modelling: Basics of the value proposition and business model canvas • Design and operation on market uptake strategies and tactics	**New markets, sales and business models** • Business model canvas deep dive: key partners and value chains, customer segmentation, structuring costs and revenues • Overall company and commercialisation strategy
Investment readiness • Why should you consider raising investments and what are the best options for a beginning business? • How to introduce (sell) your idea to different audiences?	**Investment readiness** • (Startup) finances (making your books attractive for investors) • Raising your first investment vs raising a follow-up investment
Access to equity funding • Introduction to company financing • Equity as an integral part of financial portfolio	**Access to equity funding** • Deep dive into the company financing with an investor • Basics of legal and accounting issues, incl. lifecycle of investment
	Access to (international) public contracts • How to find the right tender and consortium partner • How to prepare a winning proposal & (secret) strategies

HTTPS://BUSINESS.NGI.EU/JOIN-NOW/EVENTS/ONLINE-BUILD-UP-BOOTCAMP-2/

business.ngi.eu
info@tetraproject.eu

CONTACT US AT

INFO@TETRAPROJECT.EU

NGI TRUST Funded projects results

Project	Third party
EUACTIVE [User Control]	VDP *Henri Engel*
BitOfTrust [Human Centric Internet]	BitOfTrust *Bert Jehoul*
LegiCrowd [Human Centric Internet]	APIL *Alain Couillault*
PRIMAL [Human Centric Internet]	Tree Technology *Marcos Sacristán*
DISSENS [Effective Identity]	Fraunhofer AISEC *Martin Schanzenbach*
PURPETS [Effective Identity]	CEA *Adrian Popescu*

NGI TRUST

EUACTIVE
VDP – Henri Engel

Abraham Maslow: People seek control, want to be heard & valued

Tim Cook: Google users are Online Products (themselves)

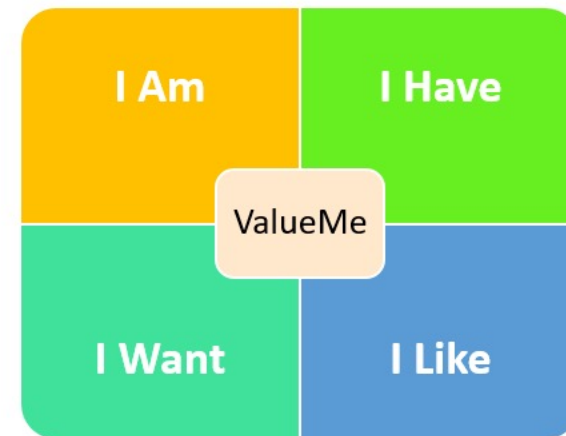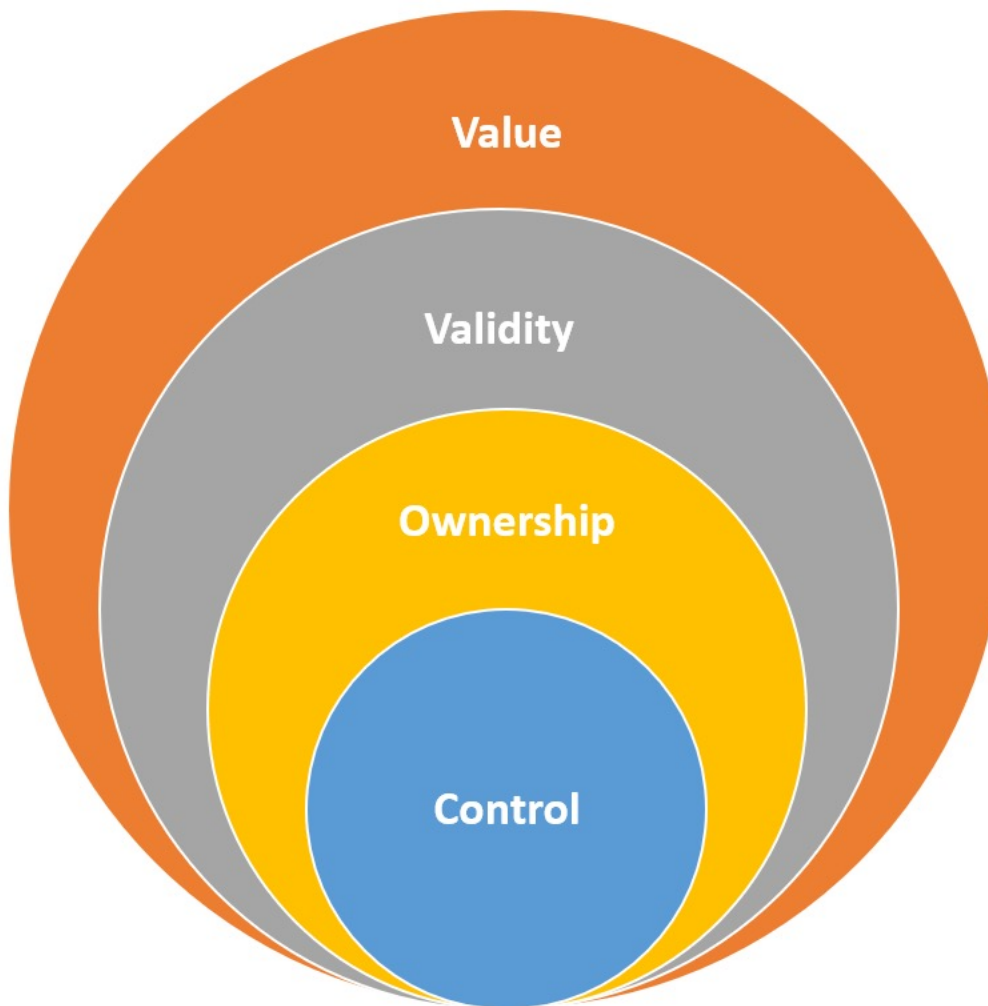John Wannamaker: Half of the money I spend on advertising is wasted

GDPR: Personal Data is an Asset
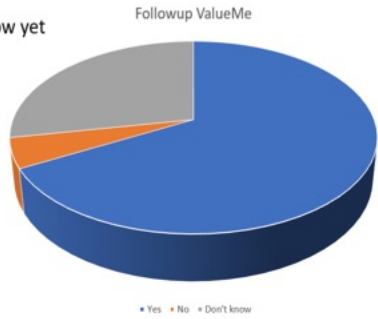
SSID - Fintech agenda

EUACTIVE Data Passport

Value

Validity

Ownership

Control

I Am

I Have

ValueMe

I Want

I Like

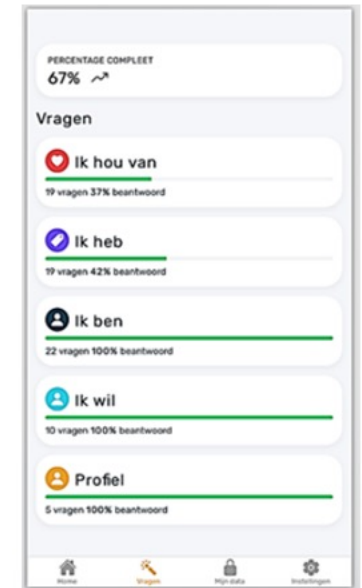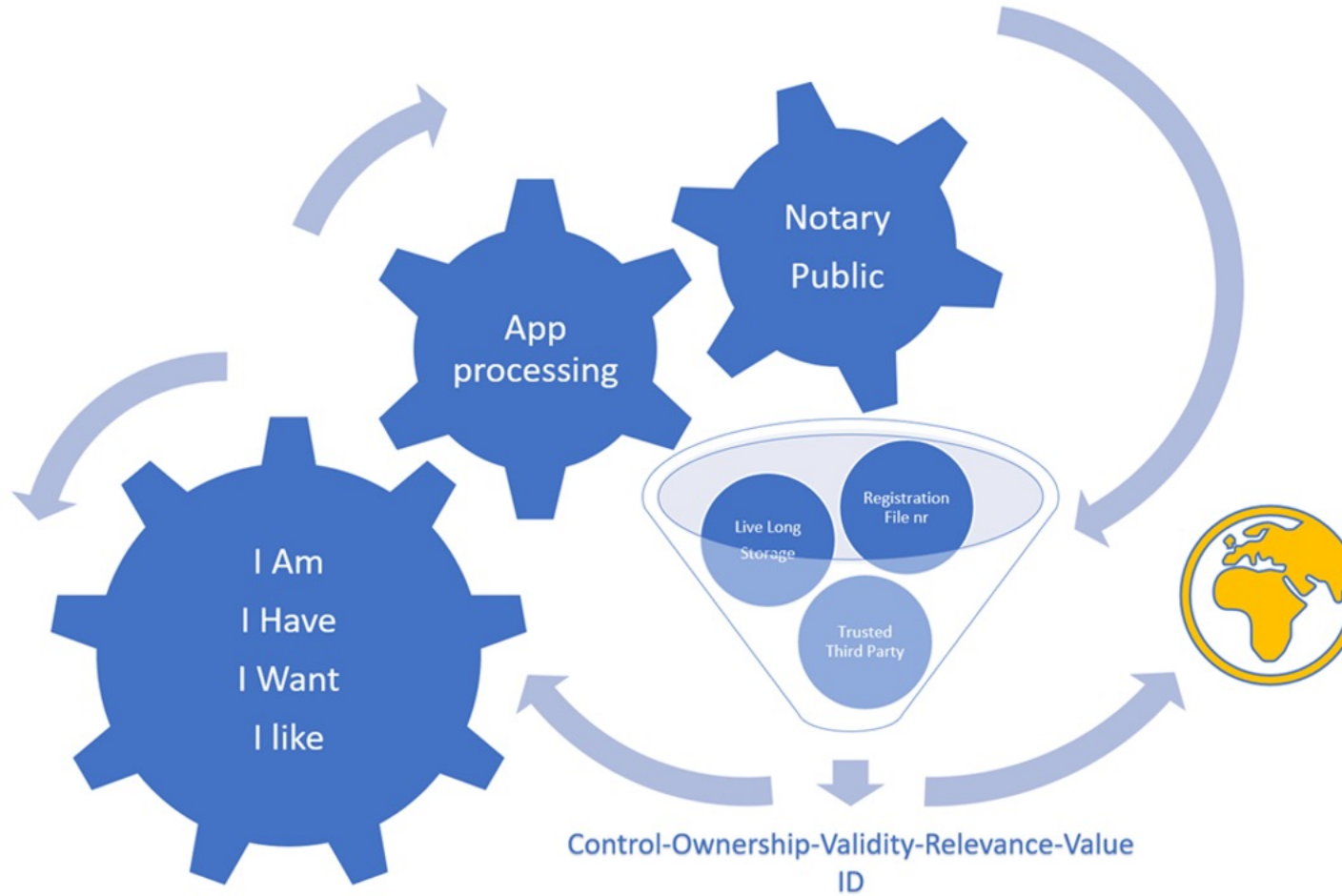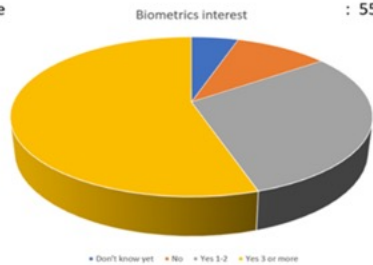Are you interested in participating in the next level of Data Ownership and Validation after this pilot?

Yes I'm interested in joining the next level of ValueMe : 67%

No I'm not interested : 5%

Don't know yet : 28%

Followup ValueMe

• Yes • No • Don't know

Are you interested in registering your Biometrics being part of your Personal Data-Ownership?
And if yes how many of the potential types of Biometrics?

Options: Fingerprint, Voiceprint, Portrait, 3D360°BodyScan, IrisScan, DNA

No I'm not interested : 10%

Don't know yet : 5%

Yes: 1-2 options : 30%

3 or more : 55%

Biometrics interest

• Don't know yet • No • Yes 1-2 • Yes 3 or more

App processing

Notary Public

I Am
I Have
I Want
I like

Live Long Storage

Registration File nr

Trusted Third Party

Control-Ownership-Validity-Relevance-Value ID

PERCENTAGE COMPLEET
67%

Vragen

Ik hou van
19 vragen 37% beantwoord

Ik heb
19 vragen 42% beantwoord

Ik ben
22 vragen 100% beantwoord

Ik wil
10 vragen 100% beantwoord

Profiel
5 vragen 100% beantwoord

BitOfTrust

Open Knowledge/BitofTrust – Bert Jehoul

Autonomic Identifiers to make existing social trust relationships digital visible and actionable

NGI TRUST

The Next Generation Internet initiative by the Digital Single Market of the European Commission.
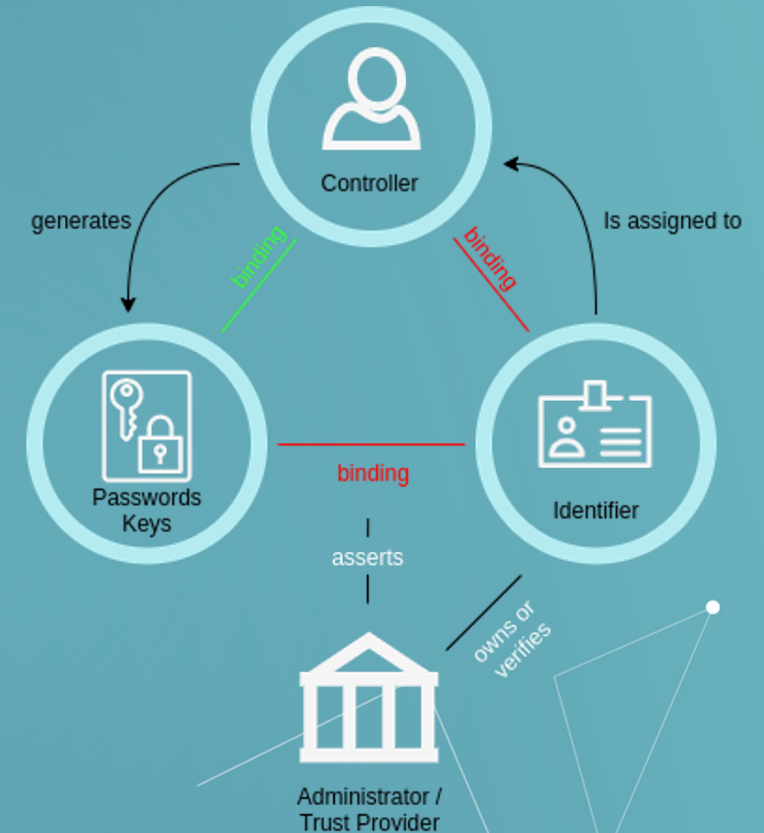
Objectives & Contributions

Identity systems don't manage identities, they manage **relationships**.

Traditionally the focus is on the security and privacy of the bindings.

Our objective:
Draft a protocol that mimics better how offline trust authentication works and make it possible for humans to capture & manage their own personal online trust domains
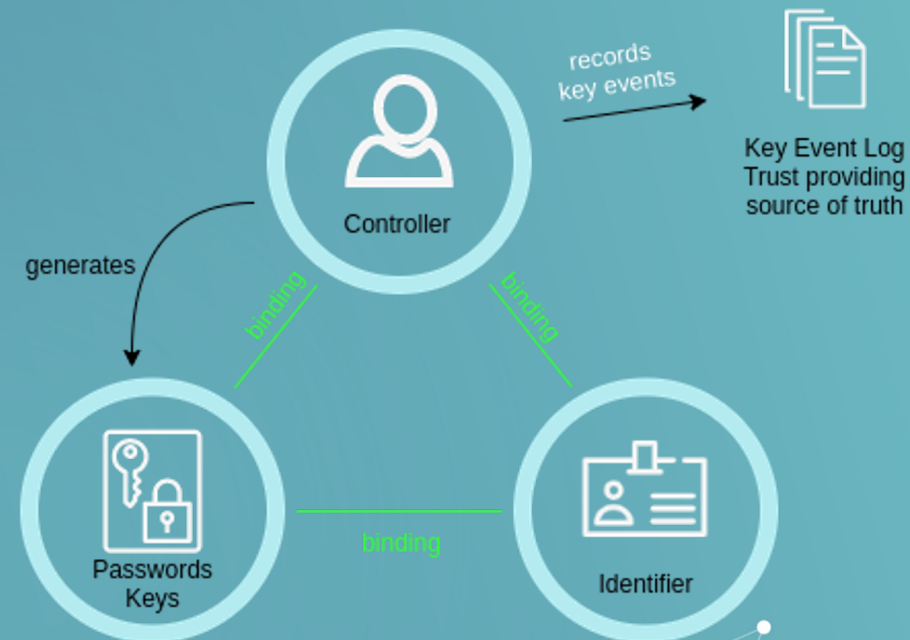
Results and Next Steps

We explored and created in several iterations a
Proof of Concept: bitoftrust.io

Moving from the idea of personal controlled
identifiers to autonomic shared identifiers in an
adaption of the Peer DID method & KERI protocol
.

Next steps:
Release of full version of the POC
Exploring place in DID community & collaboration
with KERI

LegiCrowd
Onto

Building an ontology of Online Legal Documents for annotation, machine learning, dataViz, citizen empowerment, law enforcement…. And more

FUTURE NOW

National Technical University of Athens

A P I L

Alexandros Nousias

Sofia Almpani
Theodoris Mitsikas
Petros Stefaneas

Alain Couillault

NGI TRUST

Objective and contribution

Collect OLDs

Annotate

Evaluate
- infer

Render
- DataViz
- Icons
- Grades
- simplified language
- ...

Alain Couillault

Results and next steps

- Results
  - Ontology being exposed to the schema.org community
- Next steps
  - Partner with research bodies
- Bridging legal ontologies
- Infering OLD properties
- Natural Language Processing
  - Building services
- Enhancing transparency and readability of OLDs

Alain Couillault

LegiCrowd

Special thanks to the LegiCrowd Onto partners,
to the NGI and enet-collect teams who made this project possible,
to Petros Stefaneas from the National Technical University of Athens and
to Mariachiara Tallacchini from the Università Cattolica del Sacro Cuore in Milano who hosted STSMs.

Alain Couillault

[Toggle view...]

- Thing
  - CreativeWork
    - WebPage
      - LegalDocument
        - termsofServices
        - PrivacyNotice
      - WebPageSection
  - Intangible
    - Property
    - ratingValue
      - readability
    - identifier
      - personIdentifier
        - duns
        - BankAccountNumber
        - PaymentCardNumber
    - instrument
      - query
  - PersonalData
    - SensitiveData
      - personIdentifier
        - duns
        - BankAccountNumber

Alain Couillaul

termsofServices

Human-readable terms of service documentation.

Thing>CreativeWork>WebPage>LegalDocument>termsofServices>

[more...]

Attached to the following types	
Type	**Description**
LegalDocument	A legal document enforcing the relationship between the platform and its users such as Terms of Services or a Privacy Notice

Properties from **WebPage**		
Property	**Expected Type**	**Description**
WebPageSection		A section of a WebPage.
readability		The easiness/difficulty of reading the document (can be an text or an integer, for example a Fleish Readability Index)

Alain Couillault

LegiCrowd

Annotation platform

Document: EURAC Privacy Policy (September 2019)

Is the section you are reading written in clear, plain & intelligible language?

- [x] Yes
- [ ] No
- [ ] Yes, but it does not make sense to me
- [ ] Yes, but the information is not relevant

Be the first one to leave a comment

This section provides information about…

- [ ] …how to contact the platform owner or the DPO ❓ ?
- [x] … the way your data is collected, shared, retained (OR NOT) by the platform
- [ ] …on what legal basis is your data collected or shared ❓
- [ ] …your rights and information, your obligations or what happens in case of conflicts
- [ ] …how and when this document is updated

Be the first one to leave a comment

More specifically, this section explains…

- [ ] …which data the platform collects (or not!)
- [ ] …for what purpose your data is collected
- [ ] …how and why your data is shared with other companies or organisations
- [ ] …how long your data is retained
- [ ] …what the content your provide is used for and ❓

Submit (3/14)

*2.** **Types of Personal Data Subject to Processing*

"Personal data" means any information relating to an identified oridentifiable natural person (the "Data Subject). An identifiable naturalperson is one who can be identified, directly or indirectly, inparticular by reference to an identifier such as a name, anidentification number, location data, an online identifier or to one ormore factors specific to the physical, physiological, mental, economic,cultural or social identity of that natural person.The personal data that may be processed includes browsing data, dataprovided voluntarily by the data subject and cookies.

Alain Couillault

PRIMAL: <u>P</u>rivacy p<u>R</u>eserv<u>I</u>ng federated <u>MA</u>chine <u>L</u>earning

Objectives and contributions

PRIMAL advanced from TRL-4 to deliver a TRL-6 operational privacy-preserving federated machine learning implementation, demonstrating added-value with respect to existing privacy and trust enhancing technologies on a specific pharma-healthcare relevant use case.

- Federated Machine Learning (FML) alleviates privacy-related data sharing barriers by enabling secure privacy-preserving analytics over decentralized datasets using machine learning algorithms (specifically deep learning). Data is kept decentralized under the control of each data owner with different privacy constraints, while secure collaborative machine learning processes are enabled without data centralization.

- PRIMAL has implemented a FML implementation within a real healthcare use case evaluation:
  - **Architecture**: a privacy-by-design implementation to handle secure communications among federated nodes.
  - **Algorithms**: a library of privacy-preserving federated machine learning models based on deep learning.
  - **Security**: with the integration of state-of-art end-to-end encryption methods.
  - Use case **validation** (healthcare).

jaime.medina@treetk.com / marcos.sacristan@treetk.com

PRIMAL: <u>P</u>rivacy p<u>R</u>eserv<u>I</u>ng federated <u>MA</u>chine <u>L</u>earning

Results

- **FML architecture**:
  - A central server reachable from the Internet, in charge of managing and securing communications.
  - Client nodes, distinguishing:
    - Worker nodes: securely handling training data, performing tasks as requested by the central server.
    - A Master node: oversees task-flow orchestration and global-model aggregation.

- **FML library**
  1. Model definition (setup)
  2. Model distribution
  3. Gradient calculation
  4. Gradient centralization
  5. Model update

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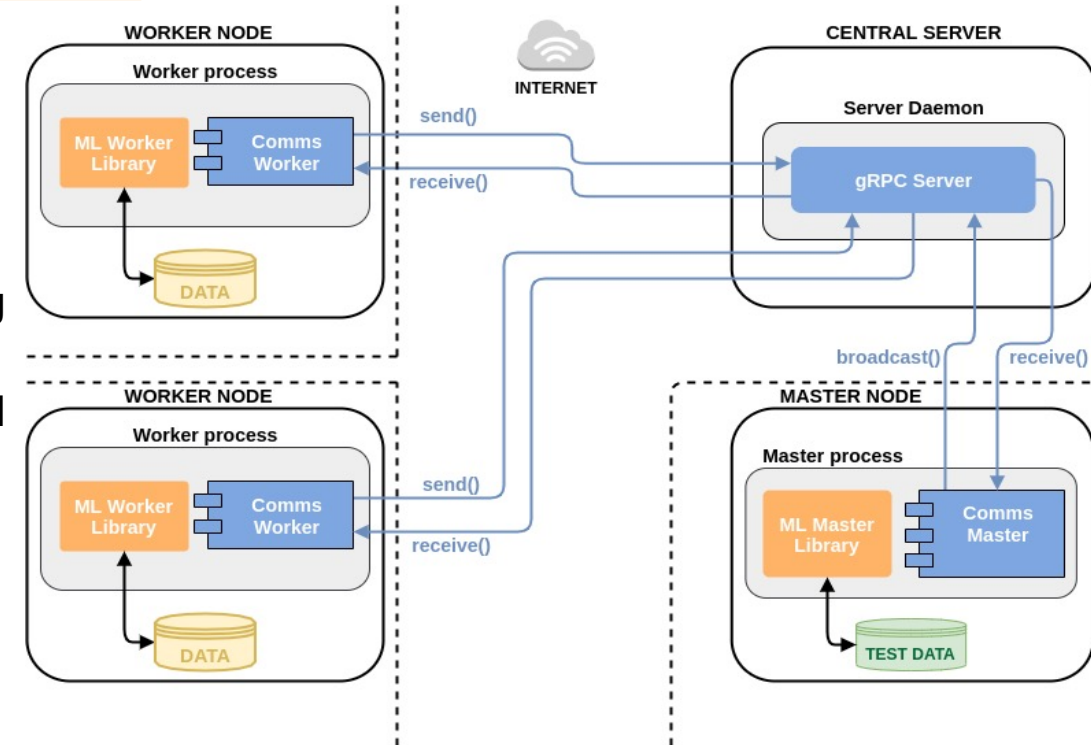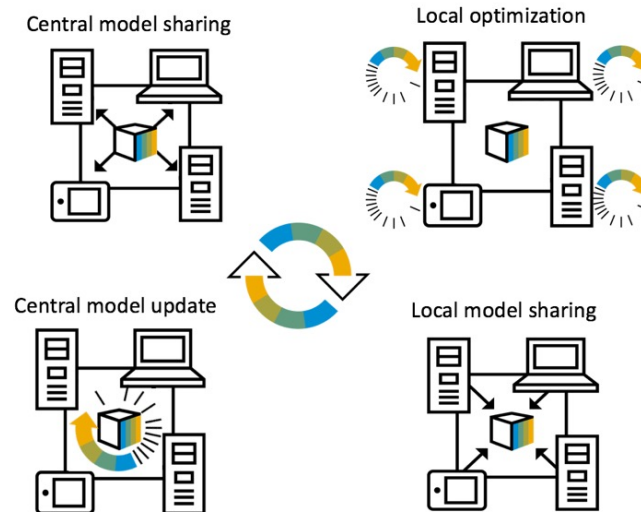
# Decentralized Identities for Self-sovereign End-users

Objectives and contributions

- Technology stack for user-centric, privacy friendly personal data sharing and payments
  - Self-sovereign Identity system "re:claimID" eliminates the need for Web accounts
  - Privacy-friendly payment system "GNU Taler" suitable for Digital Euro
- Requirements-based selection of Free Software technologies
  - No gatekeepers; No vendor lock-in
  - Support for non-interactive business processes
  - Scalability and sustainability
- Integration in a popular e-commerce framework (WooCommerce) as pilot
  - Use of OpenID Connect standard for interoperability
  - GNU Taler plugin for usable one-click account-less payments
  - Academic institutions as credential issuers highlighting federation capabilities
- Evaluation of usability through user study

Results and next steps

- Pilot development
  - Contribution to existing WordPress OpenID Connect plugin to improve standard-compliance
  - New GNU Taler plugin for WooCommerce payments
  - New privacy-credentials-support for "re:claimID"
  - Pilot setup documentation and automation scripts

- Evaluation
  - User study results: 7 participants (Covid…)
  - Promising initial response and useful feedback on UX

- Publication:
  - Paper accepted at "Open Identity Summit 2021"

- Next steps
  - Integration of user feedback from study
  - Dissemination of results (lecture materials)
  - Improvement of underlying peer-to-peer layer(s)
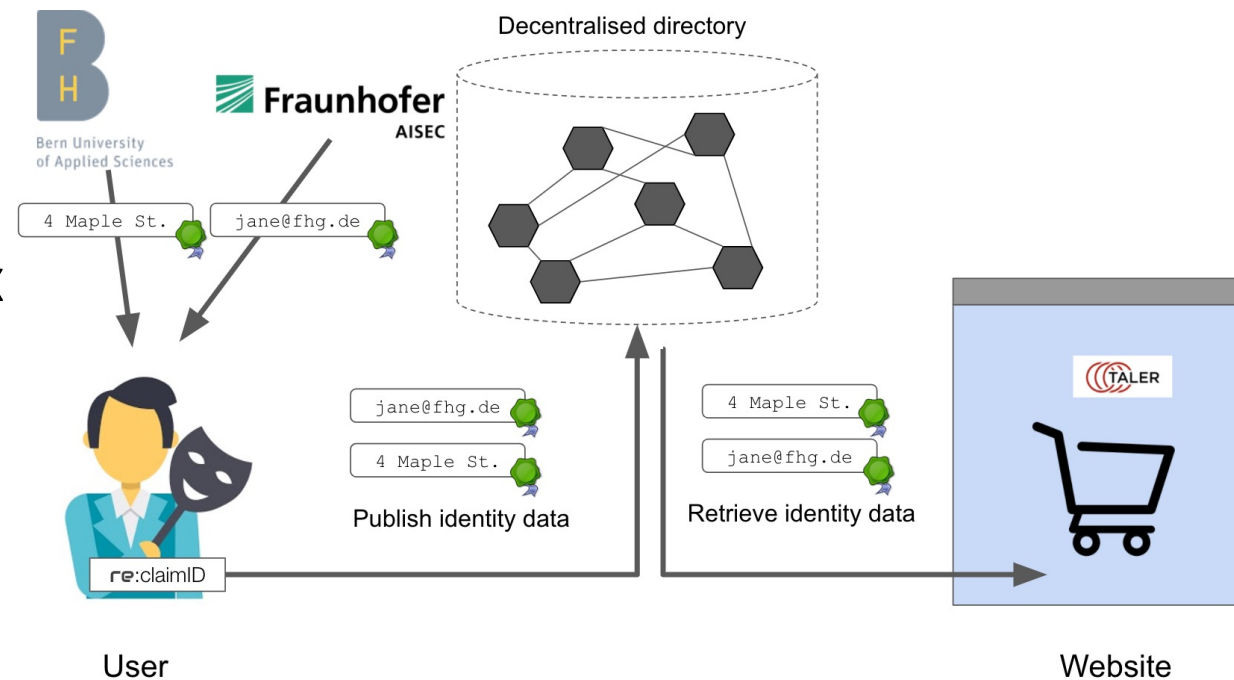
PURPETS
PETs with a Purpose

adrian.popescu@cea.fr

Motivation

- Privacy paradox: mismatch between users' declared preoccupation about privacy and real practices
- Mismatch between the context in which data are shared and the one they are used in
- Privacy enhancement tools (PETs): valuable feedback about the effects of personal data sharing
- Low adoption of PETs: not clear which is the added value for the user
- Use of AI algorithms: relatively low in existing data-oriented PETs
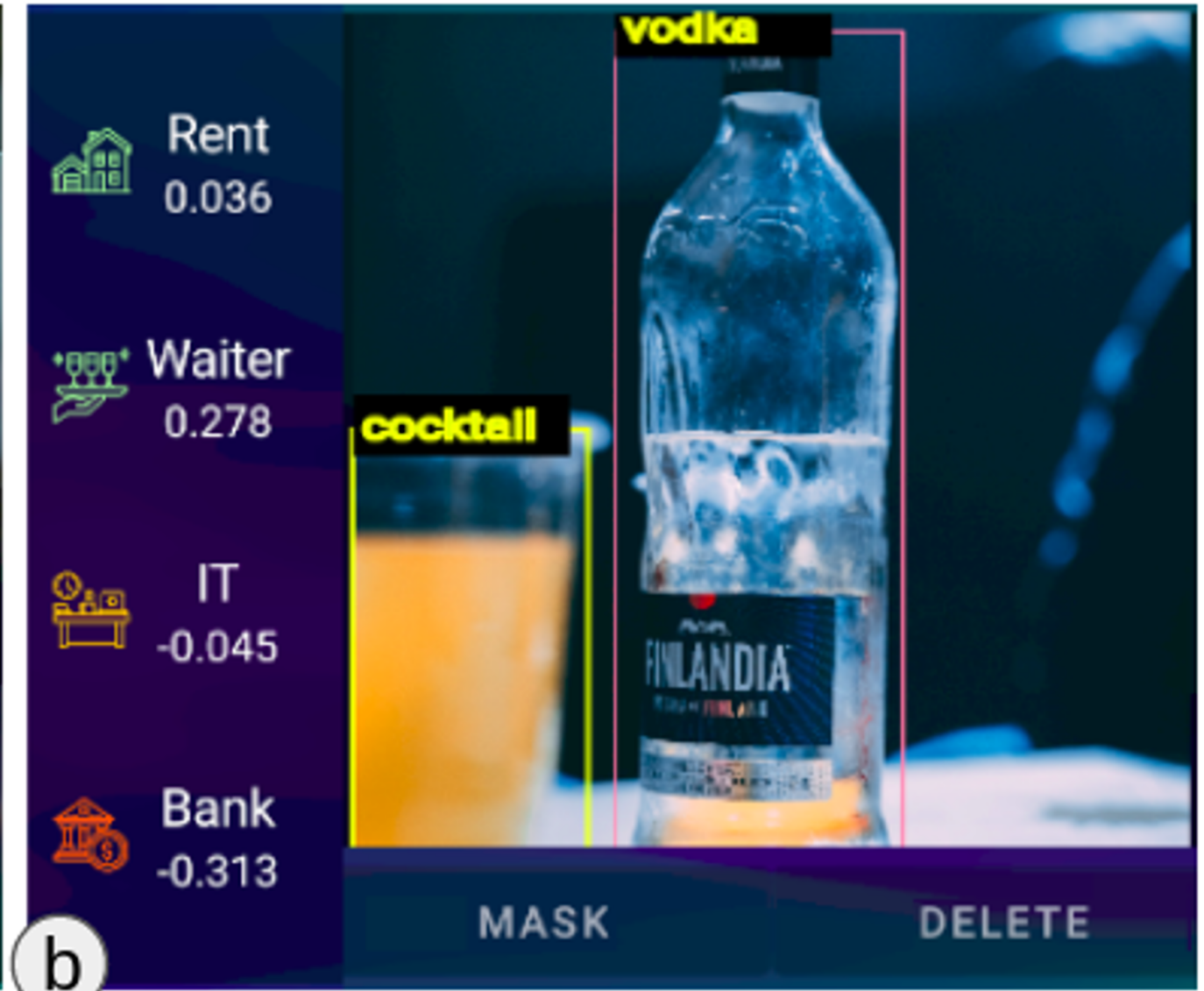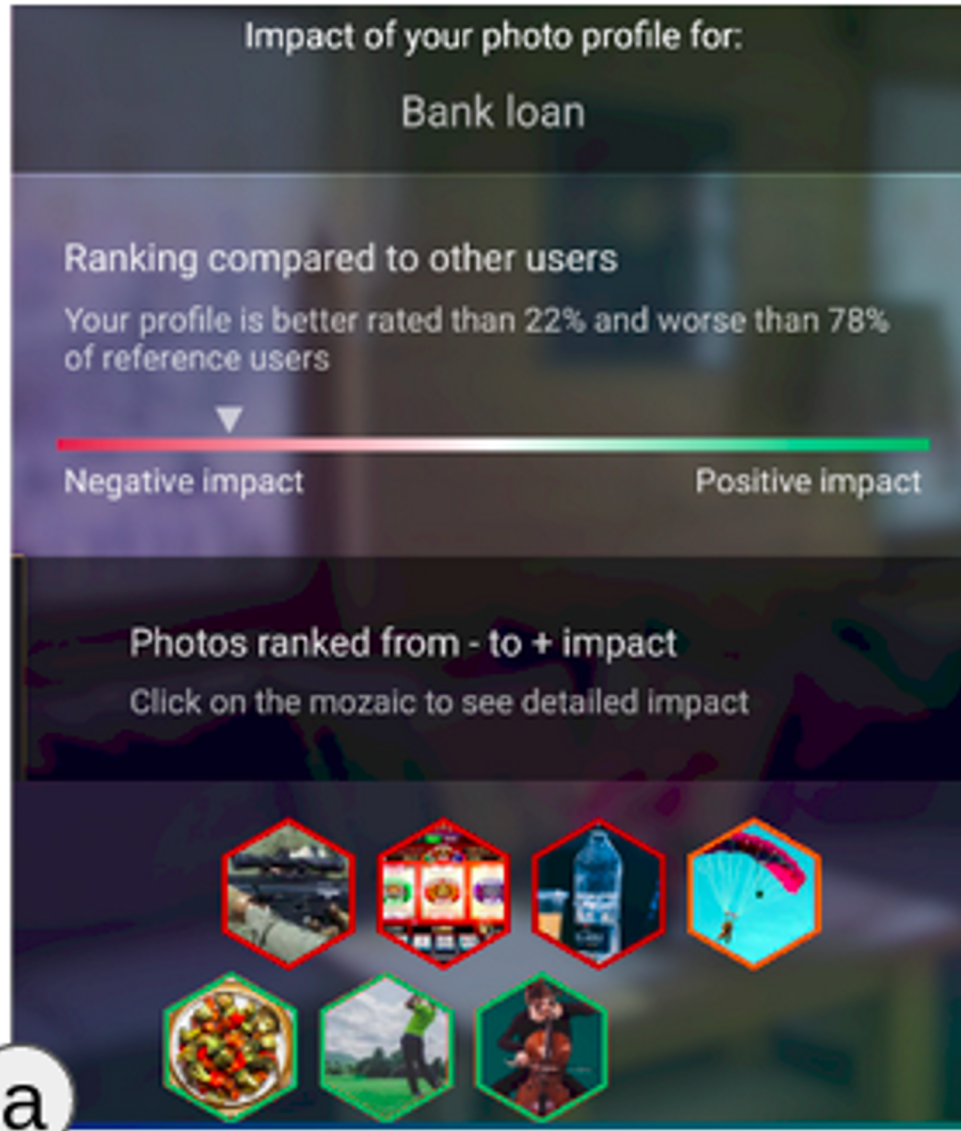
Contributions

- Focused on on the effects of data sharing in impactful real-life situations
  - Search for: a bank loan, an accommodation, a job in IT or as waiter
- Modeled situations by acquiring situation-related ratings for visual concepts and user profiles via crowdsourcing
- Centered test on images - they are an important share of online data
- Implemented visual concept recognition with dedicated datasets
- Proposed a solution for automatic ranking of visual profiles in situations
- Integrated situation models and visual recognition in a mobile app
  - Website: https://ydsyo.app
  - Video demo: https://www.youtube.com/watch?v=2YGsQ-so7ew
- Involved users in the app development process

Examples of high/low rated profiles

Interface illustration

(a) Impact of your photo profile for: Bank loan — Ranking compared to other users. Your profile is better rated than 22% and worse than 78% of reference users. Negative impact / Positive impact. Photos ranked from − to + impact. Click on the mozaic to see detailed impact.

(b) Rent 0.036, Waiter 0.278, IT −0.045, Bank −0.313. vodka, cocktail. MASK / DELETE.

Next steps

- Develop more advanced algorithmic functionalities - financed via AI4MEDIA (H2020)
- Study other types of feedback which are linked to real-life consequences of data sharing
- Propose the app code under a suitable open source license once it is stable enough
  - Try to build a community which contributes to future developments
- Create an NGO structure to oversee medium- and long-term development
- Search complementary funding to ensure a sound app development

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

NGI TRUST

More information/contact us

- Project coordinator : Mr Alasdair Reid @ EFIS Centre - www.efiscentre.eu

- Email : NGI-Trust-support@lists.geant.org

- Twitter: @NgiTrust

- NGI_TRUST wiki : https://wiki.geant.org/display/NGITrust

- NGI.eu website : https://www.ngi.eu/about/

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