

An aerial photograph of a rural landscape. In the top center, there is a house with a purple roof and a driveway. The surrounding area is filled with green fields, some of which are divided into rows, suggesting agricultural use. A road or path runs through the middle of the image. The overall scene is bright and clear, with high contrast between the green fields and the dark shadows.

LANDSENSE

**A Citizen Observatory and Innovation Marketplace for
Land Use and Land Cover Monitoring**

**Citizen Science and Personal Data Protection
The LandSense Approach
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Matej Batič / Steffen Fritz**



Citizen Science and Personal Data

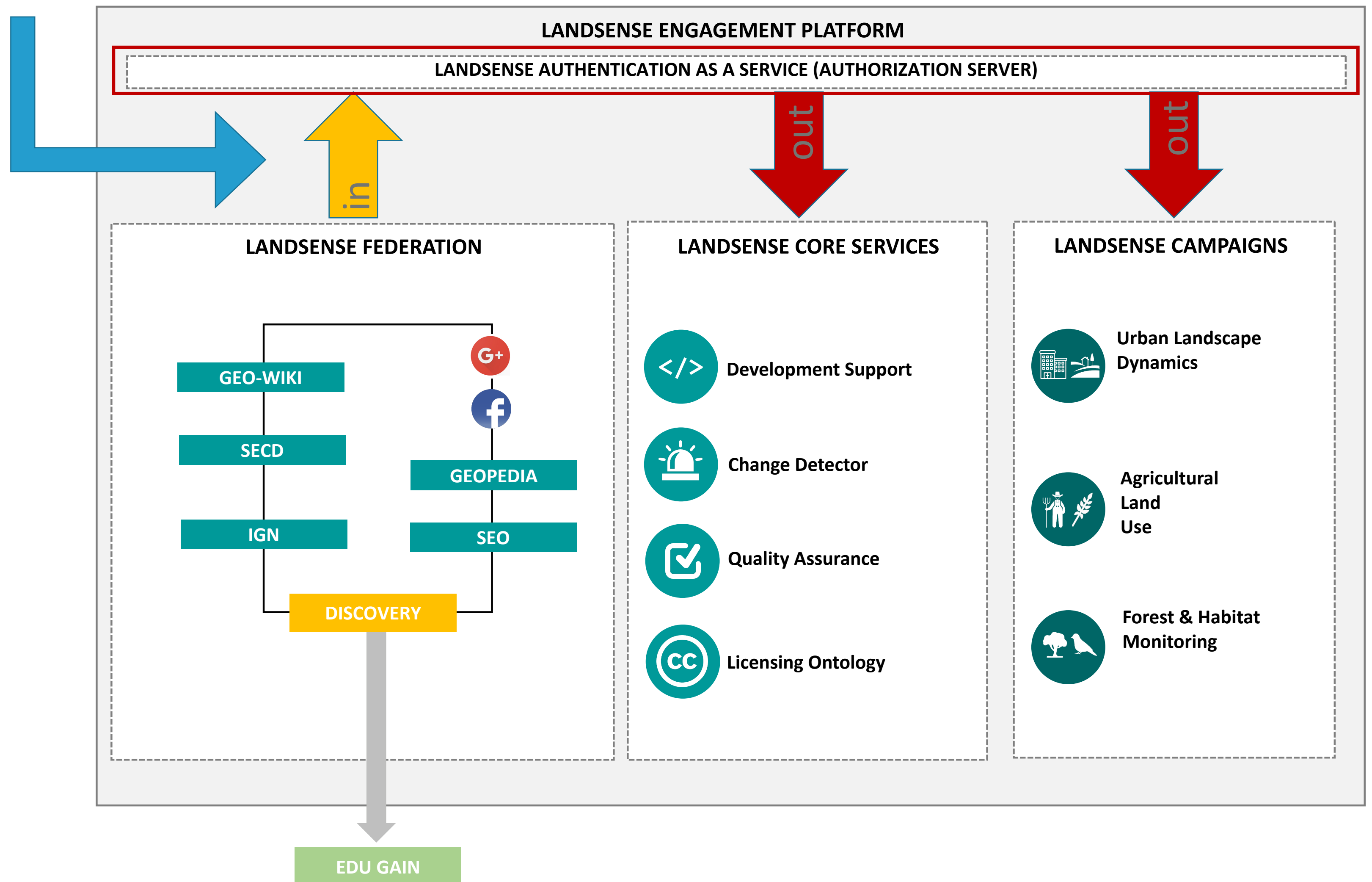
- **Not all Citizen Science projects need personal data. But some projects do!**
- **Ability to trust data starts with knowing the contributor**
 - **Accreditation profile**
 - **Identified individual**
- **Licensing of contributions**
 - **Attribution licenses – like Creative Common BY – require to give credit to the author**
 - **Attribution typically involves personal data**
- **Not all applications and services need to know your personal data!**

GDPR – Some Fundamental Aspects

- **General Data Protection Regulation (18 May 2018)**
 - <https://gdpr-info.eu/>
- **A great opportunity to establish a free movement of personal data (in Europe), but you don't get it for free!**
 - Apps and services must be adopted
 - Processes must be adjusted or established
- **General principles (incomplete extract)**
 - User must actively agree that personal data is used
 - The consent is context specific and is revocable
 - Minimization (use as little personal data as possible)
- **Applicability of GDPR**
 - This regulation is limited to the EEA
 - So, how do you “deal” with personal data exchange outside the EEA?

The LandSense Engagement Platform

Exchange of personal data



Why a Federation?

- **Reuse existing logins**
 - **eduGAIN: 2850+ academic logins**
 - **Facebook + Google: Millions of users**
- **Common Login to support Citizen Science**
 - **User friendly: Opportunity to reuse existing account and not forced to create yet another account in isolation**
- **Important to make results from Citizen Science available to academia and research**

Idea: Authentication as a Service (AaaS)

- **OpenId Connect / OAuth2 compliant**
 - **Developers can easily integrate the AaaS into their apps and services based on existing SDKs**
- **Establish a Federation of trusted Login Providers**
 - **Federation is managed by LandSense partner**
 - **Includes eduGAIN (academic organizations worldwide)**
- **LandSense extendable Federation includes Logins from**
 - **Social media: Google and Facebook**
 - **LandSense partners**
- **AaaS manages exchange of personal data between**
 - **Applications**
 - **LandSense Engagement Platform**

AaaS – GDPR Compliance

- **App can be registered for OAuth2 / OpenId Connect**
 - **OAuth2: App never receives personal information**
 - **OIDC: App receives personal information up to amount requested with registration**
- **For apps registered for OIDC, user must approve**
 - **The approval page lists personal information and link to privacy statement of the app**
- **For OIDC, different personal data processing policies**
 - **Cryptoname: User has unique identifier that cannot be used to resolve real identity**
 - **Profile / Email: User grants access to that personal information**

LandSense Authentication as a Service and Personal Data Protection

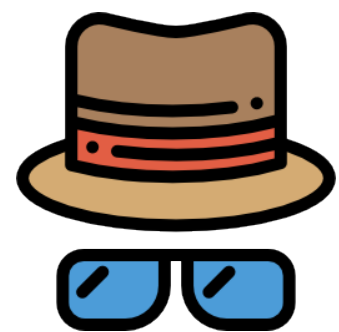
Different policies determine if / which personal data is released to applications or services after users' approval



**Authenticated Login
(No personal data)**



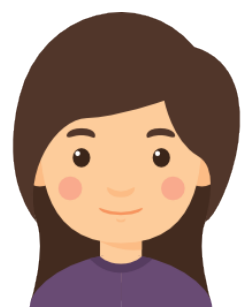
Promotes anonymous contribution



**Cryptoname Login
(Decoupled from personal data – non-resolvable)**



**Promotes anonymous contribution
Allows to overcome data silos and supports clustering**



**Login (includes personal data)
i.e username, email address**



Promotes GDPR-compliant identified contribution

Lessons Learned

- **The legal part wasn't easy**
 - **We started design and implementation before GDPR became effective**
 - **Support logins from non EEA countries was solved by “promise” clause in Privacy Statement**
- **Operating an AaaS for the project was a success**
 - **Lifted the burden from developers to implement – again and again – the GDPR compliance “overhead”**
- **Base AaaS on open standards is important to guarantee**
 - **Interoperability “out of the box”**
 - **Login easy to implement by leveraging IT libraries**
- **Early education on standards and technology is key to guarantee sustainable and interoperable work**

Sustainability

- **The Authentication as a Service was implemented, deployed and operated within LandSense**
- **Birdlife has been running campaigns involving the AaaS for monitoring hazards to birds in Spain, forests in Indonesia, ...**
 - <https://natura-alert.net/>
- **Uptake of Authentication as a Service in H2020 Cos4Cloud**
 - <https://www.authenix.eu>
 - **Plan is to provide AaaS as add-on to the EOSC authentication to support GDPR compliant interactions between users, apps and services**



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**This project has received funding from
the European Union's Horizon 2020
research and innovation programme
under grant agreement no 689812**

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European
Commission

Horizon 2020
European Union funding
for Research & Innovation