

Demo: data sharing in Dutch health care system

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TNO innovation
for life



Oskar van Deventer

+31 651 914 918

Oskar.vandeventer@tno.nl

› Dr. M. Oskar van Deventer, TNO

- › 30 years experience in telco industry
- › PhD in optical networking
- › R&D in voice networking, media networking, blockchain networking
- › Standardisation: ITU, ETSI, DVB, HbbTV, MPEG, Hyperledger
- › One book, more than 150 publications, over 80 patent applications, over 700 standardization contributions, one Guinness world record
- › Scientific Lead of Techruption Blockchain PPP, admintech
- › Director of TNO Blockchain Lab: <https://blockchain.tno.nl/laboratory/>
- › Economic Advisory Council of Sovrin, upcoming identity blockchain

TNO (<https://www.tno.nl/en/>)

- › 2600 employee applied R&D institute, founded by law in 1932, strong in digital infrastructures, interoperable data and cyber security



› Exploring SSI use cases in Techruption

- › SSI: Self-Sovereign Identity
- › Techruption: 16+ partner public private R&D partnership in admintech (techruption.org)
- › Use cases:
 - › Self-employed: citizen – bank – chamber of commerce; PoC done
 - › Medical Supplies: patient – insurer – doctor – pharmacist; PoC done, pilot in preparation
 - › Grant application: company representative, reduce paperwork & fraud; ideation planned
 - › Q&A protocol: automated queries for SSI attestations; research & standards
 - › Form design: user interface to reify attestation exchanges; early exploration



› Demo: medicine prescription

› Patient gets recipe from doctor, goes to online pharmacy, pays from health insurance


My ID


Contact

Phone+31888667744

E-mailcklaassen@gmail.com

Attestors

CZ
1 attestation

Rabobank
11 attestations

My ID

Scan

Dashboard



AttestationShop

DEBUG

Home

UserHome

RecipeReq



Receptgegevens invullen



Voornaam	Voornamen	Geslachtsnaam	Geboortedatum	Zorgverzekeraar	Relatienr
Catharina	Catharina Amalia Cornelia	Klaassen	02-02-1962	CZ	435492592

Geneesmiddel

Aantal te verstrekken eenheden

Microgynon 20

5

Geneesmiddel	Stof	Sterkte	Aantal	Eenheid
Microgynon 20	Levonorgestrel/Ethinylestradiol	100/20 mcg	63	st

Maak recept

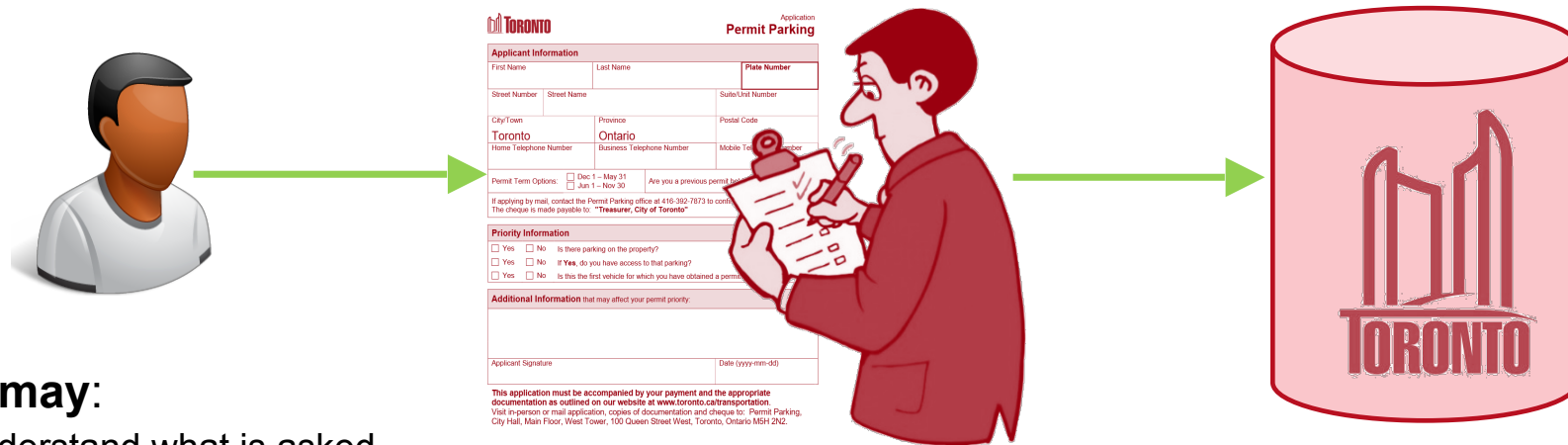
Annuleer

Mogelijke NPs

This application is developed with  Ampersand technology.

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Identity-Data Processing: Costly and Time-Consuming



Users may:

- › Not understand what is asked
- › Not know where to get the requested data
- › Not know what answers are acceptable

Users may experience that:

- › It takes a lot to fill in these (bureaucratic) forms
- › It takes a long time for the provider to decide
- › Anger, agony, no trust in provider (business)
- They may give up to enter in the transaction

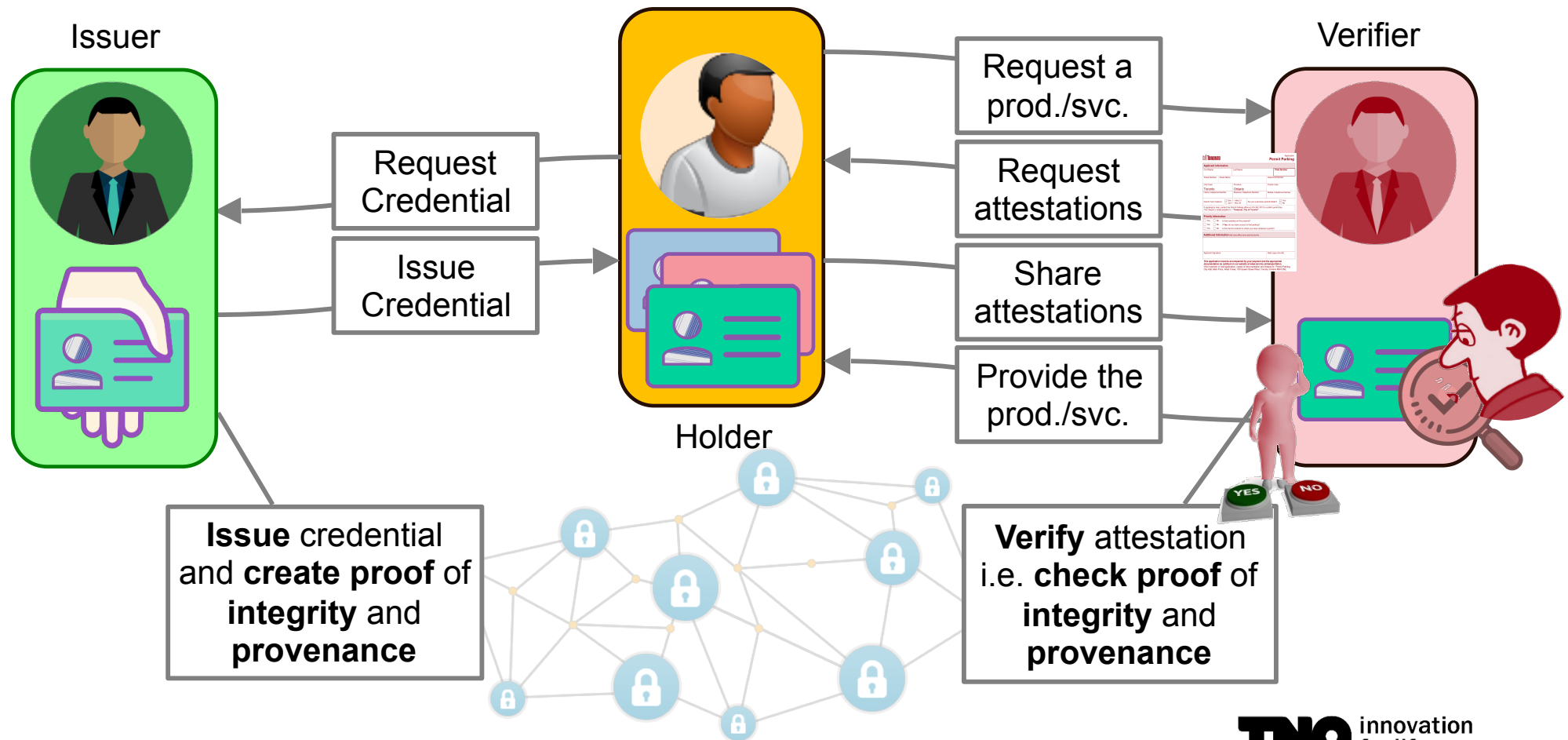
How does a business decide

- › that the data is correct/acceptable
- › with a sufficiently high degree of certainty

Providers may experience

- › High cost and long processing times
- › The dilemma: Pay the Price or Run the Risk
- › User dissatisfaction – reduced conversion rates

“Self Sovereign Identities”



SSI User Benefits:

- › **No need to understand everything** that the form requires to fill in;
- › **Collecting data is much easier (and faster)**
 - › Obtain data electronically → fast
 - › No need to (physically) go places
- › **Filling in the form is done automatically**
 - › No typing
 - › No uploading
 - › No agony



SSI Business Benefits:

- › **They get quality Identity data**, i.e.
 - › meaning exactly what they intend;
 - › attested to by a party they trust;
- › **Easy validation of Identity data:**
 - › Check proof of integrity, provenance
 - › Check validity (expiration/revocation)
- › **Higher customer satisfaction (citizen trust) and**
- › **Higher conversion rates**
because users do not give up filling in forms, and it's faster
- › **Reduction of IT-links between business systems**
because information can be provided by users (attestations)
- › **GDPR compliance contributions**
e.g. if form meta-data specifies the purpose(s) for which the data is being used.
- › **New Business opportunities**
fuelled by the possibility to issue attestations

› CZ (health insurer) expects:



Aanvragen zorgverzekering



Achternaam	<input type="text" value="Value"/>
Voornaam	<input type="text" value="Value"/>
Geboortedatum	<input type="text" value="dd-mm-yyyy"/>
Geboorteplaats	<input type="text" value="Value"/>
Geboorteland	<input type="text" value="Value"/>
Geslacht	<input type="text" value="Value"/>
Telefoon:	<input type="text" value="Add value"/>
Email	<input type="text" value="Add value"/>

› GPs will be able to spend **20% more (quality) time** with their patients.

› **Significant reduction of unjust declarations** saves CZ millions of Euro's.

› **Higher satisfaction of patients**

- › Reduced waiting times for declarations and obtaining permission for treatments
- › Less physical visits to specialists for getting attestations

› **New business opportunities** arise

- › E.g. online medicine distribution

› **Status:** Prototype systems by which issuing of 'de pil' (or something else) can be demonstrated.

› We are preparing a pilot (to start in Jan 2019)

› Technology: We Are Getting There



› Research of DBC/ING shows that



are the current technologies that best matches the SSI principles (as formulated by Christopher Allen).

<https://www.linkedin.com/pulse/matching-identity-management-solutions-self-sovereign-tommy-koens/>

› Note that IRMA is not blockchain-based, whereas Sovrin and uPort are.

› **Going Far? Go Together! Come and join: SSI-Lab.NL**



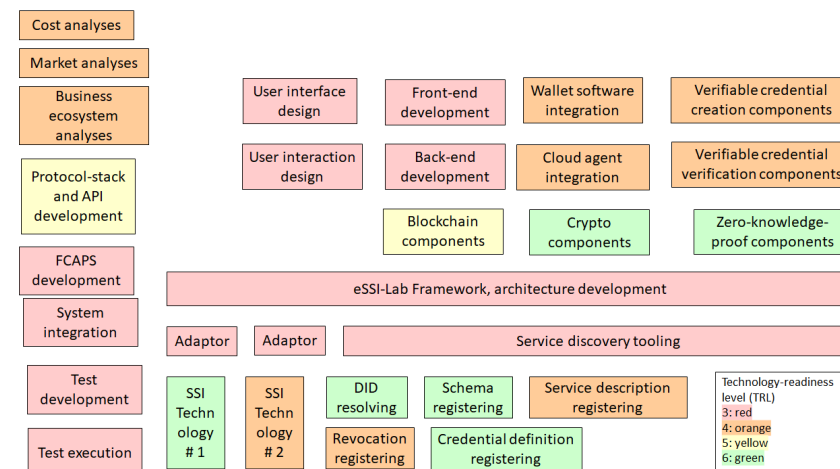
**Self-Sovereign
Integration Lab
(for experimenting)**

**Natural Learning
No Limitations
No Liability**

- › **Technological Challenges:**
 - › Technical interoperability between solutions
 - › Do we (really) need blockchain?
 - › Specifications of protocols and functionalities
- › **Process challenges:**
 - › Defining forms requires more precise specifications and business alignment.
- › **Cross-domain business interoperability:**
 - › Which parties will attest what?
 - › Legal implications?

› Endorse the eSSI-Lab proposal!

- › Horizon 2020 – ICT 24 – RIA i-b)
 - › “Strengthening internet trustworthiness with electronic identities” ([link](#))
- › 7 M€ cascaded funding: **you can earn money here** 😊
- › Partners
 - › TNO (NL): project coordinator, scientific lead
 - › Fundingbox (ES): cascaded funding coordination
 - › GRNET (GR): continuous integration
 - › Blumorpho (FR): business acceleration
- › **Looking for endorsement letters**, interest to
 - › Submit proposals to the cascaded funding calls of SSI-LAB
 - › Distribute cascaded funding calls of SSI-LAB in own network
 - › Make existing SSI components available to SSI-LAB



A nighttime photograph of a city street. On the left is a multi-story brick building with many lit windows. On the right is a modern building with a curved facade and many lit windows. In the foreground, a curved metal railing runs across the frame. Above the railing, there are long, horizontal light trails in green and yellow, suggesting motion. The sky is dark.

› Thank you for your attention

Take a look:
TNO.NL/TNO-INSIGHTS

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