

## DSWEU-DVU

Making smart energy reduction in non-residential  
buildings easier

# Datastelsel Verduurzaming Utiliteit

Bekijk nu uw energiegebruik per m<sup>2</sup> in uw gebouw. En deel uw data veilig en snel als input voor uw verduurzamingsproject.

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Smart Buildings and Smart Energy

## DSWEU DVU: Making smart energy reduction in non-residential buildings easier

With the contribution of:



- Platform Duurzame Huisvesting



- Techniek Nederland



- Bouwend Nederland



- **Dutch Green Building Council**



- **Facility Management Nederland**



- **Digicenter NS**

## Challenge & Context

To optimize the cost-effectiveness of CO<sub>2</sub>-reduction projects, non-residential building-owners need to share relevant data more easily but safely with their project partners (such as consultants, construction and installation companies). Recent research (TNO, 2021) is showing that energy-labels are only limited correlating with energy consumption in practice.

Especially in developing more ambitious CO<sub>2</sub>-reduction projects, sharing complete and up-to-date data about measured energy consumption in relation to key construction features is a crucial success factor for optimizing a maximum CO<sub>2</sub>-reduction per euro investment by creating digital twins for non-residential buildings:

- Combining energy data and building data to establish the yearly energy consumption per m<sup>2</sup> is needed to facilitate benchmarking for different types of non-residential buildings (such as offices or schools) with different key features such size, energy-label and year of construction.

- Historical energy consumption data per year, month, week, day, hour and quarter are needed to determine the baseline, which is conditional to developing cost-effective CO<sub>2</sub>-reduction projects with reliable business-cases

Data about the building, the energy-label and the energy-consumption are available in multiple sources. Within these 3 data-domains, data-formats are standardized. However, sharing data within and across these data-domains is not yet standardized. Data-providers are using different protocols for processing data-sharing requests, using different identification, authentication and authorization processes. Also, data-providers offer multiple data-exchange formats. This lack of standardization and coordination, causes data-sharing to be relatively inefficient. The current market practice is prone to errors, for instance data being shared based on outdated or incorrect authorizations. Innovation is needed for Data Service Providers, Data Consumers and Entitled Parties to have better and more efficient checks on the trustworthiness of exchange data requests, based on clear access policies (data sovereignty).

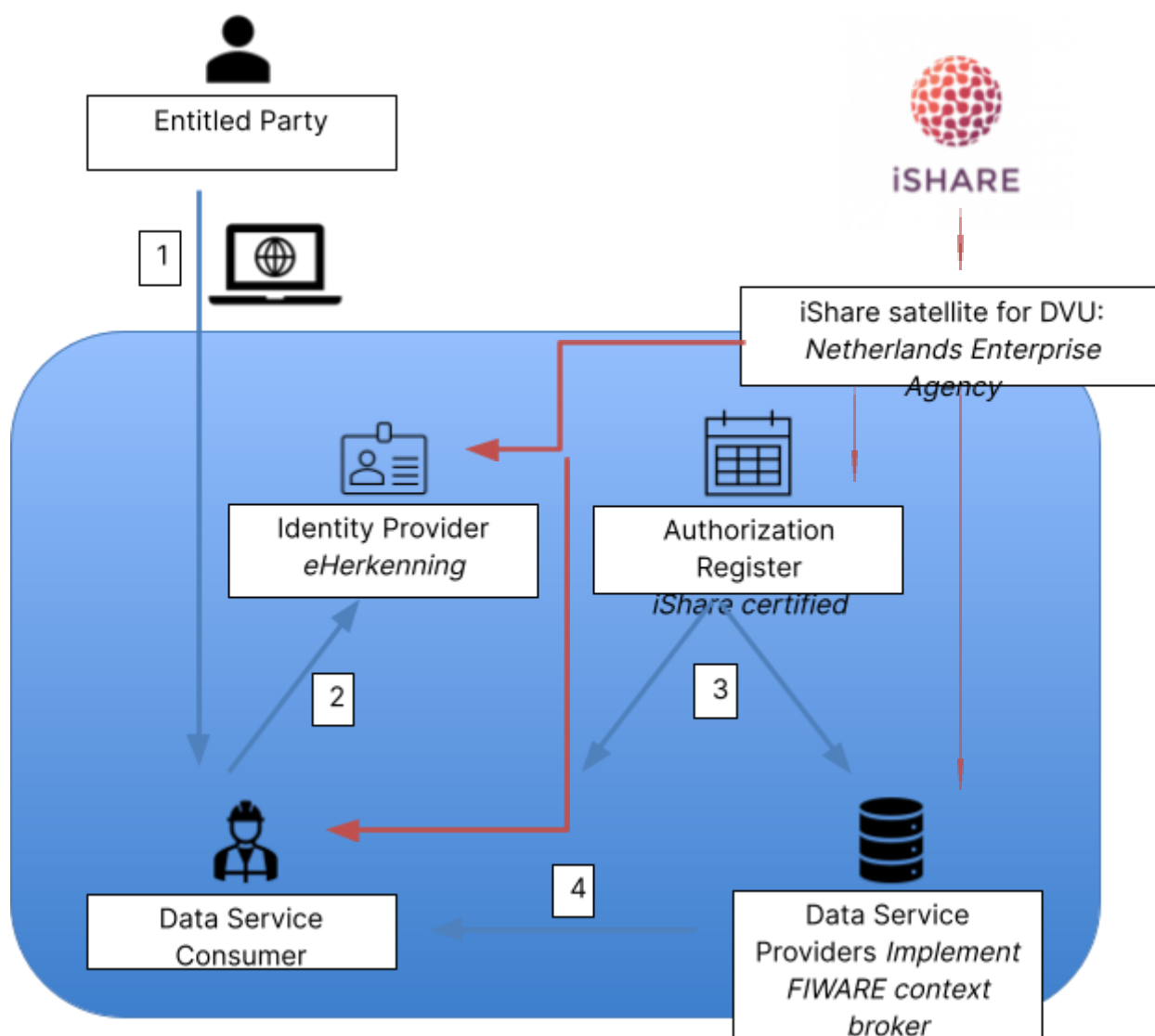
Given our enormous challenge to transform 480,000 non-residential buildings towards CO<sub>2</sub>-neutrality in 2050 as agreed in the Dutch Climate Agreement (2019), the need for better and more efficient data-sharing will grow in tandem.

## Solution

The DVU (Dataspace for Energy Reduction in Non-Residential Buildings) objective is to eliminate the data-sharing barriers in the current market. As explained earlier, developing more ambitious CO<sub>2</sub>-reduction projects for non-residential buildings increasingly requires complete and up-to-date data on the measured energy consumption in relation to key construction features. DVU supports the WEii protocol (<https://www.weii.nl/english-5>) developed by the Dutch Green Building Council with input from leading building owners, consultancy firms, construction & installation companies and financial institutions. With this data, Data Service Consumers (such as installation companies and consultancy firms) can create digital twins of non-residential buildings, modelling the desired energy / CO<sub>2</sub> reduction in various renovation scenarios for their clients (Entitled Parties). These digital twins are conditional to developing cost-effective CO<sub>2</sub>-reduction projects with reliable business-cases.

## How it works

Central to the DVU architecture is that will be developed as a federated iShare-dataspace. By reusing this proven trust-framework, we will save time and money. And by adopting this open standard for data-sharing (including all built-in technical standards such as API, PKI, OAuth 2.0, OpenID Connect 1.0, TLS, RESTful, JSON, JWT, XACML, X.509 and UTC) we will optimize interoperability with adjacent dataspace. Identification and authentication in the DVU dataspace will be provided by eHerkenning, because this B2B identity provider already has a large adoption-rate of 90% (500.000 businesses) in the Netherlands.



Interaction steps blue arrows)	
1	Through a DVU user-interface offered by the Netherlands Enterprise Agency, the Entitled Party (a business or public institution) starts an online request for sharing data with the Data Service Consumer (such as an installation companies or consultant)
2	The Entitled Party is being identified and authenticated by the Identity Provider (eHerkenning)
3	After a successful automated M2M check with the Data Service Provider (whether the identified and authenticated Entitled Party is indeed entitled to access and share the data), the Authorization Register provides a Data Service Transaction Agreement to the Data Service Consumer and the Data Service Provider
4	Data Service between Data Service Provider and Data Service Consumer. Depending on the type of Data Service the Data Service Transaction can be a single moment or take place periodically for a length of time.
Trust network (red arrows)	
DVU will be set up as a iShare federated satellite dataspace, including all standardized technical, operational and legal agreements	

## Benefits & Impact

Given our enormous challenge to transform 480,000 non-residential buildings towards CO<sub>2</sub>-neutrality in 2050 in the Netherlands, the need for better and more efficient data-sharing will grow in tandem. The growth in users cannot easily be quantified, but we assume at least 50,000 users in the first year after launching. The industry associations joining this i4Trust consortium will promote DVU to their members, which sum up to many thousands SME's either in the role of Entitled Party or Data Service Consumer in DVU. And maybe even more importantly: the Dutch government is planning to include DVU in its regulations as an attractive alternative for complying with measure-driven (hassle) regulations.

## Added value through i4Trust

The Dutch government (Netherlands Enterprise Agency) is providing the ICT-development budget for the DVU dataspace. However, this budget does not include substantial testing, showcasing and launching activities in the market. Therefore, the i4Trust program has offered a unique co-funding opportunity by focussing the requested i4Trust subsidies on boosting market-adoption through substantial testing, showcasing and launching with 30 - 40 test users (Entitled Parties and Data Service Consumers) from various relevant market-perspectives. This optimizes DVU market adoption.

In addition, the i4Trust program - through its EU scope and international network synergies - could also contribute to the development and launch of dataspace similar to DVU in other EU-countries.

## References

- <https://www.platformduurzamehuisvesting.nl/2022/07/12/datastelsel-ver-duurzaming-utiliteit-dvu-na-succesvolle-testfase-richting-livegang/>
- Other sources not yet available

## Authors & Contributors

- Marco Witschge (Fit Our Future, project-coordinator for DVU-consortium)

## Categories

### User(s):

Non-residential building owners, consultants, installation companies, construction companies, government

### Key words:

Cost-effective data-driven CO2-reduction

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Founding Partners



i4Trust has received funding from the European Union's Horizon 2020 research and innovation programme under the Grant Agreement no 951975.

