DSWEU-DVU

Making smart energy reduction in non-residential buildings easier
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
Challenge & Context

To optimize the cost-effectiveness of CO₂-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 CO₂-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 CO₂-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 m² is needed to facilitate benchmarking for different types of non-residential buildings (such as offices or schools) with different key features such as 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 CO₂-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 The current market practice is prone to errors, for instance data being shared based on outdated or incorrect authorizations.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 CO₂-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 CO₂-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 / CO₂ reduction in various renovation scenarios for their clients (Entitled Parties). These digital twins are conditional to developing cost-effective CO₂-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 dataspaces. 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.
**Benefits & Impact**

Given our enormous challenge to transform 480,000 non-residential buildings towards CO₂-neutrality in 2050 in the Netherlands, the need for better and more efficient data-sharing will grow in tandem. The growth is 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 it’s 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 dataspaces similar to DVU in other EU-countries.

References

- [https://www.platformduurzamehuisvesting.nl/2022/07/12/datastelsel-verduurzaming-utiliteit-dvu-na-succesvolle-testfase-richting-livegang/](https://www.platformduurzamehuisvesting.nl/2022/07/12/datastelsel-verduurzaming-utiliteit-dvu-na-succesvolle-testfase-richting-livegang/)
- Other sources not yet available

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Categories

User(s):
Non-residential building owners, consultants, installation companies, construction companies, government

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i4Trust – Data Spaces for effective and trusted data sharing

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