CEDR
Conférence Européenne des Directeurs des Routes
Conference of European Directors of Roads

AMS FREE

Exchange and exploitation of data from Asset Management Systems using vendor free format

CEDR Programme:
Call 2018 Building Information Modelling (BIM)

Project Duration:
01.12.2019 – 31.11.2021

Project

As part of the project Interlink (CEDR Call 2015) a framework for a European road object type library (OTL) was developed. AMSfree builds on this result and aims for a better understanding how to free and enrich data to and from asset management systems with the goal of wider implementation amonserg CEDR members.

The AMSfree project analyses the architecture of Infrastructure Asset Management Systems (IAMSs) used by National Road Authorities (NRAs) as well as the data structure in current IAMSs. Thus, the detailed technical requirements for linking data between IAMS and Building Information Models (BIMs) on a macro and micro level are established.

The analysis is performed on BIM models utilised by designers and contractors, so the level of development (LOD) for the common infrastructure asset BIM can be agreed upon. The recommendations and guidance for data exchange as well as the rules for semantic transformation are established. All data from the source systems is transferred to a reference database by using the established transformation rules.

The semantic transformation between different legacy systems is enabled on the basis of the Industry Foundation Classes (IFC) property templates, taking into account the IFC import/export capabilities of various systems. Specifically, a uni-

versal mapping approach between different IFC properties of different legacy systems is defined. For this purpose, a corresponding architecture is developed. Existing national data formats (e.g. OKSTRA, Interlis2) are linked with the IFC format.

Based on the results, a proof-of-concept is developed, and the systems' interoperability is verified. Consequently, the requirements to enable the linkage between the data in IAMS and the IFC model are outlined. Based on these requirements a prototype is developed and documented.

CEDR

CEDR is an organization of European national road administrations that promotes Excellence in the Management of Roads. The CEDR Transnational Research Programme (TRP) operates through a series of annual transnational calls on topics that address the needs of European road authorities. The aim is to produce research results that can be implemented by CEDR members and contribute to a safe, sustainable and efficient road network across Europe. The TRP is funded by CEDR members on a voluntary basis. Participation is open to any legal entity, though all consortia must be led by a legal entity from a European country.

Website

For further information, newsletter registration or publications visit www.amsfree.eu

Contact

For questions or further information, the consortium can be contacted via e-mail: info@amsfree.eu

Project Goals

The main goal of the AMSFree Project is to establish detailed technical requirements for linking IAMS and Building Information Models (BIMs) as infrastructure asset databases on a macro and micro level.

WP 1
Project Management and dissemination

Ensure that project objectives are met within the budget and on time, and ensure that the project results are appropriately disseminated.

WP 2
Comparative analysis of IAMS in and common BIMs in Europe

Determine commonality and differences between the asset management systems used in Europe and common BIMs used in Europe.

WP 3
Digital condition assessment

Adapt existing inspection and monitoring procedure for BIM and develop data workflow for new sensor and scanning techniques. Identify how the data can be used directly in condition scores or transformed to provide key performance indicators.

WP 4
Data fusion and semantic transformations

Establish a reference database and interfaces to different database (archipelago) that allow semantic transformations.

WP 5
Development of a referenced vendor-free IFC-based data structure

Establish the interoperability between the IAMS and BIM software and data acquisition devices. Detailed specification of the individual data exchange processes. Development of a data structure using the IFC standard.

WP 6
Data exchange to legacy systems

Develop a transformation concept for data exchange between different legacy systems. Procedure for the systematic integration of national characteristics.

WP 7
Development of a prototype

Demonstrate the integration of or interoperability between BIM and IAMS.

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