CPO Statement of CONWEAVER GmbH

Following the prerequisites of ProSTEP iViP's Code of PLM Openness (CPO) IT vendors shall determine and provide a list of their relevant products and the degree of fulfillment as a "CPO Statement" (cf. CPO Chapter 2.8).

This CPO Statement refers to:

Product Name	**CONWEAVER Linksphere**
Product Version	**2.10**
Contact	**Joachim Caspar** **joachim.caspar@conweaver.com**

This CPO Statement was created and published by CONWEAVER GmbH in form of a self-assessment with regard to the CPO.

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Content

1 Executive Summary

Increasing cost pressure, product complexity and shorter product development lifecycles combined with diversified business processes imply a manifold of business and engineering IT applications. Even if each of these applications is excellent for their respective purpose in the Product Lifecycle Management (PLM) process: the interconnection between them is missing.

CONWEAVER develops and sells software solutions to support proactive, collaborative PLM processes. Using dynamic linking of structured data, the CONWEAVER Linksphere Graph is the glue between these applications and processes.

Instead of traditionally resource intensive, time consuming and expensive integration projects (MDM), CONWEAVER provides a “bottom-up” approach with easily linked data landscapes within weeks.

The CONWEAVER Linksphere Graph provides logically correct data synchronization (data logistics) between applications and data transparency over system boundaries and delivers critical information in a stable and clean form which saves cost, reduces risk and allows “manufacture anywhere”.

The primary purpose of CONWEAVER is to dynamically link heterogeneous data landscapes, based ideally upon open standards and providing variable access to aggregated information. Through this unrivaled CONWEAVER process new metadata is created – transforming data into information.

Company Name:	CONWEAVER GmbH	**Contact Person:**	Joachim Caspar
Product Name:	CONWEAVER Linksphere		

CPO Term	Fulfilled (100%)	Comments because of deviations
2.1 Interoperability	☒	
2.2 Infrastructure	☒	
2.3 Extensibility	☒	
2.4 Interfaces	☒	
2.5 Standards	☒	
2.6 Architecture	☒	
2.7 Partnership	☒	

List of inherent supported neutral standards	API: ☐C/C++ / ☒Java / ☒.NET / ☒Web Services / Others: HTTP-RESTFul 3D: ☒IGES / ☒JT / ☒STL / ☒STEP / ☐VRML DX: ☐eCl@ss / ☒FMI / ☐IDX / ☒PDF / ☒ReqIF / ☒STEP / ☒VEC Others: https://www.conweaver.com/de/produkte/code-of-plm-openness https://www.conweaver.com/fileadmin/www.conweaver.de/images/content/produkte/Linksphere_Terra/Produktdatenblatt_Linksphere_Terra_DE.pdf https://www.conweaver.com/fileadmin/www.conweaver.de/images/content/produkte/Linksphere_Terra/Loesungsflyer_Linked_Data_Search_DE.pdf https://www.conweaver.com/fileadmin/www.conweaver.de/media/downloads/public/Linked_Data_2016_Results_Paper_TEASER.pdf

2 Details of Self-Assessment

The following chapters summarize the results of the CPO-related self-assessment of CONWEAVER GmbH with regard to the product family CONWEAVER Linksphere.

2.1 CPO Chapter 2.1: Interoperability

APIs have the following standard language bindings:

The CONWEAVER API is a web service that is hosted in a web host (e.g. IIS). The API provides external access to the CONWEAVER Semantic Middleware and is used by the CONWEAVER APPs. The API has read access to the CONWEAVER Linksphere Graph and can start Transaction Workflows. It provides a secure communication via https and authentication via, for example, OpenSSO or ActiveDirectory.

The following developer add-ons provide customers with an even more extensive data access as well as enabling further customizations. CONWEAVER ADD-ONs are additional CONWEAVER software packages that may be used to extend licensed CONWEAVER APPLICATIONS. Such extensions are:

- **CONWEAVER Realtime Propagation**

  … is an editing mode in which modifications performed in an editing APP are directly propagated into the CONWEAVER Linksphere Graph. In this way these modifications can be accessed in real time.

- **CONWEAVER Staging DB**

  … is an intermediary database that stores pushed data from the customer‘s primary sources. The staging DB ensures near-real-time update of the CONWEAVER Linksphere Graph.

- **CONWEAVER SEMANTIC TEXT TECHNOLOGIES**

  … are needed to extend the CONWEAVER Linksphere Graph by semantic relations automatically extracted from unstructured „text“ data (documents, pdfs, etc.) as stored on file servers, in document management systems etc.

- **CONWEAVER TRANSLATED TERMINOLOGY**

  … allows to automatically construct a multilingual CONWEAVER Linksphere Graph. Using CW Translated Terminology it is, for example, possible to input search strings in one language and find results in another. TRANSLATED TERMINOLOGY may be generated from translated text material, e.g. translated product descriptions.

CONWEAVER considers three (3) kinds of software developers:

1. **CONWEAVER WORKBENCH**

   A CW WORKBENCH uses CONWEAVER WORKBENCH‘s modules to configure CONWEAVER APPLICATIONS from the data level to the GUI.

2. **CONWEAVER MODULE DEVELOPER (add-on)**

   CW MODULE DEVELOPERS are software developers who are skilled to develop independent software modules for the purpose of adding these software packages to the CONWEAVER WORKBENCH module library.

3. **CONWEAVER WEB DEVELOPER (add-on)**

   CW WEB DEVELOPERS use the CONWEAVER GUI infrastructure to design new controls to be used for GUI design.

   Please provide relevant information or URL to product flyers providing relevant information

2.2 CPO Chapter 2.2: Infrastructure

Supported platforms (hardware and OS) are:

The hardware requirements for a CONWEAVER system depend very strongly on the type and extent of its use. Multi-user licenses with numerous enquiries call for a fast and firm net infrastructure, a load balancer, and

a fast server. Memory size and hard disk space depend mainly on the type and size of the source data to be processed. The faster the underlying I/O subsystem is, the better the CONWEAVER solution performance. SSD based systems pose an optimal solution here simply because a high disk performance is available.

Hardware Requirements (Recommendation)

Recommended requirements for a small prototype are:

- 8x Core CPU 3.0 GHz
- 64 GB Ram
- 600 GB HDD

The software can be run on a virtual machine. The following VMs are supported: Hyper-V & VMware.

For further information please see attachment “CONWEAVER Technical Overview”.

Software Requirements

A CONWEAVER system requires the following software components:

Table 1 - Basic Software Requirements

Required Software	Explanation
Microsoft Windows Server 2012 R2 (64 Bit / engl.)	Operating system necessary for the installation of software components and database server. • License: Commercial • Licensor: Microsoft
Microsoft Internet Information Server (IIS) 7.5 or higher	Server necessary for the communication between CONWEAVER WebSearch and CONWEAVER System. • License: Commercial • Licensor: Microsoft
Microsoft .NET Framework 4.5 (or higher)	Basis framework for the CONWEAVER Workbench. • License: Commercial • Licensor: Microsoft
Microsoft SQL Server 2012 (64 Bit / engl.) or higher	Database server required for storing the CONWEAVER data networks and creating search engine indices. • License: Commercial • Licensor: Microsoft

2.3 CPO Chapter 2.5: Standards

CONWEAVER Linksphere Terra Graph acts as an intermediary (semantic middleware). It can manage and re-route all kinds of data types (as container). All metadata (file attributes such as title, author, modified by, timestamp) are extracted and indexed. Content data can be extracted from all typical data formats (such as PDF, Word, Excel, Mail/Exchange, XML, etc.) and all common databases (such as SQL-based DBs) can be read, indexed, and if required modified, propagated to other systems or written back to the originating data system.

Access to the intermediate data layer is available for all customers as WebService (HTTP/RESTful) and enables seamless integration of CONWEAVER into existg IT-Infrastructures and embeddings into arbitrary external Applications.

CPO-specific 3D-Standards and Exchange Formats	Metadaten lesen & indexieren	als Container weiterreichen	Contentdaten lesen & indexieren	Contentdaten modifizieren und
AutomationML				
FMI - Functional Mockup Interface				
IGES (Initial Graphics Exchange Format)				
JT (Jupiter Tesselation)				
OSLC (Open Services for Lifecycle Collaboration)				
PDF				
ReqIF				
STEP AP 242 XML				
STL (Standard Tesselation Language / STereoLitography)				
SysML				
UML				
VEC (Vehicle Electric Container)				
XMI (XML Metadata Interchange)				
3D PDF				

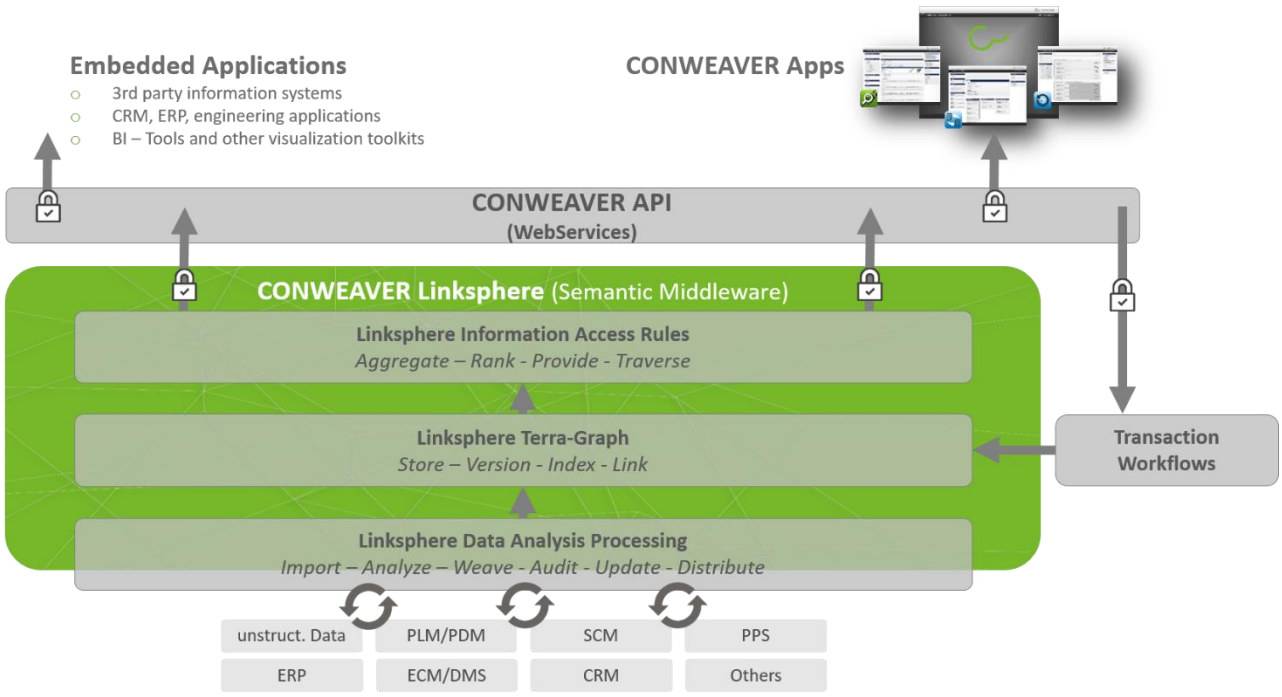
API-Standards / Programming languages	lesender Zugriff	Kunden- und Toolspezifische (Schreib-) Programmierung	CONWEAVER APIs (lesen/schreiben)
C / C++			
Java			
.NET			
Web Services (SOAP / RESTful)			

2.4 CPO Chapter 2.6: Architecture

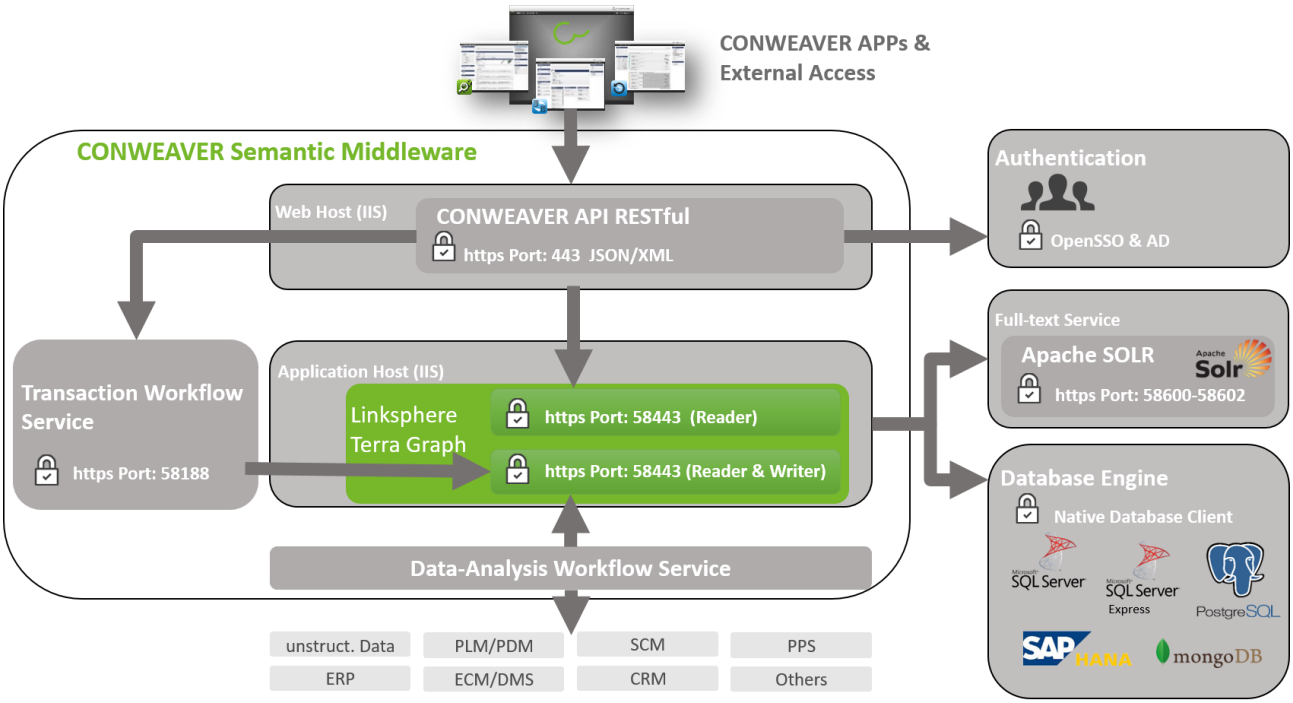
The IT system's architecture is conforming CPO 2.6

Yes ☒ / No ☐

CONWEAVER architecture (logical view)



CONWEAVER architecture (technical view)



For further information please see attachment "CONWEAVER Technical Overview".

2.5 CPO Chapter 2.7: Partnership

2.5.1 Data Generated by Users

Data generated by IT users with an IT system is and remains the intellectual property of these IT users, according CPO 2.7.4. Yes ☒ / No ☐

2.5.2 Partnership Models

Partnership models are offered according CPO 2.7.7 Yes ☒ / No ☐

CONWEAVER currently distinguishes between the partnership levels of (1) Consulting Partner and (2) Implementation Partner.

Consulting partners provide leads to potential customers and project support (i. e. administrative, knowledge etc.) when a project has been reached. Based upon the aforementioned circumstances, an Implementation Partner additionally qualifies its own employees to be able to implement CONWEAVER products and solutions at a customer's site, thereby independently designing custom solutions (assistance of CONWEAVER only where applicable).

2.5.3 Support of User and Innovation Groups

Supported groups are:

- *Customer centric* user groups are supported via a closed, internal ticket and feedback system (JIRA).
- For *external users and innovation groups,* CONWEAVER provides an annual series of events where users (engineers, designers, IT professionals, managers) meet to discuss questions, trends and ideas in regard to PLM in all its facets - deliberately not only restricted to CONWEAVER products and solutions.
- Latest event: Linked Data 2016
- Next event: Linked Data 2017

2.6 Additional Information

CONWEAVER considers three (3) kinds of software developers:

1. CONWEAVER WORKBENCH

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