DCSA Information Model 3.2 – Reading guide

Digital Container Shipping Association (DCSA)

July, 2021

Purpose of this Reading Guide

This reading guide will allow readers of the DCSA Information Model 3.2 to understand what the context of it is, what you can expect from it, and what you can achieve with it.

1 What is the context of the DCSA Information Model 3.2?

2 What can you expect from the DCSA Information Model 3.2?

3 What can you achieve with the DCSA Information Model 3.2?

What is the context of the DCSA Information Model 3.2?

Digital Container Shipping Association (DCSA)

The DCSA Industry Blueprint 3.0 is one of the main initiatives and publications of the DCSA.

VISION

The vision of DCSA (Digital Container Shipping Association) is to shape the digital future of container shipping by being the industry's collective voice. Together with our members, DCSA works towards alignment and standardisation of IT and non-competitive business practices. Our aim is to move the industry forward by setting frameworks for effective and universally adoptable standards and exploring possibilities for innovation. We are vendor neutral and technology agnostic to enable widespread adoption of DCSA standards.

MEMBERS

The Digital Container Shipping Association has the following members: CMA-CGM, Evergreen, Hapag-Lloyd, HMM, Maersk, MSC, ONE, Yang Ming and ZIM.

DCSA Members

Purpose of the DCSA Information Model 3.2

The DCSA Information Model 3.2 has been developed to facilitate standardisation and digitalisation of the container shipping industry, with a special focus on track and trace, operational vessel schedules and eDocumentation (B/L).

PURPOSE

1. Standards support a common view across the industry in relation to processes, milestones, events and messages, facilitating industry standardisation and digitisation efforts. Developing standards requires the definition and alignment of terms, entities and attributes based on a shared understanding of concepts, activities and rules of the business.

2. Additionally, a clearly defined DCSA Information Model is the foundation against which future DCSA standards will be defined and mapped, such as those for IoT, blockchain and cybersecurity. While it is subject to regular updates, it can serve as a baseline for industry stakeholders to initiate their own efforts towards digitalisation.

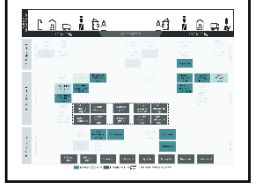
What can you expect from the DCSA Information Model 3.2?

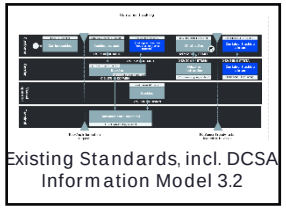
Approach to the DCSA Information Model 3.2

The DCSA Information Model was created to organise and catalogue the information related to business processes and use cases mapped in the DCSA Industry Blueprint 3.0. Existing standards for describing reference data relevant to the industry were also considered. The model has been built iteratively and will be subject to updates in the future.

Review of business perspectives

DCSA Industry Blueprint 3.0 & Schedule Definitions 1.0





Existing Standards, incl. DCSA Information Model 3.2

Use-case description and Baseline requirements document

Carrier SME expertise

DCSA Industry Blueprint 2.0 & Schedule Definitions 1.0

Alignment of processes and business terms

Existing standards, incl. DCSA Information Model 2.0

Assessment regarding reuse, enhancement or rework of existing standards

Use-case and Baseline requirements

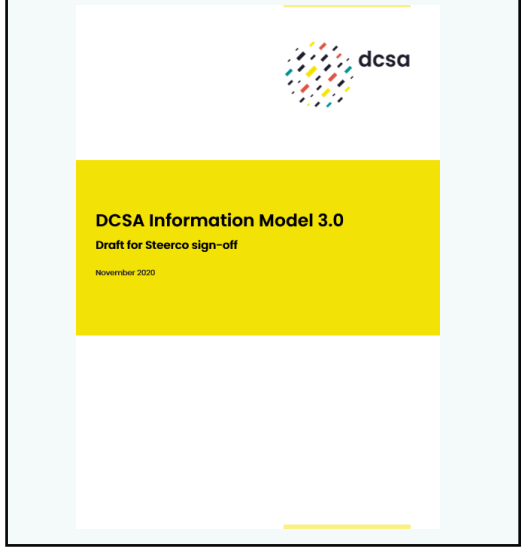
Setting the scope for standardisation

Carrier SME expertise

Industry knowledge is key to understanding the domain

DCSA Information Model 3.2

DCSA Information Model 3.2



Scope of the DCSA Information Model 3.2

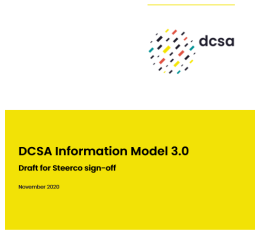
The DCSA Information Model 3.2 is complemented by this reading guide, the DCSA Glossary of Terms 3.0, DCSA Industry Blueprint 3.0, DCSA Schedule Definitions 1.0, the DCSA Event Naming Convention and Event Structure Definitions 1.0, as well as the DCSA Interface Standard for Track and Trace 1.2 and the DCSA Interface Standard for Operational Vessel Schedules 1.0.

DCSA Information Model 3.2

The DCSA Information Model 3.2 provides a holistic overview of the standardisations of information that have been agreed upon within DCSA as regards two subject areas:

- Track and trace
- Operational vessel schedules
- Bill of Lading (Transport document)

The business standards for track and trace and (e)BL are outlined in the DCSA Industry Blueprint 3.0, whereas the DCSA Schedule Definitions 1.0 covers operational vessel schedules.



DCSA Information Model 3.2 Reading Guide

This document is recommended to read before starting to use the DCSA Information Model 3.2. The Reading Guide has been created to facilitate proper use and understanding of the DCSA Information Model 3.2 and to make clear its limitations.

DCSA Glossary of Terms 3.0

The glossary is used to support the reader with definitions and explanations of the business terms used for track and trace, operational vessel schedules and (e)BL in the documents. It ensures that all readers interpret the terms in the same way.

DCSA Industry Blueprint 3.0

The Industry Blueprint 3.0 provides insights on as-is carrier processes with special focus on track and trace, operational vessel schedules and (e)BL. Thus, it comprises processes related to the movement of a container from one location to another and related eDocumentation processes.

DCSA Schedule Definitions 1.0

The DCSA Schedule Definitions 1.0 provides insights into as-is vessel operator processes critical for industry digitisation and standardisation efforts. As such it has a special focus on operational vessel schedules.

DCSA Event Naming Convention and Event Structure Definitions 1.0

To align terminology across the industry, the DCSA has developed a naming convention, which sets the standard for naming as well as understanding of customer facing track and trace events.

DCSA Interface Standard for Track and Trace 1.2 and DCSA Interface Standard for Operational Vessel Schedules 1.0

Interface Standards based on DCSA Information Model 3.2 have been published: one for track and trace and one for operational vessel schedules. The standards for the Bill of Lading are expected in January.

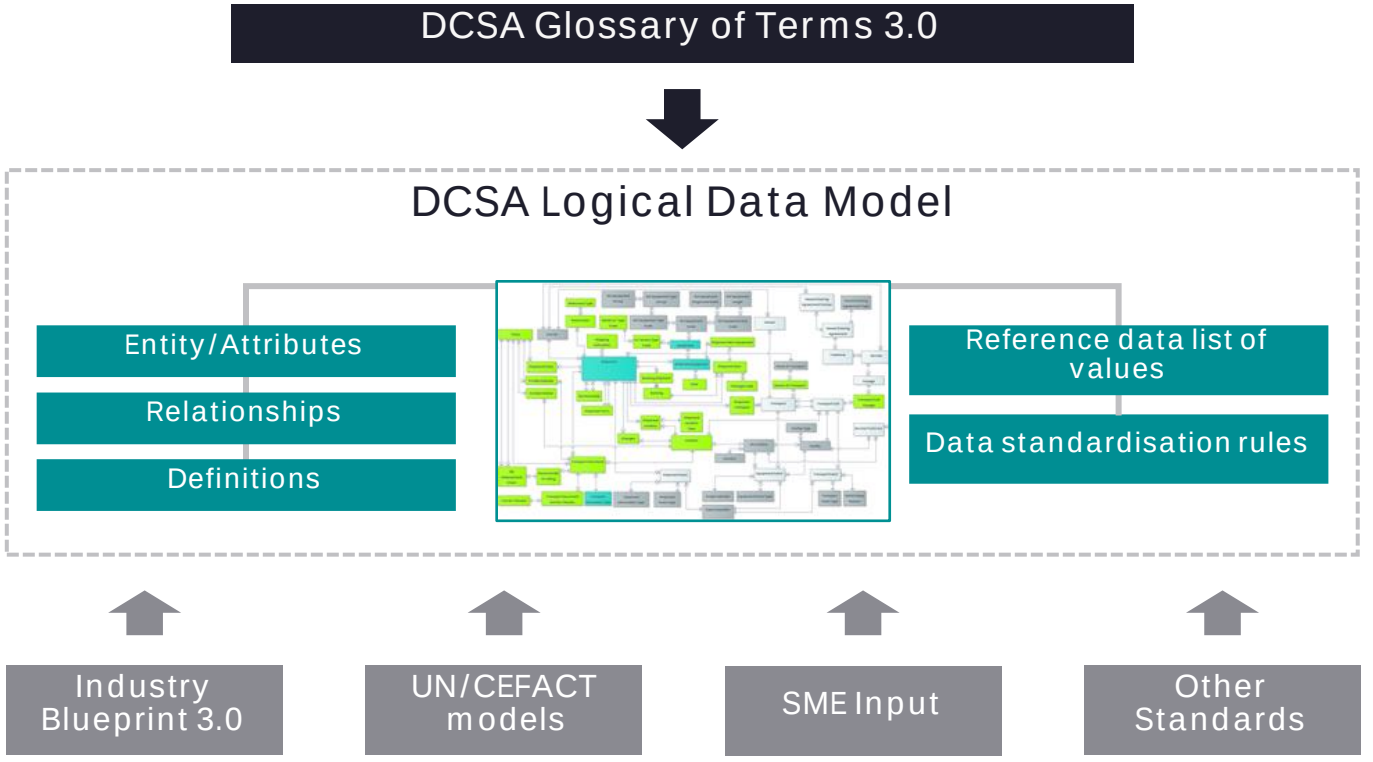
Key Elements in the DCSA Information Model 3.2

The DCSA Information Model 3.2 contains a Logical Data Model, a standardised lists of data and data standardisation rules.

DCSA Information Model 3.2

The DCSA Information Model 3.2 consists of a number of value-driven objects:

1. Logical data model: A diagrammatic representation of data entities and the data attributes that store details about the entities, and the relationships that exist between data entities, as well as standardised names of data entities and data attributes, for example 'equipment' versus 'container'. Definitions of the entities and attributes are stored as part of the metadata for the model.
2. Standardised lists of data: A controlled list of values recommended to help ensure that the same data is used within and between organisations.
3. Data standardisation rules: When a predetermined data value cannot be offered, the data standardisation rules can help with the generation of consistent data values to be used.



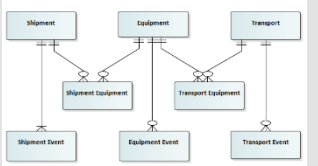
What can you achieve with the DCSA Information Model 3.2?

What can you achieve with the DCSA Information Model 3.2?

The DCSA Information Model 3.2 creates a standardised platform for all users and stakeholders in the shipping industry, especially catering for operational vessel schedules and track and trace activities. Below, different possible users and a description of the value they can gain through the DCSA Information Model 3.2 are displayed.

Example of usage

Share one DCSA Information Model



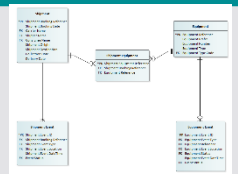
Information is understood and can be relayed in a uniform manner

Example: A depot is a designated area where empty equipment is stored between use.

Reduce miscommunication

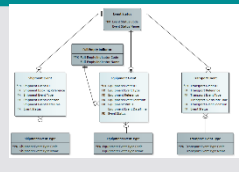
Example: 11/11/2011 vs. 2011-11-11

Avoid errors

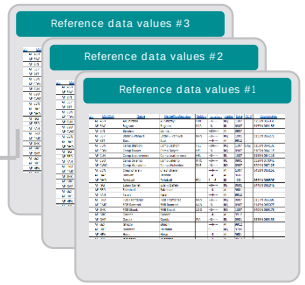


Date formats and logical data model are conform

Shared sets of relevant data



Data is understood and modelled the same way



Selected sets of reference data follow the same rules or guidelines

Example of users

Business owners

'As a Business Owner, I can:

Members and partners

'Reduce complexity and maintenance, improve time-to-market, reduce cost and errors in cross-industry operations and development'.

Vendors

'Reduce resources bound to maintain legacy solutions Release resources to develop new digital services instead'.

Other standard organisations

'Easily map descriptions and data across standards organisations. Understand shipping's shared requirements, definitions and technical specifications. Assess pros/cons more easily when choosing whether to follow a standard (assess to reuse, enhance, or rework the standard)'.

Specialists

'As a product owner, I can find a standard for a specific use case that defines common specifications used across the industry. The standards also give me the opportunity to find out which process and data elements are included in a specific use case. I can give user requirements to IT and be sure that other stakeholders do it in the same way'.

'As a data specialist, I now have documentation of what data I need to use for a specific use case, and I can use this to map the DCSA Industry Blueprint 3.0, or the DCSA Schedule Definitions 1.0 or the DCSA Information Model 3.2 to other datasets that I work with, for example, data sets from internal systems, other organisations and external vendors, as they have the same data references. This helps me to ensure that data is used in the same way across the industry'.

'As an IT architect, I can use the common industry data standards for IT solution designs – regardless of technology – and ensure that we implement the solution and requirements in the same way across the industry'.

'As an integration specialist, I have documentation of common data definitions and formats for development of interfaces. I can develop on my own interfaces regardless of the technology I use'.

Feedback

Contribution

The DCSA Industry Blueprint will be expanded with more data elements as DCSA continues to standardise the inter-operational aspects of the container shipping industry. This will be done based on our ongoing collaboration with industry stakeholders.

Creation process

The DCSA Industry Blueprint has been created in collaboration with some of the world's largest shipping companies. The collection and consolidation of data documentation was carried out by the DSCA. The DCSA Industry Blueprint aims to create a representation of industry data references, data descriptions and data relationships.

Suggested improvements

The DCSA Industry Blueprint is an evolving document, which will change as processes and best practise across the industry change.

For this reason, DCSA is always interested in feedback that can improve the quality of published work and drive standardisation and digitalisation going forward.

If you have any feedback or input, please click 'Contact' on our web site.

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Appendices

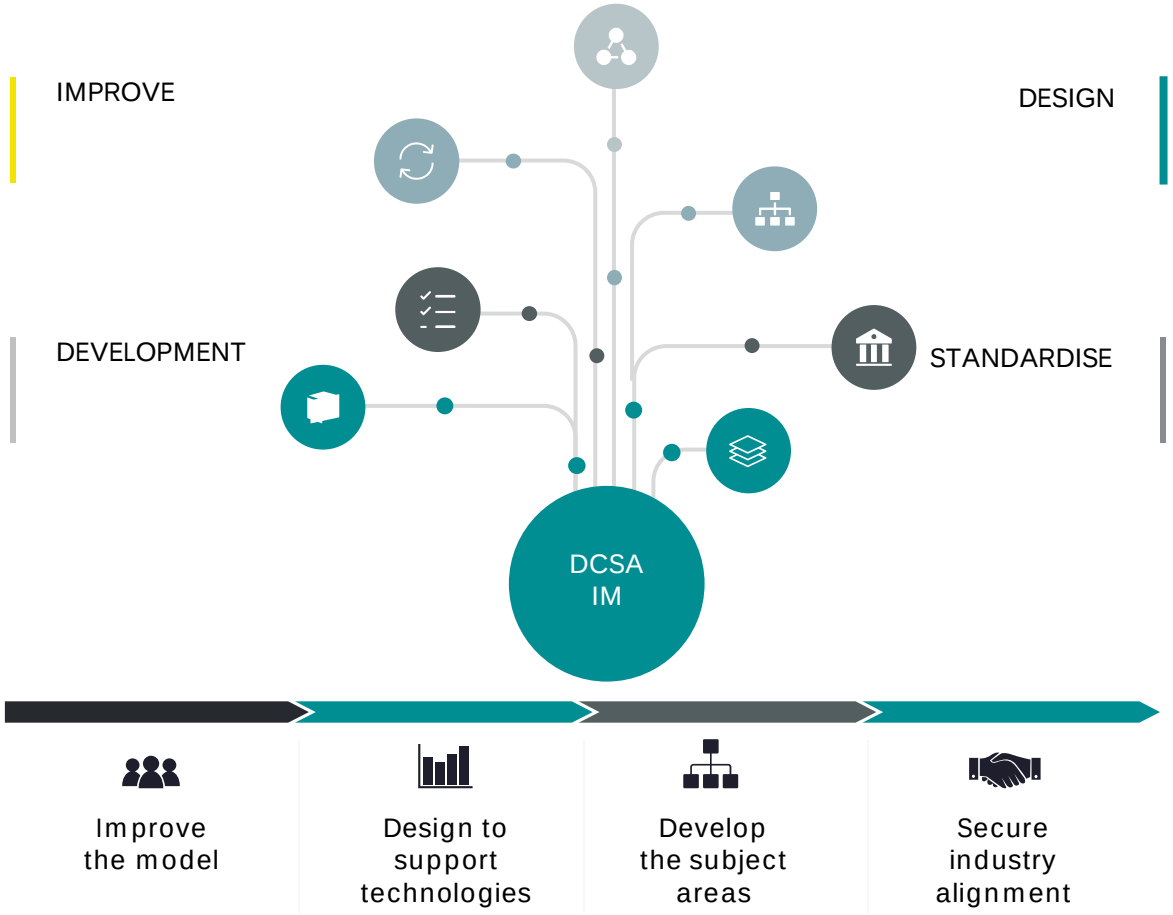
Appendix I - Future publications

Insights to current publications and how these are continuously under scrutiny to be improved

The DCSA Information Model 3.2 in based on the offset of the data universes derived from the DCSA Industry Blueprint 3.0 and the DCSA Schedule Definitions 1.0, as well as on insights drawn from mapping them against the UN/CEFACT MMT RDM and the derived UN/EDIFACT definitions.

The initial entities that cover the data universe of the shared information model for the container shipping industry have been modelled. The data entities and data attributes included in the model will continuously be developed during the DCSA's various data standardisation projects.

Future publications will either function as amendments to existing entities, providing added insights, or as new entities incorporated in the logical data model on the basis of findings from the deliverables in the DCSA Information Model 3.2.



Appendix II - Entity relationships

The listed entity relationship types below are used in the DCSA Information Model 3.2.

Relationship	Meaning	Description
	One to one	This connector describes a relationship between two entities in which one occurrence of entity A can be related to only one occurrence of entity B.
	Zero or one to one	This connector describes a relationship between two entities in which zero or one occurrence of entity A can be related to one occurrence of entity B.
	One or many to one	This connector describes a relationship between two entities in which one or many occurrences of entity A can be related to one occurrence of entity B.
	Zero, one, or many to one	This connector describes a relationship between two entities in which zero, one or many occurrences of entity A can be related to one occurrence of entity B.

Thank you

Legal disclaimer