STANDARDIZATION OF EXCHANGE

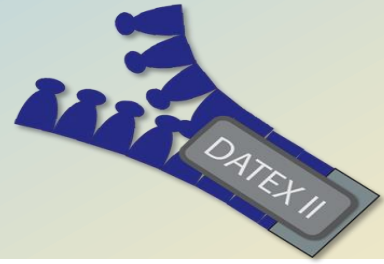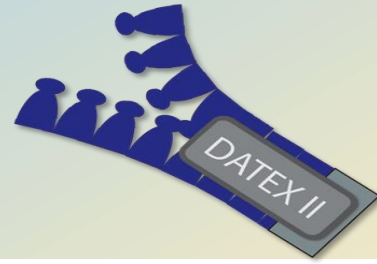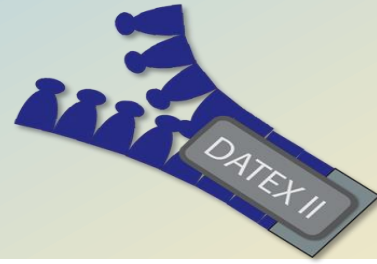Ricardo Coelho

Agenda

- DATEX II – Data Exchange
- DATEX II – CEN
- DATEX II – ISO
- DATEX II – EIP WI Exchange
- DATEX II – EIP Input for standardization
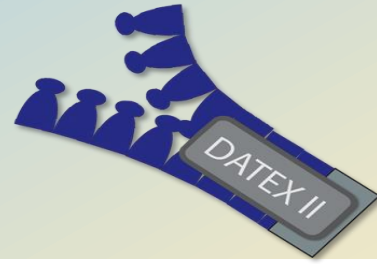
DATEX II – Data Exchange

What do stakeholders expect from a data exchange "Protocol"?

- **What** to exchange (**Data Dictionary**)
  - DATEX II provides an excellent data dictionary (Payload Publications).
  - Situations, Measures, Elaborated Data, among others…

- **How** to exchange (**Exchange Specification**)
  - DATEX II provides a exchange specification based on a PIM (Platform Independent Model) and PSM (Platform Specific Model)
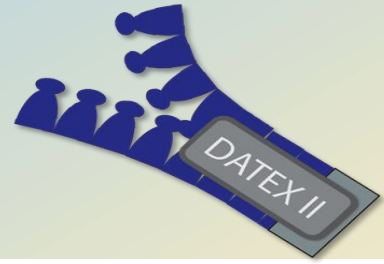
DATEX II – CEN/TC 278/WG8

- Working group 8 is responsible for the multi part DATEX II standard;

- The focus of DATEX II standardization is on the information content;

- Part 1 defines the modeling methodology and rules for extension.

- Parts 2-7 define the content according to this methodology.

  - Part 2 – Location Referencing

  - Part 3 – Situation

  - Part 4 – VMS

  - Part 5 – Measured & Elaborated Data

  - Part 6 – Parking Information

  - Part 7 – Traffic View

- Substantial work on exchange has already been performed with the ambition to take up its standardization at the ISO level. For this there is an on going **cooperation** between CEN TC278/WG8 and ISO TC204/WG9.
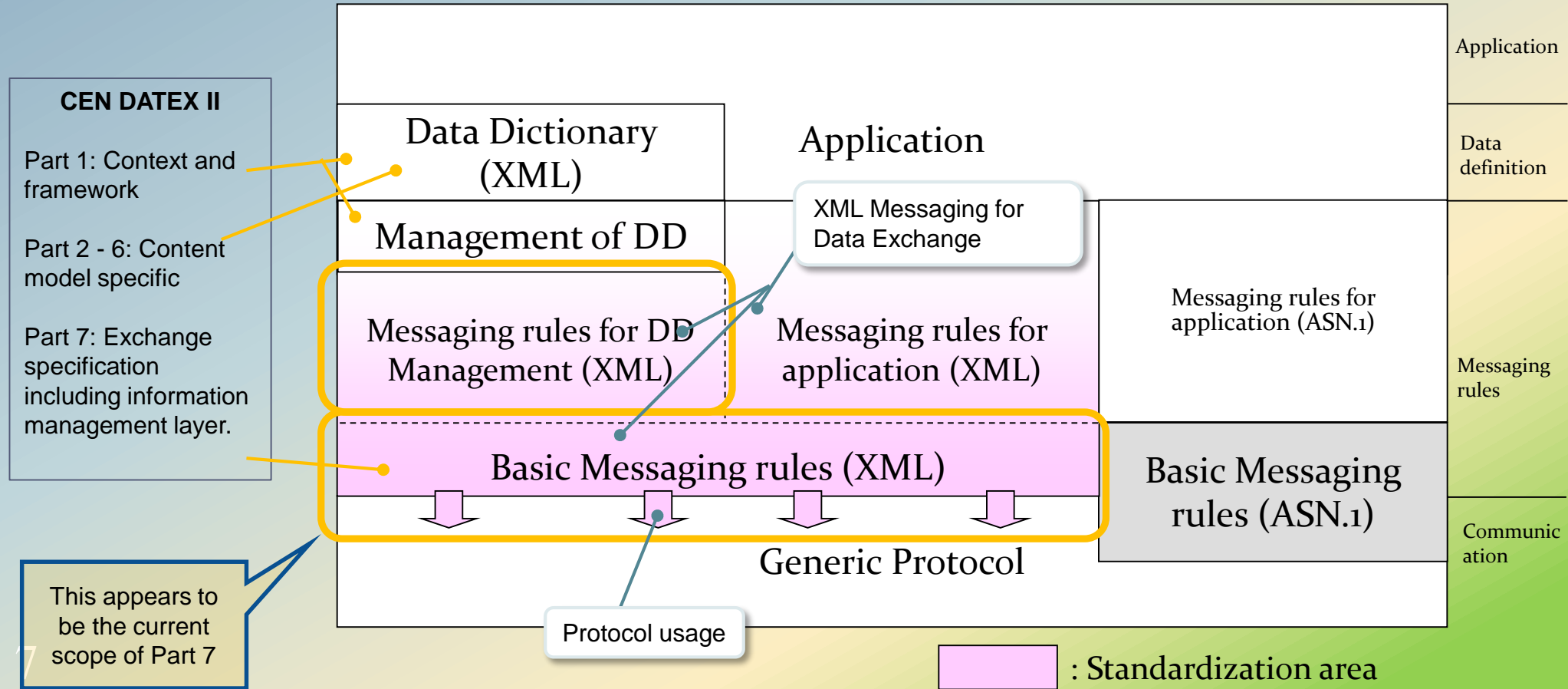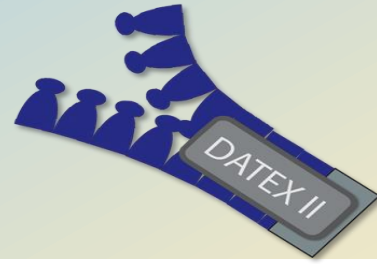
DATEX II – ISO

- ISO is working on a new standard for Data Exchange using others standards

- PWI-14827-3 (DATEX-XML)
  - Preliminary Work Item (PWI) for Basic Message Rules (XML) as part of the 14827 standard family
  - Scope
    - To specify communication protocols which should be used in exchanging XML data among systems
    - To specify messaging rules used in exchanging XML data among systems
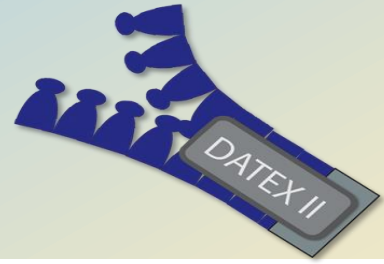   - Data Dictionaries are out of scope

DATEX II – ISO - Steps

- STEP 0 – Setting Standardization Area

- STEP 1 – Setting the requirements

- STEP 2 – Extract candidate tags from existing standards (DATEX II, NTCIP2306) and other potential XML standards

- STEP 3 – Drafting an outline of the 14824-3

- STEP 4 – Developing XML messages and protocol usage

DATEX II – ISO - Standardization Area

CEN DATEX II

Part 1: Context and framework

Part 2 - 6: Content model specific

Part 7: Exchange specification including information management layer.

This appears to be the current scope of Part 7

Data Dictionary (XML)

Management of DD

Messaging rules for DD Management (XML)

XML Messaging for Data Exchange

Application

Messaging rules for application (XML)

Basic Messaging rules (XML)

Protocol usage

Generic Protocol

Messaging rules for application (ASN.1)

Basic Messaging rules (ASN.1)

Application

Data definition
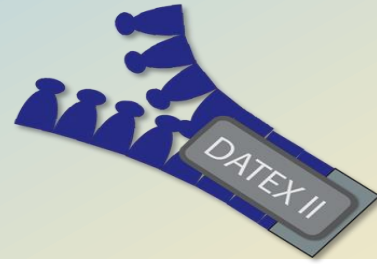
Messaging rules

Communication

: Standardization area

DATEX II – EIP - WI Exchange

New Exchange Specification

- **Part 1. Context and Framework –** provide a description of the main principles that guided the elaboration of the Exchange Specification;

- **Part 2. Platform Independent Model –** a document describing the use cases and the requirements that were collected during the elaboration of this Specification, and describing the abstract model of exchange;

- **Part 3.N. Platform Specific Model N –** document containing implementation details for a FEP (Function Exchange Profile) N.
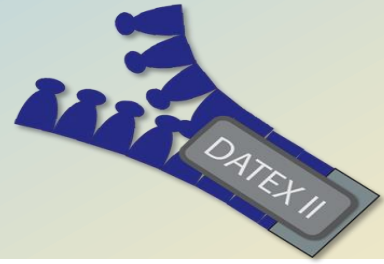
DATEX II – EIP - WI Exchange
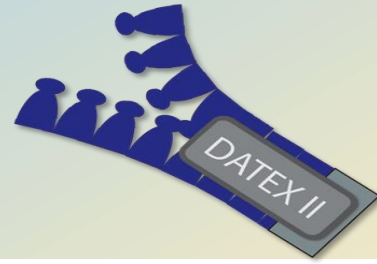
Part 1 - Context and Framework document for:

- **How to Read the Documents** – provides an overview of the whole Exchange Specification reference document set so readers may be easily select the documents of interest for a particular situation;

- **Context** – describes the genesis of this second generation of DATEX II Exchange Specification plus the principles supporting it;

- **Methodology** – details the methodology (Model Driven Architecture) applied to elaboration of the Exchange Specification reference document set;

- **DATEX II Exchange Structure** – presents the structure of the full set of documents comprising the new Exchange Specification
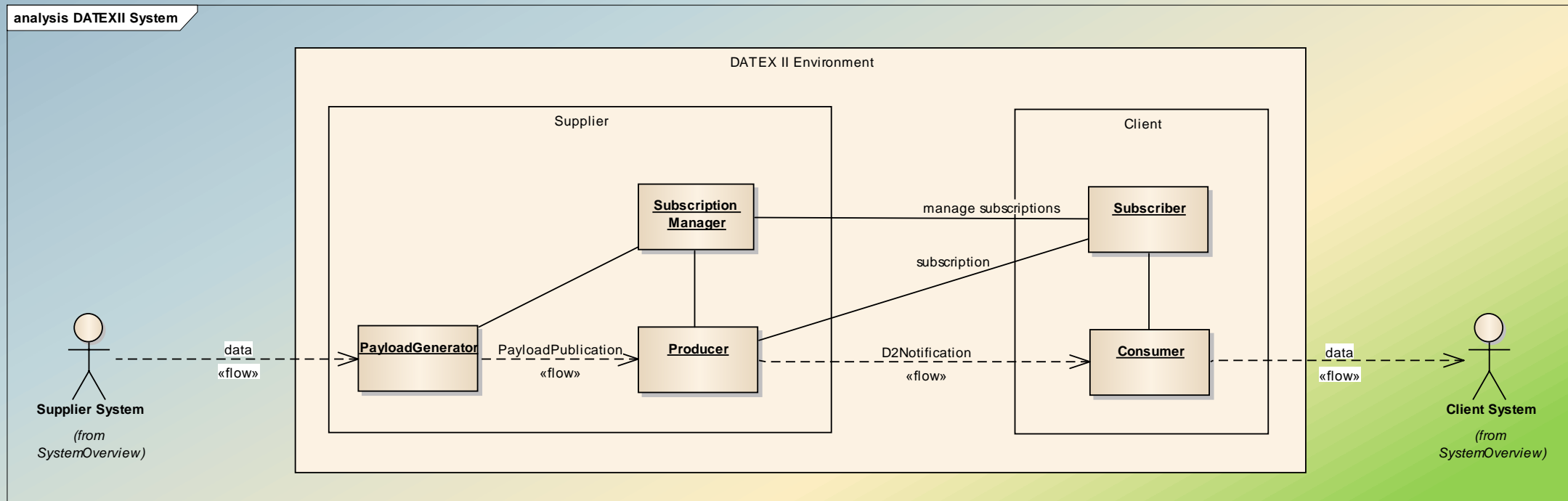
Part 2 - New **Platform Independent Model (PIM)** document for:

- Support use case and requirements
    - **Data Delivery -** the most common scenarios that take place into a DATEX II system is the actual exchange of traffic and travel information between two nodes in the form of DATEX II *Publications.*
    - **ITS Services Collaboration -** ITS services are a type of interaction that allows a DATEX II node to request the execution of a specific action on another node of the network
- Provides a new **exchange specification** and features base on a **Publish/Subscribe Architecture**
- Presents **DATEX II Usage Scenarios** giving some examples on the utilisation of the Specification based on a common base scenario
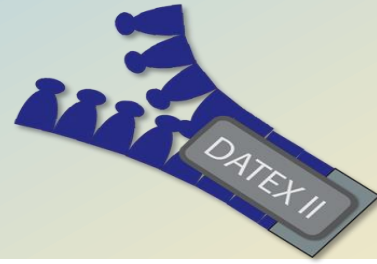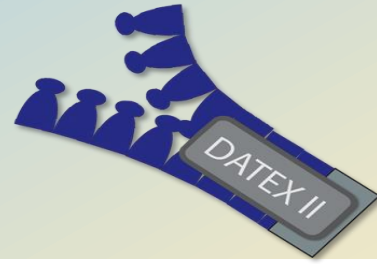
Publish/Subscribe Architecture

DATEX II – EIP - WI Exchange

Part 3.1 - New **Platform Specific Model (PSM)** document containing implementation details for the **Full Publish-Subscribe** exchange FEP (A FEP is a selection of DATEX II Exchange features for a particular use case).
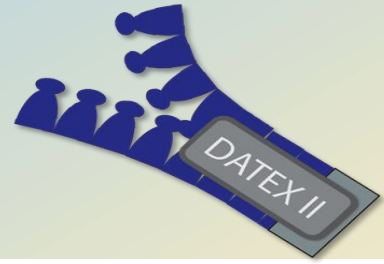
- FEP **Characterization** – For the Full Publish-Subscribe exchange FEP, it identifies the business case that the FEP is designed for and the **Feature list selection** of the business case;

- Presents the **exchange specific implementation** for the Full Publish-Subscribe FEP requirements **based on Web Services**;

- Presents the Web Services Interfaces and **XML Messages**;

DATEX II – EIP – Input for standardization

- DATEX II Exchange work on EIP, is producing a new Exchange specification to answer and cover all European requirements;
- The new PIM and PSM document is a strong input for the work that is been done inside ISO work, 14827-3 (DATEX-XML) providing:
  - Our **vision and requirements** of the use case scenarios;
  - Present the **methodology adopted (MDA)** producing the documents (PIM and PSM) for the use cases;
  - Allows to give input of the **specification and implementations (PIM and PSM)** of DATEX II as a potential XML standard.

DATEX II Standardization

Thanks !

Ricardo Coelho

ricardo.coelho@armis.pt