UNTDED/ISO7372

An introduction

Wednesday, 25 October 2023
ISO TC154 Plenary Hong Kong

Importance, History - Review Cycles, and Future work towards 2025 editions?

Sue Probert  (HoD BSI UK and UNECE UN/CEFACT Chair)

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Agenda

• ISO7372/UNTDED History
• Uses:
  • Paper Forms for International Trade and the UN Layout Key (UNLK)
  • Mapping ISO7372/UNTDED to a UNLK Paper Form
  • UN/EDIFACT Directories
  • UN Core Component Library (UNCCL)
• Alignment Project: UNEDIFACT, UNCCL and ISO7372/UNTDED
• ISO7372/UNTDED Revision Project Launch October 2023
ISO7372/UNTDED in a nutshell

• An internationally accepted standard *repository for the semantic of trade data elements* used in international trade
• A method to describe information requirements from business perspective (*a non-technical description of trade information*).
• The definition is *syntax-neutral* and provides the *basis for migrating to* paperless trade.
• Defining the data content in terms of the UNTDED makes *different trade document and electronic data exchanges become directly comparable*, which helps identify duplication and reduce the number of documents to the strict minimum.
• ISO7372/UNTDED data elements are the foundation of:
  • UN Layout Key
  • UN/EDIFACT Directories
  • UN/CCL (Core Component Library)
  • UN Global Supply Chain Reference Data Model (BSP RDM)
    [currently being prepared for fast track into JWG9 – ISO/PWI 16356]
  • WCO DM (World Customs Organisation Data Model)
• Latest version published 2005
<table>
<thead>
<tr>
<th>UID</th>
<th>ISO7372 TDED Name</th>
<th>Definition</th>
<th>TDED repr.</th>
<th>Locations, Bridges</th>
</tr>
</thead>
<tbody>
<tr>
<td>1000</td>
<td>Document. Type Name.Text</td>
<td>Free text name of a document such as 352 for Proforma invoice, 380 for Commercial invoice.</td>
<td>an..35</td>
<td>UNLK: L 02, P 45-80 MAR: IMO/FAL 1-7</td>
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<tr>
<td>1001</td>
<td>Document. Type.Code</td>
<td>Code specifying the name of a document such as 352 for Proforma invoice, 380 for Commercial invoice.</td>
<td>an..3</td>
<td>UNLK: L 04, P 41-45 CIMP: (120): a1 SAD: (SAD 1(first to third subdivision))</td>
</tr>
<tr>
<td>1099</td>
<td>Transport Means. Stay.Identifier</td>
<td>Identifier of the stay of a means of transport in a port or airport.</td>
<td>an..35</td>
<td></td>
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<tr>
<td>4219</td>
<td>Transport Service. Priority.Code</td>
<td>Code specifying the priority of a transport service.</td>
<td>an..3</td>
<td>CIMP: (704):a1</td>
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<tr>
<td>5060</td>
<td>Invoice. Line Item. Amount</td>
<td>Total sum charged with respect to a single line item of an invoice.</td>
<td>n..18</td>
<td>UNLK: L 56, P 63-80</td>
</tr>
<tr>
<td>5070</td>
<td>Consignment. For Customs Total.Amount</td>
<td>Total amount for customs purposes of all goods in a consignment, whether or not they are subject to the same customs procedure, and have the same tariff/statistical heading, country information and duty regime</td>
<td>n..18</td>
<td>AWB: L 24, P 71-81 CIMP: (509):n..12, or the letters 'NCV'</td>
</tr>
<tr>
<td>6094</td>
<td>Consolidation. Package.Quantity</td>
<td>Count of the total number of packages in all of the consignments referred to as one consolidation.</td>
<td>n..16</td>
<td></td>
</tr>
</tbody>
</table>
Normative Columns

• UID – structured unique identifier
  • 4 digits
  • 1 digit reflects data element context (broad category)
    • ‘1’ Information – documentation, references
    • ‘2’ Dates, times, period of time
    • ‘3’ Parties, addresses, locations, countries
    • ‘4’ Clauses, conditions, terms, instructions
    • ‘5’ Amounts, charges, percentages
    • ‘6’ Measurements, quantities
    • ‘7’ Goods and articles (products)
    • ‘8’ Transportation and Logistics
    • ‘9’ Customs and others
  • 4\textsuperscript{th} digit ‘even’ represents textual data elements whereas 4\textsuperscript{th} digit ‘odd’ represents coded data elements

• Definition – As cross-industry and multimodal as possible
Non-normative Columns

• Name
  • Recommended to follow ISO 11179 tripartite principles plus ISO 1500-5/UN Core Component Technical Specification Naming Convention

• Definition
  • As cross-industry and multimodal as possible

• TDED repr. (Format)

• Locations, bridges
  • Provides positional information for specified UNLK paper forms e.g.

<table>
<thead>
<tr>
<th>UID</th>
<th>TDED repr.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Locations, Bridges</th>
</tr>
</thead>
<tbody>
<tr>
<td>AWB: L 33-44, P 13-19</td>
</tr>
<tr>
<td>CIM: L 28-33, P 63-74 (CIM 26)</td>
</tr>
<tr>
<td>CIMP: (600):n..7</td>
</tr>
<tr>
<td>CMR: L 28-42, P 63-71 (CMR 11)</td>
</tr>
<tr>
<td>SAD: (SAD 35)</td>
</tr>
<tr>
<td>UNLK: L 28-52, P 63-74</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dictionary Entry Name</th>
<th>Definition</th>
<th>Links to UNCL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goods Item, Gross Weight, Measure</td>
<td>Weight (mass) of goods including packaging but excluding the carrier's equipment</td>
<td></td>
</tr>
</tbody>
</table>
UN Layout Key (UNLK)

• First published 1960
• Flexible aligned data presentation which has become the de facto standard for the majority of international trade documents
• Foundation for International transport conventions e.g. Maritime B/L (ICS), Airwaybill (IATA), Road CMR (IRU), Rail CIM (UIC) etc.
• Foundation of Customs and other Regulatory Procedures e.g SAD, Phyto-Sanitary Certificates, Cert of Origins etc.
• Hundreds of document formats based on UNLK across trade, transport, finance, customs, insurance, inspection etc.
• Reference semantics provided by ISO7372/UNTDED
UN/CEFACT Semantics History - 1

• 1970 United Nations Layout Key
• 1990 UN Trade Data Elements Directory (UNTDED and ISO 7372) first version published
• Most recent version published 2005 – new version now planned as joint project under JWG9
• 1989 UN/EDIFACT Directory of United Nations Standard Messages first published based on UNTDED
• UN/EDIFACT Directories still maintained and published twice yearly reflecting submitted change requests
• UNCEFACT Trade Facilitation Code recommendations
UN Layout Key (UNLK) How it works

Cross-Sector Transaction Data

Sector Specific Detail e.g. order line items, goods items ...

Document Function Specific
UNLK Form Families

Trade Documents – Quotation, Order, Invoice etc.

Materials Management Documents – Despatch Advice, Pick List, Packing List etc.

Transport Documents – Bill of Lading, Shipping Instructions etc.

Customs Documents – Export, Import, Transit Declarations, Cargo Reports etc.

Other Regulatory Documents – Cert of Origin, DGN etc.
UN Layout Mapping Example

**UNTED UID**: 2280

**Name**: Transport Means. Actual Departure. Date Time

**Definition**: Date and or time of the departure of means of transport

**Synonym**: Flight Date, Sailing Date

**Repr.** an..17

**Mapping**: UNLK: L 17, P 16
UN/EDIFACT

• UN/EDIFACT (the United Nations rules for Electronic Data Interchange for Administration, Commerce and Transport)

• Syntax rules jointly developed and maintained in JWG1 as ISO

• Data element tags based on ISO7372/UNTDED

• First published 1989 (2 UNSM messages - purchase order and invoice)

• Latest version D23A (220 UNSM Messages covering 15 international domains including B2B, B2G and G2G exchanges)

• Millions of UN/EDIFACT messages exchanged globally each day

• The first truly global document exchange electronic standard
## UN/EDIFACT Messages

<table>
<thead>
<tr>
<th>Code</th>
<th>Message Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>FINPAY</td>
<td>Multiple interbank funds transfer message</td>
</tr>
<tr>
<td>FINSTA</td>
<td>Financial statement of an account message</td>
</tr>
<tr>
<td>GENARL</td>
<td>General purpose message</td>
</tr>
<tr>
<td>GENBES</td>
<td>Generic statistical message</td>
</tr>
<tr>
<td>GOVCBR</td>
<td>Government Cross Border Regulatory message</td>
</tr>
<tr>
<td>HANMOV</td>
<td>Cargo/goods handling and movement message</td>
</tr>
<tr>
<td>ICASRP</td>
<td>Insurance claim assessment and reporting message</td>
</tr>
<tr>
<td>ICSCI</td>
<td>Insurance claim solicitor's instruction message</td>
</tr>
<tr>
<td>IFCSDM</td>
<td>Forwarding and consolidation summary message</td>
</tr>
<tr>
<td>IFTCOA</td>
<td>Forwarding and transport shipment charge calculation message</td>
</tr>
<tr>
<td>IFTDGM</td>
<td>Dangerous goods notification message</td>
</tr>
<tr>
<td>IFTFCC</td>
<td>International transport freight costs and other charges message</td>
</tr>
<tr>
<td>IFTICL</td>
<td>Cargo insurance claims message</td>
</tr>
<tr>
<td>IFTMAN</td>
<td>Arrival notice message</td>
</tr>
<tr>
<td>IFTMEM</td>
<td>Booking confirmation message</td>
</tr>
<tr>
<td>IFTMBF</td>
<td>Firm booking message</td>
</tr>
<tr>
<td>IFTBSP</td>
<td>Provisional booking message</td>
</tr>
<tr>
<td>IFTICA</td>
<td>Consignment advice message</td>
</tr>
<tr>
<td>IFTICS</td>
<td>Instruction contract status message</td>
</tr>
<tr>
<td>IFTIN</td>
<td>Instruction message</td>
</tr>
<tr>
<td>IFRIN</td>
<td>Forwarding and transport rate information message</td>
</tr>
<tr>
<td>IFTSAI</td>
<td>Forwarding and transport schedule and availability information message</td>
</tr>
<tr>
<td>IFTSTA</td>
<td>International multimodal status report message</td>
</tr>
<tr>
<td>IFTSTQ</td>
<td>International multimodal status request message</td>
</tr>
<tr>
<td>INDEF</td>
<td>EDI implementation guide definition message</td>
</tr>
<tr>
<td>INFCON</td>
<td>Infrastructure condition message</td>
</tr>
<tr>
<td>INFENT</td>
<td>Enterprise accounting information message</td>
</tr>
<tr>
<td>INSDBS</td>
<td>Instruction to despatch message</td>
</tr>
<tr>
<td>INSPRM</td>
<td>Insurance premium message</td>
</tr>
<tr>
<td>INSREQ</td>
<td>Inspection request message</td>
</tr>
</tbody>
</table>
## UN/EDIFACT Directories

### Segments

- ADR: Address
- AGR: Agreement identification
- AJT: Adjustment details
- ALC: Allowance or charge
- ALI: Additional information
- APP: Applicability
- APR: Additional price information
- ARD: Monetary amount function
- ARN: Array information
- ASI: Array structure identification
- ATT: Attribute
- ADT: Authentication result
- BAS: Banks
- BGM: Beginning of message
- BII: Structure identification
- BDS: Business function
- CAV: Characteristic value
- CCD: Credit cover details
- CCI: Characteristic/class id
- CDI: Physical or logical state
- CDS: Code set identification
- CDV: Code value definition
- CED: Computer environment details
- CTN: Clinical information
- CLI: Clinical intervention
- CNI: Composite data element identification
- CRI: Consignment information
- CRT: Critical total
- CCD: Component details
- COM: Communication contact

### Data Elements

<table>
<thead>
<tr>
<th>Code</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Clearance</td>
</tr>
<tr>
<td>2</td>
<td>Detention</td>
</tr>
<tr>
<td>3</td>
<td>Fumigation</td>
</tr>
<tr>
<td>4</td>
<td>Inspection</td>
</tr>
<tr>
<td>5</td>
<td>Security</td>
</tr>
<tr>
<td>6</td>
<td>Means of transport admittance</td>
</tr>
<tr>
<td>7</td>
<td>Cargo hold inspection</td>
</tr>
<tr>
<td>8</td>
<td>Container inspection</td>
</tr>
<tr>
<td>9</td>
<td>Cargo packaging inspection</td>
</tr>
<tr>
<td>10</td>
<td>Export certificate not required</td>
</tr>
</tbody>
</table>

### Codes

- 9175: Data element usage type code
- 9135: Duty regime type code
- 9280: Validation result text
- 9282: Validation key identifier
- 9285: Validation criteria code
- 9302: Sealing party name
- 9303: Sealing party name code
- 9308: Transport unit seal identifier
- 9321: Application error code
- 9352: Government procedure
- 9353: Government procedure code
- 9355: Government involvement code
- 9356: Government agency identification code
- 9417: Government action code

### UNTDED alignment

- 9175: X
- 9135: X
- 9280: X
- 9282: X
- 9285: X
- 9302: X
- 9303: X
- 9308: X
- 9321: X
- 9352: X
- 9353: X
- 9355: X
- 9356: X
- 9417: X
- 9421: X
- 9422: X
- 9424: X
- 9426: X
- 9428: X
- 9430: X
- 9432: X
UN/CEFACT Semantics History - 2

• 1999 ebXML launched as joint project with OASIS
• Resulted in realisation that syntax exchange independent semantics were needed to support future technological advances (XML, JSON...)
• Core Components Technical Specification (CCTS) was developed to provide a semantic modelling methodology tailored to build in maximum global harmonisation
• Core Components Technical Specification published by UN/CEFACT 2.01 and by ISO TC154 15000-5 (CCS)
• 2003 UN/CEFACT started building a core component library based on CCTS covering international supply chain data exchange processes
• 2006 First version UN/CEFACT Core Component Library (CCL) published
• Current version D23B
UN Core Component Library (UNCCL)

• A semantic library of eBusiness constructs based on Core Component Technical Specification v2.01 (ISO 15000-5)
• Object Orientated data objects based on UML
• Exchange syntax-neutral library which provides common basis for interoperable exchange syntax implementations
• Naming convention based on ISO 11179 provides semantic clarification and support for language translations
• ‘extension by restriction’ supports greater semantic interoperability
• Mature, stable and trustable library developed, maintained and published by UNECE UN/CEFACT
• Freely available as per UN IPR

ebMOU Resolution R07/06 Semantic harmonization
MoU/MG encourages member SDOs to submit their core components to the UN/CEFACT library maintenance point of contact, and participate in relevant UN/CEFACT activities.
ISO15000-5/UNCCTS Naming Convention

• The Dictionary Entry Name of any Core Component is unique
• Dictionary Entry Names consist of Object Class Terms Property Terms, Representation Terms, Qualifiers and Special Terms (like “Details” or “Type”)
• Dictionary Entry Names are ISO11179 compliant
• Terms are separated by a period (.) and a single space
• Qualifiers are separated by an underscore (_) and a space
• Multiple words are separated by spaces (no CamelCase!) to aid spelling checks
ISO 11179
Tripartite Data Element Naming

- **Object Class Term**: the primary concept or *Object Class* of the data element
- **Property Term**: the distinguishing characteristic or *Property* of the *Object Class*
- **Representation Term**: the form or *Representation* of the data element

Example: Country + Name + Text
CCTS Dictionary Entry Names (ISO7372/UNTDED and UN CCL)

Object Class (OC)
- Document
- Address
- Event
- Product
- Process
- Person
- Country
- Transport Means
- Payment Terms

Property Term (PT)
- Cost
- Delivery
- Type
- Estimated Arrival
- Price
- Status
- Identification
- Time
- Volume

Representation Term (RT)
- Amount
- Code
- Date Time
- Identifier
- Indicator
- Measure
- Numeric
- Percent
- Quantity
- Text

Examples:
- Product. **Price. Amount**
- Document. **Status. Code**
- Address. **City Name. Text**
- Transport Means. **Estimated Arrival. Date Time**
UNCCL - Built-in mappings to UNTDED, UN Layout Key and UN/EDIFACT
Library Alignment Project

UNECE UN/CEFACT project 2010 to 2018
Approved at TC154 Plenary 20?? Held at WCO HQ
Library Alignment Project Purpose

TDED Alignment Project  TDED 022 Rev.2
Submitted by: Mary Kay Blantz and Sue Probert 2010-05-04

UNTDED_UNTDID_UNCCL Alignment

Project Purpose

The project’s purpose is to align the data elements of the Trade Data Element Directory, the UNEDIFACT Data Element Directory, and the Core Component Library in order to facilitate semantic interoperability for governments and international organizations and businesses. The UNTDED and UNTDID are used worldwide to facilitate trade. These two libraries, plus the newly developed UNCCL, are used for different purposes but have significant semantic overlap. The current lack of alignment of these three libraries causes confusion and impedes data standardization.
Library Alignment Project - Deliverables

• Updated Trade Data Element Directory Standard (ISO7372/UNTDED)

• Updated UN/EDIFACT Data Element Directory (UNTDID)

• Updated UN Code Lists (UNCL)

• Updated Core Component Library (CCL) with links to corresponding TDED and EDED data element tags
<table>
<thead>
<tr>
<th>Change code</th>
<th>Cyl Date</th>
<th>Tag UIN</th>
<th>DIP YIN</th>
<th>TID Name</th>
<th>Description</th>
<th>FPA</th>
<th>IEDG Note</th>
<th>req</th>
<th>UIN Name</th>
<th>Distinct</th>
<th>DUS Required Action</th>
<th>Location</th>
<th>Bridges</th>
<th>Name</th>
<th>Usage indicator</th>
<th>Descriptions</th>
<th>TOX/ONX Relationship</th>
<th>Step</th>
<th>TOX/ONX Required Action</th>
<th>UPX/ONX Notes</th>
<th>Seq</th>
<th>Label</th>
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</thead>
<tbody>
<tr>
<td>add</td>
<td>1001</td>
<td>1</td>
<td>Transport Equipment, Package Code</td>
<td>Freeway/expressway considering long distance transport</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
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<td>TOX/ONX relationship</td>
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</tr>
<tr>
<td>end sm</td>
<td>0100</td>
<td>1</td>
<td>Transport Equipment, Package Code</td>
<td>Flexibility and how full spectrum of transport</td>
<td>-</td>
<td>-</td>
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</tr>
<tr>
<td>sm</td>
<td>0101</td>
<td>1</td>
<td>Transport Equipment, Package Code</td>
<td>Mode of transport bi-modal goods are moved to the harbor.</td>
<td>-</td>
<td>-</td>
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<tr>
<td>add sm</td>
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<td>Transport Equipment, Package Code</td>
<td>Mode of transport the mode of transport is which goods are transported to.</td>
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<td>-</td>
<td>-</td>
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<tr>
<td>end cm</td>
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<td>Transport Means, Type Code</td>
<td>Description: a description of transport</td>
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<td>-</td>
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<td>-</td>
<td>TOX/ONX relationship</td>
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<td>-</td>
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<tr>
<td>cm</td>
<td>0111</td>
<td>1</td>
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<td>Type of means of transport</td>
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<td>-</td>
<td>-</td>
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<td>-</td>
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<td>TOX/ONX relationship</td>
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<td></td>
</tr>
</tbody>
</table>
ISO7372/UNTDED Revision Project

Joint UNECE UN/CEFACT project under JWG9
History: October 2013 F2F Meeting

18 participants from:
AFACT, China, Germany, GS1, Japan, Korea, Netherlands, Slovakia, UNECE, US, UK

Resolutions:
• A new edition of the TDED is needed. (re-affirmation)
• The new edition will be based on the outputs from the Alignment project.
• UNECE will be asked to retain the 2005 UNTDED after publication of the new edition.
• ISO/TC 154 will be asked to retain ISO 7372:2005 after publication of the new edition.
• New edition to be published in 2015.