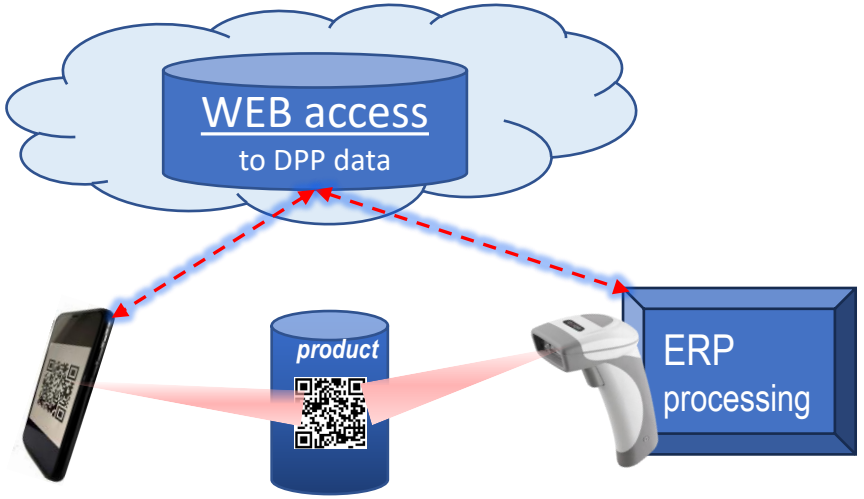
DPP

Digital Product Passport (DPP)

Contribution: Identifier concept for the Automotive Industry



Unique Identification & WEB-Link

EDCi 2024-02-21/1f-oeh

The European project: Making sustainable products the norm in a more resilient Single Market

Excerpts of document:
https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52022DC0140

DPP

E-Commission requests CEN/CLC JTC24 to develop the standard for the **“DPP System”**

Deadline December 31st, 2025

CEN/CLC/JTC 24 **N 17**

CEN/CLC/JTC 24 "Digital Product Passport (DPP)"
Secretariat: **DIN**
Secretary: **Sehnert Katharina Mrs**

ppt on Considerations from current SReq by chair candidate

Document type	Related content	Docu
Meeting /	Meeting: Bruxelles (Belgium) 18 Dec 2023	

Kick of Meeting JTC 24, December 18th, 2023

DPP System - Considerations from current SReq

Thomas Knothe – Convener SRAHG DPP System
Katharina Sehnert – DIN Secretary for JTC24
Carolina Müller – CEN CENELEC Secretary SRAHG

Excerpts of document:
CEN/CLC/JTC 24 **N 17**

DPP

To be defined standards to implement system elements as defined in SReq Modules

- Data carrier
- Unique identifier
- Data storage and persistence on it
- API for CRUD operations
- Mechanisms for authentication, reliability, integrity
- System for access rights management
- Registry – responsibility of EC
- Web Portal (not yet defined in SReq) – responsibility of EC

DPP

Excerpts of document: CEN/CLC/JTC 24 **N 17**

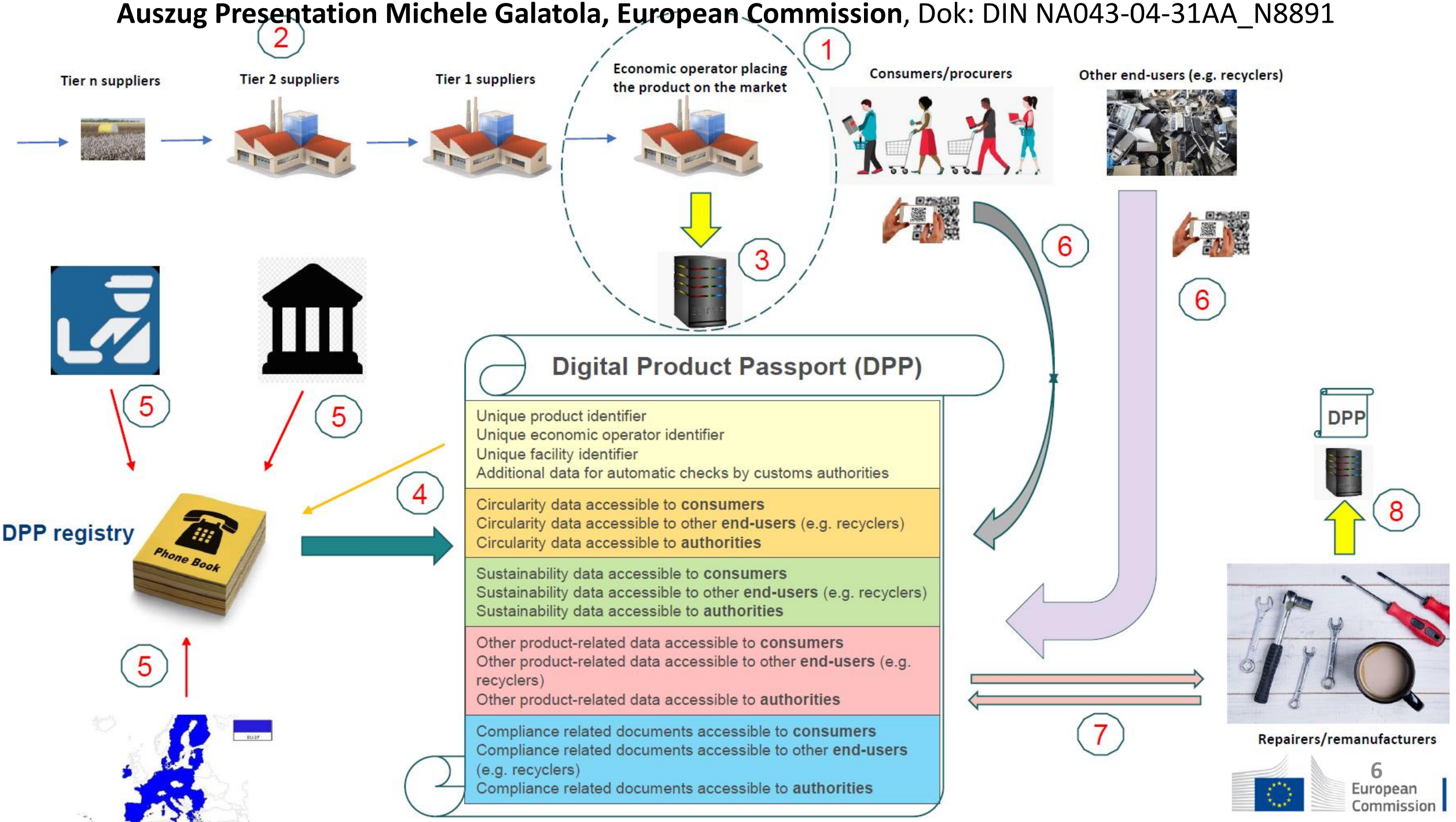
Interoperability Requirements - Analysis → Principles for JTC24

- **Interoperability across different technical systems and platforms:**
  - Allow application of "different technologies for data storage and management"
  - Allow application of "different unique identifiers already used in the market"
  - Allow application of "different data carriers"
- **Interoperability across products, industry sectors and regulations**
  - "Application for different sector specific passport data"
  - "Access Rights depending type of information and stakeholder"

- **"Without depending on any commercial technology and service provider"**
  - **No dependency on a certain technology**

Interoperability 1:
Application of different Data Carriers
Interoperability 2:
Allow different principles of Unique Identifiers

Auszug Presentation Michele Galatola, European Commission, Dok: DIN NA043-04-31AA_N8891



DPP

Methods for generation of DPP-Identifiers

Unique Identification & WEB-Link

METHOD 1: "UID first", no WEB link
METHOD 2: "ISO/IEC 15459 UID first" + WEB link, ERP and WEB compatible
METHOD 3: "URL first" AutoID URL - ISO/IEC 15459-IDs, WEB compatible, ERP compatible parsing
METHOD 4: "URL first" GS1 Digital Link
METHOD 5: "URL first" IEC 61406-1/-2
METHOD 6: "Other Identification schemes (for AIDC media)"

DPP

Note to: *“ASC Data Identifers & GS1 Application Identifiers”*

Identifiers for flagging data elements (like Qualifiers for EDI) are standardised with ***„ISO/IEC 15418 GS1 Application Identifiers and ASC MH10 Data Identifiers“****, Automotive industries are using ASC MH10 Data Identifiers primarily due to flexibility for alphanumeric part numbers and other automotive specific numbers.*

Approved American National Standard

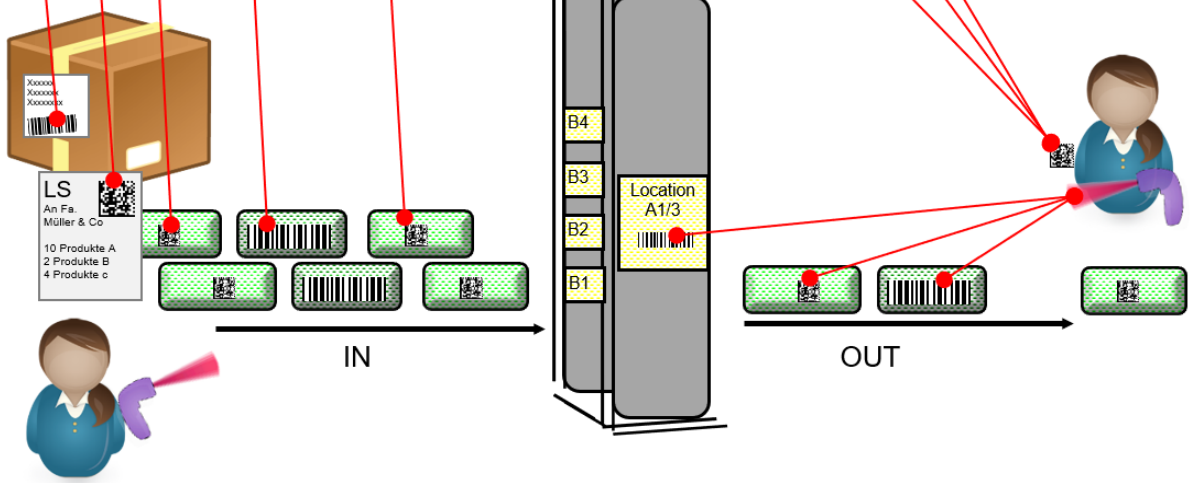
ANSI

ANSI MH10.8.2
Continuous Maintenance of ANSI MH10.8.2

Normative Reference:
ISO/IEC 15418

Data Identifier and Application Identifier Standard

ASC DI	Meaning for the computer system			Scan action e.g. at:
J	*Transport unit (License Plate)*			*Arrival*
25K	*Shipment note*			*Entry*
25P	*Product A*			*Storage*
1T	*LOT*			*production*
S	*Serial number (SN)*			*Point of use*
25H	*Person*	25H		*Point of handling*
25P	*Product n*	25P		*Picking*
25L	*Location*	25L		*From stock*



Unique identification

METHOD 1: “UID first”, no link, option WEB access via APP support

Unique identification method					
1 UID first, standard	2 UID first + WEB	3 URL first AutoID URL	4 URL first GS1 Dig. link	5 URL first IEC ID link	6 Other Ids …

Application VERY HIGH since the 90th:

All industries, e.g

- Air & space.
- Automotive and suppliers
- Chemical
- Consumables
- Electro, electronic
- Engineering
- Healthcare (UDI, PPN, …)
- …

Standard „UID first“ based on ISO/IEC 15418 and ISO/IEC 15459	Example with
ISO/IEC 15459-4 Unique identification: Individual products (support by ~40 ISO/IEC 15459-2 Issuing Agencies and its registered CIN holders world wide)	[1]GS1 AIs: (01) GTIN + (21) SN [2]ASC DIs: (25P) IAC.CIN, PN + (S) SN
ISO 28219 Labelling and direct product marking linear bar code and 2D	||
ISO 17367 (17360)-Supply chain applications of RFID — Product tagging	||
+ Industry guidelines like LR05 Automotive for Barcode and RFID on item level	ASC DI: (37S) IAC CIN PN + SN

[1]GS1 AI structure

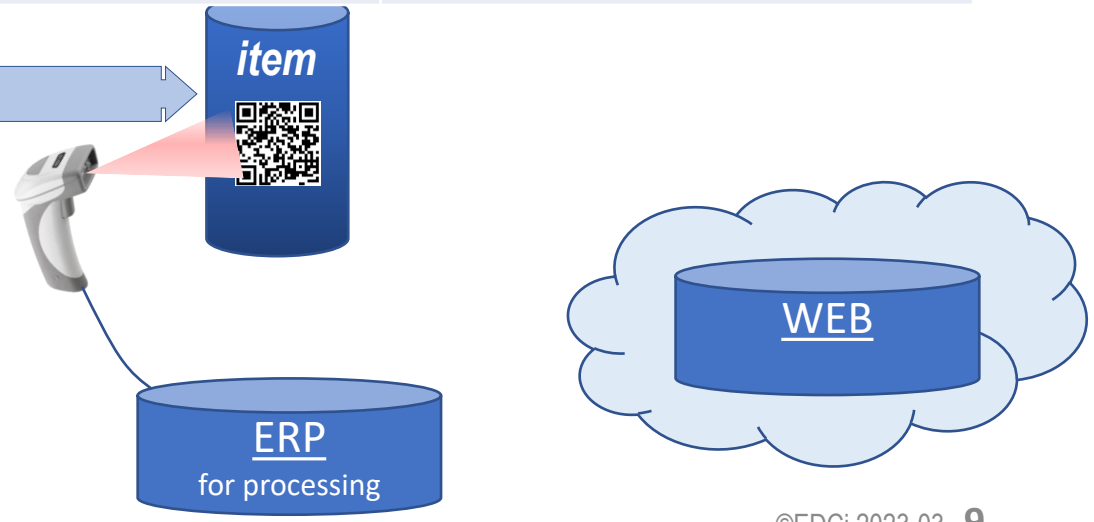
FNC1**01**01234567123455**21**999

- FNC1 System ID GS1 AI structure
- AI for GTIN
- GTIN with Part No.
- AI for SN
- SN

[2]ASC DI structure

.25P**IAC**CIN**PRODX12**^S**999**

- . System ID for ASC DI structure (alternative SI: [)>$^{R}_{S}$06$^{G}_{S}$)
- ASC DI unique product ref.
- ISO15459 Issuing Agency. Code
- Company ID
- Part No.
- SN



Unique identification and WEB link

METHOD 1: “UID first”, no WEB link

	]d2	GS1DataMatrix	Symbology type GS1DataMatrix passed by reader
Raw data:		0101234567123455 21999	
Structure type:		GS1	Application Identifier (AI) following ISO/IEC15418
Packing index:	01	0	
Article:		123456712345	GTIN-14 product code Labeller ID Issuing Agency: GS1
Check character:		5	Modulo 10 check character correct
Serial number:	21	999	
			Result of last scan
Resume:			GS1 structure OK

	ID	Data	Comment
			Scan no. 1
Symbology:	]d1	Datamatrix	Symbology type Datamatrix passed by reader
Raw data:		.25PIACCINPRODX12 ^S999	
Structure type:	.	ASC	Data Identifier (DI) following ISO/IEC15418 (with CSID '.')
Labeler:	25P	IACCIN	Labeller ID Issuing Agency: ISO/IEC 15459
Article:		PRODX12	
Serial number:	S	999	
			Result of last scan
Resume:			ASC structure OK

Unique identification and WEB link

METHOD 2: "ISO/IEC 15459 UID first" - ERP and WEB compatible

Unique identification method					
2 UID first + WEB	3 URL first AutoID URL	4 URL first GS1 Dig. link	5 URL first IEC ID link	6 Other IDs …	1 UID first, standard

Standard since 2016
ISO/IEC 15418 ASC DI"34L"

Application areas:
- All industries and healthcare using ASC DI structure and ISO/IEC 15459 properties

ASC DI Standard „UID first" with WEB option	Example with ASC DIs
ISO/IEC 15418, part ANS MH10 Data Identifiers, ASC DI „34L" P2P	(25P) IAC.CIN PN + (S) SN + (34L) WEB addr.
ISO 28219 Labelling and direct product marking linear bar code and 2D	II
ISO 17367 (17360) - Supply chain applications of RFID-Product tagging	RFID II
IEC 62090 Ed.2.0 - Product package labels for electronic components using bar code and two-dimensional symbologies	with explicit P2P "34L" WEB support.

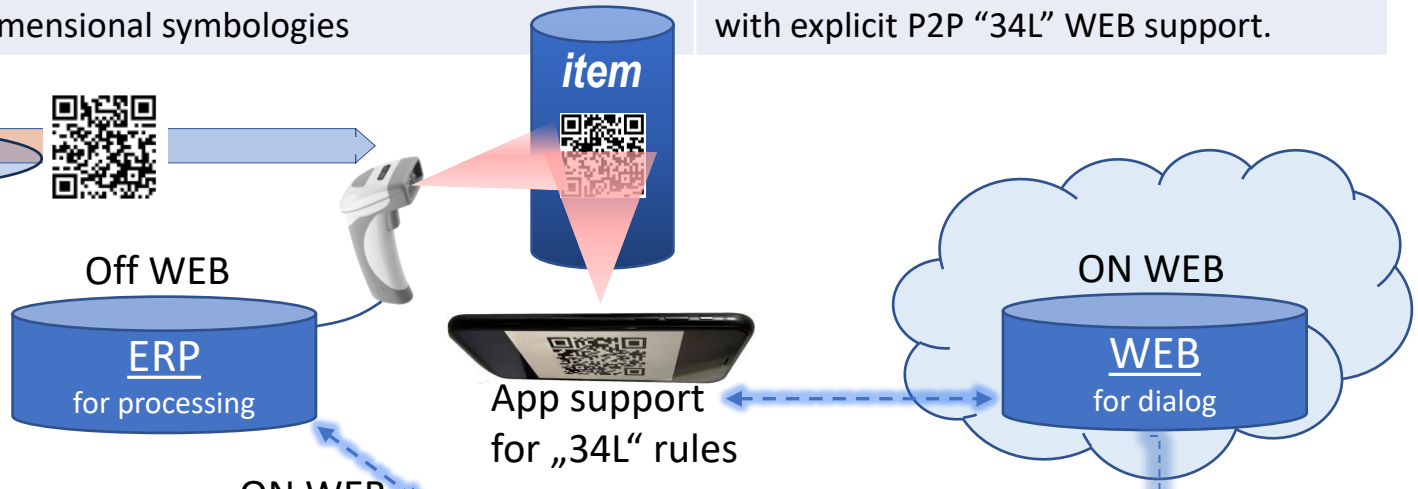
ASC DI structure with WEB access

.25P**IAC**CIN**PRODX12**^S**999**^34L**WWW.PORTAL-99/?SCAN=**

				└ Part No. └ SN		
			└ Company ID			portal with query link
		└ ISO15459 IAC				
	└ ASC DI unique product ref.			└ ASC DI „34L" setting the		

. System ID for ASC DI structure (alternative SI: [)>$^{R}_{S}$06$^{G}_{S}$)

*34L rules for WEB access



*34L rules for WEB access: Turn the string for WEB access → **WWW.PORTAL-99/?SCAN=.**25P**IAC**CIN**PRODX12**^S**999**

(omit Data Identifier „34L")

Unique identification and WEB link

METHOD 2: “ISO/IEC 15459 UID first” - ERP and WEB compatible

SCAN →

Elmi-ScanLink Verify

File View Device Parse Config Help

.25PQCELMIAQ7B4^S400D02^34LHTTP://ELMICRON.DE/P2P/?S=

	ID	Data	Comment
			Scan no. 1
Raw data:		.25PQCELMIAQ7B4^S400D02^34LHTTP://ELMICRON.DE/P2P/?S=	
Structure type:	.	ASC	Data Identifier (DI) following ISO/IEC15418 (with CSID '.')
Labeler:	25P	QCELMI	ELMICRON Issuing Agency: Eurodata Council
Article:		AQ7B4	
Serial number:	S	400D02	
URL:	34L	HTTP://ELMICRON.DE/P2P/?S=	URL HTTP://ELMICRON.DE/P2P/?S=25PQCELMIAQ7B4%1DS400D02
			Result of last scan
Resume:			ASC structure OK

34L rules for WEB access:
Turn the string for WEB access
(omit 34L and AIDC-Syntax)

←. *TRANSMIT*

METHOD 2: Demo “WEB RESPONSE”

HTTP://ELMICRON.DE/P2P/?S=25PQCELMIAQ7B4%1DS400D02

ASC DI "34L" Pointer to Process Demo

**DIN 16589 Automatische Identifikation und Datenerfassungsverfahren–
Produkt-zu-Internet-Kommunikation (Pointer to Process)**

Item information

Product Code	QCELMIAQ7B4
Description	Pum engine
Image	
Serial number	400D02
Status	Active
Location	Filling Station 2

See the Information page for a sample code and URL and the PHP source code of this page. http://elmicron.de/P2P/info.html

Service by Elmicron Gmbh. See Imprint.

METHOD 3: “URL first” - WEB compatible, ERP compatible parsing
AutoID URL 1.2 →→→ →→→ DIN

Unique identification method					
3 URL first AutoID URL	4 URL first GS1 Dig. link	5 URL first IEC ID link	6 Other IDs …	1 UID first, standard	2 UID first + WEB

New potential application areas:
- All industries and healthcare using ASC DI structure and ISO/IEC 15459 properties

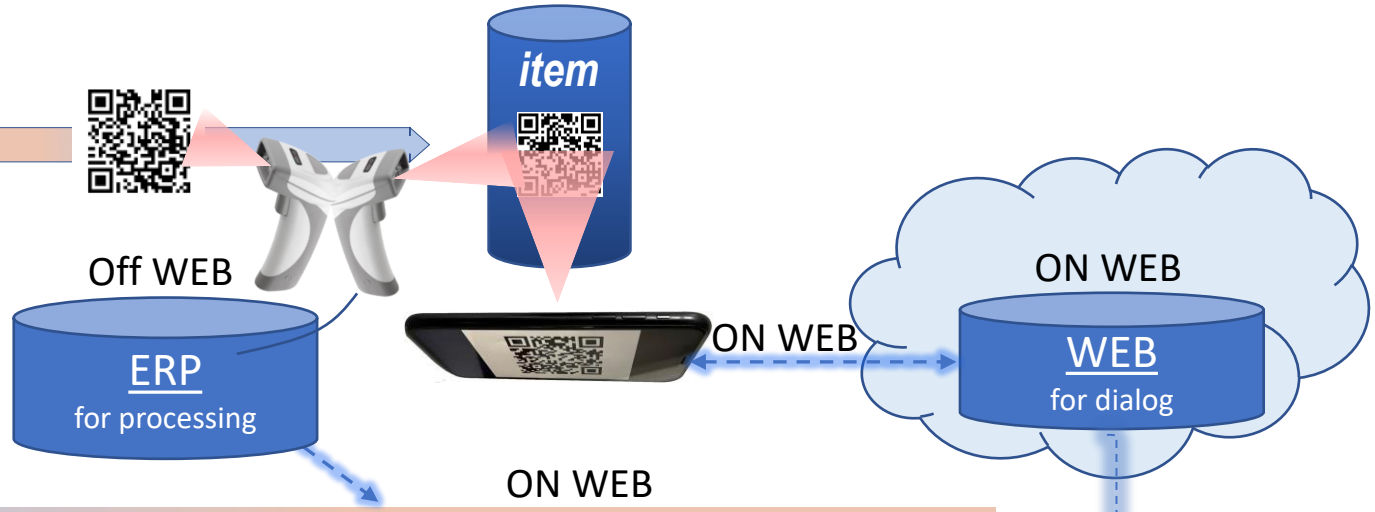
„URL first“ WEB compatible + ERP parsing	Example with ASC DIs
AutoID URL 1.0: 2022 (biuniqueness by ISO/IEC 15459)	WEB addr. + (25P) IAC.CIN PN + (S) SN
IEC 61406-2 draft Identification Link	| |
Specifications based on data standards: *RFC syntax + ISO/IEC 15418, part ASC Data Identifiers, ISO/IEC 15459 properties (option for IEC 61406-2)*	

Example codes AutoID URL for WEB access & ERP parsing:

HTTPS://SRV.DE/ART?.25P=**IAC**CIN**PRODX12**&.S=**999**

URL root with „?“ for query	| |	IAC+CIN (ISO/IEC15459)	└ Part No.	└ SN
	| └	ASC DI 25P unique product ref.		
	└	. System ID for ASC DIs		

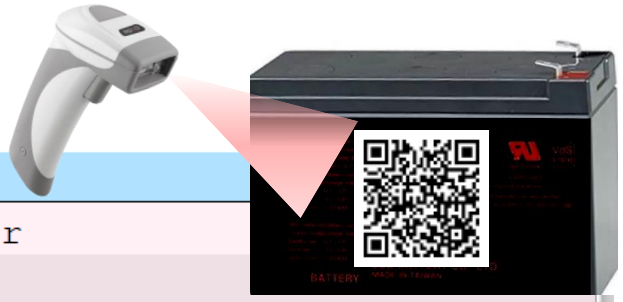
Code ready for parsing data elements for ERP fields →

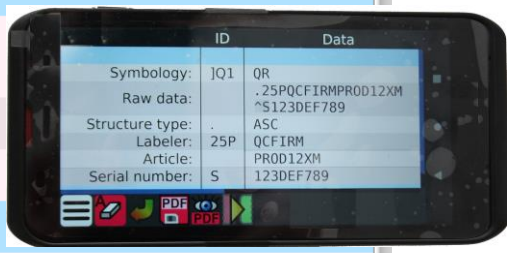


Code ready for direct WEB access → **HTTPS://SRV.DE/ART?.**25P=**IAC**CIN**PRODX12**&.S=**999**

METHOD 3: “URL first” - WEB compatible + ERP parsing
AutoID URL 1.2

	ID	Data	Comment
			Scan no. 1
Symbology:	]Q1	QR	Symbology type QR passed by reader
Raw data:		HTTPS://WWW.E-D-C.INFO/AUTOID?.25P=QCELMIBATT01X&.S=4221117	
Structure type:		MobileTagging	Mobile Tagging
URL:		HTTPS://WWW.E-D-C.INFO/AUTOID?.25P=QCELMIBATT01X&.S=4221117	URL HTTPS://WWW.E-D-C.INFO/AUTOID?.25P=QCELMIBATT01X&.S=4221117
			Contained AutoID URL fields
Labeler:	25P	QCELMI	ELMICRON Issuing Agency: Eurodata Council
Article:		BATT01X	
Serial number:	S	4221117	
			Result of last scan
Resume:			AutoID URL Ok





Unique identification and WEB link

METHOD 3: AutoID URL 1.2 “URL first” - WEB compatible + ERP parsing

AutoID URL Demo

Item information

Product Code	QCELMIBATT01X
Description	6V Power Battery
Image	
Serial number	4221117
Status	Charged
Location	On stock 4

Unique identification and WEB link

METHOD 4: “URL first” GS1 Digital Link

Unique identification method					
4 URL first GS1 Dig. link	5 URL first IEC ID link	6 Other IDs…	1 UID first, standard	2 UID first + WEB	3 URL first AutoID URL

New potential application areas:
- All industries and healthcare using GS1 structure

„URL first“ WEB compatible	Example with GS1 AIs
GS1 Digital Link Standard - URI Syntax: 2022	WEB addr. + AI/GTIN/AI/Attribute/…
	||
GS1 Digital Link Standard based on data standards: *RFC syntax + ISO/IEC 15418, part GS1 Application Identifiers, ISO/IEC 15459 properties for company Ids.*	

Example GS1 Digital Link :
***https://id.gs1.org/**01/09520123456788/10/ABC123
| | | └ AI └ Batch no.
| └ AI └ GTIN
URL root

Code ready for direct WEB access → **https://id.gs1.org/**01/09520123456788/10/ABC123

**Source example: GS1 Digital Link Standard: URI Syntax, chapter 5.3: GTIN+Batch → https://ref.gs1.org/standards/digital-link/uri-syntax/*

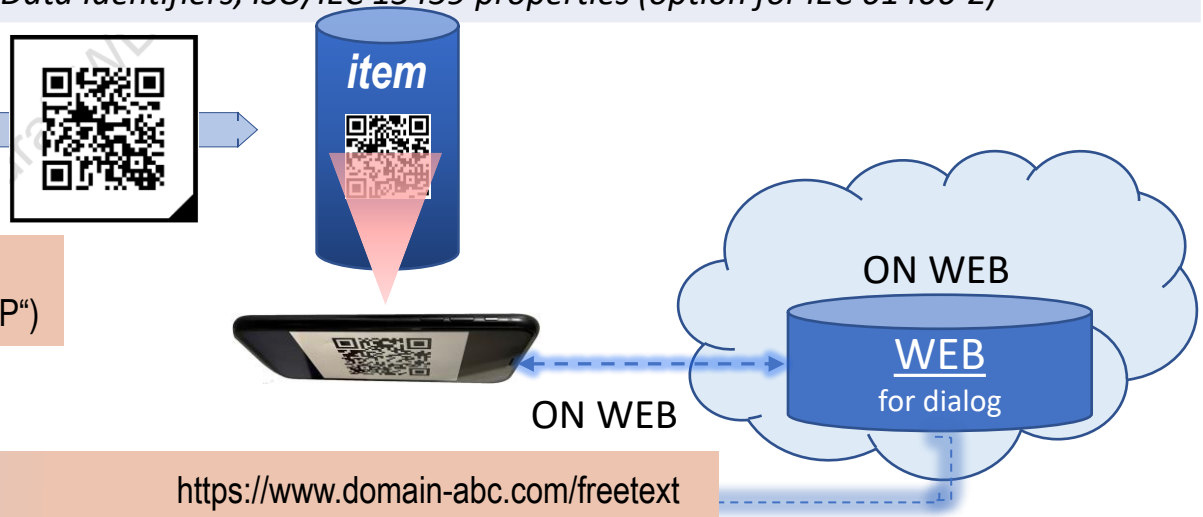
Unique identification and WEB link
METHOD 5: “URL first” IEC 61406-1/-2

Unique identification method					
5 URL first IEC ID link	6 Other IDs…	1 UID first, standard	2 UID first + WEB	**3 URL first AutoID URL**	**4 URL first GS1 Dig. link**

New potential application areas:
- Electronic and related industries

„URL first“ WEB compatible	Example with ASC DIs
IEC 61406-1 Identification Link : 2022, WEB domain as ID, **no data parsing**	WEB address, see method 6
Specifications based on data standards: RFC syntax	
IEC draft 61406-2 – Domain ID + ASC DIs for parsing	WEB addr. + (1P)PN + (1T) Batch no.
IEC draft 61406-2 based on data standards: *RFC syntax + ISO/IEC 15418, part ASC Data Identifiers, ISO/IEC 15459 properties (option for IEC 61406-2)*	

*Example IEC 61406-1: URL as company ID and labellers construct
https://www.domain-abc.com/freetext
**Source: IEC 61406-1, figure 6)*



Example IEC 61406-2: WEB domain as company ID and ASC DI attributes,
example see method 3 (but PN to be applied with ASC DI „1P“)

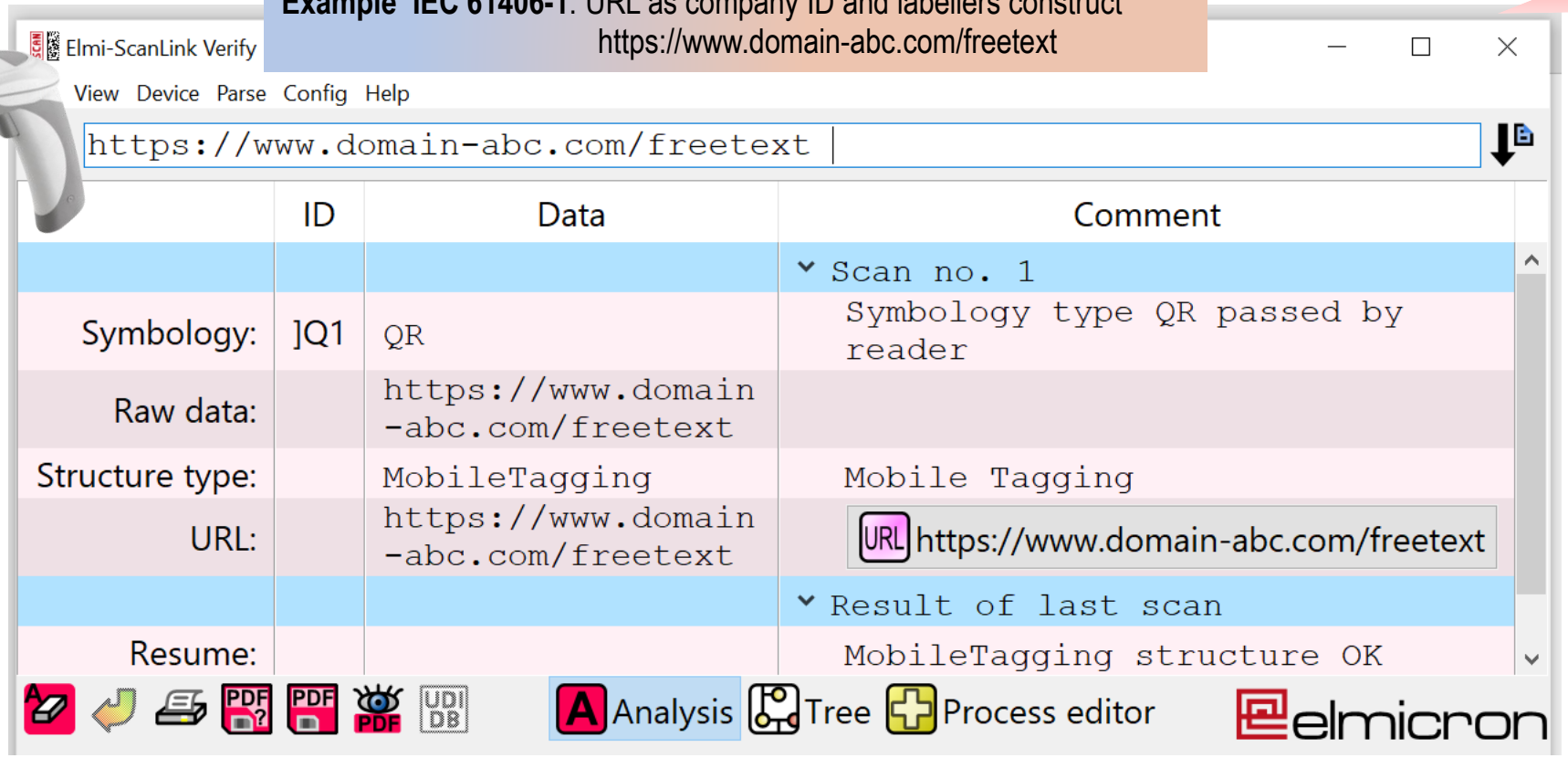
See method 3

IEC 61406-1 Code ready for direct WEB access → https://www.domain-abc.com/freetext

Unique identification and WEB link
METHOD 5: “URL first” IEC 61406-1

QR source:
IEC 61406-1, fig. 6

Example IEC 61406-1: URL as company ID and labellers construct
https://www.domain-abc.com/freetext



Example IEC 61406-2: WEB domain as company ID and ASC DI for attributes,
example see method 3 (but PN to be applied with ASC DI „1P“)

Example see method 3

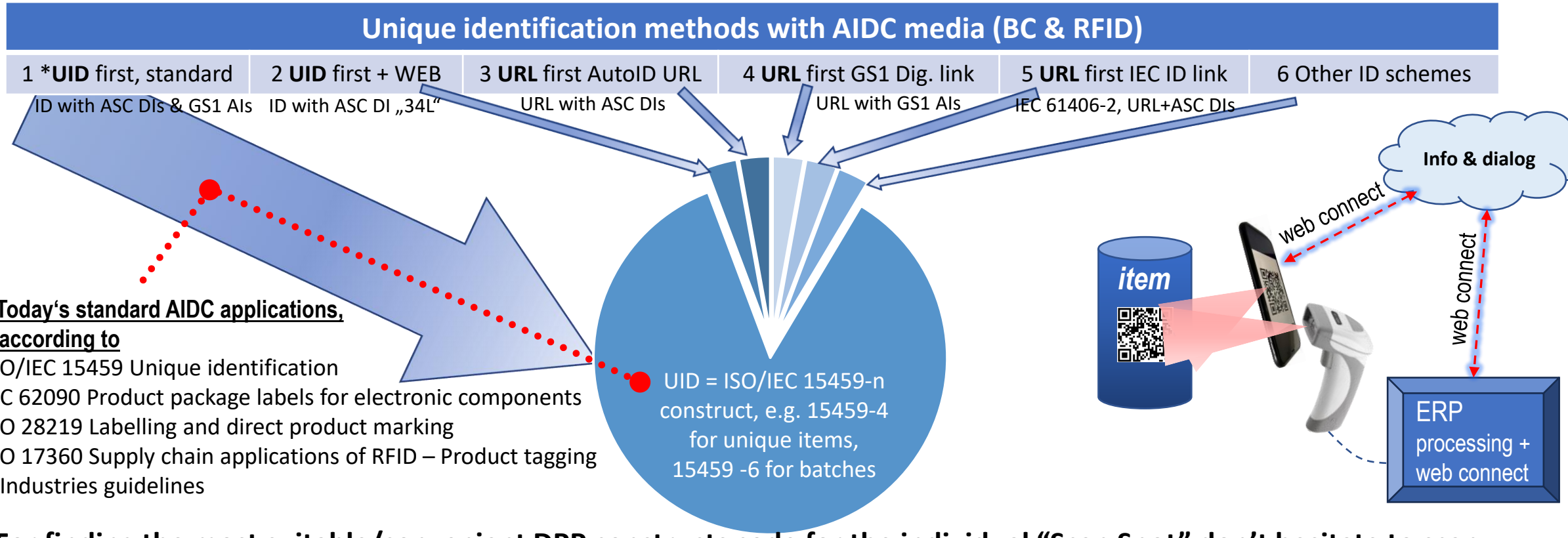
METHODs 6: “Other identification schemes”

6 Other ID schemes	1 UID first, standard	2 UID first + WEB	3 URL first AutoID URL	4 URL first GS1 Dig. link	5 URL first IEC ID link

https://api.godiddy.com/0.1.0/universal-resolver/identifiers/did:web:acme.dpp.spherity.com:battery:7be3b99c-33a3-4d72-a747-feeb2c2ed263?service=product

Source of example: Presentation Dr. Susanne Guth-Orlowsky, doc. DIN NA 043-04-31 AA N 9147

Estimated shares “UID first” and/or “URL first”



***Today‘s standard AIDC applications, according to**

ISO/IEC 15459 Unique identification
IEC 62090 Product package labels for electronic components
ISO 28219 Labelling and direct product marking
ISO 17360 Supply chain applications of RFID – Product tagging + Industries guidelines

For finding the most suitable/convenient DPP constructs code for the individual “Scan Spot” don’t hesitate to scan code examples 1 to 5 at the appropriate “Scan Spot” of your application:

DPP DPP DPP GS1 DPP

1 *UID first, standard | **2 UID first + WEB** | **3 URL first AutoID URL** | **4 URL first GS1 Dig. link** | **5 URL first IEC ID link** | **6 Other ID schemes**

Note: For detailled code construct content of example 1 to 5 see docs: https://www.e-d-c.info/en/projects/dpp-passport-en.html
Investigation_of_DPP-ID-Codes_EDCi-whitePaper-r230823.pdf and/ or *Digital-Passport-ID-methods_part-II_.230328.pdf*

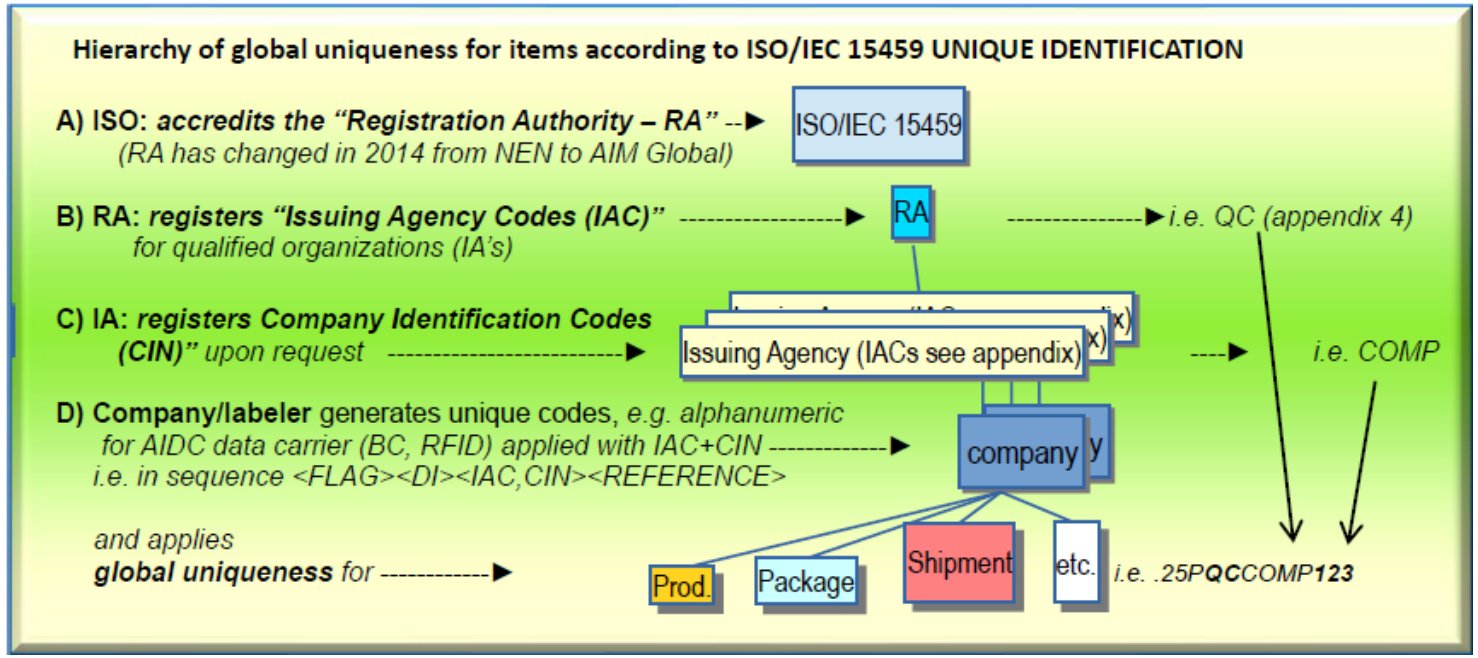
Significance of ISO/IEC 15459 for the DPP-Identifier as per EU/EC:

Reference: *16723/23 ANNEX 2022/0095 (COD) Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL establishing a framework for setting ecodesign requirements for sustainable products, amending Regulation (EU) 2023/1542,* onwords page 73.
Source: https://www.consilium.europa.eu/media/69109/st16723-en23.pdf

According to the referenced document it can be concluded that for the construction of the DPP Identifier the most relevant standard is:

- **ISO/IEC 15459-n Unique Identification**

In addition **WEB Links are to be provided with the DPP Identifier linking to the DPP Data.**



←*e.g.: Dun & Bradstreet*

Source: EDCi AIDC REPORT 2022EN https://www.e-d-c.info/en/reports.html

DPP

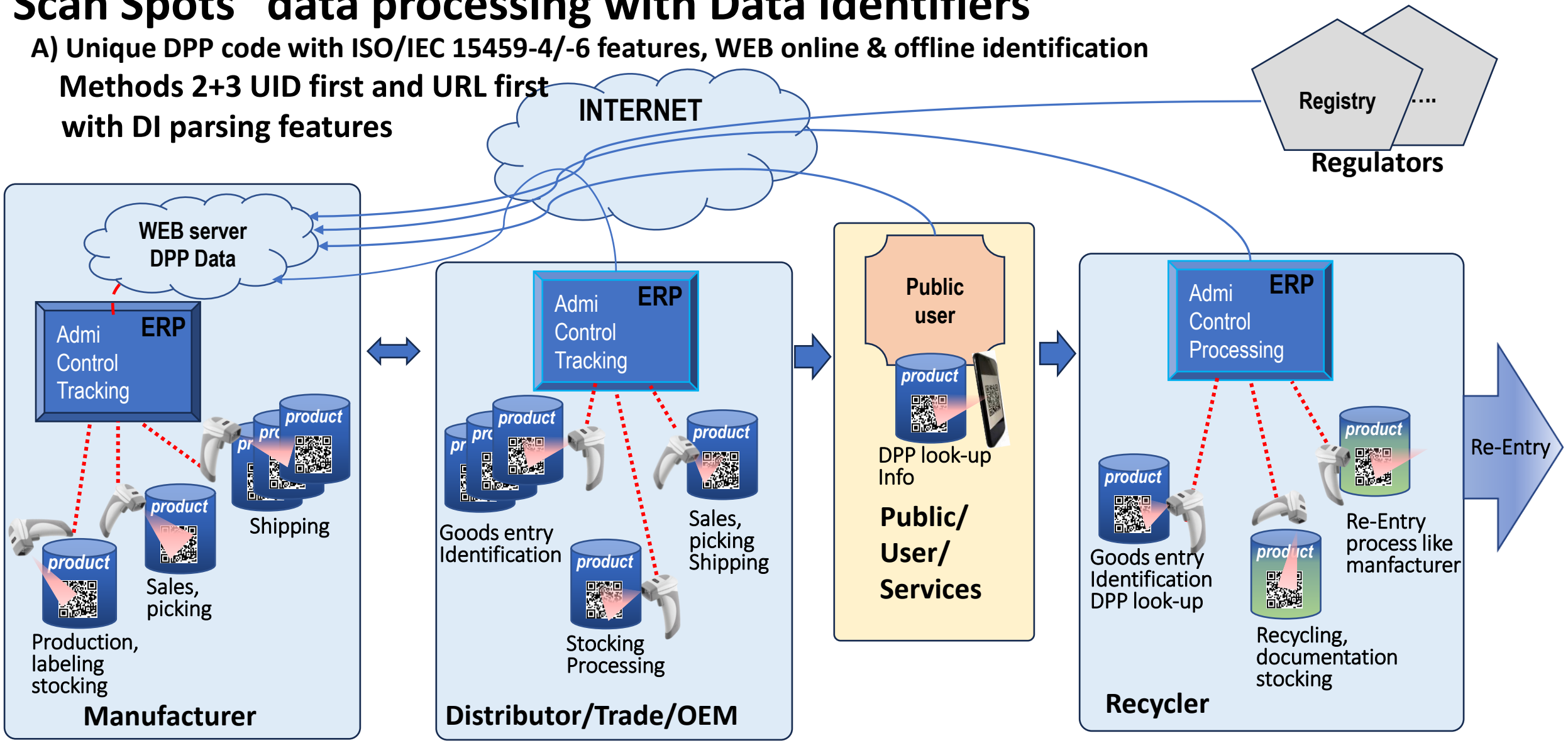
Digital Product Passport (DPP)

“Scan Spots”
and data processing

Scan Spots “data processing with Data Identifiers”

A) Unique DPP code with ISO/IEC 15459-4/-6 features, WEB online & offline identification

Methods 2+3 UID first and URL first with DI parsing features



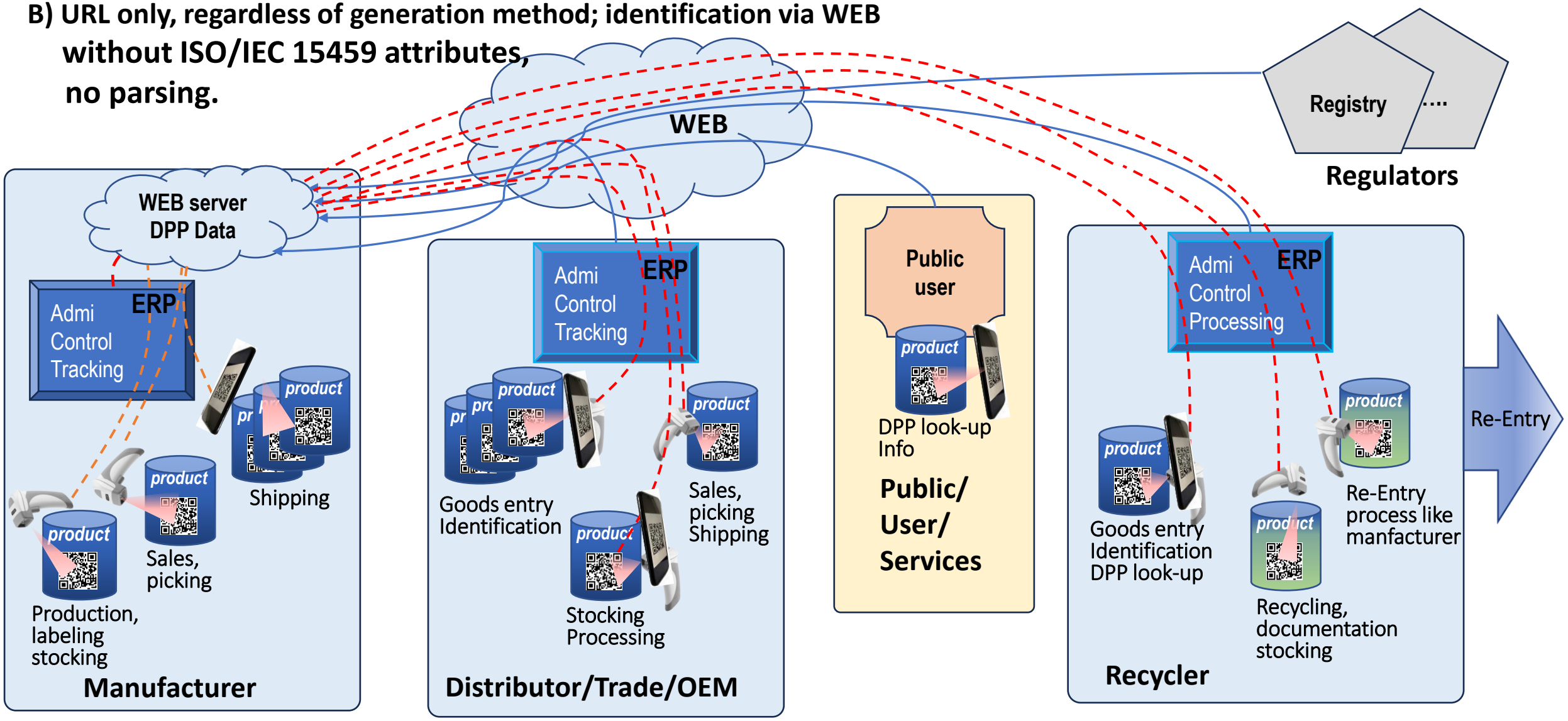
Solutions for DPP Codes with ISO/IEC 15459 features:

- UID first: ISO/IEC 15418 ASC DI “34L”, GS1 AI “8200”, DIN 16589 P2P
- URL first: AutoID URL 1.2, GS1 Digital Link, IEC 61406-2 Identification Link

Note: Internal ERP scan processes remain internal without WEB

Scan Spots “URL only”

B) URL only, regardless of generation method; identification via WEB without ISO/IEC 15459 attributes, no parsing.



Note 1: At any scan point every scan queries manfacturers web-server

Note 2: Data in every WEB server needs to be harmonised for automatic data processing throughout the supply chain

DPP

Automotive practices & developments

Based on ISO/IEC 15459 Unique Identification, ISO/IEC 15418, part ASC MH10 Data Identifiers & Automotive Guidelines

VIN label 2022 ODETTE FV26
ASC DI "I"

ODETTE
No effective digitalisation without standardisation

VDA

Manufacturer	Destination Market or Address
Collossal Car Corporation Plant 123	John Doe Car Dealership 65 Broadway Ankh Morpork ND3 X23 GB

VIN	Fuel Type
WVWZZZ1JZXW000002	DIE

Production Date	Production Number	Model
2022-07-22	987-34214	AB124

Additional Information	Weight	Height	Length	Width
	1500	1920	5250	2200

Special equipment: SPILL

DIN 16598 KB&WEB compatible syntax →

.IXXXXXXXXXXW000001^16D20220722^8D20220731170017^W12345678901234567

Automotive practices & developments

VDA	RFID for tracking - parts/components in the automotive industry	5510

JAIF B-21 Global Radio Frequency Identification (RFID) Item Level Standard, ASC DIs: 37S, 25S →→

DI	Data Construction		
37S	IAC	CIN	PN + PSN
25S	IAC	CIN	SN

ODETTE
No effective digitalisation without standardisation

LR06 Capturing Supply Chain Events with auto-ID

Part 1: Odette Automotive Business Vocabulary

3.1.7.1 SERIALISED COMPONENTS

Table 4 Syntax of object ID for serialised components (D&B example)

UII data content (MB01)	Number of digits*	Sample value
Data identifier (DI)	3 characters (an)	37S
Issuing agency code (IAC)	2 characters (an)	UN
Company identification number	9 characters (n)	321456789
Part number (PN)	PN + separator + PSN (max. 25 characters, an)	A111222333AB
Separator		+
Part serial number (PSN)		123456789012
Number of characters	Max. 40 characters (an)	(240 bits)

Example 37SUN321456789A111222333AB+123456789012

Example: Serialised Product ID with ASC DI “37S”:

.37SUN321456789A111222333AB+123456789012

	Method	
1	UID without WEB Link	No WEB link
2	**METHOD 2: “ISO/IEC 15459 UID first” + WEB link (P2P)**	**Yes , ERP friendly**
3	**METHOD 3: “URL first” + UID (AutoID URL, or IEC 61406-2)**	**Yes, Smartphone friendly**
4	METHOD 4: “URL first” GS1 Digital Link	Limitation to 5 digit article no.
5	METHOD 5: “URL first” IEC 61406-1 IEC 61406-2: Types/Models, Batches, Items+Characteristics	-1: pure URL -2: like method 3
6	METHOD 6: Other Identification schemes	?

Example: Serialised Product ID with ASC DI “37S”:

.37SUN321456789**A111222333AB**+123456789012

A) Method 2 “UID first” + URL (DI “34L” P2P), based on today’s practices, suitable for ERP + WEB

.37SUN321456789**A111222333AB**+123456789012^34L**WWW.PORTAL-99/?SCAN=**

ASC DI structure with WEB access

.37SUN321456789**A111222333AB**+123456789012^34L**WWW.PORTAL-99/?SCAN=**

| | | | | └ Part No. └ SN | | |
| | | | └ Company ID (DUNS) | | portal with query link
| | └ ISO15459 IAC | |
| └ ASC DI unique product ref. └ ASC DI „34L“ setting the

. System ID for ASC DI structure *34L rules for WEB access: Transmit URL first*

B) Method 3 “URL first” + ASC DIs for parsing, suitable for WEB + ERP AutoID URL 1.2 or IEC CD 61406-2

WWW.PORTAL-99?.37S=UN321456789**A111222333AB**%2B**123456789012**

Example codes AutoID URL for WEB access & ERP parsing:

HTTPS://SRV.DE/ART?.37S=UN321456789**A111222333AB**%2B123456789012

| | | | └ Part No. └ SN
URL root with „?“ for query | | IAC+CIN (DUNs Number)
| └ ASC DI 37S serialised product number
└ . System ID for ASC DIs

Smartphone friendly

	Method		
1	UID without WEB Link	No WEB link	…..
2	**METHOD 2: “ISO/IEC 15459 UID first” + WEB link (P2P)**	**Yes , ERP friendly**	**…..**
3	**METHOD 3: “URL first” + UID (AutoID URL, or IEC 61406-2**	**Yes, Smartphone friendly**	**…..**
4	METHOD 4: “URL first” GS1 Digital Link	Limitation to 5 digit article no.	….
5	METHOD 5: “URL first” IEC 61406-1 Identification Link IEC 61406-2 IEC 61406-2: Types/Models, Lots/Batches, Items+Characteristics	pure URL like method 3	….. ……
6	METHOD 6: Other Identification schemes	pure URL ?	……

What might be the most suitable DPP for Automotive:

DPP

other examples ……

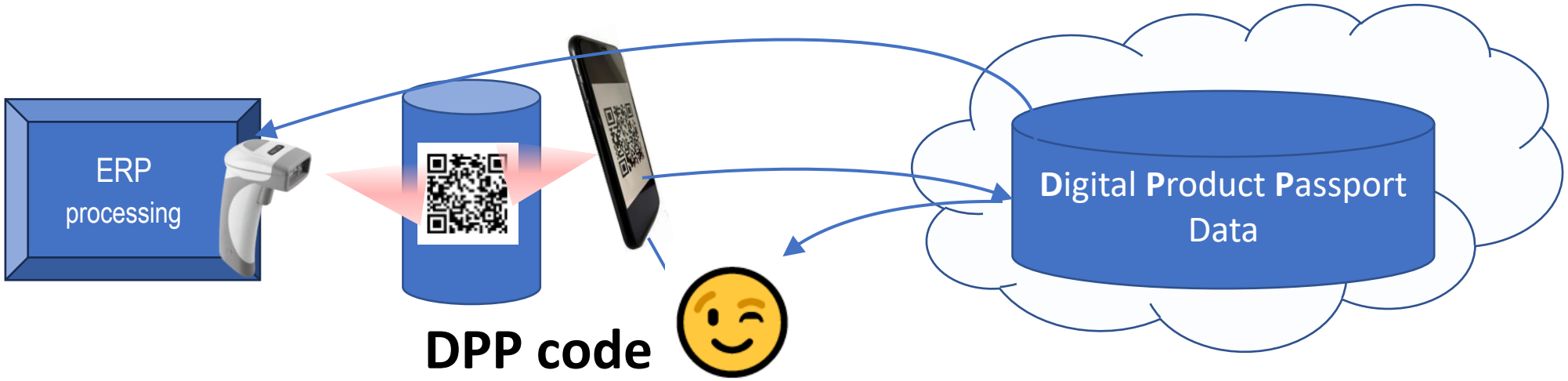
……

……

DPP 

References

ANS MH 10.8.2 Data Identifiers
AutoID URL 1.2:2022 EDCi (DIN WD)
DIN 16589 Pointer to Process (P2P)
DIN 16598 Syntax keyboard and Web compatible encoding of data elements
in machine readable symbols applied with ASC Data Identifiers
GS1 Digital Link
IEC 61406-1 Identification Link - Part 1: General requirements
IEC 61406-2 Identification Link - Part 2: Types/Models, Lots/Batches, Items and Characteristics
ISO/IEC 15418 GS1 Application Identifiers and ASC MH10 Data Identifiers
ISO/IEC 15459 Unique Identification
JAIF B-21 Global Radio Frequency Identification (RFID) Item Level Standard
ODETTE LR06 Capturing Supply Chain Events with auto-ID



See also Digital-Passport-ID-methods_part-II_.230328 and AutoID URL demonstrator
https://www.e-d-c.info/en/projects/dpp-passport-en.html

Questions, contributions, suggestions are appreciated

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