Digital Transformation of Technical Industries

Discover the promise of GS1 in Technical Industries
Technical Industries session

Enzo Blonk – GS1 Global Office
Dublin, September 11th, 2018
Anti-trust caution

• GS1 operates under the GS1 anti-trust caution. Strict compliance with anti-trust laws is and always has been the policy of GS1.
• The best way to avoid problems is to remember that the purpose of the group is to enhance the ability of all industry members to compete more efficiently.
• This means:
  - There shall be no discussion of prices, allocation of customers, or products, boycotts, refusals to deal, or market share.
  - If any participant believes the group is drifting toward impermissible discussion, the topic shall be tabled until the opinion of counsel can be obtained.
• The full anti-trust caution is available via the link below, if you would like to read it in its entirety: http://www.gs1.org/gs1-anti-trust-caution.
Statement & reminder for seeking intellectual property information

- Relevant to the features of the specification that are being developed in this work group, if anyone has knowledge or information about intellectual property rights, such as, patents or patent applications; please promptly convey this information to the work group facilitator.
- The intellectual property rights can either be in development or owned by persons, companies or third parties within this work group or outside this work group.
- We do this under the guidance of the GS1 Intellectual Property Policy, so that GS1 can seek to avoid the uncertainty regarding intellectual property claims against the Specification.
Meeting etiquette

• **Meetings will begin promptly as scheduled**
• **Be present – avoid multi-tasking**
• **Avoid distracting behaviour:**
  - Place mobile devices on silent mode
  - Avoid sidebar conversations
• **Be considerate**
  - Avoid monologues
  - Keep comments concise
• **Respect work group decisions**
  - Avoid re-opening decisions unless there is a significant quality impact
• **Collaborate** in support of meeting objectives
  - Ask questions
  - Be open to alternatives
• **Be representative**
  - Avoid personal remarks
  - Do not speak for your company or community if you do not clearly understand their needs
  - Votes should reflect the needs of your company or community
GS1 Industry & Standards Event App

1. Get the App by searching your App store for "GS1 Global Events" (If you already have the Global App due to attendance at the Global Forum or Standards Event, you do not need to do this).

   Once you have the Global App on your mobile device, type GS1IS18 in the search box. Please click the orange (+) to activate the event within your application.

2. Login with the email address you used to register for the event:

   Username: (your registered email)
   Password: GS1events
Event App – How to rate sessions

1. Within each session, you will see “surveys” listed at the bottom.

2. Select your rating and enter comments.

3. A confirmation appears.

- A confirmation appears.
- Your answers have been successfully received.
WiFi internet access

• Select network “GS1networks” and connect
• Password:  GS1events
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1. Industry overview and challenges

2. GS1 Technical Industries in ACTION
   - Rail
   - Construction (Industry Guest Speaker!)
   - CPG manufacturing
   - Defence
   - Maritime

3. TI as a sector: What’s next?
1. Technical Industries: overview and challenges
A few facts...

- Items in TI are **not FMCG** – life expectancy of +60 years!

- Supply Chain Efficiency → **Product Life Cycle** visibility
- The end-product is an **assembly of parts** and the composition changes over time
- **Direct Marking** of items (Identification @ package is not sufficient)
- Data on usage → supports **new business models** (service-oriented)
- **No GTIN reuse** acceptable!
Emerging industry group within GS1 at the global level that will initially focus on the use of **GS1 identifiers in specific business processes** to enable data sharing services between and within **targeted** sectors:

- Construction
- CPG (manufacturing)
- Defence
- Railways
- + Engineering

**Case by case**

- Aerospace
- Automotive
- Energy
- Maritime
- Mining
Common need = **Globally Unique Identifier**

As the key to:

- **Material Master Data** (product description and attributes structured)

And as an enabler for:

- **Part Authentication** (counterfeit)
- **Inventory / Warehouse visibility** → predictive replenishment
- **MRO** (Maintenance, Repair & Overhaul) processes more efficient → Preventative maintenance, real-time performance monitoring
- **Lean manufacturing** (Industrial Internet of Things)
- **Systems interoperability**
- **Warranty management / regulatory compliance**
What Technical Industries is
From a Product Lifecycle point of view
GS1 at the heart of...
...all Digital Industry and operations processes

- aka IIoT = Industrial Internet of Things
- Huge boost for more efficient use of robotics.
- Linking elements → valuable data → analytics & process optimisation
  - Predictive Replenishment, Preventative Maintenance, “Pay-per-Use”
- Security of data = essential for successful & efficient Smart Industry.
• To raise market confidence, support Smart Industry strategies and make sure investments in future products and services bear fruit in the long run, global security and data standards are required.

• Ensuring that each product, each device, each service is uniquely identifiable within the global supply chain and along the item’s lifecycle, is an essential part in this Digital Industry strategy.
Use cases in Technical Industries – IIoT

- In IoT „Things“ talk to each other, but how are they identified?
- IIoT driven systems not just interconnected, they are also smart.
  - Product intelligence, data analytics and cognitive capabilities
- Sensors (RFID-based or not) will play a predominant role in this, in particular in the TI Industries in focus.
Use cases in Technical Industries – **IIoT**

### IoT Segment: Global share of IoT projects

<table>
<thead>
<tr>
<th>Segment</th>
<th>Americas</th>
<th>Europe</th>
<th>APAC</th>
<th>Trend</th>
</tr>
</thead>
<tbody>
<tr>
<td>Smart City</td>
<td>34%</td>
<td>45%</td>
<td>18%</td>
<td>↑</td>
</tr>
<tr>
<td>Connected Industry</td>
<td>45%</td>
<td>31%</td>
<td>20%</td>
<td>↑</td>
</tr>
<tr>
<td>Connected Building</td>
<td>53%</td>
<td>33%</td>
<td>13%</td>
<td>↑</td>
</tr>
<tr>
<td>Connected Car</td>
<td>54%</td>
<td>30%</td>
<td>12%</td>
<td>↑</td>
</tr>
<tr>
<td>Smart Energy</td>
<td>42%</td>
<td>35%</td>
<td>19%</td>
<td>↑</td>
</tr>
<tr>
<td>Other</td>
<td>50%</td>
<td>34%</td>
<td>11%</td>
<td>↑</td>
</tr>
<tr>
<td>Connected Health</td>
<td>55%</td>
<td>29%</td>
<td>15%</td>
<td>↑</td>
</tr>
<tr>
<td>Smart Supply Chain</td>
<td>49%</td>
<td>36%</td>
<td>12%</td>
<td>↑</td>
</tr>
<tr>
<td>Smart Agriculture</td>
<td>39%</td>
<td>26%</td>
<td>31%</td>
<td>↑</td>
</tr>
<tr>
<td>Smart Retail</td>
<td>53%</td>
<td>35%</td>
<td>9%</td>
<td>↑</td>
</tr>
</tbody>
</table>

1. Based on 1,600 publicly known enterprise IoT projects (not including consumer IoT projects e.g., Wearables, Smart Home). 2. Trend based on comparison with % of projects in the 2016 IoT Analytics Enterprise IoT Projects List. A downward arrow means the relative share of all projects has declined, not the overall number of projects. 3. Not including Consumer Smart Home Solutions. **Source:** IoT Analytics 2018 Global overview of 1,600 enterprise IoT use cases (Jan 2018)
Emerging applications

- Sensors & other embedded technologies
- Artificial Intelligence
- Augmented Reality (AR) / Virtual Reality (VR)
- Additive Manufacturing (3D Printing)
- Robotics and automated engineering
2. GS1 Technical Industries in action

- Rail
- Construction
- CPG (manufacturing)
- Defence
- Maritime
World Rail Market

- New level of competition reached
  - More *regionally* focussed OEMs **expanded geographically** → they compete on global level
  - They enter 3rd (often newly *emerging*) railway markets and
  - They enter *(traditional) home* markets of other large rolling stock manufacturers
  - Growing (technical) requirements complicate both development and customising processes → require an even **larger sales market to reach level of profitability**
Western Europe and Africa/Middle East are expected to show strongest growth rates – Asia Pacific to remain at high levels
Total market growth rates per region [CAGR\(^1\), %]

- World rail supply market: 2.6%
- NAFTA: 2.2%
- Latin America: 2.3%
- Western Europe: 3.1%
- Eastern Europe: 2.8%
- CIS: 0.9%
- Africa/Middle East: 3.0%
- Asia Pacific: 2.6%

### Regional Breakdown

<table>
<thead>
<tr>
<th>Region</th>
<th>Year &amp; Ref</th>
<th>Turnover (in €)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Europe</td>
<td>2015</td>
<td>€ 47.0 bn</td>
</tr>
<tr>
<td>Austria</td>
<td>2016 ¹</td>
<td>€ 3.2 bn</td>
</tr>
<tr>
<td>France</td>
<td>2017 ²</td>
<td>€ 3.8 bn (€ 1 bn for export)</td>
</tr>
<tr>
<td>Germany</td>
<td>2016 ³</td>
<td>€ 11.8 bn</td>
</tr>
<tr>
<td>United-Kingdom</td>
<td>2015-2016 ⁴</td>
<td>€ 11.3 bn (22.59 bn / 2 years)</td>
</tr>
<tr>
<td>Australia</td>
<td>2012 ⁵</td>
<td>€ 3.2 bn</td>
</tr>
</tbody>
</table>

¹ APA-OTS - Wirtschaftsfaktor Schienenverkehr und Bahindustrie (12 September 2017)
² Fédération des Industries Ferroviaires
³ Statista.com - Umsatz der deutschen Bahindustrie von 2005 bis zum Jahr 2017
⁴ Office of Rail and Road - UK Rail Industry Financial Information 2015-16 (22 February 2017)
⁵ ARA – Rail Manufacturing – Keeping the Nation on track
Top 10 manufacturers of rail vehicles ranked by new vehicles (revenue 2015 in m€)

They generate a combined revenue of approx. € 39 billion, more than 75% of global market.
Worldwide distribution of manufacturers and sites

*Manufacturers* refers to all rail vehicle companies with their global headquarters in the region.
*Sites* refers to all manufacturing facilities in the region, including plants of manufacturers from other regions.
Global market for Vehicle Maintenance

Profile: World

<table>
<thead>
<tr>
<th>Market volume 2011</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>After-sales</td>
<td>EUR 38 500 million</td>
</tr>
<tr>
<td>Light maintenance</td>
<td>EUR 25 400 million</td>
</tr>
<tr>
<td>Heavy maintenance</td>
<td>EUR 10 000 million</td>
</tr>
<tr>
<td>Refurbishment</td>
<td>EUR 3 000 million</td>
</tr>
<tr>
<td>Information: new vehicles</td>
<td>EUR 47 500 million</td>
</tr>
</tbody>
</table>

Market development 2011–2016

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>After-sales</td>
<td>+3.4%</td>
</tr>
<tr>
<td>New vehicles</td>
<td>+3.1%</td>
</tr>
</tbody>
</table>

© SCI Verkehr GmbH

World: Shares of transport markets in the total after-sales market 2011
[around EUR 38 500 million in total - partly estimated]

- Private companies: 12%
- Manufacturers: 25%
- Operators: 63%
GS1 Rail standards deployment (status Sept. 2018)

- GS1 MO engaged with Rail Industry
- GS1 MO not engaged with Rail Industry, urgent Industry requests handled by GO
- GS1 MO not engaged with Rail Industry, but requests handled by end-user (MO ready)

Number of named suppliers to main national railway operator (provided by operator)

Number of rail industry suppliers with manufacturing/distribution sites as per “GS1 Rail sector analysis 2018”
Use cases in Technical Industries – Rail

- **Asset Identification & Vehicle visibility (Application Standard 2015)**
  - Austria: 100 wagons (full roll-out started this year)
  - India: 8000 wagons (3% of estim. Total)
  - Norway: ?? (EPC tagging mandatory)
  - Sweden: 6000 wagons from 10 operators
  - Switzerland: 100% locomotives & passenger wagons

- **Identification parts and components (Appl. Standards 2016/2017)**
  - Implementation DataMatrix / EPC-RFID in full speed in Australia and Europe
    - All state operators in Australia
    - In Europe: SBB, DB, SNCF, ÖBB, SNCB, SJ, PKP
Lots of different applications
Railways - summarised

Industry needs

- Vehicle visibility
- Efficient procurement processes of parts and components
- Life Cycle Traceability (MRO) across all business partners

GS1 Focus

- (s)GTIN
- GIAI
- SSCC
- DataMatrix
- EPC/RFID
- Sensors
- EPCIS

Standardisation needs

- RFID in Rail → Done
- EPCIS vehicle visibility → Done
- Application standards identification and data exchange parts → Done
- Addendum to Appl. Standards voted Aug 31st...possibly more to come
- Sensors for TI use
.....a small...
Steel (HEAT Number AI request)

Steel pipe is used in the construction of pipelines for petroleum and natural gas

- Steel is made in electric furnaces in combination with a ladle refining process which is used to transport and pour out the molten metals...
- The resulting process is known as a ‘heat’ and a ‘heat number’
  - ‘Heat number’ is qualitative
  - ‘Heat number’ is core attribute data
    - Indicates of Furnace/Year/Melt ...
    - Manufacturer/Location/Shift
- The heat number is stamped and retained for the life of the material particularly as secondary processing occurs.
Steel (HEAT Number AI request) – Traceability

Primary Driver:
• Identification of the origin of material and parts used to manufacture components of the Gas Pipeline Industry in the US
  • Traceability of raw materials used to manufacture Gas pipeline
  • Traceability of Infrastructure Construction Components

Secondary Driver:
• International regulatory efforts are increasingly prescribing standards for integrity management programs...which further identify the origin of material and parts used to manufacture a component and/or the product processing and/or manufacturing history (e.g. Traceability)

Business Drivers:
• Customers, Regulation, Liability, National & International Standards

Impacted industries:
• All TI (primarily steel-processing Industries)
CONSTRUCTION

Per Lieng Stubberud
CFO – Gausdal Landhandleri
Digital Supplychain
Gausdal Landhandleri | Construction Industry – Building materials Retail

1,5 Mrd (NOK)  
(€ 150 mill)

17 WareHouses  
ServiceCenter  
eCommerce

360 FTE

Centralized Distribution  
Center  
Supplychain partner
Driven by growth – Need for change

- Service level & Control
- Efficiency
- Scalability – Future growth
Transformation | How

Processes
Mapping processes
«Look to other industries»

Systems
Technology (Terminals/clients, Peripherals, ...)
Standards
GS1 std (GLN, SSCC, GTIN...)
Industry standards (Masterdata products and attributes, NeB – interaction EDI)
Systems (ERP/ WMS/ PIM)

Partners
Organization – Top driven change
Employees
Vendors
• Technology
• Standards
• Interaction
Traceability – Goods and data

Integrated systems

Communication with partners
Improved Gausdal Landhandleri’s distribution capabilities | From retailer to partner

➢ «Leading supply chain services in the industry»
➢ Documentation goods and transportation
Efficiency | Enabling growth

- Scalability
- Automation
- Handling – «from hours to minutes»
- Simplifying administrative processes
- Improved quality – reducing deviations and errors
Viktigste funn

- Telefon og e-mail til bestilling
- Værer bestilles gjennom hele prosjektperioden
- 35% gjennomfører ikke øveremottak
- 70% benytter skanning av strekleder
- Faksualisering er ofte manuell
- Forskriftssetting og flytting av varer er variert
- Pål med punkt til produktedocumentedjon
- 85% har ikke tilfredsstilende IT-verktøy
- IT-verktøy er typisk integrert med hverandre
- planners og koordinering er mangelfull

50% ser et stort potensiale for forbedring!

Prosjekt Vårk. Digital samhandling med entreprenører, byggesetere, boligprodusenter og byggeindustrien

"...Entrepreneurene har lagt store ressurser i å utvikle gode BIM-modeller, mens informasjonen i modellene utnyttes i en grad til minst og i samhandlungen med leverandører av varer til bygghjem..."

3,5 milliarder kroner*

*Spiller for de 10 største entreprenører i Norge

Productivity in the Industry
Engagement

Ambisiøse mål

- Lavere klimagassutslipp: 50%
- Kostnadsreduksjon: 25%
- Raskere prosjektjennomføring: 50%
- Økning i eksport av produkter og tjenester: 50%

- Technology
- Standards
- Interaction?
Delivery Schedule

Masterdata

Order

Order response

Delivery

Schedule
Best Practice – existing technology, standards og systems.

Together Open standards – across the industry throughout the value chain. Proof of Concept Project.
From BIM...

Calculation/ Planning/ Sourcing/ Building/ completion

....To Facility Management
## Construction - summarised

<table>
<thead>
<tr>
<th>Industry needs</th>
<th>GS1 focus</th>
<th>Standardisation needs</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Digital” &amp; virtual twins (BIM)</td>
<td>(s)GTIN</td>
<td>Smart CE Marking (AI)</td>
</tr>
<tr>
<td>Quality Master Data of building products</td>
<td>GIAI</td>
<td>- EU-level (TBC)</td>
</tr>
<tr>
<td>Procurement processes</td>
<td>SSCC (/GLN)</td>
<td>Application Guideline</td>
</tr>
<tr>
<td>Logistics efficiency</td>
<td>DataMatrix</td>
<td>- 2019-2020</td>
</tr>
<tr>
<td>Life Cycle Mgt (Facility)</td>
<td>EPC/RFID</td>
<td>Sensors for TI use</td>
</tr>
</tbody>
</table>
| | Sensors | + possible requirements from:
| | GS1 Cloud | 1. various GS1 PoC in Europe
| | EPCIS |   - France, Germany, Norway, Sweden, Switzerland
CPG Manufacturing
Case for CPG: Item visibility & Data Quality

- 418 factories in 86 countries
- Factory inventory (machine engineering): on average 3000 spare parts from 300 suppliers

Impact identification
- 300 suppliers = 300 different proprietary identification systems!!
- Manual input into ERP to assign a “material/article number”
- Material Master Data = non-existing, incomplete or erroneous
- Each factory has its own ERP → no “cross-factory” visibility
- Additional complexity: Frequently changed (proprietary) part numbers
Case for CPG: Item visibility & Data Quality

- 418 factories in 86 countries
- Factory inventory (machine engineering): on average 3000 spare parts from 300 suppliers

Impact identification:
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Physical flow

Information flow

ERP
Source Data Pool
Master Data
ERP
The Corporate Data League (CDL)

**CDQ operates collaborative management of business partner data in a growing community**

### Corporate Data League

**CDL Members**
- Share business partner data updates
- Double-check updates to assure data quality
- Share compliance information
- Review and revise CDL metadata
- Share best practices for processes and organization

**Verified external sources**
- Official registries across the globe
- Based on scientific research and long-term corporate data consulting experience
- Up-to-date reference data (e.g. blacklists, business rules)
- Numerous external data sources in a standardized format

**CDQ Team**
- Manages the community as a neutral moderator
- Operates CDL cloud and services
- Monitors data quality and process performance
- Provides state-of-the-art features and integrations in member applications
- Protects all CDL data in compliance with European data privacy law

---

CC CDQ, Darmstadt, September 26, 2018, Erwin Braumandl/Kai Hüner, 56
Four companies volunteered to perform a first overlap analysis. The overlap analysis aims to evaluate the ratio of join material master records.

**Objectives**
- Quantify the overlap of selected material master records ("Spare Parts")
- Quantify the potential benefit of cross-corporate material master data management

**Participating companies**
- BASF
- Beiersdorf
- Nestlé
- Schaeffler
First analysis delivered only 0.6% duplicates
Result mainly impacted by data quality

**IDENTICAL DUPLICATES (2.305 materials, 0.2%):**

- BASF
- NESTLE
- SCHAEFF-LER

**SIMILAR DUPLICATES (5.961 materials, 0.6%):**

- BASF
- NESTLE
- SCHAEFF-LER
### CDL Material Master Cloud Platform – Business Benefits

*Several Use case driven solutions are available for companies*

<table>
<thead>
<tr>
<th>Data Maintenance</th>
<th>Product Lifecycle Management</th>
<th>Data Analytics</th>
</tr>
</thead>
</table>
| ◼ creation & changes based on proven dataMaterial Master  
◼ Less effort to search for all required data  
◼ Rule driven provision of required data (e.g. material name generator) | ◼ Tool driven cross-corporate product lifecycle management  
◼ Early warnings  
◼ PLM Maturity assessments  
◼ Product Evaluation/Analysis | ◼ Data Quality Reporting  
◼ Enables accurate spent analysis *)  
◼ Avoids hidden stocks *) |
| **Strongly reduced Material Master maintenance effort!** | **Cross-corporate Management of Product Lifecycles directly from the vendor!** | **Data Analytics supports examining the data for you to draw the right conclusions!** |

<table>
<thead>
<tr>
<th>Data Quality</th>
<th>Data Classification</th>
<th>Material Master Compliance</th>
</tr>
</thead>
</table>
| ◼ Inspection & Profiling of data  
◼ Validations, Deduplication & Retiring of data  
◼ Cleansing of data  
◼ Enriching & Manipulating data  
◼ Transforming & Migrating of data | ◼ Provision of Data Classifications  
◼ Reliable Technical Data Information  
◼ Supports Meta & Reference Data Management  
◼ Optimized procurement process by proven link to vendor data | ◼ Provision of commodity codes  
◼ Improved statutory reporting  
◼ Early warnings from suppliers on restrictions for materials (e.g. export) |
| **Data are cleansed and prepared to better support processes or e.g. ERP projects!** | **Data are classified based on externally available information!** | **Better fulfillment of compliance in respect of international trading!** |

*) These use cases need additional volume data from plants and suppliers and have to be further investigated.
CDL Material Master Cloud Platform - Setup
“Data Shareconomy” for material master data and product catalogues

- **Expertise:** Together with leading enterprises, CDQ has established a growing data sharing network for business partner data, the Corporate Data League

- **Missing links:** Companies manage their product & material master data in silos, cross-corporate links between same materials or materials & their corresponding product lifecycles from vendors are missing

- **Verified product data:** Spare part vendors share product catalogue data in the CDL Material Master Cloud

- **Cross-Corporate benefits** will be achieved via:
  - Improving Data Quality
  - Optimizing procurement processes
  - Sharing Material Master maintenance
  - Better compliance in international trading
  - Cross-corporate product lifecycle management

*) alternatively CDL can load product catalogue data from webshops
CDL Material Master Cloud Platform – How we want to start

We want to start with 10+ foundation Members

2019 Activities

- Design, implement, and operate cloud infrastructure to share product catalogue & material master data
- Design & implement collaboration organization and processes
- Design and implement use cases to maintain material master data & to share lifecycle information
- Establish setup which motivates others to join

2019 Resources

- People:
  - One Data Manager
  - Two to three Data Scientists
  - Cloud infrastructure, proven by CDL operations

Companies interested to join (no decision taken):
Next steps

- Feedback expected from Nestlé on how to leverage on current TI activities (GO presentation done to Nestlé Global Data Management Aug. 22nd)

- Participation GS1 at Kick-off meeting CDL in Darmstadt Sept. 26 & 27

- Internal analysis on further GS1 involvement in this CDL initiative
## Industry needs

- Increase inventory efficiency of parts
- Master data of Technical Material
- Life Cycle traceability
- IIoT – where to start?

## GS1 Focus

- (s)GTIN
- GIAI
- DataMatrix
- EPC/RFID
- Sensors
- GS1 Cloud
- EPCIS

## Standardisation needs

- Sensors for TI use

**Possible requirements from**:

**New initiative (Corporate Data League) with participation from**:

- Nestlé, Beiersdorf, BASF, Schaeffler, Siemens, SAP, Bosch, Novartis, Merck,..

- **Kick-off meeting Sept. 26-27**
RFID Use cases in Technical Industries – Defence

- Brazil – Uniforms tagged for inventory purposes
- New Zealand: RFID-tagging of arms
- India: RFID-tagging of ammunition
  - 7 ammunition factories across India
  - Largest ammunition depot
  - For batch tracking reasons (Life Cycle Traceability and Repairs)
  - Idea was triggered when implementing SAP (“why don’t we automate our warehouses?”)
Next

- Continued monitoring of NATO activities (including specific GTIN field in NMCRL)
- Launch of a Defence MO Interest Group
- Continued support to MO’s engaged in Defence at national level.
- Current surge in activities in:
  - Australia
  - India
  - New Zealand
  - Thailand
# Defence - summarised

## Industry needs
- Complementary identification to “outdated” NCS (NATO Codification System)
- Efficient procurement and inventory processes
- Quality Master Data
- Life Cycle Traceability for MRO processes

## GS1 Focus
- (s)GTIN
- SSCC
- GS1-128
- DataMatrix
- EPC/RFID
- GS1 Cloud
- GDSN

## Standardisation needs
- TBC

**Possible requirements from:**

**GDSN project in Australia**
- pre-pilot on Healthcare products
- Decision by end 2018 to start 4-year pilot
MARITIME

Application Identifier for Marine Safety Equipment Certificate Numbers
Business Purpose & Requirements

- **EU Regulation** (Directive 2014/90/EU) in force on marine equipment
  - support international regulatory framework (IMO) for marine safety,
  - each piece of equipment needs certificate, called MED ID’s, Marine Equipm. Directive.
- Each item requires a printed symbol (“wheelmark”) along with the certificate number.
  - New EU regulation (2018/608 of 19 April 2018) holds criteria to supplement/replace the printed version by an “e-tag” (DataMatrix and/or RFID tag).
- GS1 formally requested by EU Commission and EMSA (European Marine Safety Agency) to provide an AI, to be used in combination with a GTIN/GIAI.

Example of a safety flare

**Before**

Wheelmark symbol + Notified Body (0098) + Year wheelmark was affixed (13)

**Future**

Type of certificate (module B) + Certificate Nr.

B-0098-8630109HH

and/or

E-Tag(digital) version

The Global Language of Business

© GS1 2018
Who’s involved?

- **EU regulation applicable to all equipment on vessels sailing under an EEA (EU+Norway, Iceland & Liechtenstein) flag.**
  - MED ID / Wheelmark also recognized by Liberia, Marshall Islands and Isle of Man.
  - There is also a mutual recognition agreement with the US Coast Guard.
- **All manufacturers of such equipment that supply to any of the EEA flagstates vessels need to comply, so global reach.**
- **Supported by EU DG MOVE and EMSA (Eur. Marine Safety Agency)**
Certification reference: AI (723s )

- The AI (723s) indicates that the data field contains a reference to a product certification.
  - as an attribute of a trade item (GTIN) or an individual asset (GIAI). It enables to
    - retrieve the product certificate number and to
    - retrieve the information about the certification(s) in the certification database MarED.
- Multiple certificates may be present (each w/ an individual certification ref.), the fourth digit of the AI (s in the figure below) indicates the sequence of the certification references.

- The general structure of AI (723s) is:
  - Certification scheme (2 characters) defined by GS1. The following code values are currently allowed: “EM” (European Marine Equipment Directive)
  - Certification reference (28 characters)

<table>
<thead>
<tr>
<th>GS1 Application Identifier</th>
<th>Certification scheme</th>
<th>Module</th>
<th>Notified body</th>
<th>Certification ID</th>
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<tr>
<td>7 2 3 s</td>
<td>X₁ X₂</td>
<td>X₃ X₄ variable length X₅ X₆ X₇ X₈</td>
<td>X₈ variable length → X₃₀</td>
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The Global Language of Business
Companies currently having products with a MED-ID

Want to engage and know more?

- Register for free to get access to the MarED Database: www.mared.org/product_database
- Search for Companies in your country
- Reach out to the notifying bodies (Lloyd’s Register, Bureau Veritas, etc..) and inform on new AI

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<th>FlagState</th>
<th># Marine Safety Equipment Manufacturing COMPANIES in MarED Database May 2018</th>
<th>% of total</th>
<th># Marine Safety Equipment PRODUCTS in MarED Database May 2018</th>
<th>% of total</th>
</tr>
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<tr>
<td>Belgium</td>
<td>54 1.13%</td>
<td>462 0.38%</td>
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<td>243 0.20%</td>
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<tr>
<td>Austria</td>
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<td>231 0.19%</td>
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<td>10425 15.90%</td>
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TOTAL # in MarED database 4729
As a supplier, which solutions would you prefer?

Suggestion Consortium

GS1 Solution
3. TI as a sector
What is next?
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What’s next? → Call to Action

1. Do your research (→ Industry Paper).
2. Read and watch GS1 reference materials.
3. Explore your local market.
4. Participate in industry events such as conferences and workshops.
5. Join the GS1 Technical Industries community.
6. Don’t hesitate to contact the GS1 Global Office or your fellow GS1 MO colleagues.
Growth is never by mere chance; it is the result of forces working together.

James Cash Penney
Increase in **productivity** with higher **cost-savings** starts with a globally-unique identification key.
7. Who to contact

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