The Global Language of Business

GS1 Industry & Standards Event 2019
9-13 September 2019 – Lisbon, Portugal

Transforming business together

Session: GS1 in rail: on track

Time: Wednesday, Sept. 11th, 13:30 – 15:30hrs

Who may attend: Everyone

Speaker(s): Enzo Blonk (host), Diana de Bernardy, Thorsten Kirschner, Uwe Rüdel, Sue Schmidt (speakers)

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.

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

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WiFi internet access

- Select network "**Sheraton Lisboa**" and connect
- Password: **GS1events**

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Today's Agenda

- Some Industry background and stats
- GS1 standards implementation…..**@ full speed**
- GS1 Standardisation Requirements
- MO Updates
- Looking ahead….events
- Q&A

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Some Industry background and stats

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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**

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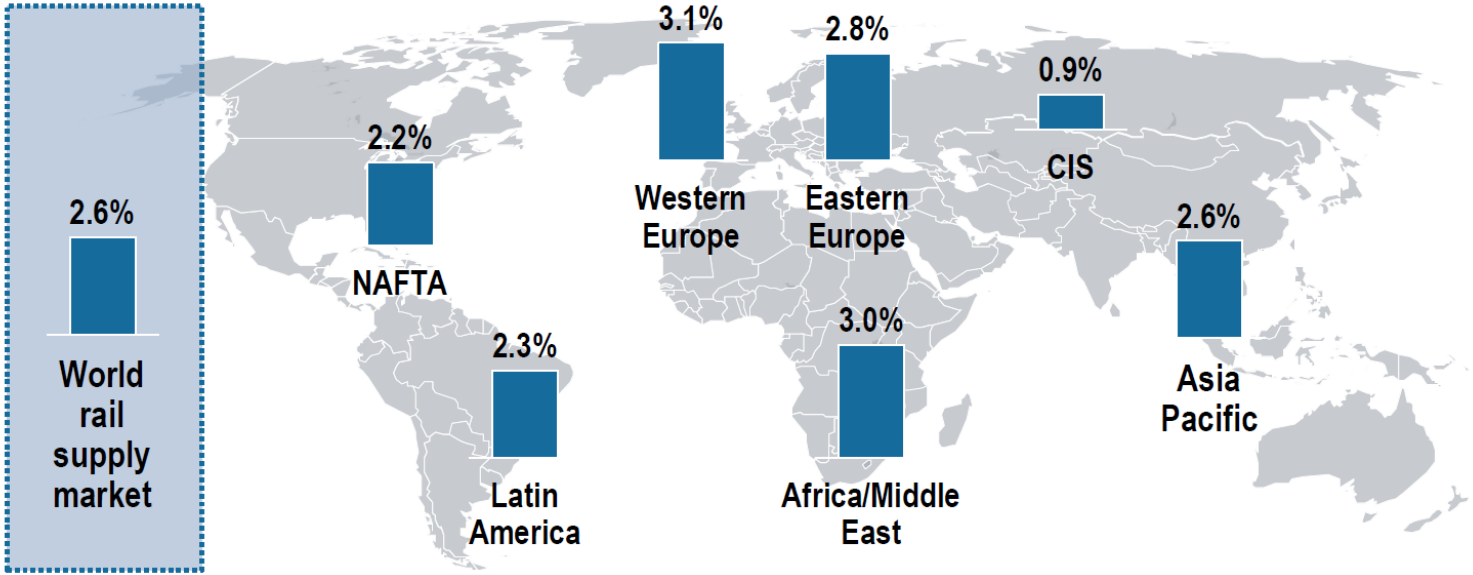
Western Europe and Africa/Middle East are expected to show strongest growth rates – Asia Pacific to remain at high levels

Total market growth rates per region [CAGR[1)], %]



1) Compound annual growth rate 2019-2021 vs. 2013-2015

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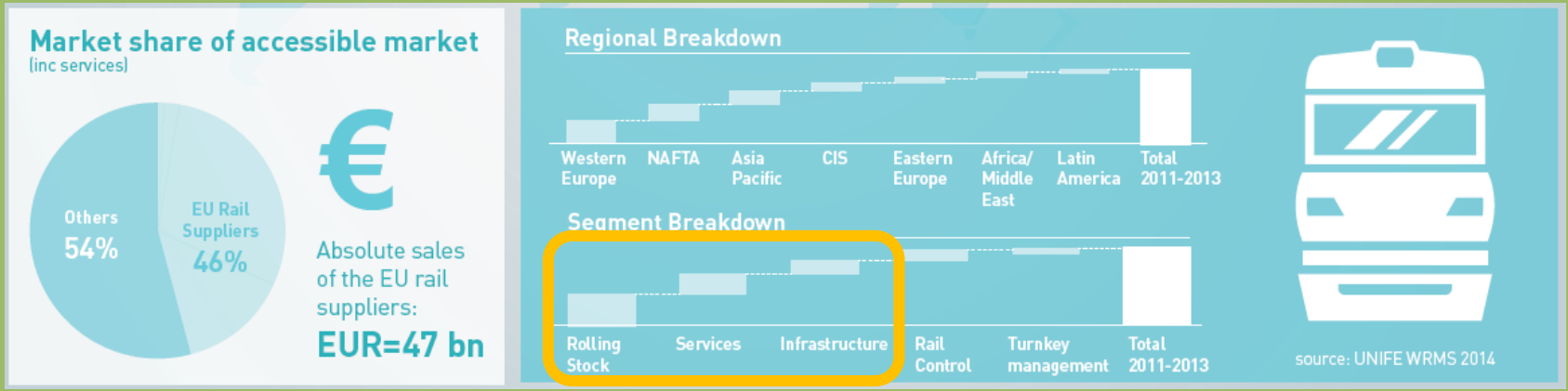
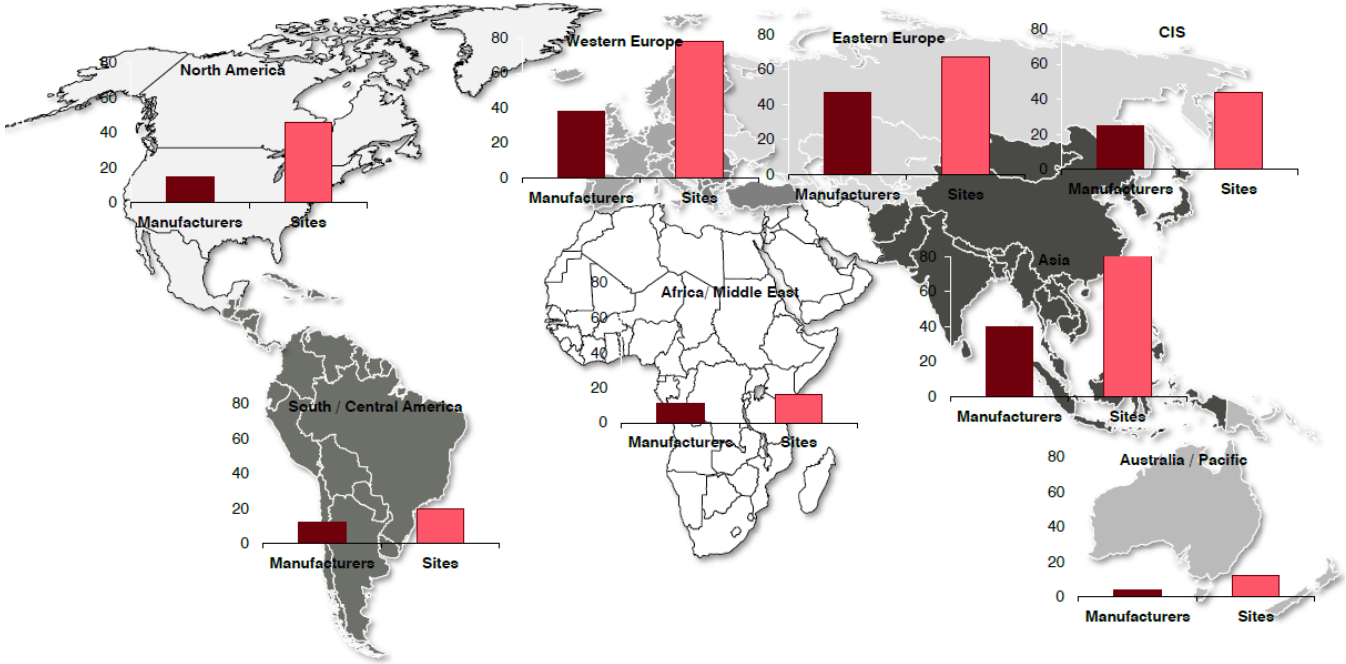


	Year & Ref	Turnover (in €)
Europe	2015	€ 47.0 bn
Austria	2016 [1]	€ 3.2 bn
France	2017 [2]	€ 3.8 bn *(€ 1 bn for export)*
Germany	2016 [3]	€ 11.8 bn
United-Kingdom	2015-2016 [4]	€ 11.3 bn *(22.59 bn / 2 years)*
Australia	2012 [5]	€ 3.2 bn

[1] APA-OTS - Wirtschaftsfaktor Schienenverkehr und Bahnindustrie (12 September 2017)
[2] Fédération des Industries Ferroviaires
[3] Statista.com - Umsatz der deutschen Bahnindustrie 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

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

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Global market for Vehicle Maintenance

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

Profile: World	
Market volume 2011	
After-sales	EUR 38 500 million
Light maintenance	EUR 25 400 million
Heavy maintenance	EUR 10 000 million
Refurbishment	EUR 3 000 million
Information: new vehicles	EUR 47 500 million
Market development 2011–2016	
After-sales	+3.4%
New vehicles	+3.1%

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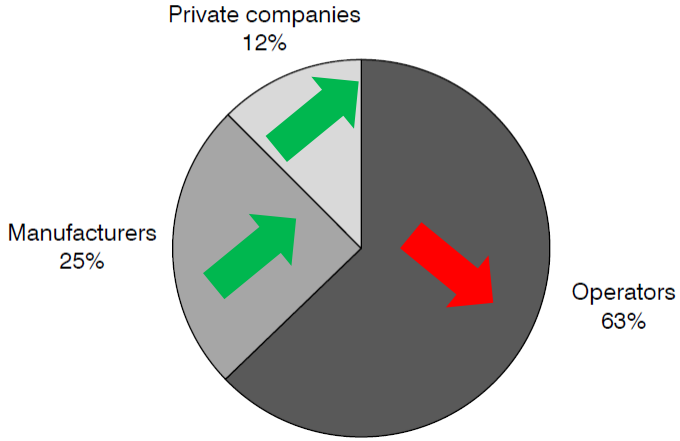

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GS1 standards implementation…..
@ full speed

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2012

GS1 EPCIS for Rail Vehicle
Application Standard

GS1 Transport & Logistics standard that
implement EPCIS rail vehicle visibility

Release 1.0.1, Ratified, July 2015

2015

Identification of Components and P
the Rail Industry - Application Stan

Rules on the use of the GS1 keys and attributes for
identification and marking of components and parts
industry.

Release 1.0., Ratified, Dec 2016

2016

Exchange of component/part lifecycle data in the rail industry Application Standard

Exchange of visibility event data for lifecycle tracking of crucial and safety relevant MRO-objects across manufacturing, maintenance, repair and overhaul processes.

Release 1.0.1, Ratified, Feb 2018

2017

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Life Cycle Traceability in Rail value proposition

Target *Who is the target audience?*	All parties involved in rail manufacturing, maintenance, repair, and overhaul processes (MRO). These include: **Manufacturers** (system integrators, system manufacturers, and component suppliers), **Operators** (infrastructure and transport), **Service providers** (MRO workshops, project contractors, logistics service providers), and **Regulators.**
Need *What important issue do they have?*	• Further improve safety of passengers and cargo. • Improve performance, reliability and quality of train systems and components impacting the quality of the offer to its customers. • Adapt to the liberalisation of the rail market and the increased globalised supplier structures • Comply with rail regulations In order to meet these challenges, the entire rail industry must improve its Manufacturing & MRO processes and in particular develop capabilities for reliable life cycle tracking across companies, supply chains and over MRO-object life cycles of up to 60 years.
Today's Solutions *How are they solving the need today?*	• The use of proprietary identification that only applies locally • Manual exchange of information as well as manual handling of MRO processes
Offer *What do we offer concretely?*	GS1 system of standards to identify, capture and share information, including application standards for: • Rail vehicle visibility • the Identification of Components and Parts in the Rail Industry • the exchange of component / part lifecycle data in the rail industry

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Life Cycle Traceability in Rail value proposition (cont)

Benefit

What advantage does our offer (uniquely) provide?

- Providing the foundation for safety- and operations-relevant information exchange among stakeholders leading to improved risk management
- Traceability of parts and components and overall reduction of costs by using a single rather than multiple parallel solutions
- Collaborative planning, forecasting and replenishment (CPFR) process among global stakeholders leading to reduced inventory levels and preventative maintenance
- Support in complying with rail safety regulations.

Reason Why

What do we do better than today's solutions that justifies the benefit?

GS1 global standards for identifying and marking MRO items and materials will provide:

- Open and well established GS1 standards for the supply chain and life cycle management that support the rail industry to meet this business need, while ensuring interoperability across sectors.
- A common, agreed industry standard for manufacturers to work with in relation to identifying, barcoding and tagging their material
- A clear direction for system integrators and solution providers as to the industry's requirements in relation to identification codes and data capture technologies
- A basis creating the conditions for future [Industrial Internet of Things] concepts and a great opportunity for everyone involved to work together on topics of digitalization

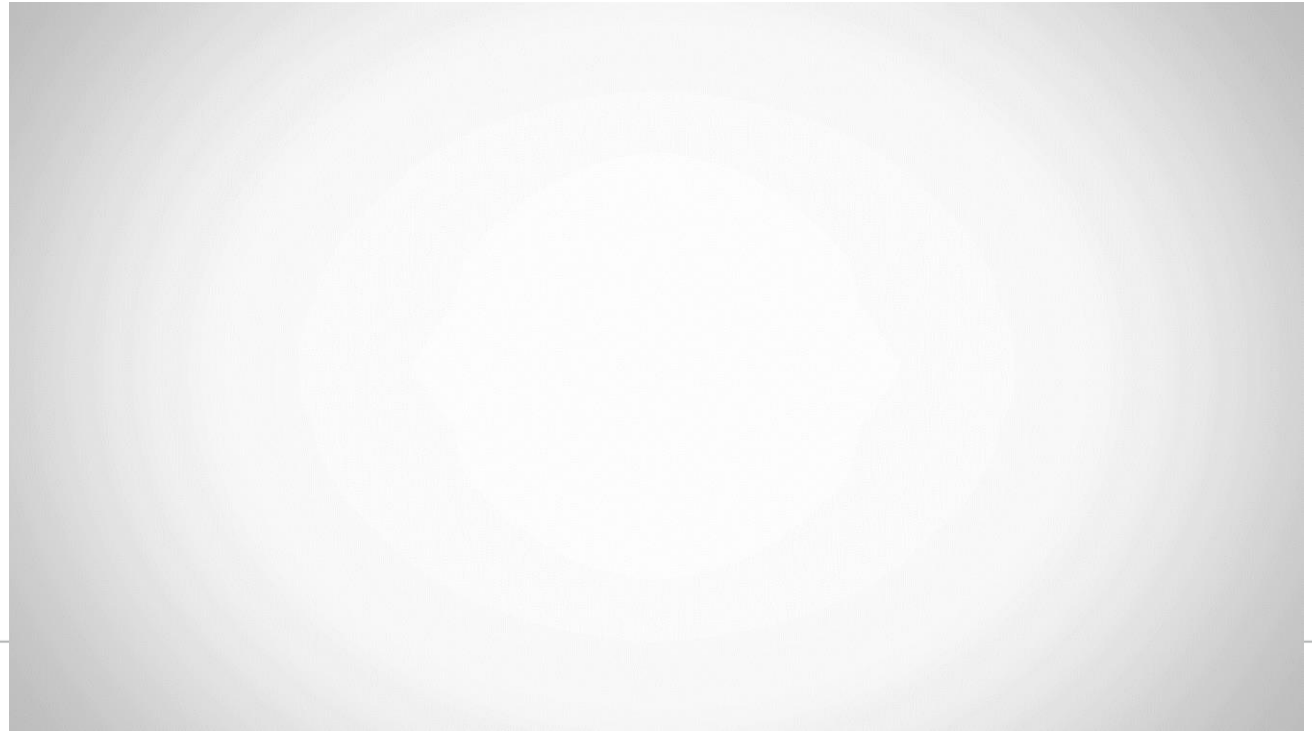
Facts and Case Studies

What compelling facts and case studies illustrate the benefits?

- HFG and ContiTech case studies
- Video testimonials : HFG, Trafikverket & OneSteel/Pandrol
- *GS1 Standards im Bahnsektor - Eindeutige Identifikation von Bauteilen und Komponenten. Broschüre (to be translated in english)*
- Testimonials Schaeffler & Australasian Railway Association (Annual Report 2016-2017)

GS1 standards keep rail companies on track

Video link : https://youtu.be/pcj7Pso0sNs



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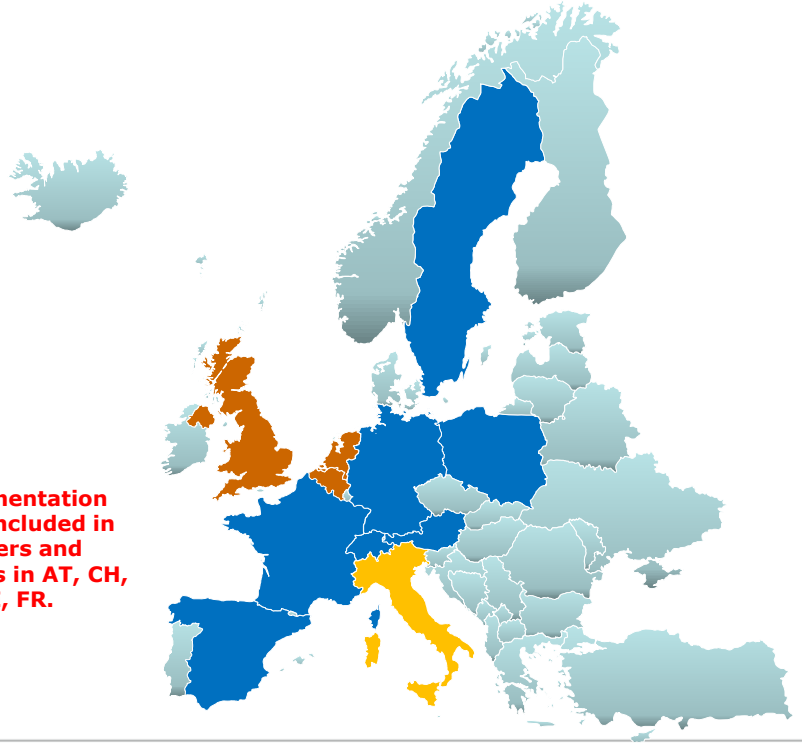
GS1 Rail standards deployment (status May 2019)



Implementation needs included in tenders and contracts in AT, CH, DE, FR.

- 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"

Deadline GS1 implementation = Jan. 1st, 2019

Implementation projects started

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Use cases in Technical Industries – **Rail**

- **Asset** Identification & Vehicle visibility *(Application Standard 2015)*
  - Austria : 100 wagons (full roll-out started this year)
  - Germany : 30.000 (starting, target = all 75.000 vehicles)
  - 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

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Railways

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

- Addendum to Appl. Standards "List of Do's and Don't's → Done
- Issue use GTIN/GIAI in postponing procedure → Done
- DataMatrix min/max size requirements
- Sensors for TI use

Milestones 2018-2019

- *Implementation Application Standards for parts full speed ahead*
  - *Main drivers DB, ÖBB, SBB, SNCF (natl. railway operators in AT, CH, DE and FR).*
  - *Suppliers in **all of Europe**. ex. DB has 17.261 suppliers : Siemens (DB tier 1) has +50K suppliers*
  - *Implementation of Project i-Trace started in **Australia** (collaboration with ARA)*
  - *Cross-fertilisation with activity GS1 in Construction industry (BIM regulation Rail Infra)*
  - ***SBB Infra site visit in May 2019 with Industry stakeholders (CH, DE, FR, GB, NL)***
- *Companies / Associations driving GS1 adoption in this industry **mainly in Europe and Australia***

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Meeting / site visit SBB Infra May 7th

Participants (from left to right) :

1. Thierry Fort – SNCF Mobilités
2. Younger Owen - Network Rail
3. Enzo Blonk – GS1 GO
4. Milé Buurmeijer - Prorail
5. Daniel Müller – GS1 CH
6. Gerald Gruber – GS1 AT
7. Holger Lüke – ProjectBIM
8. Uwe Rüdel – GS1 CH
9. Mario Moritz – ProjectBim
10. Benoit Besson – SNCF Réseau
11. Diana de Bernardy – GS1 FR
12. Philippe Kuchly – SNCF Réseau
13. Vincent Lahillade – SNCF Réseau
14. Dominik Halbeisen - SBB
15. Matthias Jorns - Bombardier

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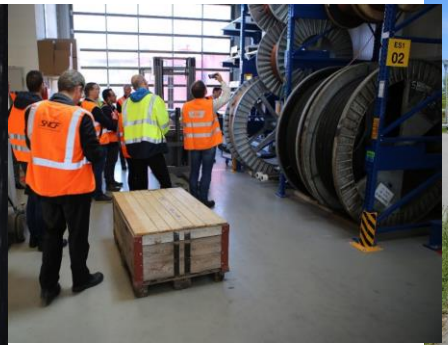
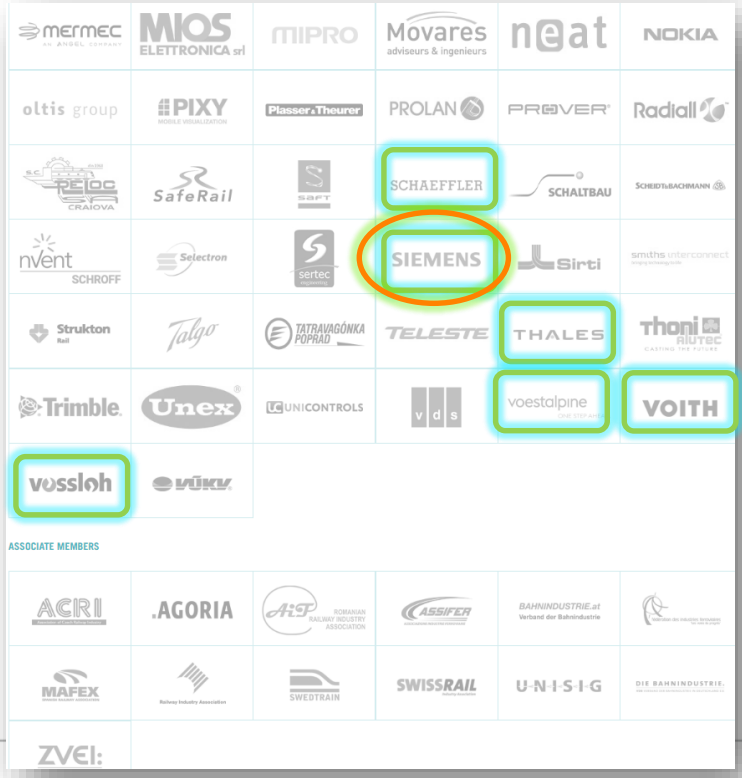
Meeting / site visit SBB Infra May 7th (cont.)



UNIFE full Member Companies (May 2019)

= actively involved in the GS1 workgroup

= currently involved in deployment of the application standards



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Other suppliers implementing (non-UNIFE)

- ARSC
- Banlaw Pty Ltd
- Delachaux Group (Pandrol, Vortok,…)
- Granger Forge & Engineering
- Milspec Manufacturing
- Siemens Mobility Pty Ltd
- SKF
- Thermit Australia Pty Ltd
- Union Rubber & Engineering
- Vulcanite Pty Ltd

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Railways

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- EPCIS

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GS1 Standardisation Requirements

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Issue sGTIN / GIAI in "*Postponing Procedure*"

Premise :

- An individual component and/or part or its instance in the Rail Industry will be identified either using an sGTIN or a GIAI
- These components and/or parts will be directly marked using either the GS1 DataMatrix (preferred) or the GS1 QR Code with EPC-RFID as an additional option (unless RFID is the only technical option). The marking SHOULD contain data in AIDC and HRI format and be applied using a permanent direct marking technique.
- In an assembly, composed of various items, each identified with an sGTIN or a GIAI, the identifier of one element can both identify that specific element AND the assembly.
- When doing in-the-field maintenance, the worker needs to know which of the identifiers, attached to each part of an assembly, is the one that also identifies the assembly in the database/ERP/WMS/OMS (without having to search for it by scanning all identifiers).

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Issue sGTIN / GIAI in "*Postponing Procedure*" – cont.

Issue statement (as per SBB) :

- The sGTIN has an advantage which at the same time is its biggest weakness : it carries significance by having a GTIN integrated in it, which has consequences.
- At start of **production**, when you want to tag a part which will go through production, you do not necessarily know what it will look like when it has run through production, which is called *postponing procedures*.
  - "production" should be understood in this case as "assembly" of different already produced parts and components which have an GTIN or a GIAI.
- This is what happens in assembly procedures. The "mother board" is already there but it can end up in many different form, fit and functions at the end of the process.
- An example is the bogey : it consists of a frame, which is assembled and can, throughout production process, take different form, fits and functions, depending on which train it will be used on at the end of the process. The specification of this bogey is not known at the start of this process, hence the term postponing procedure.

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Issue sGTIN / GIAI in "*Postponing Procedure*" – cont.

	Decsription of option (when using EPC-RFID tags)	Pro	Contra	Conclusion
Option 3	Make "non-relevant" tags visually unrecognisable, make it inconspicuous (hidden/painted over)	Only identifier of final module/assembly (SRU/LRU-level) will be visually triggered by the employee	What if another stakeholder, now or in the future, needs to read the identifiers of the parts and doesn't use RFID (but the DataMatrix instead) ? Risk of RFID-reads of different elements close to each other containing a GIAI with the same GCP. Technology progress might also influence the workability of this option in the future.	Not an ideal solution, but practically still functional. We agree on term "inconspicuous"
Option 4	Use filter value	Identifier of final module/assembly could be read quickly	[9-44] At the present time, application of specific filter values has not yet been standardised.	Moist elegant solution, but industry not ready yet. Limited to RFID technology, wouldn't work for DataMatrix or QR
Option 7	Apply an additional identifier (tag) including the owner's GCP.	Only read the tags with the owner GCP	- It adds a cost (the cost of the extra tag) - the employee will still see the other tags - potential risk of lack of traceability	-Feasible solution and already implemented by a few team members - Benefits outweighs the cost of the extra tags
Option 8	Apply a black/white list for the tags to be read	This is applied in anti-theft protection. If the workshop gets the SGTINs and/or GIAIs of the objects to be maintained/overhauled, reading device can only transmit the tags of those objects on the list which need overhaul/inspection	- Adds additional effort for the operator to establish and maintain the list	To be used as a stand-alone solution but could also be used in addition to option 3

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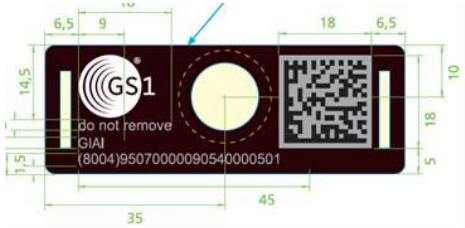
DataMatrix, GS1 GenSpecs & Rail

- X-dimension currently used is 0.9mm, yet according to GS1 GenSpecs on DataMatrix = too big (see next slide)



- GS1 would value the feedback from the Rail group (and *in extenso* the Technical Industries sector) on their needs and any real world experience.
- There may need to be some lines in the next DPM table that speaks to "large" DPM symbols for some applications where it makes sense
- Suggestion GS1 Switzerland :

Symbol specified	X-dimension mm (inches)	
	Minimum	Maximum
GS1 DataMatrix	0.254 (0.0100")	0.990 (0.0390")

What about DataMatrix on small electronic components ?

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DataMatrix, GS1 GenSpecs & Rail – cont.

5.9.3.7 Symbol specification table 7 - Direct part marking

Figure 5.9.3.7-1. GS1 symbol specification table 7

Symbol(s) specified	X-dimension mm (inches) Note 1 Note 4			Minimum symbol height for given X mm (inches)	Quiet Zone	Minimum quality specification	
	Minimum	Target	Maximum	For minimum, Target and Maximum X-dimension			
GS1 DataMatrix	0.254 (0.0100″)	0.300 (0.0118″)	0.615 (0.0242″)	Height is determined by X-dimension and data that is encoded	1X on all four sides	1.5/06/660 **Note 3**	For direct marking of items other than medical devices
GS1	0.254	0.300	0.615	Height is determined by X-	4X on all	1.5/06/660	For direct marking

5.9.3.9 Symbol specification table 9 - GS1 keys GDTI, GRAI, GIAI and GLN

Figure 5.9.3.9-1. GS1 symbol specification table 9

Symbol(s) specified	X-dimensions mm(inches)			Minimum symbol height for given X mm(inches			Quiet Zone		Minimum quality specification
	Minimum	Target	Maximum	For minimum X-dimension	For target X-dimension	For maximum X-dimension	Left	Right	
GS1- 128	0.250 (0.0098")	0.250 (0.0098")	0.495 (0.0195")	12.70 (0.500")	12.70 (0.500")	12.70 (0.500")	10*X*	10*X*	1.5/06/660
GS1 DataMatrix (ECC 200) (*)	0.380 (0.0150")	0.380 (0.0150")	0.495 (0.0195")	Height is determined by X-dimension and data that is encoded			1X on all four sides		1.5/08/660
GS1 QR	0.380	0.380	0.495	Height is determined by X			4X on all four sides		1.5/08/660

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The 7 year itch…? Quite the opposite !

- GS1 Germany since 2013 focus on Technical Industries
  - **Automotive**, Mechanical **Engineering**, **Railways**, **Defence**, **Construction** and Wind **Energy**

- In 2019 TI @ GS1 Germany accounts for (in relation to FMCG):
  - **20%** of **existing** membership revenue
  - **33%** of **new** membership revenue
  - **42%** of new membership revenue (if incl. cancellations)

But what were the success factors for that?

- A high level of intrinsic motivation, diligence, tenacity, curiosity about new industries, people and processes, and in-depth (process) understanding of the respective industry.
- Like a coach of a football team who has to "read" a football game, we must be **able to "read" an industry** and convince our (potential) customers with our GS1 standards, which **takes time**.
- Our approaches are diverse and, in particular, sustainable

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MO Update

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The Global Language of Business

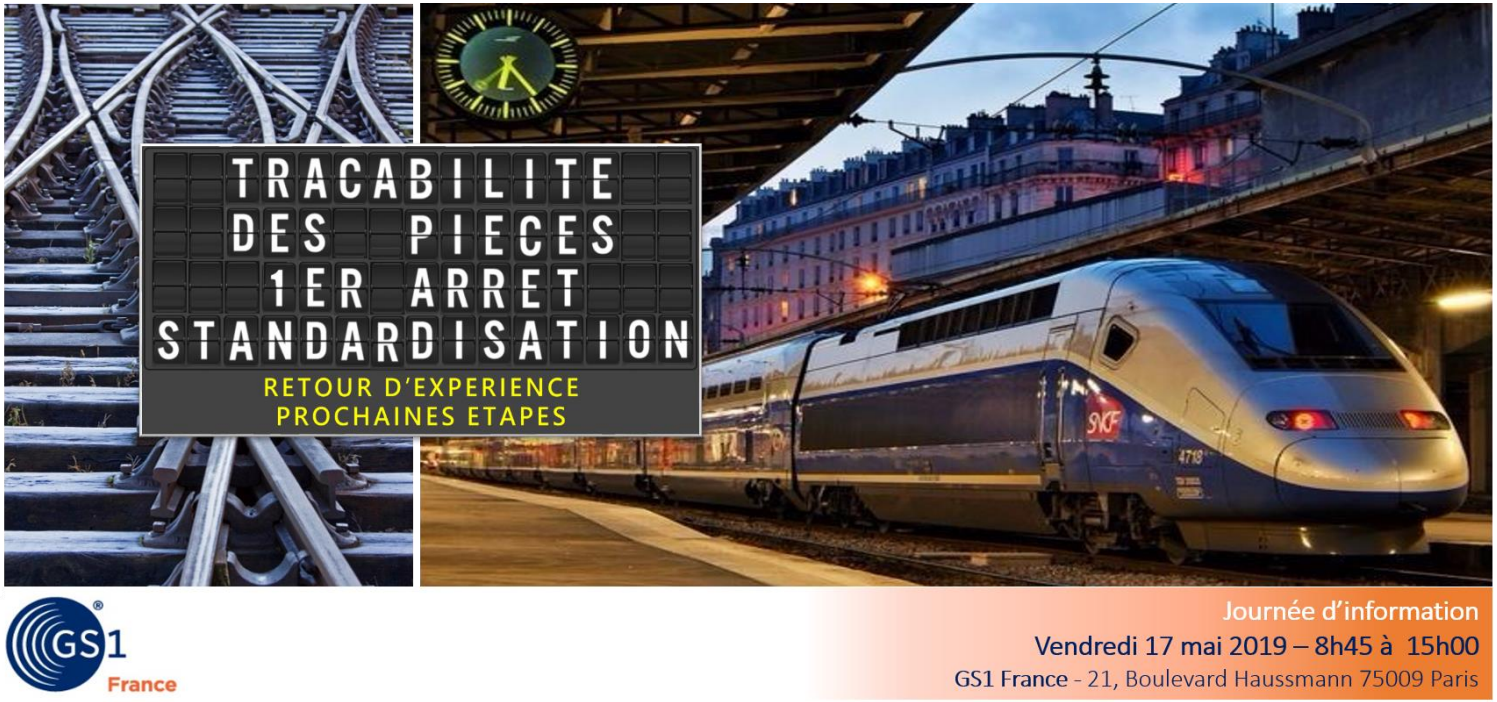
Digital Transformation of Rail Industry

Discover the promise of GS1 in Rail

Diana de Bernardy – GS1 France
Lisbon, September 11th 2019

Diana de Bernardy

Rail conference – 17th of May



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Conference topics

STRATEGIC APPROACH OF THE FRENCH RAIL SECTOR
Bruno Sol-Rolland
ALSTOM

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Worshops & topics

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Digital projects of the rail sector

Industrialisation and deployment of "FerConnect", a digital platform for the supply chain

Unique identification and codification of parts and equipment within the industry

Digital management of document flows

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Local activity

- LinkedIn GROUP
- Teleconferences – Q&A about deployment
- 1 2 1 meetings

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New members since this summer

RATP

ALSTOM

Faiveley Transport
A Wabtec Company

VALDUNES
MA STEEL

SIEMENS
Ingenuity for life

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Specific requests

- Why GS1 Data Matrix and not QR Code ?
- For some projects NFC would be better technology

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Thank you

Diana

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Thorsten Kirschner

Deutsche Bahn (DB) – Complex company structure

DB Netze Track

ct_db_netzt_trackct_dussct_fahrwegdienstect_netzct_regionetzinfrastruktur

DB Netze Energy

energy_kurzprofilDBenergy

DB Services

The Services Business Unit covers six different sectors: DB Fahrzeuginstandhaltung (Vehicle Maintenance), DB Systel (ICT), DB Services, DB Fuhrpark (Motor Vehicle Fleet) as well as DB Kommunikationstechnik (Communications) and DB Sicherheit...

DB Arriva plc.

DB Arriva responsible for all passenger transport activities outside Germany.

DB Bahn Long Distance

DB%20Bahn%20Long%20DistanceDB%20Fernverkehr

Staying on the rails with comprehensive technical skills

DB Systemtechnik – provider of a comprehensive range of engineering services

DB Vertrieb

DB Vertrieb GmbH is exclusively responsible for distribution and ticket sales for the passenger transport services of DB and many other transport operators. It connects rail services to some five and a half million passengers.

DB Digital Ventures GmbH

Deutsche Bahn Digital Ventures GmbH began its business activities on November 15, 2016. The company is a wholly owned subsidiary of Deutsche Bahn AG.

Deutsche Bahn (DB) – Complex company structure

DB Cargo AG

The DB Cargo Business Unit manages Deutsche Bahn's Europe-wide rail freight business. Its network comprises 16 subsidiaries in different countries.

DB Bahn Regional

The DB Regio Regional Business Unit provides a fully comprehensive regional transport network which links conurbation and rural areas.

Other participating interests of Deutsche Bahn AG

This is where you'll find company profiles and information on other participating interests of Deutsche Bahn AG.

DB Schenker Logistics

The DB Schenker Logistics Business Unit makes us one of the world's leading providers of transportation and logistics services.

DB Fahrzeuginstandhaltung – a strong partner for heavy maintenance

As a full service provider for rail vehicles, DB Fahrzeuginstandhaltung has the right solutions for vehicle fleet maintenance and revision.

DB Netze Stations

ct_DB%20Netze%20Stationsct_DB%20DB%20Station%26Service%20AG

Membership of Deutsche Bahn (DB)

GLN	Company	Allocation Date
40 63124 00000 0	DB Station&Service AG	01.02.2019
42 6018116 000 9	DB Energie GmbH	09.11.2018
40 61863 00000 8	DB Fernverkehr AG	13.03.2018
40 61862 00000 9	DB Regio AG	13.03.2018
40 61234 00000 2	DB Netz AG	06.10.2017
40 60709 00000 4	DB Cargo AG	20.06.2017
40 56017 00000 3	DB Netz AG	19.05.2014
40 55645 00000 3	DB Fahrzeuginstandhaltung GmbH	14.02.2014
40 52119 00000 2	Deutsche Bahn AG	09.03.2011

Current status

Ressortprojekt Materialnachverfolgung „MaNaVe“

DB NETZE

MaNaVe setzt auf den GS1 Rail Standard und stattet die verfolgten Materialien mit dem DataMatrix Code aus

Im Rahmen des KonDoRR-Programm (TB) wurde seit 2014 zusammen mit weiteren international agierenden Eisenbahnherstellern und Bahnbetreibern bei der GS1 ein Kennzeichnungsstandard für den Bahnsektor erarbeitet und abgestimmt: Der GS1 Rail Standard Dieser wird im Projekt „Auto-ID-fähige Bauteilserialisierung und Rückverfolgbarkeit“ (TB) ab 2017 bei den EVUs der Deutschen Bahn sukzessive etabliert.

Materialnachverfolgung mit GS1 Rail Standard:

DB Fahrzeuginstandhaltung GmbH	✓ (KonDoRR)
DB Regio AG	✓ (KonDoRR)
DB Fernverkehr AG	✓ (KonDoRR)
DB Cargo AG	✓ (KonDoRR)
DB Netz AG	**✓ (MaNaVe)**

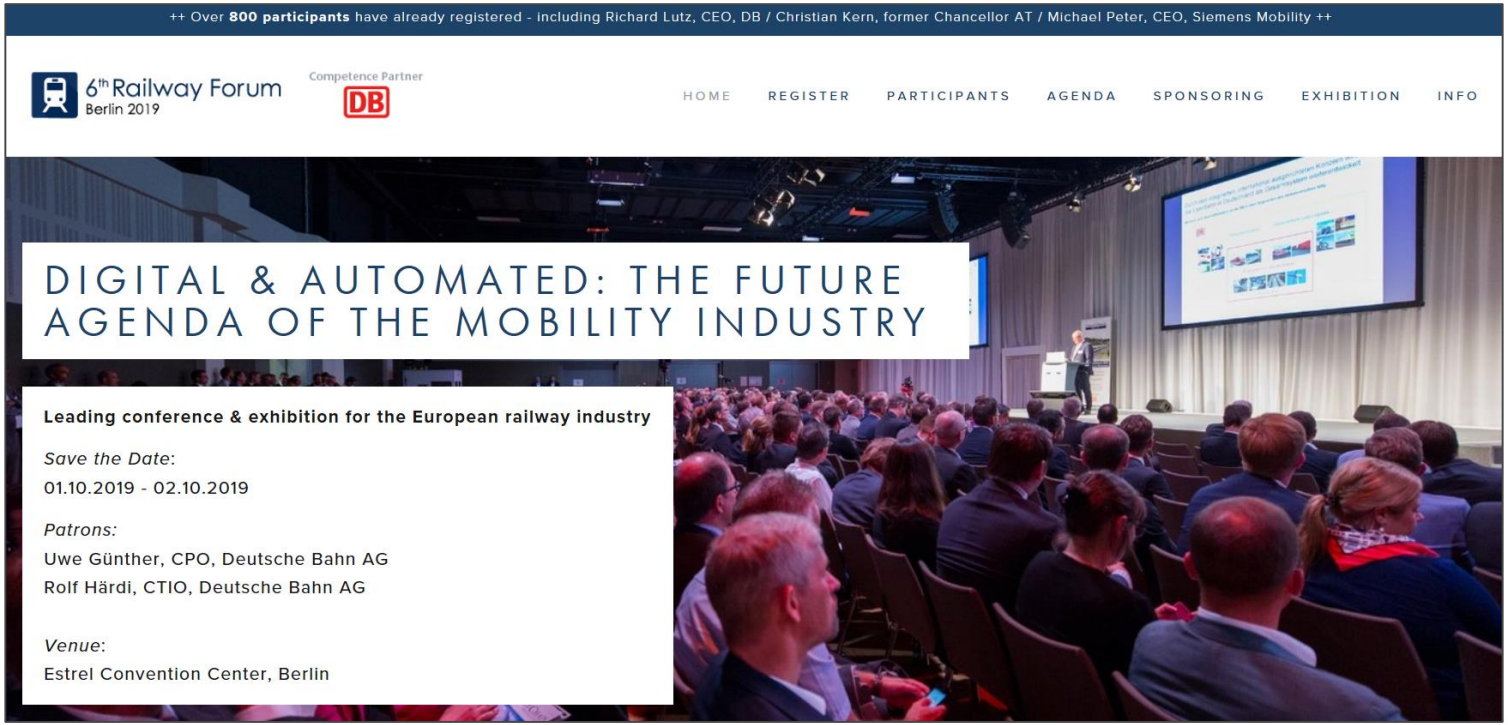
Codierungslösung

- Bezogene Waren vom Hersteller: sGTIN: Company-Prefix (01), Serialnummer (21)
- selbst gefertigte/aufgearbeitete Waren: GIAI: Company-Prefix mit Serialnummer (8004)

Current status DB Cargo

>30.000 SGTIN
GTIN 4047637000016

6th Railway Forum Berlin, 01.10.2019 + 02.10.2019



Railway Forum, Conference Day 1

15.45 - 17.45

DB ROUND TABLE: DIGITAL SUPPLIER NETWORK (DE)

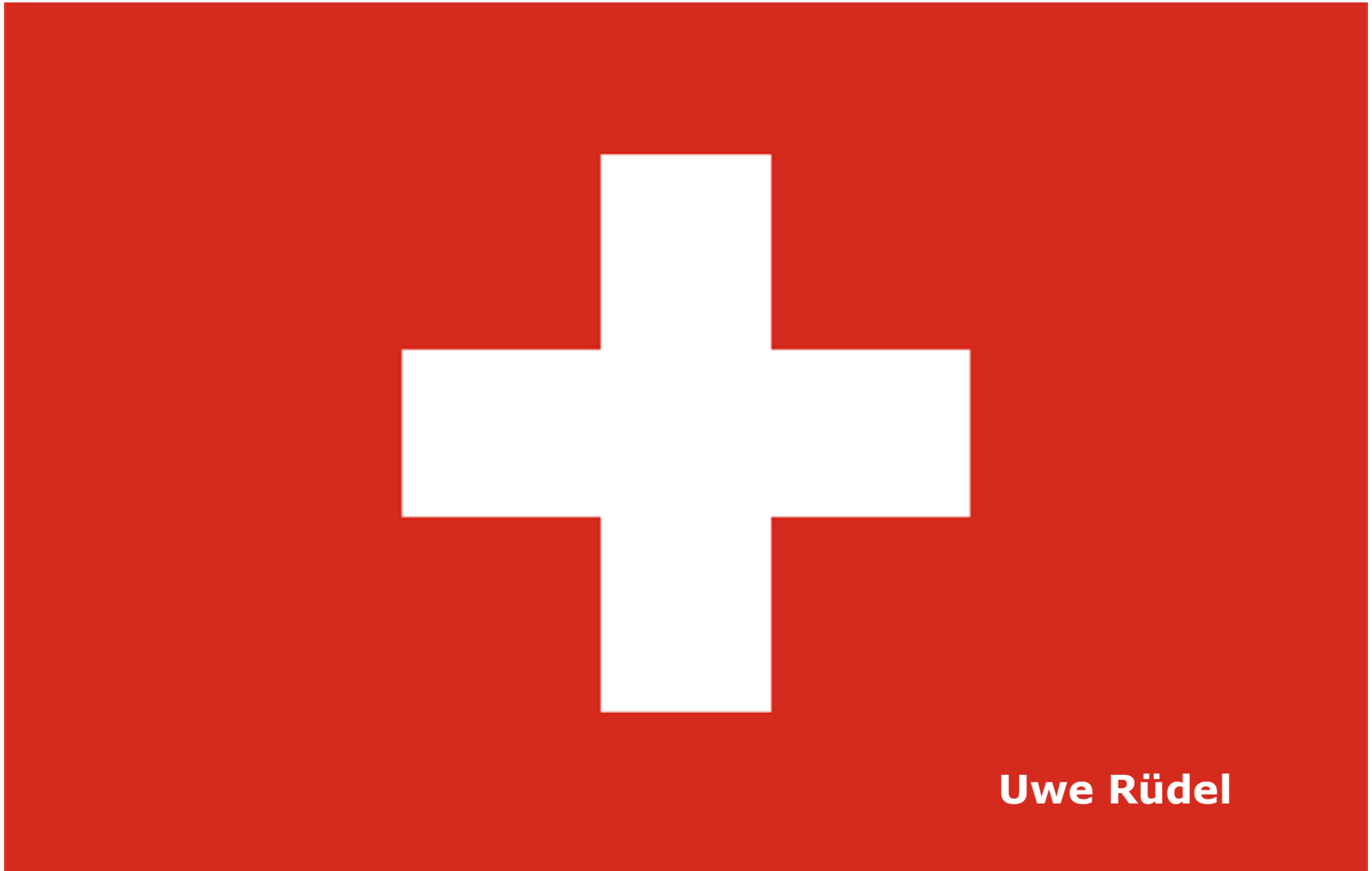
Moderator: Prof. Dr. Michael Eßig, Bundeswehr Universität München

Uwe Günther, CPO, Deutsche Bahn AG
Ralf Lüthi, Head of Purchasing General Demands and Services, Deutsche Bahn AG
Dr. Torsten Latz, Head of Rolling Stock and Spare Parts Procurement, Deutsche Bahn AG
Jan Grothe, Head of Infrastructure Procurement, Deutsche Bahn AG
Thomas Fell, Managing Director, GS1 Germany GmbH
Dr. Alexander von Lieven, CEO, SPITZKE FAHRWEGSYSTEME GmbH
Stefan Orlinski, Director of Sales & Business Development, Thales Transportation Systems GmbH

Railway Forum, Conference Day 1

Contact details!

Thorsten Kirschner
Senior Manager Industry Engagement
GS1 Germany GmbH
Tel.: 0221 94714-240
eMail: thorsten.kirschner@gs1.de


Uwe Rüdel

The Global Language of Business

Digital Transformation of Rail Industry

Discover the promise of GS1 in Rail

Dr. Uwe Ruedel, GS1 Switzerland
11. September 2019

Activities

National

- 7th May 2019: Visit of SBB Facilities in Bern – 15 Attendees from 4 companies
- Lecturing at ABB Technikerschule: „e-Solutions für Industrie 4.0“ - active support from D. Halbeisen (SBB) on 25. June 19, visit to another SBB site

Coming up:

- National Workshop with operator and suppliers on 17. Sept 2019 in Bern @ GS1 Switzerland

International

- 1st D-A-CH Workshop with 3 Railway operators and 15 suppliers from Germany, Austria and Switzerland on 19. Nov 2019 in Bern @ GS1 Switzerland.

© GS1 2019

Visit SBB, Bern 7. May-2019

© GS1 2019

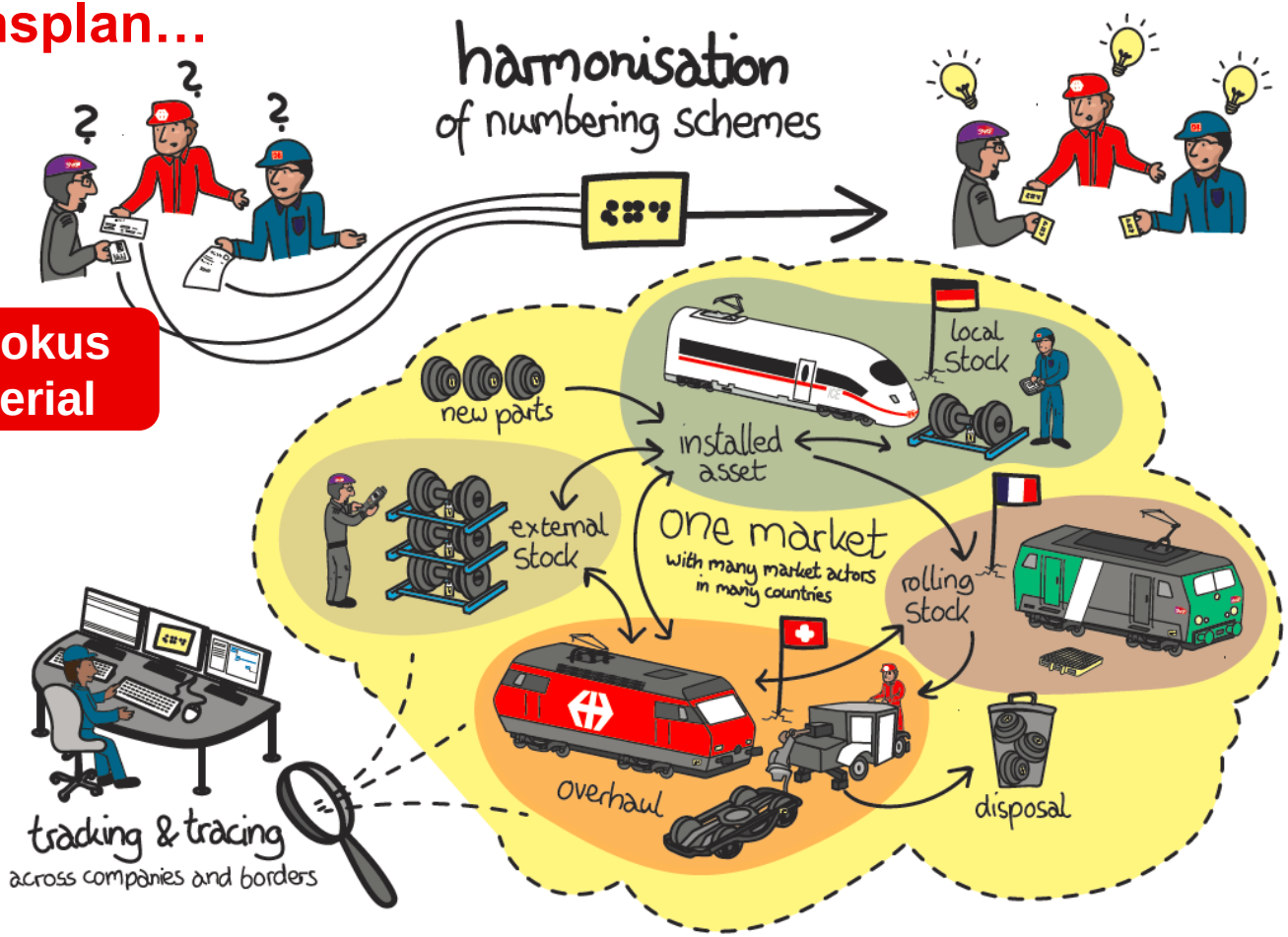
Umsetzung des GS1 Systems bei SBB Infrastruktur

Dominik Halbeisen
SBB/CFF/FFS
Senior Projektleiter
Supply Chain Management

SBB CFF FFS

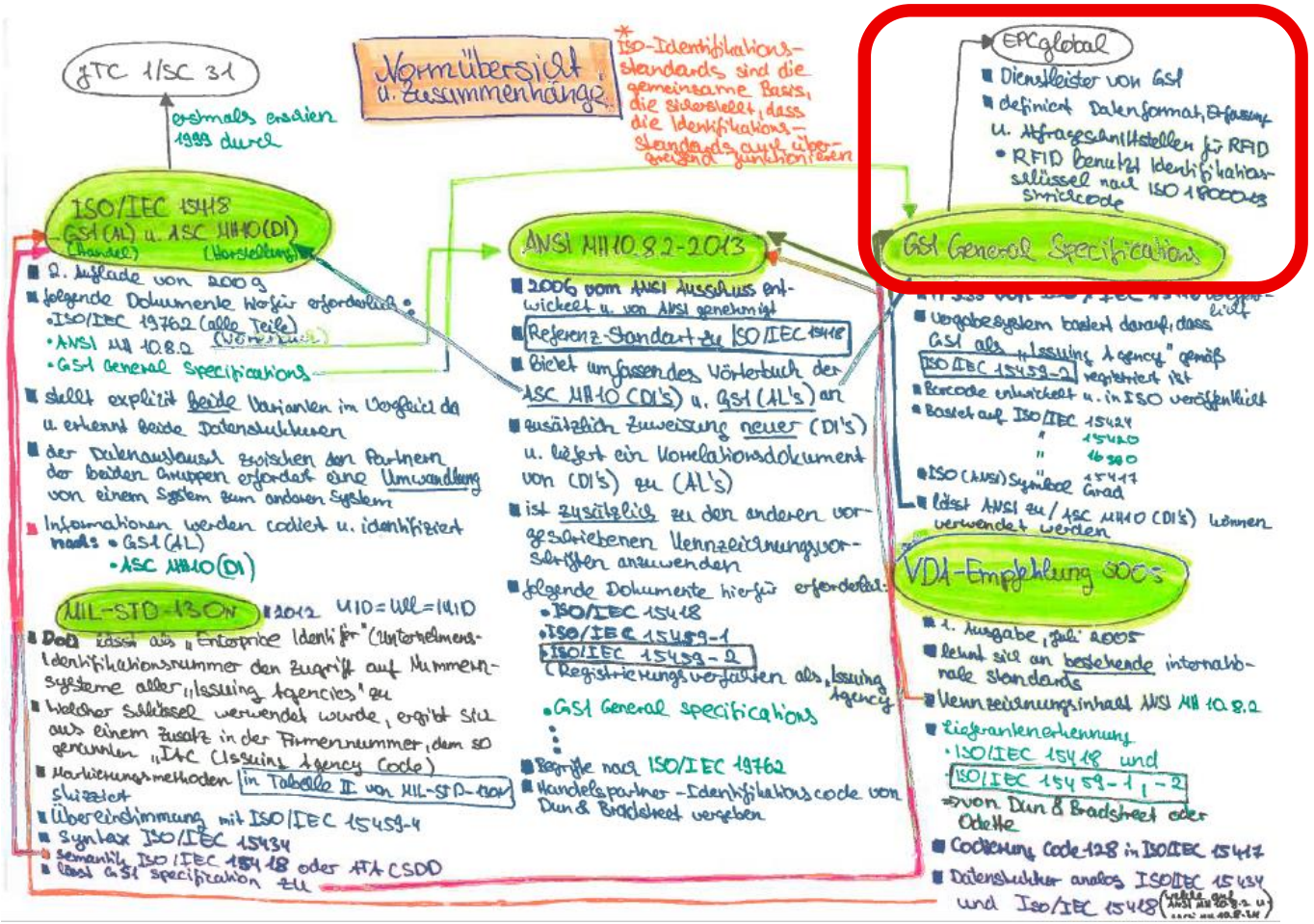
Unser Aktionsplan…
vor 3 Jahren

Zu Beginn Fokus auf Rollmaterial

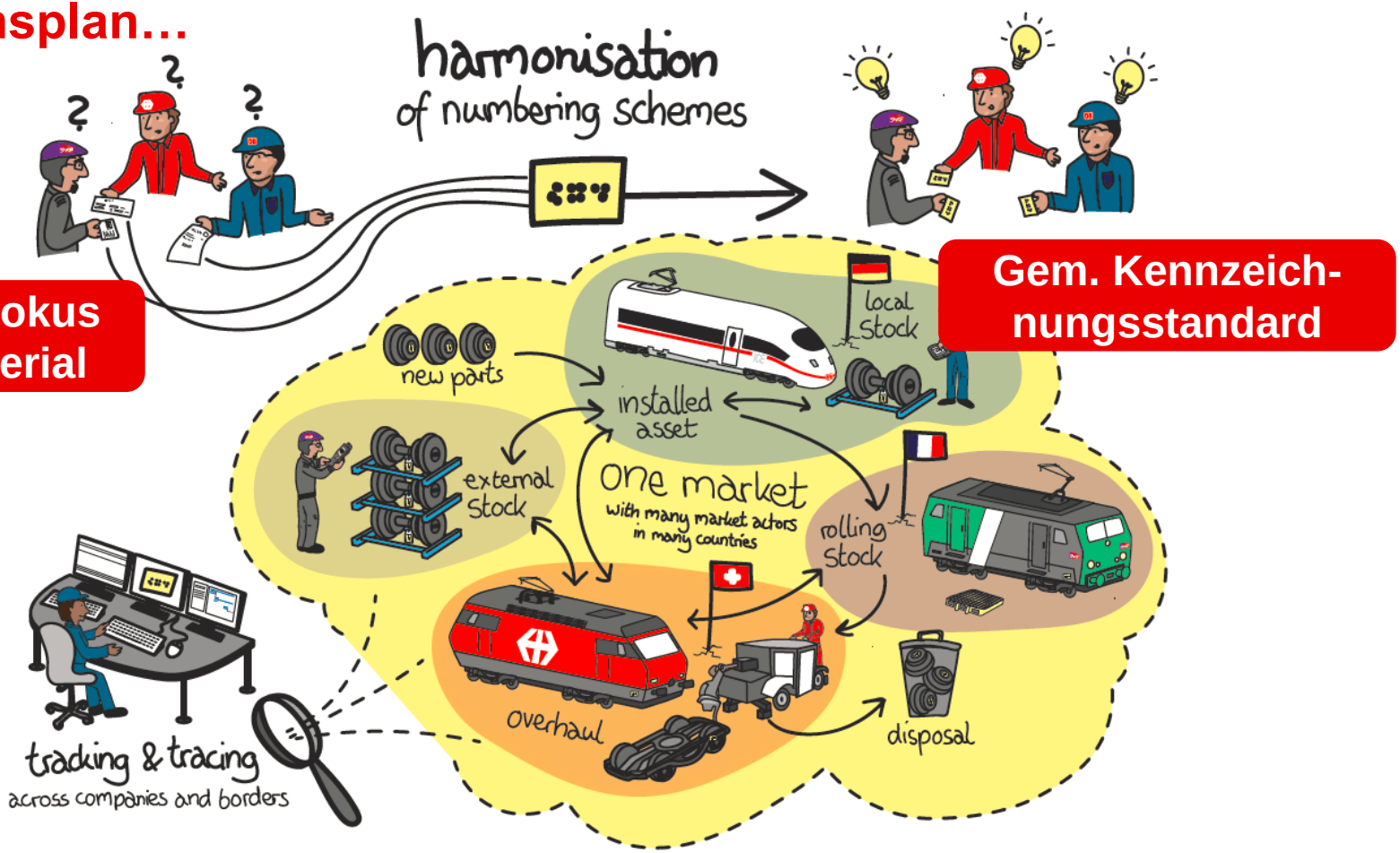


Schritt 1 – Die richtige Norm finden

SBB CFF FFS



Unser Aktionsplan… vor 3 Jahren



Zu Beginn Fokus auf Rollmaterial

Gem. Kennzeich-nungsstandard

Schritt 2 - Die Kennzeichnung standardisieren

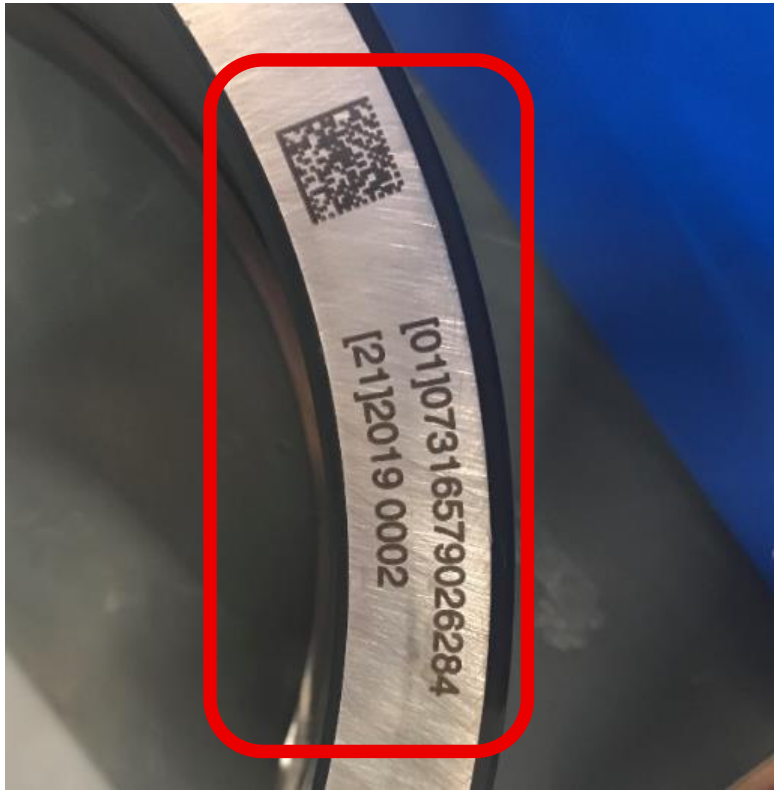
SBB CFF FFS

The Global Language of Business

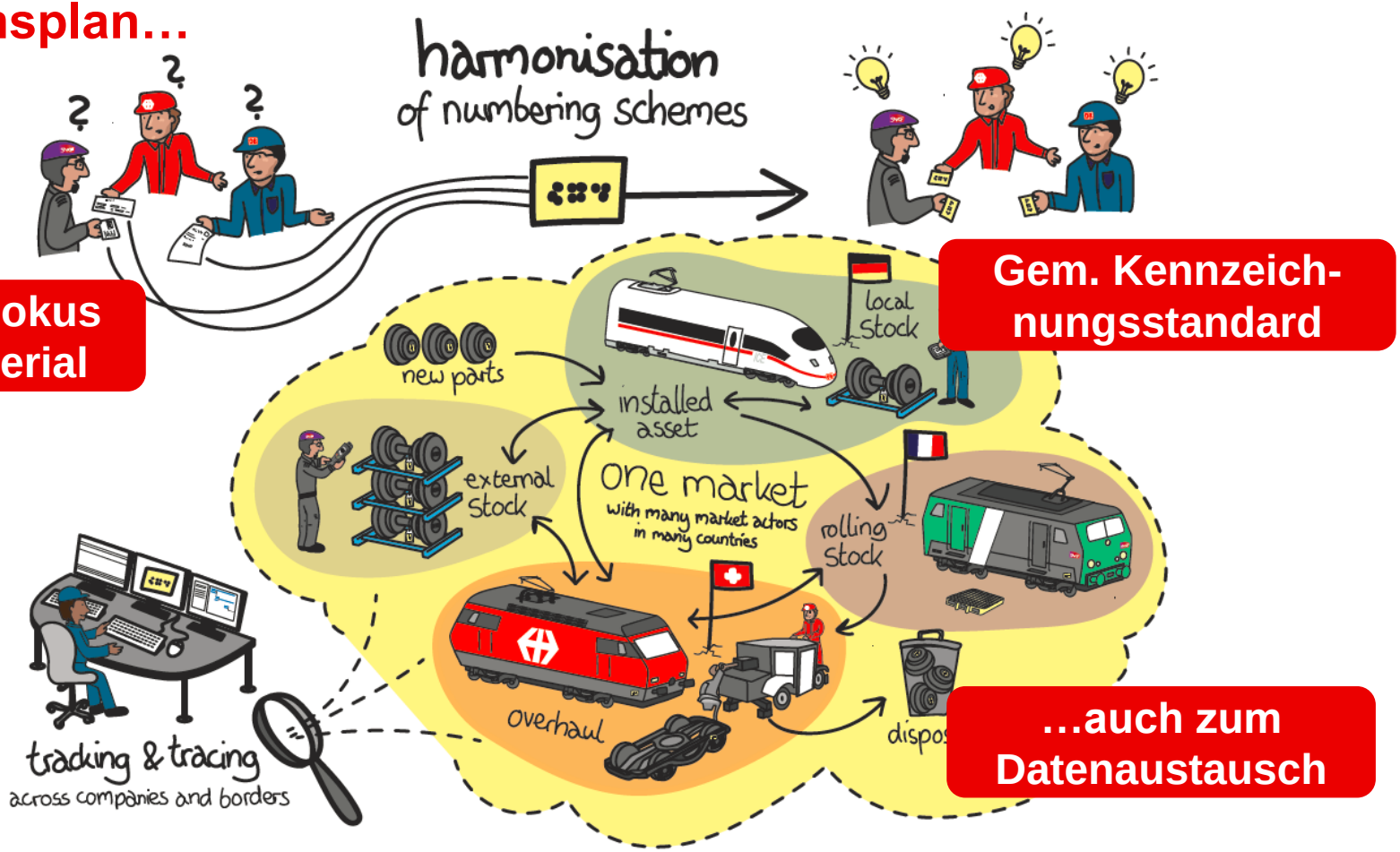
Identification of Components and Parts in the Rail Industry - Application Standard

Rules on the use of the GS1 keys and attributes for the identification and marking of components and parts in the rail industry

Release 1.1, Ratified, Sep 2018



Unser Aktionsplan… vor 3 Jahren



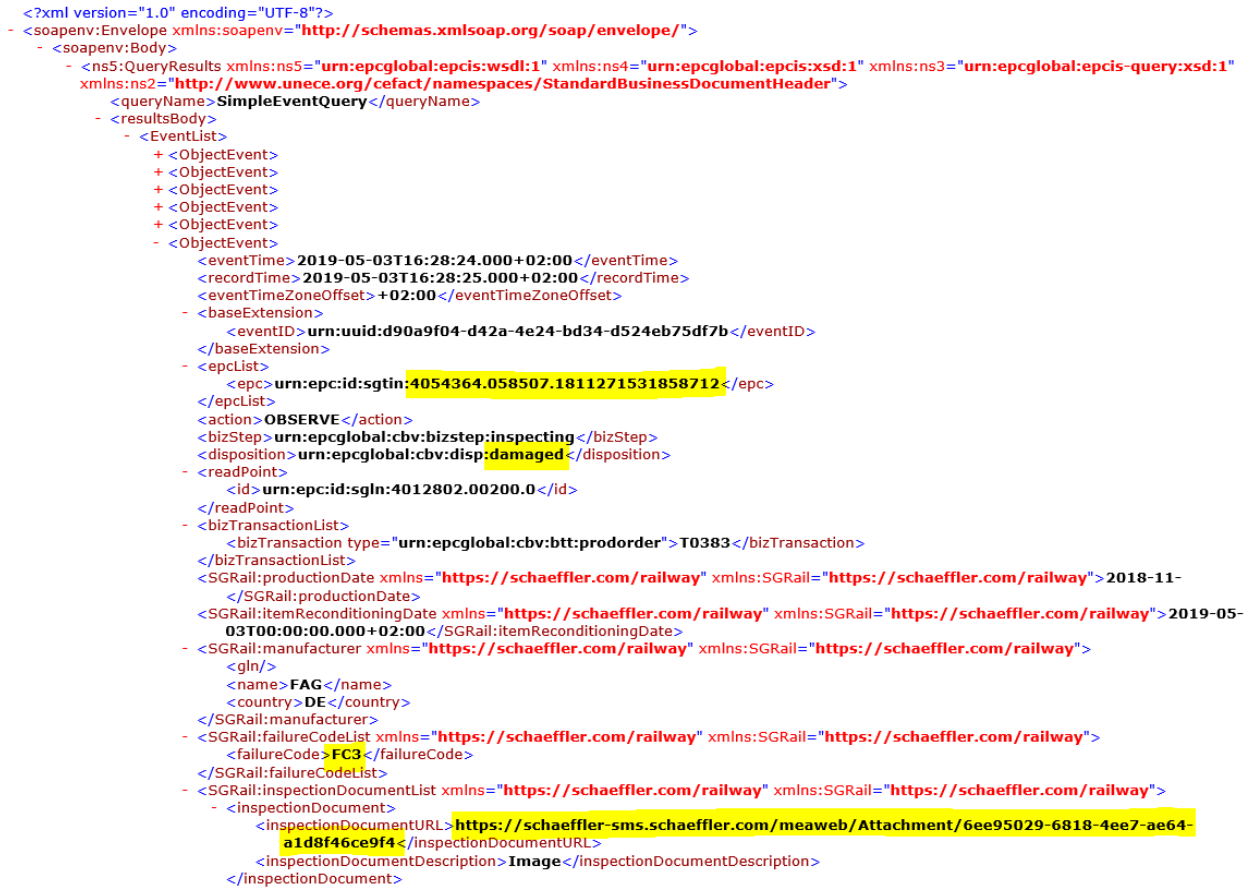
Zu Beginn Fokus auf Rollmaterial

Gem. Kennzeich-nungsstandard

…auch zum Datenaustausch

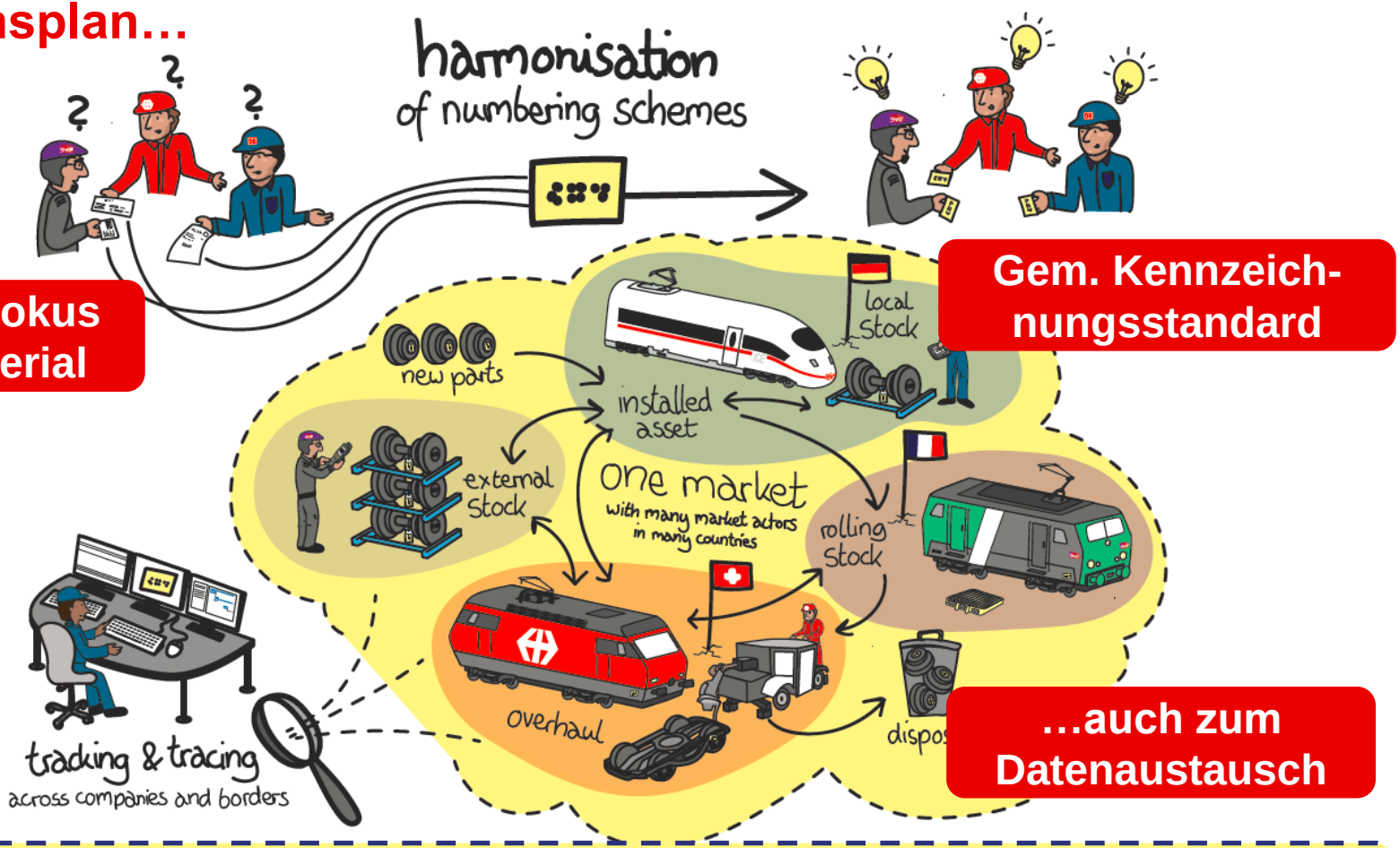
Schritt 3 – Datenaustausch aufbauen

SBB CFF FFS



Link

Unser Aktionsplan… vor 3 Jahren



Zu Beginn Fokus auf Rollmaterial

Gem. Kennzeichnungsstandard

…auch zum Datenaustausch

Ein Beispiel aus der Infrastruktur

Lassen Sie uns auf eine Reise gehen

SBB CFF FFS

Blickwinkel: Life Cycle Manager für Weichen

Sie erhalten zwei Fotos der Instandhaltung

Nächste Schritte?

„Unüblicher Verschleiss“

Einer 1/2 Zungen-vorrichtung und einer Schweissung

Schritt 1 – Historie auf Basis GS1 Schlüssel

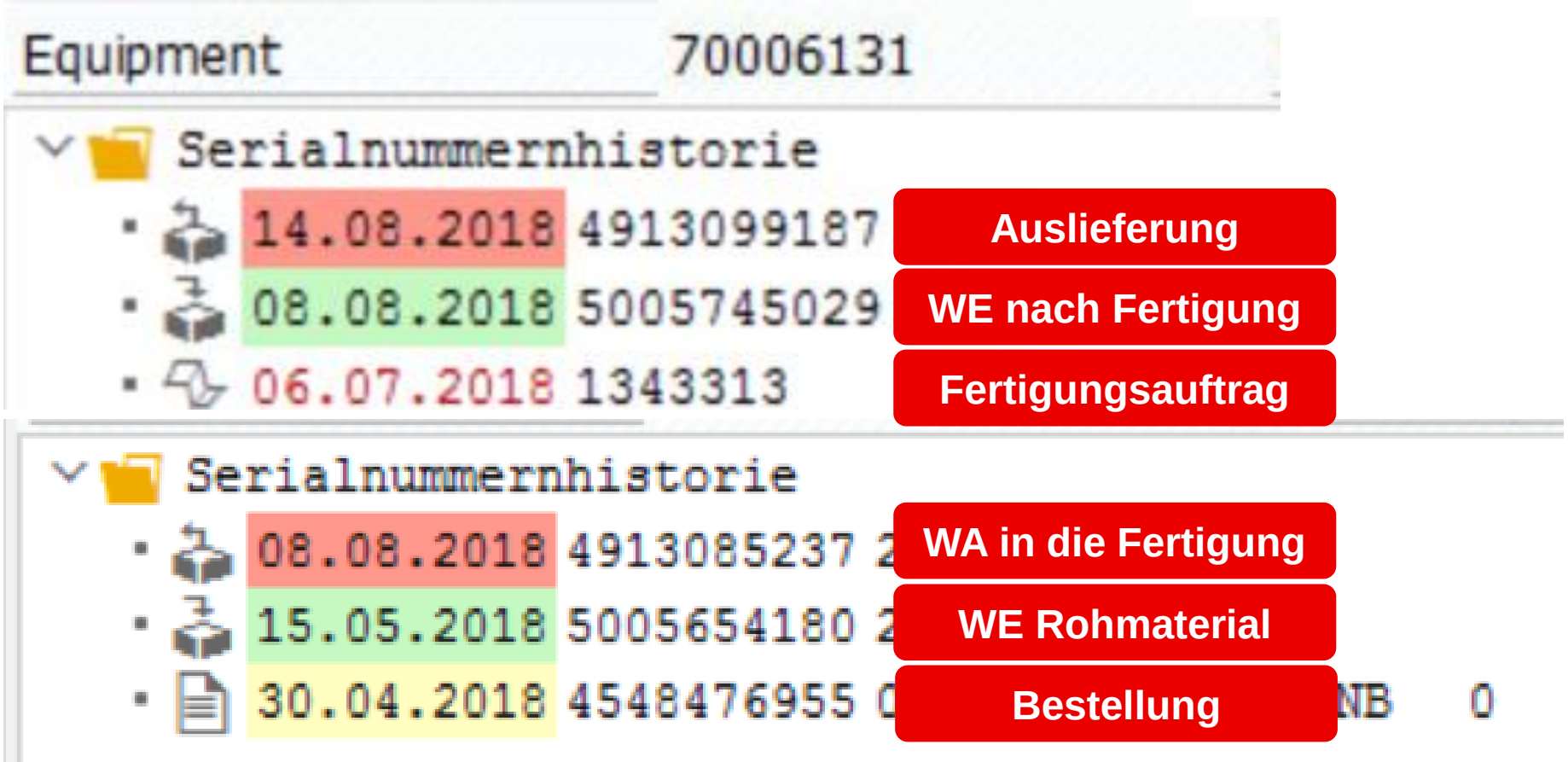
SBB CFF FFS

Ausgehende von den GIAI (= GS1 S/N) beginnt die Suche

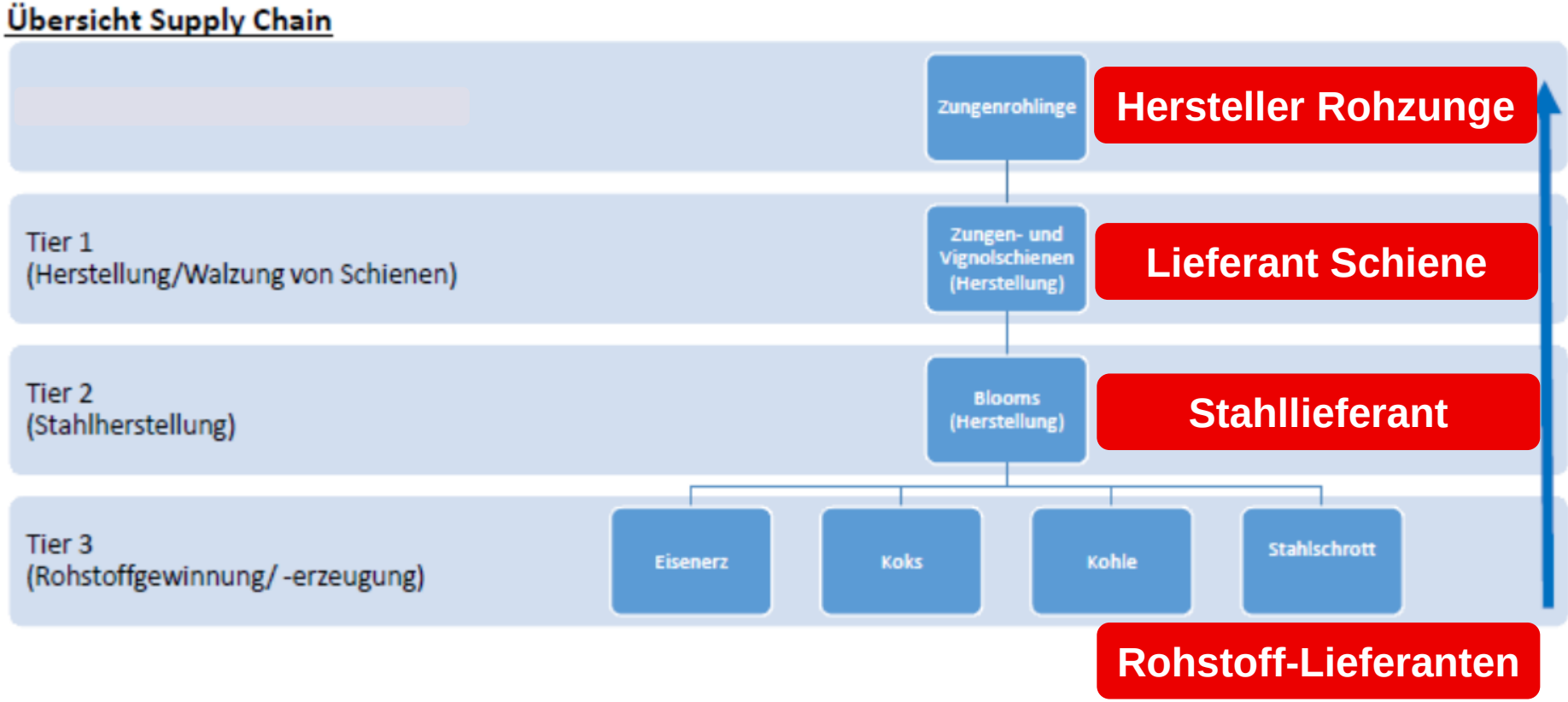
Nach 15 Minuten ist die ganze Historie…

...der ½ Zungen-vorrichtung, bekannt

Schritt 1.1 – Historie innerhalb der SBB



Schritt 1.2 – Historie ausserhalb der SBB



Schritt 1.3 – Eingrenzung der potentiell betroffenen Teile

Equipment	GIAI 1
70008738	800490103813000000067
70008739	800490103813000000068
70008740	800490103813000000069
70008741	800490103813000000070
70008742	800490103813000000071
70008748	800490103813000000062
70008749	800490103813000000063
70008750	800490103813000000064
70008751	800490103813000000065

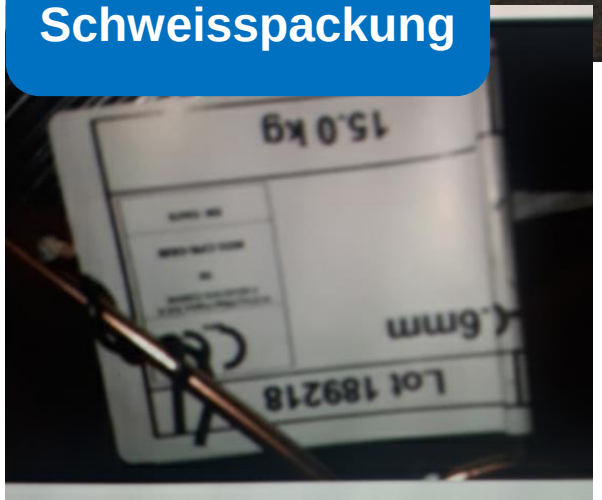
9 x Zungenrohlinge im selben Lieferlos

Schritt 1.4 – Historie der Schweissarbeiten

SBB CFF FFS

Ein Beispiel

Charge der Schweisspackung



Arbeitsbericht

EFSA

ARBEITSRAPPORT / RAPPORT DE TRAVAIL 7692

Verr. Nr. / N° compte: 5070462486

Region:	Station: Bern Wankdorf	Gleis/Voie:	Weichen/AV: Weiche 21 (Alt 11)
Strecke/Tronçon: von/de 0 bis/à 0			Km: 0

KUNDE CLIENT	I-IH-RME-BN-AVU Huber Adrian	Datum	24.09.2018	Prévu vorgesehen / Effectif effektiv
Baustellenleiter Chef de chantier	Scherer Kevin	Aufgebot / Convocation		23:15
Treffpunkt Rendez-vous	3072 Ostermundigen	Sperrung ab / Mise hors services dès		00:45
Schweissmeister Chef soudeur	Filipe Oliveira	Arbeitsbeginn / Début soudage		24.09.2018 22:41
Mitarbeiter Collaborateurs	Mario 078/665 68 90 Barros	Unterbruch 1: Interruption 1:	Anfang / Début	
	Filipe Oliveira		Ende / Fin	
	José Conde	Unterbruch 2: Interruption 2:	Anfang / Début	
			Ende / Fin	
Dauer der Einwegfahrt / Durée du trajet aller : 00:00		Sperrung Ende / Fin Mise hors service		05:30
		Arbeitsende / Fin soudage		25.09.2018 05:38

Bemerkungen EFSA / Remarques EFS
Barros Schulung

beau / schön — x couvert / bedeckt

Début / Beginn: 11 — Fin / Ende: 10

Luft / Air: min. 11 max. 12

AUSGEFUEHRTE ARBEITEN / TRAVAUX EFFECTUES

Schweissungen/Soudure	Qual.	Anz. / Nbre.	Effektiv	Markierung / Traçabilité
Zeit zwischen letztem Abguss und Entfernen der Keile Temps entre la dernière coulée et l'enlèvement des coins				0 Minuten

Klebstösse/JIC	Anz./Nbre.	Effektiv	Bemerkungen / Remarques

Auftrag / Recharge			Kg	Rem. / No du lot
Draht / Fil:		Mn	4	

Fahrweg des Teams

Schritt 1.5 – Vom Instandhaltungsteam genutzte Werkzeuge

Nächste Schritte auf Basis der Historie

SBB CFF FFS

Sie entscheiden ein Meeting abzuhalten… und suchen einen Fokusraum

Hierfür scannen Sie einfach die GIAI am nächsten Fokus-raum...

...und bemerken zugleich die GIAI am Belegtsensor

Und setzen sich auf ebenfalls verfolgtes Mobiliar…

SBB CFF FFS

Resultat: Ein Teil in der Fläche muss inspiziert werden

SBB CFF FFS

...und somit der Lagerort

Bezeichnung	HZV LL zu GW I /32
Status	ELAG
Gültig ab	28.11.2017

Struktur/Dokumente | Garantie | Ser.daten | Zusatzdaten

Klassifizierung

Verlegeplan Weiche	
Z - Nr. (Zeltweg)	
Betriebspunkt	REGELTEIL
Weichennummer	ÜBERALL
Verantwortlicher AT	I-AT-UEW-ROT-FB-W-FF
Verantwortlicher IH	I-IH-ROT-W-AVU
Verantwortlicher ESP	I-ESP-LOG-ROT-W
GPS East	8.7513
GPS Nord	47.4992
Ablauf Garantiedatum	
SLA Klasse	NACHFRAGEN
Lagerpunkt des Weichenteils	W-GRÜZE MAST 202

Unterwegs…weitere GIAI-Applikationen: Infrastruktur

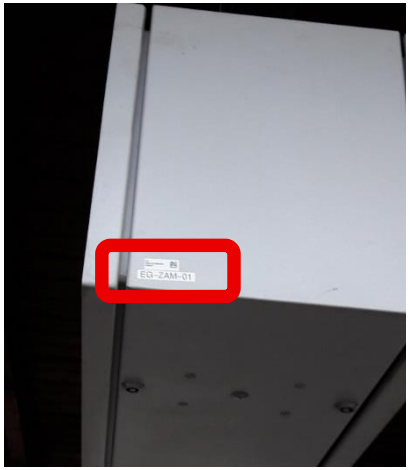
SBB CFF FFS

Unterwegs…weitere GIAI-Applikationen: Brandschutz

SBB CFF FFS

Unterwegs…weitere GIAI-Applikationen: Anlagen

SBB CFF FFS



Zusammenfassend - wo stehen wir?

SBB CFF FFS

Anlagen-daten werden erhoben

Zukunft: Datenaus-tausch zu Sensorik

Die in den letzten Jahren entwickelten GS1 Standards werden kontinuierlich umgesetzt

GS1 Anlagen-identifikation ist verbreitet

Next: Datenaus-tausch zu Events

SBB CFF FFS

Für weitere Informationen:
www.gs1.org/rail

Vielen Dank

Dominik Halbeisen
SBB/CFF/FFS
Senior Projektleiter
Supply Chain Management

dominik.halbeisen@sbb.ch

SBB CFF FFS

Prozessbeispiel: Bestellprozess Radsatzwellen

SBB CFF FFS

Bis Ende 2018

Seit 2019

Einkauf: Bestellung für Wellen anlegen

E-mail an Katalogdienst

Generierung von SBB Serial-Nr.

Antwort-Email mit SBB Ser.Nr. an Einkauf

Copy-Paste der Ser.Nr. in die Bestellung

Obsolet

Obsolet

Obsolet

Obsolet

Lieferant erhält Bestellung

Lieferant legt Auftrag im ERP an

Lieferant legt Fertigungsauftrag an

Lieferant legt seine Ser.Nr. an

Verheiratet SBB Ser.Nr. zu seiner Lieferanten Ser.Nr.

Lieferant legt Ser.Datei mit GIAI an

Obsolet

Lieferant erstellt Q-Papiere mit seiner Ser.Nr.

Q-Papiere verknüpft mit GIAI

Wellen an SBB verschickt und empfangen

Wareneingangs-Prüfung bei den SBB

Abgleich der Q-Papiere (Lief.Ser. Nr.) vs. SBBSer.Nr.

Obsolet

Freigabe Wellen in verfügbaren Bestand

Prozessbeispiel: Bestellprozess Radsatzwellen

SBB CFF FFS

Seit 2019

Einkauf: Bestellung für Wellen anlegen

Lieferant erhält Bestellung

Lieferant legt Auftrag im ERP an

Lieferant legt Fertigungsauftrag an

Wellen an SBB verschickt und empfangen

Wareneingangs-Prüfung bei den SBB

Freigabe Wellen in verfügbaren Bestand

Prozessbeispiel: Aufarbeitung Radsatzwellen

SBB CFF FFS

Bis Ende 2018

Radsatz kommt in die Aufarbeitung → Befund: Radsatz muss ersetzt werden → Mitarbeiter kommissioniert neue Welle → Schreibt die Ser.Nr. ab

Mitarbeiter kommissioniert neue Welle → Löst Barcode-Label ab

Seit 2019

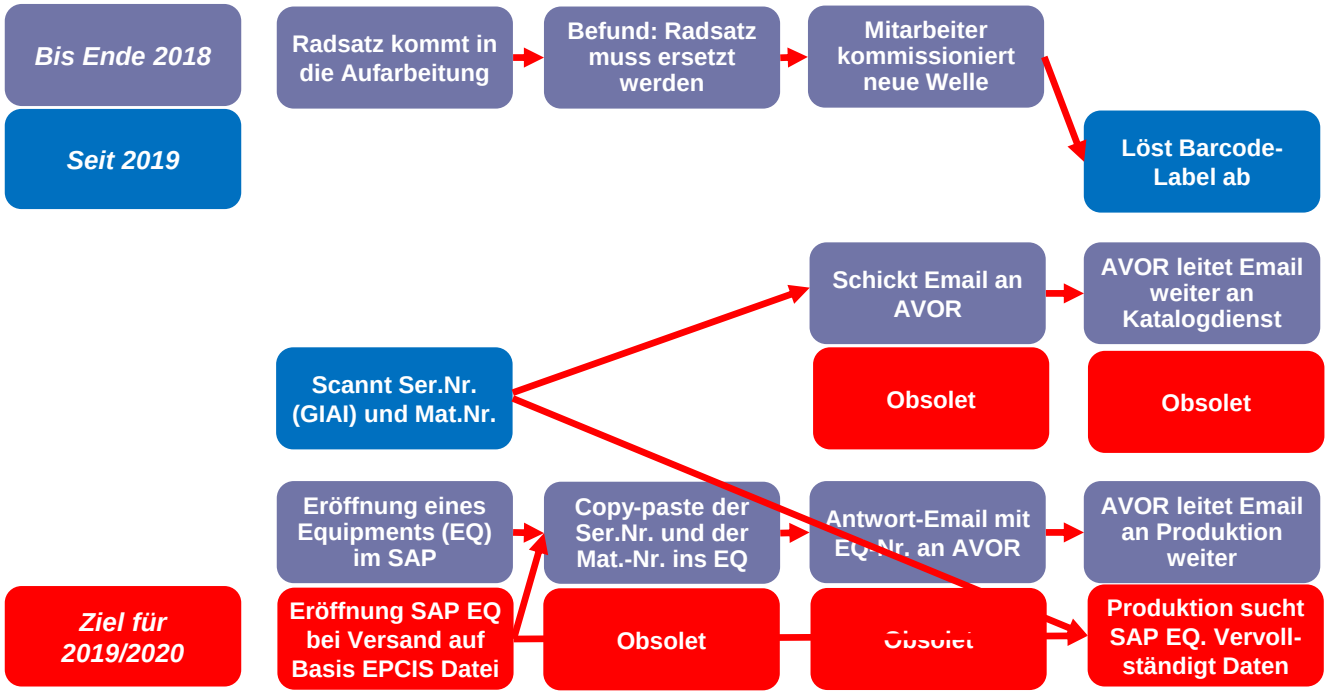
Schreibt Ser.Nr. in Email ab → Schreibt Mat.Nr. in Email ab → Schickt Email an AVOR → AVOR leitet Email weiter an Katalogdienst

Scannt Ser.Nr. (GIAI) und Mat.Nr. → Obsolet

Eröffnung eines Equipments (EQ) im SAP → Copy-paste der Ser.Nr. und der Mat.-Nr. ins EQ → Antwort-Email mit EQ-Nr. an AVOR → AVOR leitet Email an Produktion weiter

Prozessbeispiel: Aufarbeitung Radsatzwellen

SBB CFF FFS

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·ADD</action>
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RAIL

Looking ahead….events

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6th Rail Way Forum – Berlin 1-2 Oct. 2019

Four areas of Focus :

- Digital Transformation
- International Markets
- New Technologies
- Automation

Contributions from :

Alstom, AWS, Bombardier, Cisco, CRRC, Cyient, DB, DuisPort Agency, EBK, EOS, Harting, HP, Kathrein Solutions, Konux, LAT Gruppe, Metro Kopenhavn, PESA, Plasser & Theurer, Qlik,SBB, Schaeffler, Siemens, SKF, Spitzke, Stratasys GmbH, SupplyOn, Talgo,Thales, TÜV Rheinland, VBB, VDE, Voestalpine, ZVEI.

Link to Programme in PDF.

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RailLive 2020

- **Madrid** / Spain
- March 31st – April 2nd 2020
- Innovation in the Rail Industry
- GS1 to present
- Offer to hold a roundtable workshop (45 mins)
  - April 1st – 11:30 to 12:15
  - All participants from national operators and infrastructure managers will be **invited for free** to the entire show as VIP guests on behalf of GS1. They also have access to our networking drinks on 1st April at the Spanish Railway Museum.
  - Proposals for presentations in plenaries or workgroups are welcome.

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RailLive 2020 - cont

Confirmed Speakers

- Andrew Haines, CEO, **Network Rail**
- Mark Thurston, CEO, HS2
- Johnny Shute, COO, Railway Safety and Standards Board (RSSB)
- Martin Frobisher, Group Engineering Director, **Network Rail**
- President, Renfe
- President, ADIF
- Bashar Al Malik, CEO, SAR
- Elisabeth Werner, Director Land Transport, DG MOVE, EU Commission
- Patrick Jeantet, CEO, **SNCF Reseau**
- Dr Jacob Kam, CEO, MTR Corp
- Jie Xin, CEO and Chairman, Shenzhen Metro
- Bernard Cathelain, Board Director, Société de Grand Paris
- Leslie Woo, Chief Development Officer, Metrolinx Toronto
- Taeho Kim, CEO, Seoul Metro
- Torkel Patterson, Board Member, JR Central
- Kim Sang Gyun, CEO, Korea Rail Network Authority
- Corey Hannett, Director-General, **Major Transport Infrastructure Authority of Victoria**
- Lena Erixon, Director-General, Trafikverket
- Tim Keith, President, Texas Central
- Dr. Carsten Wiebers, Global Head Aviation, Mobility & Transport, KfW IPEX-Bank

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Who to contact

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M +32 473 89 89 8
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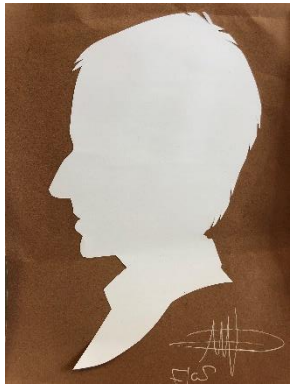
www.gs1.org



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