GS1 Industry & Standards Event
Transforming Business Together
Plenary

Warsaw, Poland
Tuesday, 13 October 2015
Welcome to Warsaw!
Agenda

• Welcome
• GS1 Poland
• GSMP Achievements and Operationalised
• GS1 Global Office Leadership Team
• Keynote Presentation
• Close
A special thank you to our host, GS1 Poland!
Welcome to Warsaw- Brand New World

Elżbieta Hałas
GS1 Poland
"Warsaw. Brand New World"
Poland – on a fast track to success

- the 6th most populous and the 6th largest of the European Union's 27 members
- Since it joined EU, its economy has grown by an average of 4% a year, among the fastest rates on the entire continent
- GDP /capita: 1700 USD in 1990 – 14 400 in 2014
- 1/3 of Poland is covered with forest, there are 9300 lakes, 23 National Parks and only one desert and beautiful Sudeten and Carpathian mountain ranges.
- 14 properties are on the World Heritage List, e.g. Historic Centre of Warsaw
- 6 Poles and 11 people of Polish descent have won 17 Nobel prizes (more than Japan, China, India or Australia), four Peace Prizes, and five in Literature.
Institute of Logistics and Warehousing, GS1 PL

- **Research Institute** established by the Ministry of Economy
- Set up date – 1967 in Poznań
- **GS1 Poland** – since 1990
- **20 000** members of GS1

**Mission:**

„*We develop, promote and implement innovative logistics and e-commerce solutions in key business processes*“
GS1 Poland objectives

4 Strategies
Main projects

- GS1 Logistic Label
- GTIN+ on the Web
- Lot-based traceability
- GTIN in IT Systems in HC

Industries

- Retail
- T&L
- Healthcare
- Defence
- Food sector
- E-commerce

Services

- Verification
- Consulting
- Training
- SP Program
- Bar Code Quality Programme

Products

- Mobile app
- ETLOG
- GTIN registry
- API
Laboratory of Identification Technologies

RESEARCH & DEVELOPMENT

• Identification technologies
• Static and dynamic tests (tags, readers, barcodes, conveyor tests, anechoic and GTEM chamber tests)

PROTOTYPING & DESIGN

• IOT - Wireless sensors networks
• New communications protocols (DASH7)
• Tracking and localization technologies
What to do and eat in Warsaw?
Warsaw – Old Town
Warsaw - Royal Route

Krakowskie Przedmieście

Royal Łazienki Park
Warsaw - POLIN
Museum of the history of Polish Jews
Tasty and traditional

Traditional Polish cuisine

- Potato pancakes
- Dumplings with meat, vegetables etc.
- Traditional Polish pork chop with potatoes and sour cabbage
- Żurek: sour soup with egg & sausage.
- Red borsch with pastry.
Have a memorable stay in Warsaw!
GSMP Update

Mark Holmes
Standards ratified in 2015

• 3 new standards
  ✓ GTIN+ on the web Vocabulary Standard
  ✓ GS1 EPCIS Core Business Vocabulary Conformance requirements and application standard in rail

• 5 new guidelines
  ✓ Data Matrix
  ✓ GTIN+ on The Web Implementation Guideline and Dictionary
  ✓ Fresh Fruit & Vegetable Labelling Consumer Unit
  ✓ New Fish Seafood Aquaculture Traceability Third Party Data Exchange in Healthcare

• 3 new publications
  ✓ EANCOM 2002 Edition 2014
  ✓ GDS Trade Item Implementation Guide, issue 22
  ✓ GPC Dec-2014 Publication

• 12 standard improvements
Development Forecast 2015-2016

- EPCIS v1.2 Standard & Core Business Vocabulary (CBV) v1.2 Standard (Feb 16)
- EPCIS and Core Business Vocabulary (CBV) Implementation Guideline (Dec 15)
- Gen 2v2 Interoperability Document (Nov 15)
- Global Data Synchronisation Network Implementation Guideline for Pharmaceutical Products and Pharmacy (Jan 16)
- Global Location Number (GLN) Allocation Rules Updates (Oct 15)
- Meat and Poultry Guideline (Oct 15)
- Mobile Scanning and Digital Shelf Identification (formerly NGPI) (on hold)
- Tagged Item Performance Protocol (TIPP) (Sept 16)
Best in Class Operationalised
Operationalising Best in Class

Implement new processes to improve relevance, efficiency and participation in global standards development

**Relevance**
When a standard is developed it is adopted and used by industry

**Efficiency**
Improve speed to market while maintaining integrity of the process

**Participation**
Broader input to GS1 standards
How are we going to operationalise and execute

Relevance

• Implement new “entrance criteria” requirements within the work request
• Establish Industry Engagement Steering Committee (IESC)

Efficiency

• Consistency across work groups
• Involve the right people at the right time

Participation

• Implement community engagement plan
  - Targeted communication
  - Focused collateral
• Implement new participation models:
  - Distributed working groups
  - Local work group IP contribution model
  - Standards development public review
Participation models

GS1 IP contribution declaration for MO working groups

Local WG IPs → Local WG IPs → Local WG IPs

GSMP IP Contribution

Distributed mission-specific working groups (MSWG)

Local MSWG → Local MSWG → Local MSWG

GSMP MSWG

Standards public review

General public review of draft standard → Comments → Global standard
How are we going to operationalise and execute

**Relevance**
- Implement new “entrance criteria” requirements within the work request
- Establish Industry Engagement Steering Committee (IESC)

**Efficiency**
- Consistency across work groups
- Involve the right people at the right time

**Participation**
- Implement new participation models:
  - Distributed working groups
  - Local work group IP contribution model
  - Standards development global review
- Implement community engagement plan
  - Targeted communication
  - Focused collateral
Relevant work requests to standards development
4 step consensus-driven process

**Determine work request relevance**

1. **Steering**
   - Identify business challenges
   - Legal and regulatory requirements
   - Align with GS1 strategy
   - Industry participation and commitment

   Users ➔ Work request ➔ Industry Engagement Steering Committee and Global Office
   - IESC approval
   - GO resource alignment
   - Group minimum participation

**Development work**

2. **Requirements**
   - Community review and eBallot
3. **Standards**
   - Community review and eBallot
4. **Collateral**
   - Community review and eBallot
## When: Implementation timeline for improvements

<table>
<thead>
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<th>Relevance</th>
<th>Efficiency</th>
<th>Participation</th>
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<td>Entrance Criteria</td>
<td>eLearn &amp; video tools</td>
<td>Operational</td>
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<tr>
<td>Industry Engagement Steering Committee</td>
<td>Recruit members</td>
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<tr>
<td>Work Request System</td>
<td>Viewlet for submitting a GSMP WR</td>
<td>GSMP work groups managed by new methodology</td>
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<td>Project Management Methodology</td>
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<tr>
<td>Distributed Work Groups</td>
<td>Pilot Netherlands Cana</td>
<td>Implementation instructions</td>
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<tr>
<td>MO IP Contribution Declaration</td>
<td>Implementation instructions</td>
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<tr>
<td>Standards Public Review</td>
<td></td>
<td>Continued awareness</td>
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<tr>
<td>Community Engagement Initiative</td>
<td>GSMP &amp; WG brochures</td>
<td>Develop Community Engagement Plan</td>
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<tr>
<td>Process Manual</td>
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<td>Continued awareness</td>
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- ✓ = launched or implemented
- ○ = IESC formed and operational

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<thead>
<tr>
<th>2015</th>
<th>2016</th>
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<tr>
<td>Jul</td>
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The Global Language of Business © GS1 2015 27
Collateral to promote value of GSMP

New “executive summary” for GSMP based on your input:

• Provides clear and compelling value propositions that can used locally

• Why is GSMP membership important to people, companies and industry?

• How do companies get involved?

• What current Working Groups are open to new members?
Focused collateral for working groups

Updated GSMP Working Group “info sheet” based on your input:

• Updated focus on the value proposition (case studies)

• What business challenge will this group solve for?

• Speaks to the value of joining a group – for business, for individuals (WIIFM)
GS1 Leadership Team Updates
GS1 Update

Miguel Lopera
GS1 Global Strategy – Our Strategic Priorities

1. Mission/Vision
   - Purpose & Beliefs
   - Common Global Brand System

2. Execution Quality
   - Standards Implementation
   - Data Quality

3. Sector Focus
   - Adoption of GS1 standards in Core and Emerging Sectors
   - Global Classification of Sectors and Business Processes

4. Digital
   - GS1 Digital Strategy with emphasis on GS1 Strategy for Omni-channel
   - Key Projects
     - GS1 Source
     - GTIN on the Web

5. Innovation
   - Global Business Technology Innovation
   - Local entrepreneurship and MO-MO sharing

6. Organisation
   - Common KPIs
   - MO Clustering supported by GO Cluster Managers
   - Common Trademark Agreement
   - Review Advisory Council
   - GS1 Organisational Culture
Global Standards: OUR CORE
THANKS

✓ Thanks to the veterans!
✓ Thanks to new comers!
✓ Keep the Global Standards spirit

😊 😊 😊 !!!
Data Excellence

Malcolm Bowden
GS1 Global Strategy – Our Strategic Priorities

1. **Mission/Vision**
   - Purpose & Beliefs
   - Common Global Brand System

2. **Execution Quality**
   - Standards Implementation
   - Data Quality

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   - Review Advisory Council
   - GS1 Organisational Culture
GS1 Data Quality Update

Data Quality Status

1. **DQ at Source: Completed** - Available as of December 2014

2. **DQ Certification: On target** - To be signed off by the Data Excellence Board in Dec 2015

3. **DQ Measuring and Monitoring Service: On target** - Service deployed and in use by 8 Data Pools out of 30 GDSN-certified Data Pools. Over 1 million GTINs have been published to and checked by the service.
GS1 Data Quality Update

Data Quality Status

4. GEPIR / GLN Conformance: **Delayed** - There has been agreement to delay conformance until new GEPIR release (4.0) is deployed. Production rollout will be Jan 2016.

GLN Conformance requirements specification completed.
- 42 Spot tests will be executed quarterly for each MO.
- If an individual test fails, two monthly retry attempts will be made. If any of the two retry attempts fail, the quarter will be marked as “failed” and the “four consecutive quarters” start over.
- Pilot the GEPIR Conformance program with 2 hosted and 2 non-hosted MO’s (November – December 2015)
GS1 Data Quality Update

DQ Breakthrough proposal – MB approved

- **Background**: Best DQ results are in countries where product introduction and changes require manufacturers and retailers to use the GS1 DQ Services.

- **Proposal**: Implement a GS1 DQ certification program. Phase 1 includes top 10 MOs, CPG category and consumer data.
GS1 Innovation Network
Foresight via Sharing, Action and Actionable Results

**INNOVATION BOARD**

- **Incubator**
  - Promising ideas
  - Workshops
  - Prototypes
  - Pilots
  - Actionable products*

- **InZone**
  - Ideation
  - Labs
  - External experts

- **GS1 MOS & GO**
  - Industry

- **GS1**
  - New Standards
  - New Systems
  - New Solutions

* Actionable products include: forward-looking analysis, recommendations, prototypes, draft standards, etc.
Innovation Network Activity (since Feb 2015 launch)

Join us! [http://ocp.gs1.org/in](http://ocp.gs1.org/in)

- **Share** news, observations & ideas
- **Grow** local projects to global scale
- **Participate:** > 550 participants
- **Discuss:** > 125 topics in the InZone
  2 ID Workshops, Hackathons ..
- **Act:** Incubator Projects & Prospects
  - Digital Coupons (UK), Marketplace APIs (AUS)
  - Future of ID & a GS1 “Platform”
  - IoT Lab (future retail as 1st focus?)
GS1/Auto-ID Labs Challenge: “Kiosk of the Future”

Launch (Feb 2015)

Future of ID Workshops
We’ve been informing & engaging local industry & they are interested

We’ve been watching & understand

We were engaged in Project ... promising results!

Let’s explore ideas & test solutions in the GS1 Innovation Network

Let’s invite others to watch & participate

There seems to be a broad business need, a tested solutions & global interest

... a recipe for a successful standard!

Let’s propose the Project to become a global standard!
“Innovation will keep us relevant as a company and as people”
The Importance of Community

Marianne Timmons
“Some people think they are in community, but they are only in proximity. True community requires commitment and openness. It is a willingness to extend yourself to encounter and know the other.”

—David Spangler
We are 450+ Companies Strong!
...but the world is better because we do
Never believe that a few caring people can't change the world. For, indeed, that's all who ever have.

Margaret Mead
Let’s go forward in community to make a difference!
Keynote

Dr. Gerd Scheying, Director, RFID Competence Center @ Bosch
Transforming Business Together

Relevance of Confining Standards for Business in the IoT and Industrie 4.0

Dr Gerd Scheying
Center of Competence RFID@Bosch
Robert Bosch GmbH,
Stuttgart, Germany
Overview

- Introducing Bosch

- Connected Industry (Industrie 4.0) Initiative at Bosch

- Internet of Things (IoT) and Industrie 4.0 (I4.0)

- Standardization as Key Element
Overview

→ Introducing Bosch

→ Connected Industry (Industrie 4.0) Initiative at Bosch

→ Internet of Things (IoT) and Industrie 4.0 (I4.0)

→ Standardization as Key Element
Who’s Bosch
A Global Enterprise with 4 Business Sectors…

- Mobility Solutions
- Industrial Technology
- Energy and Building Technology
- Consumer Goods
### Bosch Group
- 48.9 billion euros in sales
- 290,000 associates
- 360,000 associates as per April 1.15*

### Mobility Solutions
- One of the world’s largest suppliers of automotive technology
- 68% share of sales

### Industrial Technology
- Leading in drive and control technology, packaging, and process technology

### Energy and Building Technology
- Leading manufacturer of security technology
- Global market leader of energy-efficient heating products and hot-water solutions
- 32% share of sales

### Consumer Goods
- Leading supplier of power tools and accessories
- Leading supplier of household appliances

*including BSH Hausgeräte GmbH (formerly BSH Bosch und Siemens Hausgeräte GmbH) and Robert Bosch Automotive Steering GmbH (formerly ZF Lenksysteme GmbH).
...that is present in some 150 Countries

| Bosch Group | 48.9 billion euros in sales  
|             | 290,183 associates          
|             | 360,000 associates as per April 1.15*  
|             | 223 manufacturing sites     |
|Europe       | 53% share of sales          
|             | 174,025 associates          
|             | 134 manufacturing sites     |
|Americas     | 20% share of sales          
|             | 33,879 associates           
|             | 33 manufacturing sites      |
|Asia Pacific | 27% share of sales          
|             | 82,279 associates           
|             | 56 manufacturing sites      |

*Including BSH Hausgeräte GmbH (formerly BSH Bosch und Siemens Hausgeräte GmbH) and Robert Bosch Automotive Steering GmbH (formerly ZF Lenksysteme GmbH).
Over the past five years, Bosch has invested more than 20 billion euros in research and development.

Some 45,700 researchers and developers work at Bosch:
- At 94 locations worldwide, in a single network
- Bosch files 18 patents on average per working day

Our objective: To develop innovative, useful, and exciting products and solutions to enhance quality of life – Technology that is Invented for life

…that is Dedicated to Lead in Innovation
Overview

➔ Introducing Bosch

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➔ Internet of Things (IoT) and Industrie 4.0 (I4.0)

➔ Standardization as Key Element
Connected Industry (Industrie 4.0@Bosch)
The IoT-S or Web 3.0 is a Driver for i4.0

“Web 3.0” links the digital world to the physical world of things and vice versa. Thus, it opens the path to entirely new business models.
## Bosch’s Industrie 4.0 dual strategy

### Lead Operator
**Product manufacturer/**
**Product view**

- Manufacturer of products
- Machine operator
- Plant operator
- Interface to customers/suppliers

Many practical pilot applications are bundled within the ‘Innovation Cluster’

### Lead Provider
**System manufacturer/**
**Production resource view**

- I 4.0 solution provider with external business
- enabler technology or internal I 4.0 solution provider

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<tr>
<th>System Manufacturer</th>
<th>Production Resource View</th>
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<tr>
<td><strong>Rexroth</strong>&lt;br&gt;Bosch Group</td>
<td><strong>Drive and Control Technology</strong></td>
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<td>Bosch Software Innovations</td>
<td>Bosch Sensortec</td>
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<td>Packaging Technology</td>
<td>Innovations-management Logistik</td>
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<tr>
<td>Assembly Systems and Special Machinery</td>
<td>Machine Platforms</td>
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<tr>
<td>Bosch Connected Devices &amp; Solutions</td>
<td>Data Mining, Big Data</td>
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<td>Center of Competence RFID@BOSCH</td>
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</table>

223 Bosch plants worldwide
Overview

➔ Introducing Bosch

➔ Connected Industry (Industrie 4.0) Initiative at Bosch

➔ Internet of Things (IoT) and Industrie 4.0 (I4.0)

➔ Standardization as Key Element
Outlook to 2020

- Volatile markets
- Individual customer requirements
- Shortened delivery times
- Shortened product life cycles
- 24/7 worldwide service
- Social behavior, new cooperation
- Disruptive business models

2020
7 billion connected people

2020
50 billion connected things

1997
6 million computers on the internet

1995
40 million connected people

1997
6 million computers on the internet

2020
7 billion connected people

2020
50 billion connected things

Volatile markets

Individual customer requirements

Shortened delivery times

Shortened product life cycles

24/7 worldwide service

Social behavior, new cooperation

Disruptive business models

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The Smart Factory of i4.0 is part of the IoT
Overview

➔ Introducing Bosch

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➔ Internet of Things (IoT) and Industrie 4.0 (I4.0)

➔ Standardization as a Key Element
The World of Things

IoT: Entirety of physical objects or Things

I4.0: Objects (e.g. in manufacturing) as part Cyber Physical Systems

The triangle is representing virtually all physical objects

Active (powered)

Passive
No power available
Or
Not wanted for cost reasons

Smart devices, identified via e.g. IPv6

Simple objects, identified via ?

GS1 Industry and Standards Event 2015, Warsaw
I 4.0 / IoT Data Exchange

Active (powered)

Passive
No power available
Or
Not wanted for cost reasons

Label, Smart Label, NFC / UHF RFID Tag
Common Language or Green Field Approach?

Object ID and Event

Identify

Capture

Share

ISO/IEC 15961, 15962
ISO 17363 to 17367

... New Coding Scheme ?
or

Maybe GS1 ID-Key ?

EDI(FACT) ?
OPC UA ?

... New <XML> scheme ?
or

Maybe EPCIS ?
Example: German Automotive Industry (VDA)

- **Object ID** based on ISO/IEC
- Select Data Identifier (DI)
- Select Appl. Fam. Identifier (AFI)
- Choose IAC (DUNS, Odette, …)
- Design *your* ID pattern
- Issue company specific rules
- Company specific data exchange
- Instruct your supplier base

- **ID Key**: SGTIN or CPID
- Use well documented and maintained GS1 Standards

FOR COMPARISON ONLY!
It's working productively with GS1 Standards

Logistics operation, Manufacturing control, Asset-Management, OE Products, Car pool management, Tool management, …
Thank you for your attention 😊
Questions?
In closing
Save the Date!

GS1 Industry & Standards Event

11-15 April 2016

Jersey City, USA