


A background image of vertical wooden planks, showing natural wood grain and knots, with a semi-transparent white box overlaid in the center containing the main title and subtitle.

# Track and Trace in Europe and worldwide

The beginnings, the present and the future

# Agenda

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- **Track & Trace – the beginnings**

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- **Track & Trace – today**

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- **Track & Trace – the future**

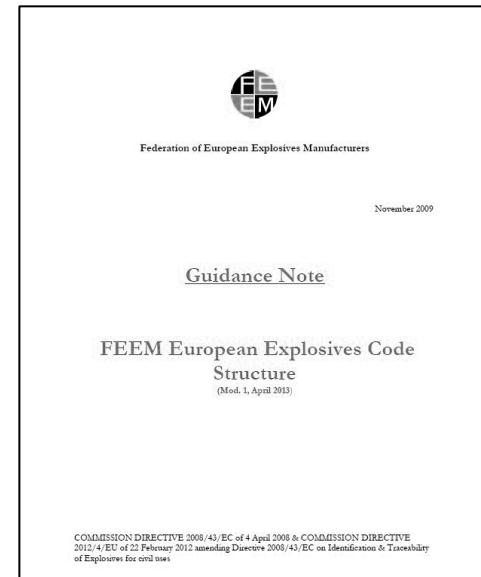


# Track & Trace – the beginnings

# Track & Trace – the beginnings

- Directive 2012/4/EU the European Commission gives the **requirements** within the “COMMISSION DIRECTIVE 2008/43/EC for the identification and traceability of explosives for civil uses”
- **BUT No defined way to meet them!**
- European manufacturers, organized in the FEEM (Federation of European Explosives Manufacturers) decided to establish a project to create a “*Guidance note*”
- base for Europe-wide implementation of Track & Trace of civil explosives and one of the reasons for success of Track & Trace in Europe

- The harmonized code structure allows the usage within the European Union, independent from the different software systems
- document serves as a model for similar legislation around the world



### 3. TABLE OF CODE STRUCTURE ELEMENTS

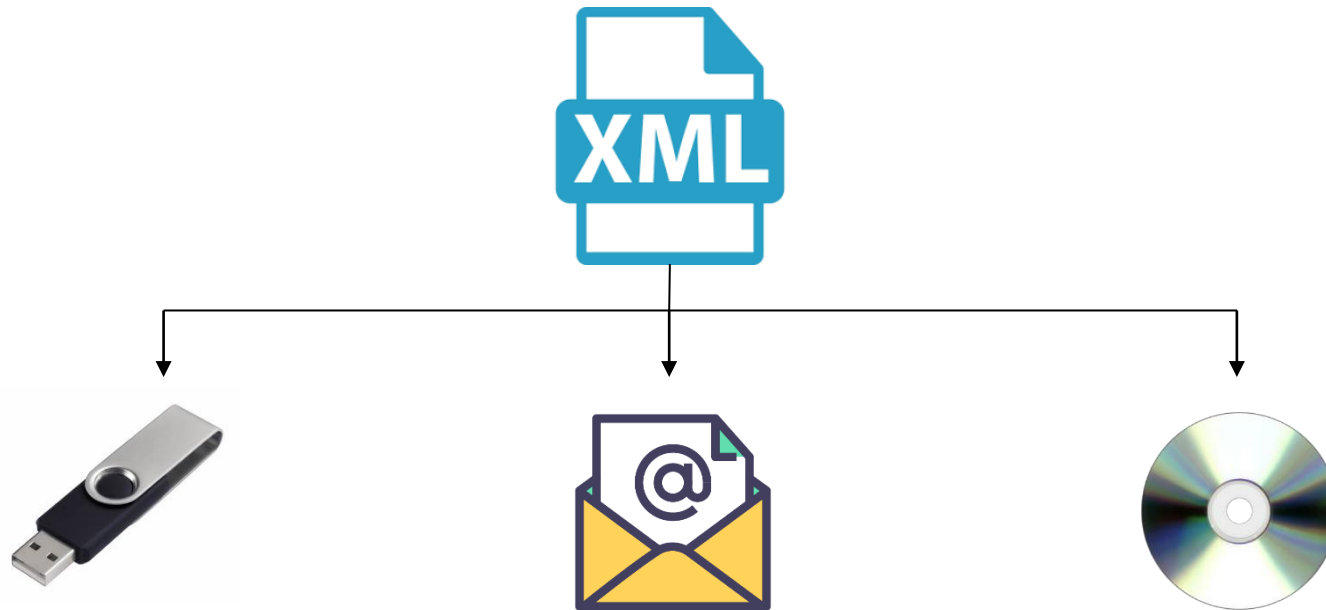
| Field                                       | Digits | Format        | Application Identifier | AI Description                                             | Length                                          | Notes                                                                        |
|---------------------------------------------|--------|---------------|------------------------|------------------------------------------------------------|-------------------------------------------------|------------------------------------------------------------------------------|
| Country & Production Site No.               | 5      | Alpha-Numeric | (90)                   | Mutually agreed between trading partners                   | Variable but used as a fixed number to 5 digits | Mandatory to comply with Directive e.g. ER002 – France, 2 <sup>nd</sup> site |
| Unique Item No. OR Logistical Unit No.      | 30     | Alpha-Numeric | (250)                  | Secondary Serial No.                                       | Variable up to 30 characters                    | Mandatory to comply with Directive                                           |
| Determination of items and logistical units | 2      | Numeric       | (20)                   | Product Variant                                            | Fixed                                           | Optional                                                                     |
| Production Date                             | 6      | Numeric       | (11)                   | Product Date (YYMMDD)                                      | Fixed                                           | Optional                                                                     |
| Product Code                                | 30     | Alpha-Numeric | (240)                  | Additional Product Identification Assigned by Manufacturer | Variable up to 30 characters                    | Optional                                                                     |

## Problems of the first days:

- Data exchange along the supply chain
- Handling of small explosives
- Handling of unmarked explosives, still on stock
- no experience of what type of marking would prove to be the most durable and usable in all environmental conditions until then
- same initial situation and problem for countries that now want to introduce track and trace as in Europe at the time

## Problems of the first days:

- Data exchange along the supply chain
  - How should the data stored in an XML file reach the distributor or customer?



## Problems of the first days:

- Handling of small explosives.
  - How should explosives be marked if the diameter is so small that reliable reading of the barcode is impossible?





## Problems of the first days:

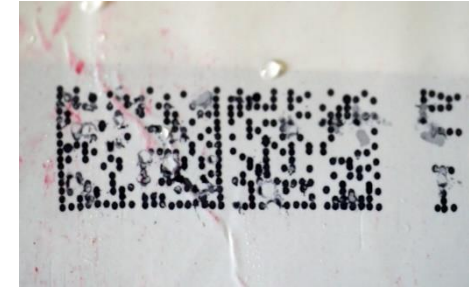
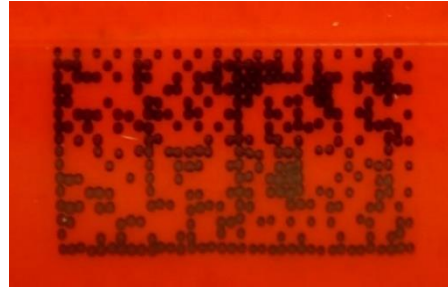
- Handling of unmarked explosives, still on stock.
  - Despite a transitional period, large quantities of unmarked explosives were still in the warehouses.



# Track & Trace – a new challenge

## Direct Inkjet printing versus adhesive labels or stickers

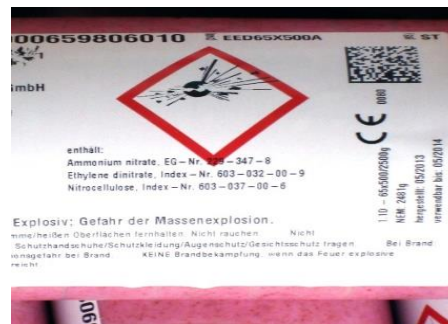
### Direct inkjet printing



Past: mostly not readable, cells without sharp contours and not aligned columns and rows

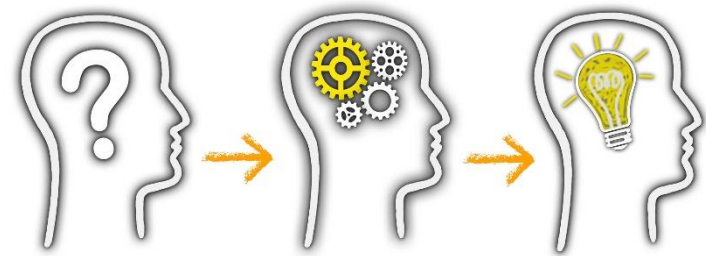
Today: Printing technologies have developed to such an extent that direct inkjet printing can now be implemented just as well and legibly

### Preprinted labels and stickers



Preprinted labels generally do not create problems

- possibility to realize such a large project as the introduction of Track & Trace in a manageable time
- cooperation of all institutions involved: government authorities, associations, manufacturers, wholesalers, end users and IT service providers necessary
- prerequisite for a Europe-wide introduction: harmonization of the technical bases in the structure, transmission, and presentation of the data based on the jointly prepared "FEEM-Guidance Note"



## LESSONS LEARNED

- By maintaining working groups even after the deadlines, it is possible to incorporate necessary adjustments and corrections into the work process in a coordinated manner
- Problems that arise must be communicated and solutions worked out independently of any competitive thinking
- The usability of software solutions for Track & Trace is an essential prerequisite for the acceptance and success of the entire project of transferring the European directives into real working life

- necessary to revise previously made specifications if it is determined in practical application that these cannot be implemented with justifiable effort  
(Example: Marking of small explosives)
  - From the beginning of the project, it is crucial to analyze the effects of the implementation on existing work processes and, if necessary, to adapt software or processes
- the only ways to minimize the additional financial and time effort



# Track & Trace – today

# Track & Trace - today

- Track & Trace is no longer used exclusively to meet legal requirements
- Track & Trace software is useable as a
  - warehouse management solution
  - software for optimizing selected work processes
  - for production control
- Data exchange with ERP (Enterprise-Resource-Planning) programs enables the integration of Track & Trace software into selected accounting and evaluation processes

# Track & Trace - today

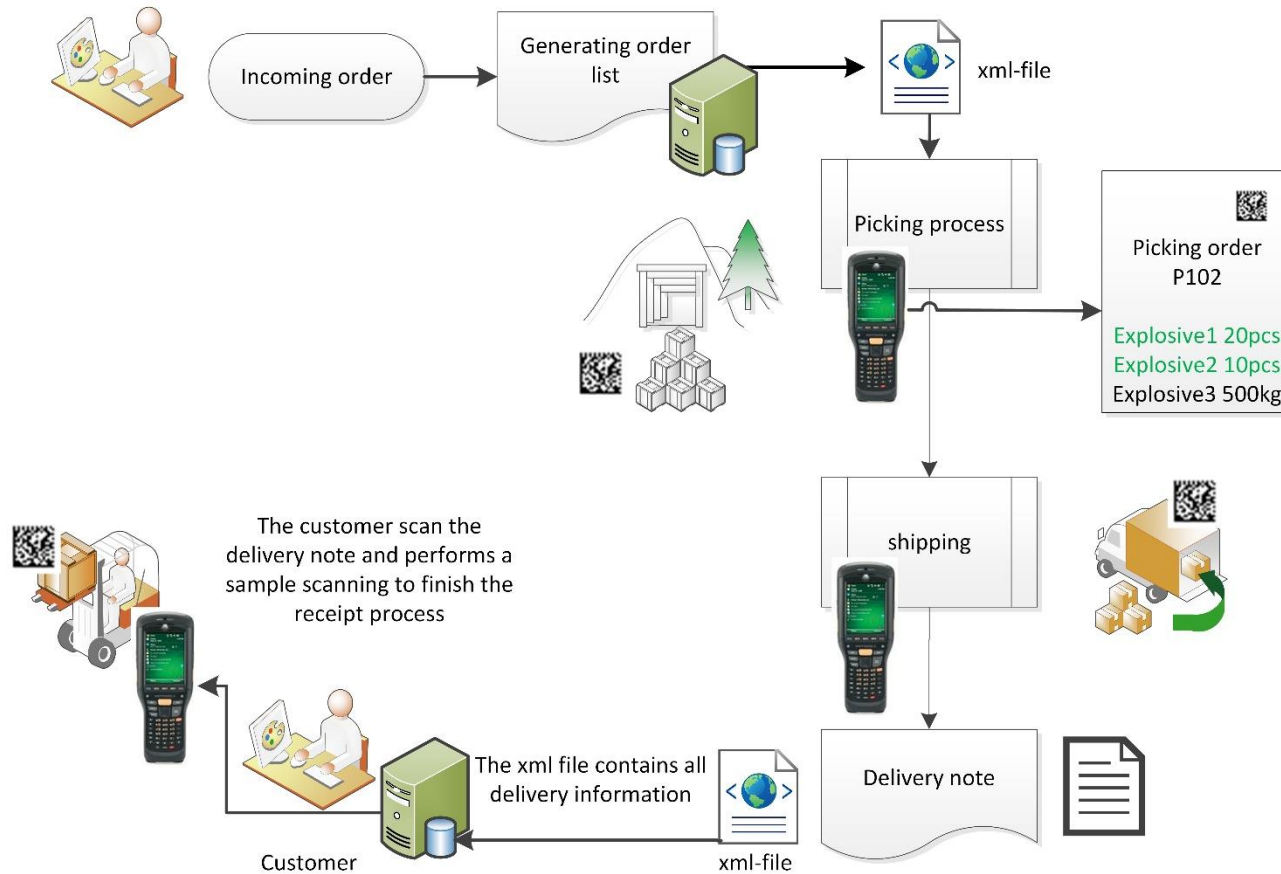
- Track and Trace software helps empower processes and delivers accurate data about:
  - Products on stock
  - Movements
  - Shipping to customers
  - Consumption
  - Security standards
  - Compliance requirements
  - Production and much more ...
- early detections of bottlenecks and security gaps as well as the exact transmission of delivery data helps to speed up bookkeeping processes and can prevent supply problems
- complete control of the supply chain from production to consumption





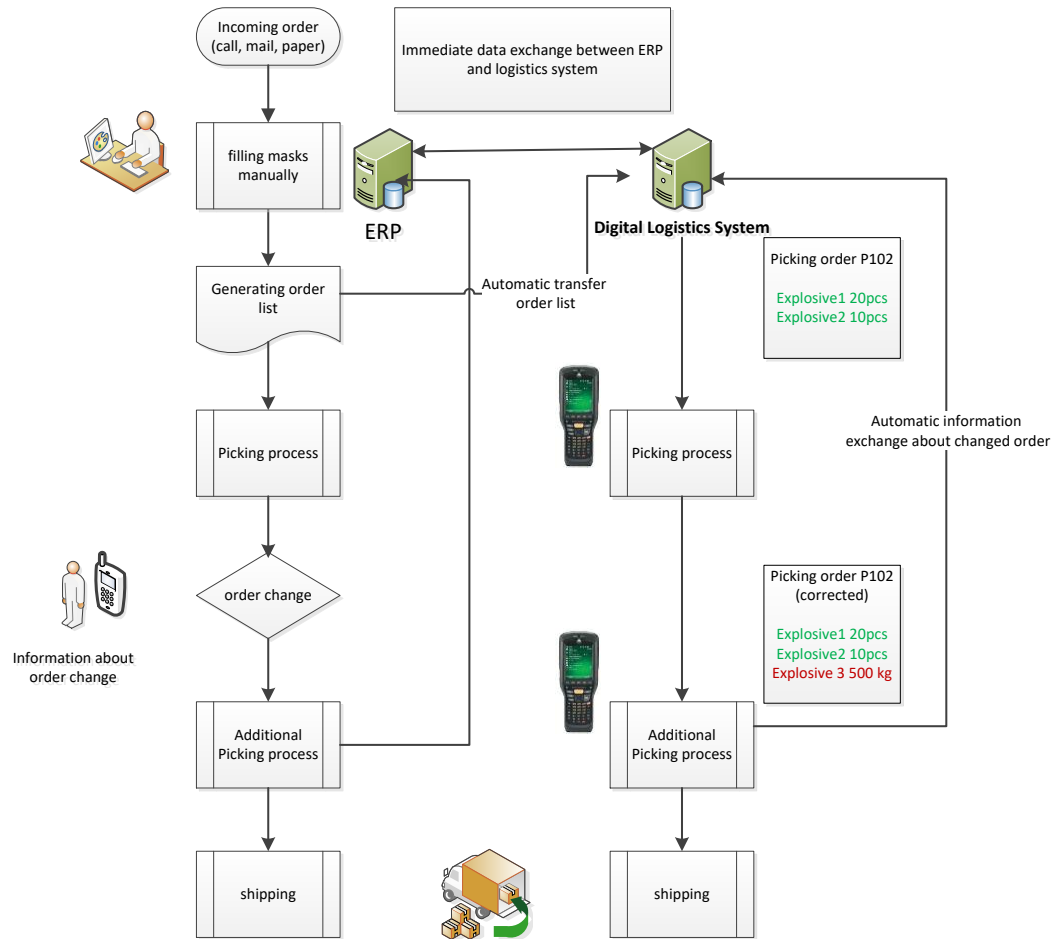
# Track & Trace - today

## Track & Trace from order to delivery



# Track & Trace - today

## Order Management using Track & Trace and ERP software



# Track & Trace - today

- current situation:  
The explosives market in the European Union about the Track & Trace is consolidated
- more and more regions decide to introduce or further develop track and trace solutions
- degree of implementation of the Directive varies significantly between the member states
- reason: often divergent interpretation of the directives
- no uniform corresponding transposition of the requirements into national legislation

# Track & Trace - today

- necessary control measures are also not uniformly applied and implemented
- almost all global manufactures marking their explosives for the usage of track and trace solutions
- in the meantime: track and trace also represents an essential sales feature for manufacturers for their international customers



# Track & Trace - today

## Strategic Tool for the Control of Small Arms and Light Weapons

- Expansion of track & trace solutions beyond the explosives sector
- the tracking and location system allows implementing the requirements to keep a record of weapons as stipulated in the **Arms Trade Treaty (ATT)**
- considers the most essential aspects and monitoring requirements outlined in the **International Small Arms Control Standards (ISACS)**



# Track & Trace - today

## Advantages:

- + automatic electronic reporting to the authorities
- + Administration of permits and quotas
- + simple and intuitive operation
- + comprehensive electronic weapon book
- + recording and processing of old stocks
- + automatic authority reports
- + batch processing / mass data processing
- + Warehouse and inventory management
- + standardized interfaces to third-party systems





# Track & Trace – the future

# Track & Trace – the future

- Global implementation of Track & Trace regulatory
- similar regulations are implemented or shortly before the introduction in several countries like:
  - Brazil
  - Mexico
  - Chile
  - Peru
  - Saudi Arabia
  - South Africa
- first US companies start with projects to implement Track & Trace, based on the European Directive to be able to sell in countries in which are regulations are already implemented



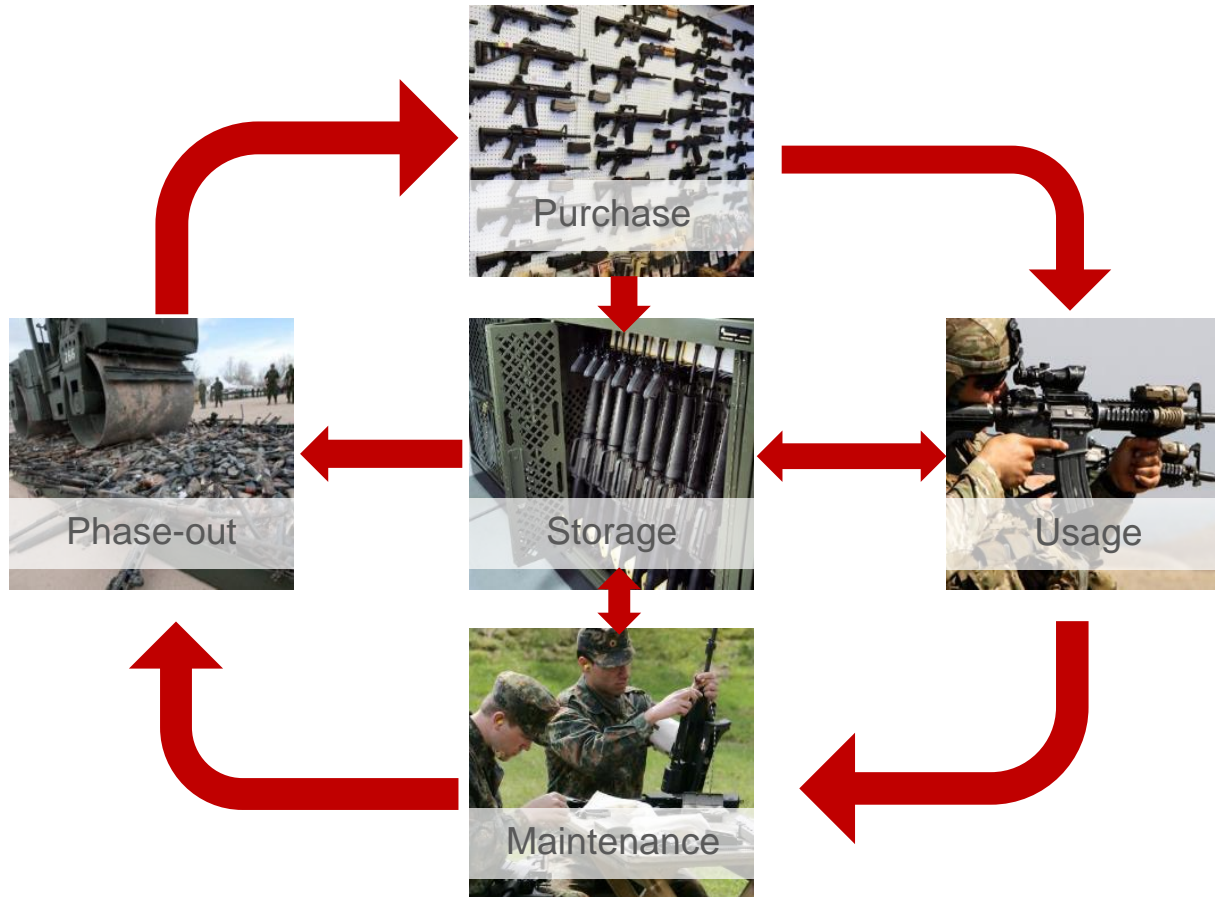


# Track & Trace – the future

- Track & Trace solutions will evolve into complex logistics software solutions
- The globalization of the supply chain, including that of explosives manufacturers, requires more digitalization ever in production and sales
- explosives produced in Asia are offered on the European market
  - manufacturers fulfil all obligations based on European Union regulations
- trend towards global sales areas: considerable investments are necessary for the technical software support of the associated logistical processes

# Track & Trace – the future

## Track & Trace for small arms and light weapons through the full lifecycle:





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