SP4 PRESENTATION

SP leader Thales
SP co-leader Elsag Datamat
AGENDA FOR SP4

- Scope
- Objectives
- Partners involved
- Status of D.O.W.
- Deliverables
- Planning / milestones
- Summary of the technologies addressed within SP4
SCOPE

- Integration of “protection solutions” for the transported assets (i.e. passengers, freights and luggage)

- The integration has to consider that passengers, freights and luggage could be both targets of potential threats and means to attack the railway system, by infiltration of terrorists or criminals

- Privacy aspects and citizen rights issues analysed in WP2.6, will have a significant impact on this SP (regulation for all the technologies, guidelines for the implementation of defined solutions, recommendations based on privacy, legal and ethic approach).
OBJECTIVES

- Design and development of in-laboratory proof-of-concept performance prototypes able to demonstrate the feasibility of the protection of transported assets.

- SP4 is split into 4 Work Packages, featuring 4 sub-missions:
  - **Passenger clearance control**: improved detection of threats (e.g. NRBC, tracking people, abandoned object detection...) and abnormal situations on board or just before boarding;
  - **Luggage clearance control**: improved detection of threats like explosive devices or other suspicious devices in ordinary baggage to cause immense disruption in mass transportation networks;
  - **Freight clearance control**: improved detection and discrimination of threats introduced into transported freight;
  - **Rolling stock tracking and control**: the detection of illicit products over Europe (ecological benefit).

- In each sub-mission an architecture has to be designed in order to integrate the necessary protection solutions and handle different technologies coming out from legacy system as well as existing or new generation technologies.
SCOPE

WP4.1 Passengers Clearance Control

WP4.2 Luggage Clearance Control

WP4.3 Freight Clearance Control

WP4.4 Tracking and monitoring of rolling stock carrying dangerous goods

SP2 – Functional and Technical Railway Security specification

SP5 – Global Integration
### PARTNERS INVOLVED IN SP4

- BOMBARDIER (BT)
- CEA
- ELSAG DATAMAT (ED)
- MORPHO (MOR)
- RAIL CARGO AUSTRIA (RCA)
- SARAD
- SMITHS HEIMANN (SMITHS)
- SODERN
- THALES (T3S)

<table>
<thead>
<tr>
<th>WP</th>
<th>WP Leader</th>
<th>BT</th>
<th>CEA</th>
<th>ED</th>
<th>MOR</th>
<th>RCA</th>
<th>SARAD</th>
<th>SMITHS</th>
<th>SODERN</th>
<th>T3S</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1</td>
<td>BT</td>
<td>77</td>
<td>3</td>
<td>6</td>
<td>18</td>
<td>16</td>
<td>4</td>
<td></td>
<td></td>
<td>30</td>
</tr>
<tr>
<td>4.2</td>
<td>SODERN</td>
<td>35</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>4</td>
<td></td>
<td></td>
<td>30</td>
</tr>
<tr>
<td>4.3</td>
<td>SMITHS</td>
<td>42</td>
<td>1</td>
<td></td>
<td>4.5</td>
<td>5.5</td>
<td>27</td>
<td></td>
<td></td>
<td>4</td>
</tr>
<tr>
<td>4.4</td>
<td>ED</td>
<td>56</td>
<td>1</td>
<td>20</td>
<td>2.5</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td>30</td>
</tr>
<tr>
<td></td>
<td><strong>Total (MM)</strong></td>
<td>210.5</td>
<td>6</td>
<td>6</td>
<td>38</td>
<td>16</td>
<td>7</td>
<td>16.5</td>
<td>27</td>
<td>30</td>
</tr>
</tbody>
</table>

*Project Kick-Off*
STATUS OF D.O.W.

• All the technicalities of the proposal are now basically 3 year-old
  – E.g WIFI to be replaced/completed by WIMAX or LTE ?
• Some objectives may have to be revisited, because
  – Threats have evolved
  – Operators and governments have learnt
  – Technology has changed
  – Internal priorities of each partner may have evolved
• A feedback loop is required within the SPs
# PLANNING / MILESTONES

| SP0 | WP0.1 | WP0.2 | WP0.3 | WP0.4 | WP0.5 | WP0.6 | WP0.7 | WP0.8 | WP0.9 | WP0.10 | WP0.11 | WP0.12 | WP0.13 | WP0.14 | WP0.15 | WP0.16 | WP0.17 | WP0.18 | WP0.19 | WP0.20 | WP0.21 | WP0.22 | WP0.23 | WP0.24 | WP0.25 | WP0.26 | WP0.27 | WP0.28 | WP0.29 | WP0.30 | WP0.31 | WP0.32 | WP0.33 | WP0.34 | WP0.35 | WP0.36 | WP0.37 | WP0.38 | WP0.39 | WP0.40 | WP0.41 | WP0.42 |
|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| SP1 | WP1.1 | WP1.2 | WP1.3 | WP1.4 | WP1.5 | WP1.6 | WP1.7 | WP1.8 | WP1.9 | WP1.10 | WP1.11 | WP1.12 | WP1.13 | WP1.14 | WP1.15 | WP1.16 | WP1.17 | WP1.18 | WP1.19 | WP1.20 | WP1.21 | WP1.22 | WP1.23 | WP1.24 | WP1.25 | WP1.26 | WP1.27 | WP1.28 | WP1.29 | WP1.30 | WP1.31 | WP1.32 | WP1.33 | WP1.34 | WP1.35 | WP1.36 | WP1.37 | WP1.38 | WP1.39 | WP1.40 | WP1.41 | WP1.42 | WP1.43 |
| SP2 | WP2.1 | WP2.2 | WP2.3 | WP2.4 | WP2.5 | WP2.6 | WP2.7 | WP2.8 | WP2.9 | WP2.10 | WP2.11 | WP2.12 | WP2.13 | WP2.14 | WP2.15 | WP2.16 | WP2.17 | WP2.18 | WP2.19 | WP2.20 | WP2.21 | WP2.22 | WP2.23 | WP2.24 | WP2.25 | WP2.26 | WP2.27 | WP2.28 | WP2.29 | WP2.30 | WP2.31 | WP2.32 | WP2.33 | WP2.34 | WP2.35 | WP2.36 | WP2.37 | WP2.38 | WP2.39 | WP2.40 | WP2.41 | WP2.42 | WP2.43 |
| SP5 | WP5.1 | WP5.2 | WP5.3 | WP5.4 | WP5.5 | WP5.6 | WP5.7 | WP5.8 | WP5.9 | WP5.10 | WP5.11 | WP5.12 | WP5.13 | WP5.14 | WP5.15 | WP5.16 | WP5.17 | WP5.18 | WP5.19 | WP5.20 | WP5.21 | WP5.22 | WP5.23 | WP5.24 | WP5.25 | WP5.26 | WP5.27 | WP5.28 | WP5.29 | WP5.30 | WP5.31 | WP5.32 | WP5.33 | WP5.34 | WP5.35 | WP5.36 | WP5.37 | WP5.38 | WP5.39 | WP5.40 | WP5.41 | WP5.42 | WP5.43 |
## DELIVERABLES

<table>
<thead>
<tr>
<th>WP</th>
<th>Delivrables</th>
</tr>
</thead>
</table>
| 4.1 | • Architecture and interfacing design for passengers clearance (M14)  
     • In laboratory proof of concept prototype for passengers clearance (M22)  
     • Validation and technology’s integration for passengers clearance |
| 4.2 | • Architecture and interfacing design for luggage clearance control (M14)  
     • In laboratory proof of concept prototype for luggage clearance control (M22)  
     • Validation and technology’s integration for luggage clearance control (M24) |
| 4.3 | • Architecture and interfacing design for freight clearance control (M14)  
     • In laboratory proof of concept prototype for freight clearance control (M22)  
     • Validation and technology’s integration for freight clearance control (M24) |
| 4.4 | • Architecture and interfacing design for tracking and monitoring of rolling stock (M14)  
     • In laboratory proof of concept prototype for tracking and monitoring of rolling stock (M22)  
     • Validation and technology’s integration for tracking and monitoring of rolling stock (M24) |
## DELIVERABLES

| T3S/ED | SP4 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |
|--------|-----|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| BT     | WP4.1| 9 |   |   |   |   |   |   |   |   | D41.1|   |   |   | D41.2|   |   |   |   |   |   |   | E41.3| 26 |
| SODERN | WP4.2| 9 |   |   |   |   |   |   |   |   | D42.1|   |   |   | D42.2|   |   |   |   |   |   |   | E42.3| 26 |
| SMITHS | WP4.3| 9 |   |   |   |   |   |   |   |   | D43.1|   |   |   | D43.2|   |   |   |   |   |   |   | E43.3| 26 |
| ED     | WP4.4| 9 |   |   |   |   |   |   |   |   | D44.1|   |   |   | D44.2|   |   |   |   |   |   |   | E44.3| 26 |
The necessary protection solutions that, at the time of writing, the project intends to test and potentially integrate in each sub-mission can be summarized as follows:

<table>
<thead>
<tr>
<th>Sub-mission</th>
<th>Protection solutions to be integrated</th>
</tr>
</thead>
</table>
| Passenger clearance control       | • CCTV (multi-camera) systems for passengers abnormal situations tracking, abandoned objects detection and people and luggage reconciliation, crowd evaluation and vandalism detection.  
• Spectroscopy-based CBNR detectors. |
| Luggage clearance control         | • X-ray (fixed or portable) sensor system combined with neutronic and gamma sensors for luggage inspection.  
• Radiation (Germanium based) detection systems.                                               |
| Freight clearance control         | • X-ray high energy scanning for imaging inspection of railway freight at high speed  
• Primary screening and spectroscopic secondary screening or direct spectroscopic measurement for radioactivity measurement. |
| Tracking and control of rolling stock | • Integrated imaging sensor system for the acquisition of train views in all environmental conditions and for the location and recognition of the standard ISO-codes from freight containers.  
• Plasmonic and photonic technology for detection and tracing of hazardous materials.  
• EGNOS-based tracking and monitoring systems.  
• On-board system, based on off-the-shelf technologies providing: integration of CCTV - intrusion sensors - RFID seals - CBNR sensors (Radnet protocol), authentication and encryption of data and multiple telecom back-up links. |
Project Kick-Off

Thank you!