2014 ERA Follow Up of ERTMS EU- funded projects

FINAL REPORT 2014

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1. Introduction

The aim of this Final report is to describe the status of the projects and the activities performed by Ineco for the technical follow up of ERTMS projects funded by the EU during 2014.
The status of projects is up to28th October 2014, date of this report. The Follow Up activities will continue until 30th November and any update needed on a project progress report will be performed and sent to ERA.

2. Overview of the projects

From the initial list of 43 projects 5 have been classified as **not to be followed** because of incompatibility issues and therefore no Follow activities would be performed. These are:

REF	Project	OB/TR
2009-EU-60122-P	Deployment of ERTMS on Corridor D : Valencia to Budapest	OB/T
2011-ES-60002-P	ERTMS deployment on high-speed line Madrid-Castilla la Mancha-Comunidad Valenciana-Murcia: Section Albacete-Alicante	T
2011-ES-60001-P	Upgrade of Spanish high-speed lines and trains to ERTMS 2.3.0.d	OB/T
2007-EU-60120-P	ERTMS Implementation on the Railway Corridor D (Valencia - Budapest)	OB/T
2012-EU-60022-S	Facilitating and speeding up ERTMS deployment - Second phase	

The following projects were cancelled and thus not followed:

REF	Project	OB/TR
2009-EU-60138-P	Retro-fitment of locomotives with on-board ETCS equipment	OB
2009-HU-60139-P	Retrofitting of MAV-TRAKCIO locomotives with ETCS equipment to be operated on Corridor E	OB
2007-IT-60030-P	Migration towards ERTMS/ETCS for Trenitalia on-board equipment	OB
2011-FR-60004-P	Prototyping, testing, certifying and retrofitting of Alstom Prima locomotives for usage on the TEN T corridors	OB
2011-IT-60001-P	Deployment of ERTMS trackside equipment on the Railway Corridor B Stockholm-Naples/Subpart Fortezza to Verona of the Italian Corridor B part	T
2011-PL-60002-P	Development of ERTMS/ETCS Level 1 system on the E20/CE20 railway line, section Kunowice-Warszawa	T

The following projects are closed at the end of this follow Up. The corresponding progress report is in Annex B

REF	Project	OB/TR
2009-DE-60120-P	Equipment of freight locomotives with ETCS on-board-units according to SRS 2.3.0.d	OB
2009-NL-60124-P	ERTMS upgrade of existing locomotives to ensure compatibility with SRS 2.3.0d for use in the Betuwe line.	OB
2009-NL-60142-P	Retrofitting of ETCS on-board equipment for locomotives to run in ERTMS Corridor A	OB
2009-AT-60147-P	ERTMS deployment on Corridor E (Dresden-Constanta) Austrian vehicles	OB
2007-AT-60450-P	ERTMS deployment on Corridor B (Stockholm-Naples) Austrian section	T
2009-NL-60123-P	Upgrade of ETCS system to 2.3.0d in the Betuwe Route	T
2005-AT-90103 - P	Equipment of A-Network with ETCS Level 1; Phase 1: Linz – Salzburg and Wels – Passau" -	T

The following projects are **On-hold** either because ERA is awaiting answers from the comments or because they are discontinued. The progress reports with more details from each of the projects are included in Annex B.

REF	Project	OB/TR
2011-NL-60003-P	Prototyping, testing, renewed authorisation for placing in service and the retrofit of Siemens ES64U2 locomotives with ETCS L1/L2 2.3.0.d for Corridor A, B and E networks in DE, AT and , HU and CH	OB
2009-AT-60153-P	ERTMS deployment on Corridor B (Stockholm-Naples) Austrian vehicles	OB
2009-AT-60148-P	ERTMS deployment on Corridor E (Dresden-Constanta) Trackside equipment	T
2007-NL-60060-P	ERTMS implementation on the railway corridor Rotterdam Genoa - Netherlands Part - Kijfhoek and Zevenaar	T
2009-EU-60106-P	ERTMS implementation on the Railway Corridor C (Antwerpen - Lyon / Basel)	OB
2011-IT-60002-P	Upgrading of ERTMS system on Trenitalia fleet to 2.3.0.d version	OB
2007-IT-60360-P	Trackside ERTMS equipment on Italian part of Corridor A (600 km)	T
2007-CZ-60010-P	Corridor E: ERTMS trackside equipment in the Czech Republic	T
2007-EU-60400-P	Deployment of ERTMS on the corridor Antwerp-Basel/Lyon	OB/T
2011-EU-60006-P	ERTMS upgrade to version 2.3.0d for the Perpignan - Figueras High-Speed Line	T
2009-EU-60146-S (*)	Programme management office for the ERTMS deployment on the corridor from Rotterdam to Genoa	
2012-IT-60012-P	Equipment of ETR 1000 trainsets with ETCS Baseline 2 release 2.3.0d	OB

2012-IT-60018-P	Upgrade of Roma-Napoli high speed line in order to ensure compatibility with ERTMS baseline 2.3.0d	T
2012-NL-60006-P	ERTMS equipment of 20 Siemens Vectron AC locomotives authorised in DE/AT/HU	OB
2012-SE-60028-P	Upgrade to a uniform Swedish system requirement for ERTMS, Level2	T

(*) no progress report available

Finally, the next table lists the projects that are ongoing and therefore being followed currently more actively by Ineco.
In each of the project reports that are attached in Annex B there is more information regarding the status of each project, the next steps and the main documents received.

REF	Project	OB/TR
2009-SE-60144-P	Deployment of ERTMS in Sweden	2009-SE-60144-P
2009-FR-60132-P	Migration of the French East European High Speed Line to Specification Baseline 2.3.0.d	2009-FR-60132-P
2009-PL-60151-P	Project and development of ETCS level 1 system at the section of the E 65, CMK, railway line Grodzisk Mazowiecki – Zawiercie	2009-PL-60151-P
2012-BE-60027-P	Deployment of ETCS on railway lines in Belgium	2012-BE-60027-P
2012-DE-60013-P	ETCS equipment of DB Schenker Rail locomotives for PP17 and corridor B	2012-DE-60013-P
2012-DE-60014-P	ETCS equipment of DB Schenker Rail locomotives for interoperable freight traffic on ERTMS Corridor A	2012-DE-60014-P
2012-DE-60025-P	Upgrade, prototyping, retrofitting and testing LOKOMOTION locomotives to ETCS 2.3.0d / Baseline 3	2012-DE-60025-P
2012-DK-60002-P	Early deployment of ERTMS Baseline 3 in Denmark	2012-DK-60002-P
2012-EU-60020-P	Deployment of ERTMS On Board-equipment in Sweden 2012-2015	2012-EU-60020-P
2012-NL-60005-P	Maasvlakte 2 ERTMS	2012-NL-60005-P

3. Documentation analysis

During the follow up project until 28th October, the documents delivered to ERA and INEA from the following projects have been analysed by INECO:

- Documents from project 2007-AT-60450-P
- Documents from project 2009-AT-60153-P
- Documents from project 2009-DE-60120-P
- Documents from project 2009-FR-60132-P

- Documents form project 2009-NL-60123-P
- 4 sets of documents from project 2009-NL-60142-P
- 3 sets of documents from project 2009-PL-60151-P
- Documents from project 2009-SE-60144-P
- 3 sets of documents from project 2011-EU-60006-P
- Documents from project 2011-NL-60003-P
- Documents from project 2012-BE-60027-P
- Documents from project 2012-DE-60013-P
- Documents from project 2012-DE-60014-P
- Document form project 2012-DE-60025-P
- Documents from project 2012-EU-60020-P
- Documents from project 2012-IT-60018-P
- Documents form project 2012-NL-60005-P
- Documents from project 2012-NL-60006-P
- 2 sets of documents from project 2012-SE-60028-P

4. Meetings

During the 2014 follow up project until 28th October there have been several meetings with ERA:

Meeting	Date	Location
Kick-off meeting:	14.12.2013	Lille
PM2014_1	29.01.2014	Conference call
PM2014_2	14.02.2014	Conference call
PM2014_3	19.02.2014	Conference call
PM2014_4	28.02.2014	Conference call
PM2014_5	5.03.2014	Conference call
PM2014_6	4.04.2014	Conference call
PM2014_7	25.04.2014	Conference call
PM2014_8	12.05.2014	Conference call
PM2014_9	21.05.2014	Conference call
PM2014_10	12.06.2014	Conference call
PM2014_11	20.06.2014	Conference call
PM2014_12	02.07.2014	Conference call
PM2014_13	08.07.2014	Conference call
PM2014_14	17.07.2014	Conference call
PM2014_15	24.07.2014	Conference call
PM2014_16	01.08.2014	Conference call
PM2014_17	18.09.2014	Conference call
PM2014_18	30.09.2014	Conference call
PM2014_19	10.10.2014	Brussels
PM2014_20	20.10.2014	Conference call
PM2014_21	27.10.2014	Conference call
PM2014_22	Planned for	Conference call

Meeting	Date	Location
	03.11.2014	
Final Meeting	Planned for 11.11.2014	Lille

In addition, the following meetings have been held with Projects:

Project	Date	Location
• 2009-EU-60106-P	07.04.2014	Paris
• 2007-EU-60400-P	07.04.2014	Paris
• 2012-NL-60005-P	22.05.2014	Rotterdam
• 2012-SE-60028-P	10.06.2014	Borlänge
• 2012-EU-60020-P	10.06.2014	Borlänge
• 2012-BE-60027-P	14.08.2014	Brussels
• 2012-DE-60013-P	06.10.2014	Frankfurt
• 2012-DE-60014-P	06.10.2014	Frankfurt
• 2012-DE-60025-P	21.10.2014	Munich
• 2009-PL-60151-P	Planned for 12.11.2014	Warsaw

The minutes of the meetings can be found in the Project Centre.

5. Main challenges and interoperability risks detected

During the Follow up of the projects in 2014 INECO has detected the following main challenges:

- The beneficiaries do not have access to specific documents part of the Decision Deliverables, for example the Technical Dossier of certificates, test reports, etc
- It is difficult to trace the SW/HW versions of the systems from the components to the whole subsystem that is place in service
- Not enough involvement of the beneficiaries in the technical development of the projects to be in some cases able to identify which documents are necessary and which to submit from the deliverables
- Different approaches from the suppliers, NoBos, AsBos and NSA for the development and placing in service process

Besides in the beneficiaries view the main challenges are:

- Delays in the developments of the products and in the contracts
- Lack of national political engagement to support for the deployment
- At a corridor level, not always a common approach (e.g. technical, deadlines, operational, versions) to the deployment of ETCS
- Mainly for the onboard projects, there is still no common understanding for the APS; cross acceptance / homologation / European recommendations

Within the technical interoperability risks discovered this year INECO will want to highlight one in particular regarding the restrictions and conditions for use detected in the projects.

The new CCS TSI includes now the possibility of issuing certificates with restrictions and this has given transparency to the products although there are differences in the level of detail of the description of this restrictions. The main interoperability risk is that there are no guidelines at national or European level to evaluate and weight the restrictions and conditions for use detected in the projects

For example in project 2009-DE-60120 there are two restrictions:

- Big metal masses ignored by onboard
- National Value Q_NVSRBKTRG = 0 causes SF mode when in Release Speed area

These two restrictions do not have an impact on this project but how to deal with this restrictions when looking at a trackside project like 2012-BE-60027 where (preliminary requirements document) Big metal masses are foreseen and the value of Q_NVSRBKTRG = 0?

6. Proposals for improvement.

To achieve a single harmonized system it is necessary firstly to insist in the need to obtain ERTMS systems that fully comply with the specifications:

For trackside projects there shall be no additional ETCS requirements to the ones included in the CCS TSI and the NTR closing open points. That is there shall not be network access criteria exceeding the TSI

For the Onboard projects it is important that the beneficiaries are aware of the limitations the restrictions of their onboards impose

For this it is deemed essential that the criteria to evaluate the impact of the restrictions to the specifications is available.

It is still noticeable that the criteria for verification of subsystems that are used by the NoBo, AsBo and NSA is not consistent and this impacts in the responsibilities by the user

Finally a wider viewwithin a corridor or an specific area is needed to assess the projects

For the specific activity of the technical Follow up the following recommendations shall be taken into account for future works:

- It is important to meet with the project representatives before they submit the FPC. These meetings would include representatives from the different entities involved in the project, e.g. supplier, applicant, NSA, etc
- More information regarding the overall project is obtained through technical discussions with the project representatives than through the official communications with the beneficiaries
- In order to prioritize and to achieve more fruitful project analysis, the feedbak from the projects and the knowledge of the status of the projects is considered important:
- A permanent contact with ERA to update the status of the projects and guidelines is necessary

7. Annex A

• Master Follow Up table

8. Annex B

• Reports for each project

9. Annex C

• Project Data Excel sheets