

Achievements Report on collecting best practice in ITS deployment 2019

EU EIP A2

Milestone 8

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1. Overview

1.1. EU EIP A2 and its Tasks

Inside the European ITS Platform, the activity 2 "*Monitoring and Dissemination*" is the prime place to foster harmonised ITS deployment on a European scale, across ITS Corridors and special domains. A2 works in close cooperation with all activities in EU EIP to provide a place to discuss mutual impact and orchestration of their specific results and their impact on ITS Deployment in the future. It is also the platform for ITS deployment corridors to share results of horizontal activities and best practice. Besides this internal role, A2 liaises with external stakeholders in order to disseminate EU EIP results, discuss framework conditions, elicit requirements and follow ITS deployment in other projects (Urban, C-ITS...).

Activity 2 has launched thematic Expert Groups (EG) to provide a place where experts from all EU EIP partners, ITS corridors, road operators and beyond can meet to discuss all aspects of ITS deployment regarding particular service categories (initially: traffic management, traveller information and freight & logistics). Their input is pivotal for the maintenance of the ITS Deployment Guidelines (ITS DGs).

The **Traffic Management Expert Group** (EG TM) monitors the deployment of traffic management services in the ITS deployment corridors and collects best practice / lessons learned. The experts in this group address new technologies and assess their potential for / impact on ITS deployment. Topics that are considered in the group include among others the following:

- Updates for existing Deployment Guidelines related to traffic management, as well as identifying the need for the creation of new ones
- Issues from ITS deployment corridors
- The interface between road operators and service providers – in particular regarding Traffic Management Plans
- The urban / inter-urban interface.

The **Traveller Information Service Expert Group** (EG TIS) considers the essential and increasingly important role that traveller information services – pre-trip as well as on-trip – take in ITS deployment. The group aims at collecting experiences made and make recommendations regarding the harmonisation of ITS services for traveller information, looking at aspects like:

- Common interpretation of events
- Common look & feel of services
- Common interface between road operators and service providers based on DATEX II

- MoUs between road operators and service providers
- Harmonisation of services

The **Freight & Logistics Expert Group** (EG F&L) observes the deployment of F&L services in the ITS deployment corridors, monitoring technical progress and collecting best practice and practical experience from implementations. Topics to address include:

- Updates for existing Deployment Guidelines related to freight & logistics, as well as identifying the need for the creation of new ones
- Issues from ITS deployment corridors
- The interface between road operators and service providers
- Analyses of truck driver (and haulier) behaviour
- Special aspects of freight inter-modality (rails hubs, ports, cities etc.)

Beyond the work within the Expert Groups, targeted stakeholder workshops connect A2 and the EU EIP as a whole with relevant activities in the vast and still growing landscape of ITS. Besides these two pillars, the prime centre of ITS harmonisation in activity 2 is the ITS Deployment Coordination Group.

1.2. Best Practice Collection in the light of the update of the ITS Deployment Guidelines

The European Commission (EC) has concrete policies regarding the deployment of ITS to support their political agenda regarding the transport sector. The main priority is to use ITS to support a European transport system that is efficient, safe and with minimum environmental impact. Growing mobility demand and especially increasing traffic volumes on roads challenge the targets set for these objectives. Hence, increased deployment of ITS is a major contributor to EU policy, especially in form of innovative Cooperative ITS services (C-ITS) and as one contributor to future connected, automated driving scenarios.

Nevertheless, the EC itself is not operating its own road network. The actual deployment of services lies with the EU Member States, their road authorities and their road operators, be they public or private (concessionaires). The Commission will use their policy tools to cooperate with the Member States in implementing the European added values of harmonised ITS deployment. In particular, this means regulation and co-funding.

In order to implement their ITS Action Plan, the EC has issued the ITS Directive which contained the option to issue Delegated Regulations (DR) in order to implement the regulatory framework of EC transport policy on the TEN-T network. ITS deployment is directly affected by Delegated Regulations 885(2013), 886(2013), 962(2015) and 2017/1926.

DR885(2013) provides requirements for publishing static and dynamic information about safe and secure truck parking. DR886(2013) addresses safety related traffic information and DR962(2015) covers real-time information on road and traffic data. DR2017/1926 provides requirements on the provision of EU-wide multimodal travel information services. The Delegated Regulations set the legal framework for data sharing between road authorities, road operators and service providers.

While this framework forms an important source of requirements regarding ITS deployment, it does in itself provide not very much to harmonise ITS deployment. Road operators in the EU Member States have therefore started already some time ago to capture the information they need to consider regarding European harmonisation in their National ITS Deployment plans and projects in ITS Deployment Guidelines (DG). The current set of guidelines comprises requirements that ITS services should comply with in order to be harmonised with the deployment of the same service in other Member States. This will not prevent services to be tuned for local needs, but ensures a certain level of harmonised end user experience and also basic interoperability on the data level, which again is an important contribution to the feasibility of seamless, cross-border services.

EU EIP activity 2 has taken the action of revising the Deployment Guidelines, based on recommendations captured by the predecessor projects EIP and EIP+. Beyond the obvious check against the Delegated Regulations, this also includes the overall organisation of the whole set of guidelines (one reference handbook with direct link to the Delegated Regulations rather than separate documents with a lot of redundant text) and the update of the best practices.

The aim is to renew the existing best practices with a special focus on supporting the DG requirements and to enrich the result with new innovative examples for ITS deployment. Activity 2 therefore encouraged all ITS Corridors Member States, road operators and interested external stakeholders to provide innovative best practices. The process has been performed by the activity's Expert Groups on Traveller Information Services, Traffic Management and Freight & Logistics. Together they elaborated a common easy to fill best practice template. Once filled, interested ITS DG users will find rich information about exemplary and service specific ITS deployments. The benefit of this is twofold: road operators and interested external stakeholders can learn from each other, and can join forces to avoid double work.

1.3. Focus of the Report

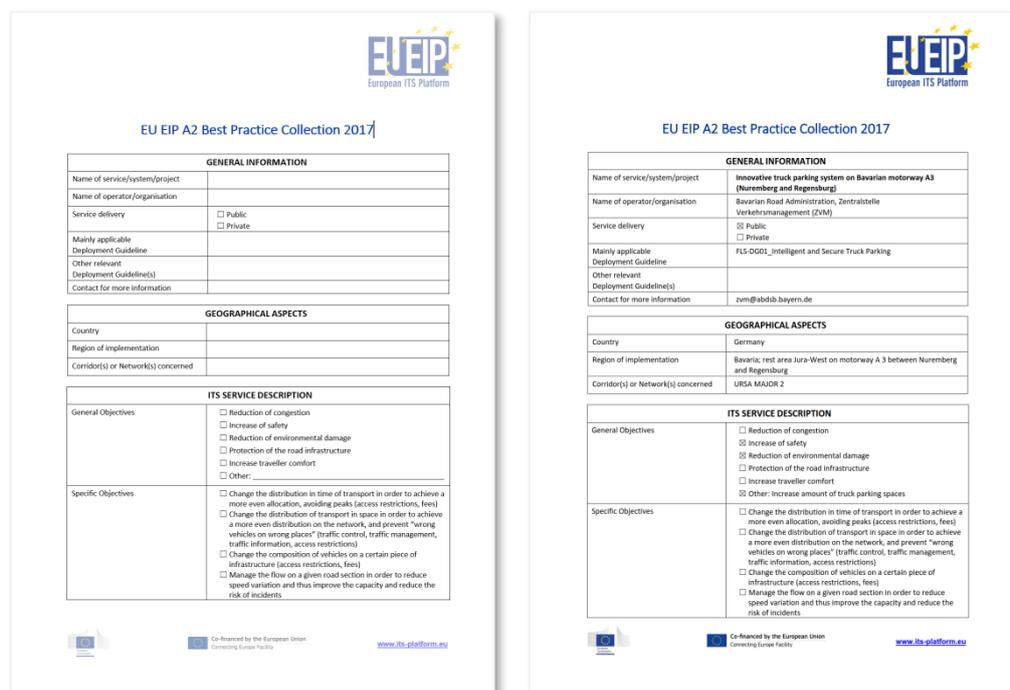
As the document title indicates, the main focus of the report is to concisely present the achievements of the best practice collection task of activity 2. It therefore provides evidence of the effort that activity 2 and the EG members have undertaken to collect best practice in ITS deployment.

It has to be noted that the best practice collection process is ongoing. While the experts have already identified a significant number of European best practices in ITS deployment, the collection process, as well the update of the information included in the collected best practices to date, have to be continuous. The goal is to ensure that the set of best practices always include the newest best practices and that the previously collected ones are still relevant and include up-to-date information. To this end, the collection process this year also focused on the quality check, uniformity and update of information already included in the collected best practices. In addition, a further step of checking with the ITS corridors for new and updated best practices that have not already been collected was initiated and supported by the *Cross Corridor Cooperation (CCC)* task within activity 2 at the end of 2019, to ensure that knowledge produced in the ITS road corridor projects is carefully collected and shared. In addition, some enhancements to the Best Practice template have also been introduced.

Finally, it has to be mentioned that additional best practices are always welcome at any time. To submit a new best practice, please contact the relevant EG Leader (see **Expert Group Contact Details**).

2. Approach

To improve the knowledge of the three expert groups and to distribute the information on existing and new ITS developments back into the Member States, a template for the data collection of the best practices for DG requirements has been created since 2017 and three filled examples have been provided for reference. The template provides a common format, containing the appropriate fields to facilitate the work of the best practice owner to provide all relevant information, improving at the same time classification and comparability of the BPs. In 2019 the template received an update in order to fine-tune some aspects, as well as making it more intuitive and easy to fill.



EU EIP A2 Best Practice Collection 2017

GENERAL INFORMATION	
Name of service/system/project	
Name of operator/organisation	
Service delivery	<input type="checkbox"/> Public <input type="checkbox"/> Private
Mainly applicable Deployment Guideline	
Other relevant Deployment Guideline(s)	
Contact for more information	

GEOGRAPHICAL ASPECTS

Country	
Region of implementation	
Corridor(s) or Network(s) concerned	

ITS SERVICE DESCRIPTION

General Objectives	<input type="checkbox"/> Reduction of congestion <input type="checkbox"/> Increase of safety <input type="checkbox"/> Reduction of environmental damage <input type="checkbox"/> Protection of the road infrastructure <input type="checkbox"/> Increase traveller comfort <input type="checkbox"/> Other:
Specific Objectives	<input type="checkbox"/> Change the distribution in time of transport in order to achieve a more even allocation, avoiding peaks (access restrictions, fees) <input type="checkbox"/> Change the distribution of transport in space in order to achieve a more even distribution on the network, and prevent "wrong vehicles on wrong places" (traffic control, traffic management, traffic information, access restrictions) <input type="checkbox"/> Change the composition of vehicles on a certain piece of infrastructure (access restrictions, fees) <input type="checkbox"/> Manage the flow on a given road section in order to reduce speed variation and thus improve the capacity and reduce the risk of incidents

EU EIP A2 Best Practice Collection 2017

GENERAL INFORMATION	
Name of service/system/project	Innovative truck parking system on Bavarian motorway A3 (Nuremberg and Regensburg)
Name of operator/organisation	Bavarian Road Administration, Zentralstelle Verkehrsmanagement (ZVM)
Service delivery	<input checked="" type="checkbox"/> Public <input type="checkbox"/> Private
Mainly applicable Deployment Guideline	FLS-DG01, Intelligent and Secure Truck Parking
Other relevant Deployment Guideline(s)	
Contact for more information	zvm@abd.bayern.de

GEOGRAPHICAL ASPECTS

Country	Germany
Region of implementation	Bavaria; rest area Jura-West on motorway A 3 between Nuremberg and Regensburg
Corridor(s) or Network(s) concerned	URSA MAJOR 2

ITS SERVICE DESCRIPTION

General Objectives	<input type="checkbox"/> Reduction of congestion <input checked="" type="checkbox"/> Increase of safety <input checked="" type="checkbox"/> Reduction of environmental damage <input type="checkbox"/> Protection of the road infrastructure <input type="checkbox"/> Increase traveller comfort <input type="checkbox"/> Other: Increase amount of truck parking spaces
Specific Objectives	<input type="checkbox"/> Change the distribution in time of transport in order to achieve a more even allocation, avoiding peaks (access restrictions, fees) <input checked="" type="checkbox"/> Change the distribution of transport in space in order to achieve a more even distribution on the network, and prevent "wrong vehicles on wrong places" (traffic control, traffic management, traffic information, access restrictions) <input checked="" type="checkbox"/> Change the composition of vehicles on a certain piece of infrastructure (access restrictions, fees) <input type="checkbox"/> Manage the flow on a given road section in order to reduce speed variation and thus improve the capacity and reduce the risk of incidents

Figure 1. The first page of the BP collection template, empty (left) and filled (right).

In the years that followed, the collection of new and updated BPs continued. New ITS deployments have been identified and their owners have been contacted and asked to provide information by filling the template. At the same time, the update process of the BPs already included in the DG2012/2015 continued throughout 2018 and 2019, with the aim to receive new insights and lessons learned from these ITS deployments in the last years, as well as to remove obsolete implementations and replace them with the latest ITS deployments. The use of the template is also for the updated BPs mandatory to ensure a unified format of all BPs.

In order to update the already available BPs, the Deployment Guideline Coordinators (DGCs) contacted the BP owners and asked them to check if existing BPs are still up to date and to update them using the new template provided. The collected filled templates

have been forwarded to all EG leaders (EG TM – Tobias Reiff, EG F&L – Jens Dierke, EG TIS – Enrico Ferrante) and the A2 lead team. The same process was followed for collecting new BPs, as well. Existing BPs that are no longer relevant have been removed. The same applies to existing BPs for which no contact person could be found after extensive search or no response has been received after several attempts to contact.

The collected information have been used on one hand as input for the achievement report (this report) and on the other hand for the improvement of the ITS Deployment Guidelines. The process is visualised in Figure 2 below.

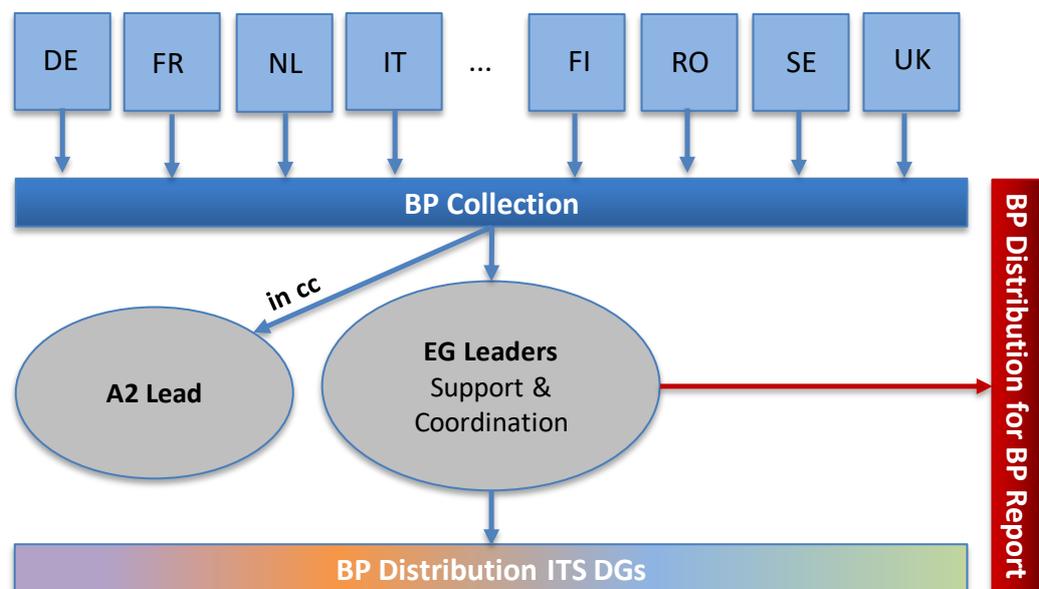


Figure 2. Visualisation of the BP collection process.

3. Best Practice Analysis

3.1. Overall Figures

The collection and update of BPs all over Europe is an ongoing exercise, facilitated by the three expert groups. The BPs are examples of ITS deployments that are relevant to one (or more) DG(s). All DGs except *ICT_DG01_Information and Communication Technologies* and *ITS_DG01_Reference Document* include BPs. All updated BPs to this new format, as well as new BPs received will be used in the Best Practice Annex of the Reference Handbook (RH). The planned yearly refresh of this chapter will add the new BPs collected throughout each year, update information in existing BPs, as well as remove any outdated BPs.

Figure 3 illustrates the current status of the updated and new BPs in all DGs, since the launch of the EU EIP Best Practice Collection task in the summer of 2017. The bar on the left shows the total number of new and updated BPs to the new format (96), while the middle and right bars split this total into updated (55) and new (41) BPs respectively.

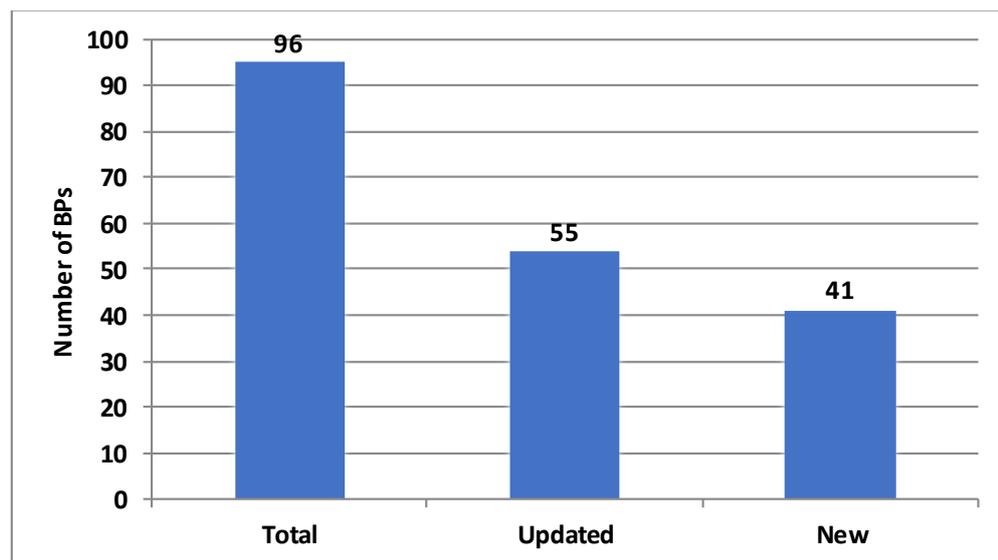


Figure 3. Bar chart of total, new and updated BPs.

Figure 4 gives a more detailed overview of all BPs per category. It illustrates the number of new and updated BPs for each DG, as well as the total number of BPs for each of the four categories: Freight and Logistics, Traffic Management, Traveller Information Services and the Supporting Guidelines.

Deployment Guideline	Updated BPs	New BPs
FLS_DG01_Intelligent and Secure Truck Parking	8	8
FLS_DG02 Access to Abnormal Goods Transport Regulations	5	1
FLS TOTAL	13	9
TIS_DG02 Forecast and Real Time Event Information	2	4
TIS_DG03_Traffic Condition and Travel Time Information Service	6	7
TIS_DG04 Speed Limit Information	2	1
TIS_DG06 Weather Information Service	8	4
TIS_DG07_Co-Modal Traveller Information	1	1
TIS TOTAL	16	19
TMS_DG01_Dynamic Lane Management	1	0
TMS_DG02 Variable Speed Limits	3	3
TMS_DG03_Ramp Metering	2	0
TMS_DG04 Hard Shoulder Running	3	0
TMS_DG05 Incident Warning and Management	5	5
TMS_DG06_HGV Overtaking Ban	2	0
TMS_DG07_Traffic Management Plan for Corridors and Networks	3	5
TMS TOTAL	19	13
DTX_DG01 DATEX II	3	0
VMS_DG01_Principles of VMS Messages Design	3	0
ICT_DG01 Information and Communication Technologies	0	0
SUPPORTING DG TOTAL	6	0
ALL DG TOTAL	55	41

Figure 4. Table showing the new and updated BP count for each DG.

3.2. Quality check

While the collection of almost 100 BPs in ITS deployment is a significant accomplishment, it is also equally important that the quality of the collected information for each BP is adequately high, in order to prove useful to the users of the DGs/RH. The quality check process initiated this year consists of the thorough examination of all BPs collected to identify changes needed to ensure high quality. The quality check led to several actions to be taken to improve the already collected best practices in terms of missing information, language, illustrations etc. This task has been undertaken by the DG Coordinators responsible for each BP and has been assisted by the EG Leaders, who additionally checked all BPs of each EG and provided feedback to the DG Coordinators.

The DG Coordinators are currently working on improving the identified shortcomings either on their own or with the support and consent of the respective BP owners. This is a long process that will continue in the year 2020 as well.

3.3. Cross Corridor Cooperation

In the last Cross Corridor Cooperation meeting of the year it was decided to prepare overviews of received BPs per Corridor, in order to check if there are further implementations in the Corridors that could be referenced as BPs. A2 Lead prepared the lists containing the received BPs per Corridor and sent them to the Corridor Coordinators. They have to check the list, verify relevance of the collected BPs until now and identify possible new BPs from the implementations in their Corridors. This process started at the end of 2019 and will continue in the year 2020.

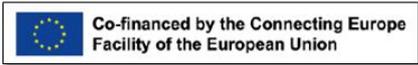
3.4. Update of the BP Template

The aim of the update of the BP Template was not to change its look or content, as they had both been agreed among the EGs and created through an extensive development process. Transferring all current BPs to a possible new template format would also be needed to retain the needed uniformity.

The updated template retains its original look and content, adding some enhancements that increase its intuitiveness and easiness to fill (such as the clickable textboxes and drop-down menus for inserting information), facilitate sorting (through the inclusion of administrative data fields), as well as necessary changes that needed to be implemented, because of changes occurred in the years after the first release of the template (e.g. update of the co-financing logo) or based on the experience gathered from the received filled templates (such as adding a remark for the inclusion of the source of each illustration, which is necessary but was not always present in the received filled templates).

The introduced changes are illustrated below (Figure 5).

1. Remove 2017 from the title
 

2. Update logo on EU co-financing
 

3. Include reminder to add caption and source for the images
 

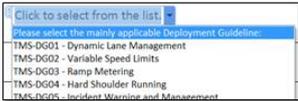
4. Clickable checkboxes
 
5. Choose DG from drop-down list
 
6. Administrative data block added with 2 new fields: New/Update and Date filled
 
7. Choose date via drop-down calendar
 

Figure 5. Illustration of the introduced changes to the BP template.

4. Conclusion - Outlook

The EU EIP A2 best practice collection is a continuous process, meaning that new and updated BPs will be considered in the planned yearly update of the BP Annex of the RH. Having achieved the collection of a significant number of BPs already, the focus this year was not only to collect new BPs, but also to remove BPs that are no longer relevant and ensure that information of the collected BPs is of high quality, up-to-date and useful for the user of the DGs/RH. Experience has also shown that making the BP template easier to fill increases the willingness to fill the template from the side of the BP owner and this is the reason why it was decided to make changes towards this direction to the BP template this year.

Maintaining and constantly enriching the set of BPs is vital. It is especially important to offer the interested reader/user a variety of deployment references that could be used as a basis to start with a new ITS deployment. In addition, the experiences and lessons learned included consist significant input for the update of the DGs. This valuable information coming from the BP collection process contributes to making the DGs fit to face the challenges of the future.

The upcoming RH will include all BPs in an Annex, which will be updated yearly with the BPs collected throughout each year and possible updates of existing BPs. With each update, the existing BPs will be maintained accordingly (e.g. update of information if needed, removal of non-relevant BPs).

Finally, the “*Achievements Report on collecting best practice in ITS deployment 2020*” will be released end of 2020, containing all developments in BP collection in 2020.