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Evaluation Report Phase 2

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Evaluation CHARM PCP

Phase 2

Rijkswaterstaat GPO

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0. Management summary

0.1 Introduction to the evaluation

01 The CHARM PCP project plan, which has been approved by the European Commission (EC), states that each phase will be evaluated prior to proceeding to the next phase. This report describes the evaluation results for CHARM PCP Phase 2. The objective of the evaluation is to identify key lessons learnt from Phase 2 and to improve the way of working in Phase 3 and future PCP projects. As in the evaluation of Phase 0 and Phase 1 the main approach for this evaluation can be described as a desk study supplemented by interviews, conducted in order to capture the experiences of key participants in the PCP projects. The results of the evaluation we present in this report.

0.2 Main findings

02 Participants felt the procurement procedure was well organised and a straightforward process. The tender documents were relatively easy to draft as they elaborated on the framework that was set up in the previous phases. Furthermore, the schedule for the procurement procedure was well executed and clearly set out. Contractors felt they were given enough procedural support by the consortium; they had enough time to prepare the necessary documents and they only needed to ask a few questions. Choices made in earlier phases did have some impact on both the process and the outcome of the procurement procedure in Phase 2. The main choices that had impact were the fixed assessment criteria and the relatively high threshold for participation in Phase 1.

03 According to the interviewees, the execution of Phase 2 was a positive learning experience as the prerequisites for innovation were present and both the consortium and the contractors gave each other new insights and questions to think about. The midterm and end-of-phase demonstrations were also seen as successful. However, some issues occurred during the execution of Phase 2 regarding the delay in CHARM main and a non-disclosure agreement (NDA). These issues had limited impact on the development of the prototypes.

04 Although the official final assessment of the results still has to take place, we conclude from the interviews that the results from Phase 2 are promising. The PCP project is seen by interviewees as a good way to stimulate innovation. The midterm and end-of-phase demonstrations showed that the contractors made progress and the results have potential added value for the Traffic Management Centres (TMCs). However, differences existed between the contractors in the degree of innovation and the extent to which their prototype met the needs of the consortium. Also, because of the delay of CHARM main the integration of the developed prototypes with the Kapsch system is identified as a risk for Phase 3.

05 Regarding the cooperation within the consortium, we can state that the consortium members experienced a good working relationship within the consortium and that a lot of effort was put into making sure that the PCP project was a success. There was some confusion in Phase 2 about roles and responsibilities regarding

project management but these issues are now being addressed. The possibility of key staff leaving the programme is cause for some concern for Phase 3 as tacit knowledge is hard to hand over.

0.3 Key lessons learnt and recommendations

0.3.1 For Phase 3

Key lessons learnt:

1) Due to the delay in CHARM main, it proved difficult to link up the two projects;
2) Although it is still they aim of the consortium, testing in the operational environment of the Kapsch system will be a difficult challenge for Phase 3;
3) Contractors feel that the communication about what will happen in and after Phase 3 has been insufficient;
4) Definition of roles and responsibilities regarding project management caused confusion in Phase 2;
5) Key staff leaving the programme gives cause for concern as tacit knowledge is hard to hand over.

Key recommendations:

1) Put a high priority on ensuring the link between CHARM PCP and CHARM main. One way of doing this is to let Kapsch and the PCP contractors work together in an iterative way so that they can exploit the innovations from the PCP procedure;
2) Explore the possibilities for testing in the operational environment of the Kapsch system prior to Phase 3 and then make an informed decision about the aims and expectations for Phase 3;
3) Provide the contractors with clear information about the design of Phase 3 and what will happen after Phase 3 so they can make an informed decision about whether or not to submit a tender for Phase 3;
4) Have a clear definition of roles, tasks and responsibilities for project management. A project management plan at the strategic level with a single owner would help to define the roles, tasks and responsibilities, keep the project in check and solve the problems of joint ownership;
5) Put emphasis on succession planning, for example by creating an overlap with predecessors, when possible.

Other lessons learnt:

1) Waiting for the approval by the EC may affect the timeline for the next phase in the PCP project;
2) It is important for contractors to receive feedback on the end-of-phase reports in order to have an idea of their chances for proceeding onto Phase 3, and make the decision about whether or not to tender and prepare their bid for Phase 3;
3) Face-to-face consensus panels have proved to be very useful but enough time is needed to ensure that a fair consensus is reached;
4) Getting other road authorities and the sounding board involved in the PCP project is seen as important but has proved to be difficult;
5) Finding a technical manager for Phase 3 proves to be a challenge for RWS.

Other recommendations:

1) Make good use of the direct line of communication with the EC to have a good understanding of the status of the review and to be able to ask questions if feedback is unclear;

2) Send feedback on the end-of-Phase 2 reports to the contractors in good time before the procurement procedure starts for Phase 3;
3) Consider organising the face-to-face consensus panels in Phase 3 over two days (and perhaps finishing early). Also make sure there is enough time between the receipt of the tenders and the assessment of the tenders;
4) Put more effort into attracting other road authorities and members of the sounding board by lowering the threshold for people to visit demonstrations and by using a more condensed form of communication;
5) Make sure that there is enough IT-technical expertise for testing the prototypes in Phase 3.

0.3.2 For future PCP projects

Key lessons learnt:

1) Choices made earlier in the framework for a PCP project (e.g. assessment criteria) affect possibilities in subsequent phases;
2) The unexpected need to sign an NDA was an issue in Phase 2;
3) The prerequisites for innovation were present in Phase 2, which is seen as a success factor for PCP projects;
4) Strong relationships within the consortium are seen as very important but it takes time to build them.

Key recommendations:

1) Look carefully at the impact of the assessment criteria and the formulation in the tender documents and try to create flexibility in the framework while respecting the principles of EU procurement law;
2) Pay attention to necessary arrangements regarding confidential information from stakeholders at the start of the procurement procedure to prevent difficult situations with contractors and contractual risks;
3) Find a good balance between giving the contractors enough freedom to innovate while also being clear about the requirements of the road authorities;
4) Have regular face-to-face sessions to help build strong relationships and to achieve the same level of understanding. Also plan enough time for the project team to learn to collaborate well together.

Other lessons learnt:

1) Having only one contractor left in a lot is a potential risk given the PCP project structure;
2) Having assessments both at the end of a phase and at the start of a new phase may create unnecessary extra work and makes the role of the independent assessors less effective;
3) Having a two-person team for the role of supervisor worked out well in Phase 2.

Other recommendations:

1) Consider accepting more contractors in Phase 1 by lowering the entrance thresholds to ensure competition in further phases;
2) Combine the assessment of the end-of-Phase 2 report and the assessment by the Phase 3 assessors (this will already be put into practice in the assessment of the end-of-Phase 2 reports);
3) Use two-person teams for the role of supervisor and have them exchange experiences with other supervisors to ensure the same level of assistance is provided to all contractors and to get new supervisors quickly up to speed.

1. Introduction

1.1 Background

06 CHARM (Common Highways Agency Rijkswaterstaat Model) is a joint programme focussing on improving traffic management functions, mainly for Highways England and the Dutch Directorate-General for Public Works and Water Management (Rijkswaterstaat). This programme consists of two projects. One project aims to replace the software for the existing traffic management functionality — in this document referred to as CHARM main — while the other project is developing modules that can deliver new functionality for traffic management — referred to as CHARM PCP (Pre-Commercial Procurement). CHARM main will provide an Advanced Traffic Management System (ATMS) within which the new functionality should be able to operate. In the autumn of 2015, Kapsch TrafficCom AG (Kapsch) was contracted to supply the ATMS (called Dynac). The ATMS is now being implemented and will go live at the end of 2017 in the first two traffic management centres (TMCs).

07 The technical interface between CHARM main and CHARM PCP is found in the functional requirements and technological constraints for the two deliverables. Furthermore, both projects share programme resources and timescales. Figure 1 depicts the two projects within the CHARM programme.

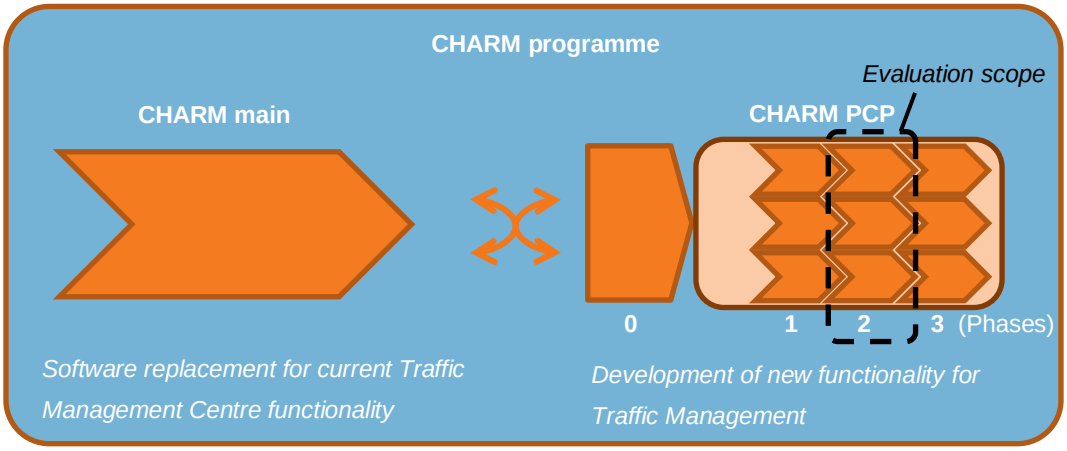


Figure 1. The CHARM programme

08 CHARM PCP is being executed by a consortium consisting of the Highways England (HE, formerly Highways Agency), the Dutch Directorate-General for Public Works and Water Management (Rijkswaterstaat, RWS), the Flemish government department Mobility and Public Works (Mobiliteit en Openbare Werken, MOW), Innovate UK (IU, formerly Technology Strategy Board) and the Netherlands Enterprise Agency (Rijksdienst Voor Ondernemend Nederland, RVO, formerly Agentschap NL). For the road operators (HE, RWS, and MOW), CHARM PCP is either the first or one of the first PCP projects, and thus can be considered as a pilot project. The funding for CHARM PCP comes partly from grants from the European Commission (EC). The CHARM PCP project plan has been approved by the EC and states that each phase will be evaluated prior to proceeding to the next phase. The evaluation of Phase 0 and Phase 1 took place in the summer of 2014. This report contains the evaluation of CHARM PCP Phase 2.

1.2 Scope and objective of the evaluation

09 CHARM PCP is part of the wider CHARM programme and focusses on the pre-commercial procurement of innovative modules that address ***three challenges:*** *(1) Advanced distributed network management; (2)* Detection *and prediction of incidents; and (3) Support of cooperative ITS functions*. This evaluation focusses on Phase 2 (Developing a prototype). The aim of Phase 2 is to develop and evaluate prototypes or demonstrators from the more promising concepts successfully completed in Phase 1 and from suppliers that have submitted the best-ranking offers in the competition for Phase 2. A total of eight suppliers covering the three challenges were contracted for Phase 2. Phase 2 resulted in the demonstration of prototypes (or demonstrators) and end-of-phase reports. Figure 2 illustrates the CHARM PCP project and the evaluation scope.

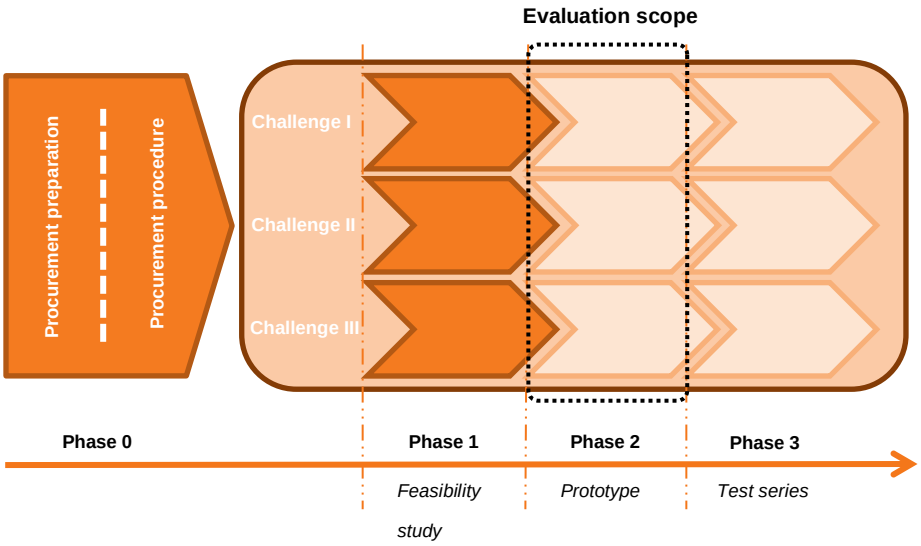


Figure 2. Illustration of the evaluation scope

10 The objective of the evaluation is to identify key lessons learnt from Phase 2 that are then translated into recommendations for improving the way of working in Phase 3 and future PCP projects. Identifying key lessons learnt implies that the evaluation is focussed primarily on the main issues, not on the details.

1.3 Research method

11 As in the evaluation of Phase 0 and Phase 1, the main approach to this evaluation can be described as a desk study supplemented by a questionnaire and interviews conducted in order to capture the experiences of key participants in the PCP project.

12 The desk research focussed on the tender documentation that CHARM PCP developed for Phase 2 and the evaluation report for Phases 0 and 1. This provided input for a tailor-made questionnaire that was sent to 16 participants in the programme, consisting of both consortium members and contractors.

13 The questionnaire consisted of questions about the procurement procedure, the execution phase, the results, cooperation within the consortium and the participant's overall impression of Phase 2. The evaluation

team tailored each questionnaire in such a way that the participants, who all had different roles in the programme, only had to answer questions that were relevant to them. The complete questionnaire is attached in Appendix I.

14 The filled-in questionnaires were used as input for the telephone interviews, in which the participants were asked to elaborate on specific items or clarify any answers that were not clear enough. In addition, cross-check questions were asked to check whether certain views were shared by more than one person.

15 Finally, the research team analysed the results of the questionnaires and interviews to identify the key findings and lessons learnt in Phase 2 and to make recommendations for Phase 3 and future PCP projects.

1.4 Guide to reading the report

16 This report continues with 5 further chapters and appendices. Each chapter consists of key findings and lessons learnt and recommendations for Phase 3 and future PCP projects. Chapters 2, 3 and 4 discuss the procurement procedure, execution and results of Phase 2 respectively. Chapter 5 focusses specifically on the cooperation between the organisations within the consortium.

2. Procurement procedure in Phase 2

2.1 Introduction

17 In this chapter we present the results of the evaluation of the procurement procedure in Phase 2, including the preparation of the tender documents. The procurement procedure took place in the autumn and winter of 2014 to 2015. We will first present our findings and then the lessons learnt and recommendations for PCP Phase 3 and further PCP projects.

2.2 Findings

18 Our main finding is that participants felt the procurement procedure to be well organised and a straightforward process. The tender documents were relatively easy to draft as they elaborated on the framework that was set out in the previous phases. In addition, the schedule for the procurement procedure was well executed and clearly set out. Contractors felt they were given enough procedural support by the consortium, they had enough time to prepare the necessary documents and they only needed to ask a few questions. Choices made in earlier phases did have some impact on both the process and the outcome of the procurement procedure of Phase 2. The main choices that had impact were the fixed assessment criteria and the relatively high threshold for participation in Phase 1.

19 In the following subsections we will present our findings from the questionnaires and interviews regarding the procurement procedure.

2.2.1 The preparation of the tender documents for Phase 2 was both facilitated and constrained by experiences in previous phases

20 As the tender documents for Phase 2 were based on documents used for the procurement procedure in Phase 1, consortium members found it a relatively efficient process to draft them. This also ensured consistency between the two phases. The recommendation in the previous evaluation to ‘use PCP expertise in future phases’ was put into practice as lessons learnt in the procurement procedure in Phase 1 helped to clarify aspects in the documents that had left room for interpretation or discussion in the previous phase. Some examples are the maximum time and price allowed and information about what contractors could expect from the assessors in terms of availability. In this way, the recommendation from the previous evaluation to ‘use PCP expertise in further phases’ was properly implemented in the tender procedure in Phase 2.

21 On the other hand, the choices made within the Framework Agreement documents also acted as a constraint on the content of the tender documents in Phase 2. For example, the impact of price on the overall score had proved to be significant in Phase 1 but as the assessment criteria were already fixed in the Framework Agreement, they could not be altered in Phase 2. Therefore the contractors were shown a sensitivity analysis that gave them a better understanding of the impact of different prices on the overall score. The constraining effect of criteria established in previous documents will remain an issue in Phase 3.

2.2.2 The period between the completion of Phase 1 (August 2014) and the start of Phase 2 (April 2015) was felt to be rather long

22 Although the period between the completion of Phase 1 and start of Phase 2 was in line with the project plan, as the contractors needed to have sufficient time to produce a plan of approach for Phase 2, it was considered by some interviewees to be quite long, particularly because all of the successful contractors in Phase 1 were eventually selected for the execution of Phase 2. One reason mentioned for the gap was the interaction between the consortium and the European Commission regarding the review of Phase 1 Interpretation problems regarding the feedback from the European Commission also caused some uncertainty in the drafting of the tender pack. Another reason mentioned for the gap was the coordination with the CHARM main project. We will elaborate on this last aspect in more detail in the next chapter (section 3.2.5).

2.2.3 Having consensus panels in parallel sessions was seen as a positive aspect but participants felt some pressure to finish in time

23 The panels for the assessment of the three lots took place in parallel sessions on one day. This was seen as a very positive aspect by the assessors. Some comments that respondents made in their interviews were that different people with different experiences were involved in one consensus panel, which was good for the discussion and led to genuine consensus. Also meeting people face to face made it easier to get your point across and understand one other. However, having the assessment panels on one day did put the panels under some pressure to finish in time. The panels varied in the extent to which this was a problem. Because of the timing issue, there was no room for a joint feedback session with all the assessors in the end of the day. One interviewee also mentioned that there was not enough time between the receipt of the tenders and the assessment of the tenders.

2.2.4 The evaluation of the reports at the end of Phase 1 and the proposals in Phase 2 could have been organised more efficiently

24 At the end of Phase 1, the final reports were assessed by HE and RWS on a binary scale (satisfactory/ not satisfactory) to decide which contractors would be invited to tender in Phase 2. The proposals of the contractors in the procurement procedure also included the end-of-phase reports. These proposals were assessed by the assessment panels on a scale from 1 to 10. Assessing the end-of-phase reports twice was experienced by some assessors as unnecessary extra work. In addition, the independent assessors only took part in the assessment panels so they had to assess proposals that had already been rated as ‘satisfactory’. Furthermore, contractors mentioned that it would have been preferable to have received the feedback on the end-of-Phase 1 report before Phase 2. Receiving the feedback in time would have helped them to understand the changes for proceeding onto Phase 2. It would also have helped to make a decision about whether or not to tender for Phase 2. The inefficiency in the assessment approach has been recognised by the consortium and changes will be made for the assessment of the end-of-Phase 2 reports. These will be assessed directly on a scale of 1 to 10 by the assessors, including the independent assessors. This assessment will be used for the assessment of the offers for Phase 3.

2.2.1 There was no competition at the start of Phase 2

25 Of a possible eight contractors, all eight were contracted for Phase 2. According to one interviewee, this is the result of a relatively high threshold for participation in Phase 1. Having only one contractor left in a lot was identified by interviewees as a potential risk for Phase 3. The experience in another PCP project in which this happened (Silver) has helped in thinking about how the consortium should deal with this issue should it occur. One interviewee also stressed that the balance between innovative companies and large companies could have been better and wished for more innovative contractors. According to the interviewee, smaller organisations are often more innovative but are not that good at writing tenders or at project management. The balance of the current assessment criteria was now skewed too much towards price and project management and not enough towards innovation, which proved to benefit the big companies.

2.3 Lessons learnt and recommendations

2.3.1 For Phase 3

Lesson learnt	Waiting for the approval by the EC may affect the timeline for the next phase in the PCP project.
Recommendation	Make good use of the direct line of communication with the EC to have a good understanding of the status of the review and to be able to ask questions if feedback is unclear.
Lesson learnt	It is important for contractors to receive feedback on the end-of-phase reports in order to have an idea of their chances for proceeding onto Phase 3, and make the decision about whether or not to tender and prepare their bid for Phase 3.
Recommendation	Send feedback on the end-of-Phase 2 reports to the contractors in good time before the procurement procedure starts for Phase 3.
Lesson learnt	Face-to-face consensus panels have proved to be very useful but enough time is needed to ensure that a fair consensus is reached.
Recommendation	Consider organising the face-to-face consensus panels in Phase 3 over two days (and perhaps finishing early). Also make sure there is enough time between the receipt of the tenders and the assessment of the tenders.

2.3.2 For future PCP projects

Lesson learnt	Choices made earlier in the framework for a PCP project (e.g. assessment criteria) affect possibilities in subsequent phases.
Recommendation	Look carefully at the impact of the assessment criteria and the formulation in the tender documents and try to create flexibility in the framework while respecting the principles of EU procurement law.
Lesson learnt	Having only one contractor left in a lot is a potential risk given the PCP project structure.
Recommendation	Consider accepting more contractors in Phase 1 by lowering the entrance thresholds to ensure competition in further phases.
Lesson learnt	Having assessments both at the end of a phase and at the start of a new phase may create unnecessary extra work and makes the role of the independent assessors less effective.
Recommendation	Combine the assessment of the end-of-Phase 2 report and the assessment by the Phase 3 assessors *(this will already be put into practice in the assessment of the end-of-Phase 2 reports).*

3. Execution of Phase 2

3.1 Introduction

26 In this chapter we present the evaluation results for the execution of Phase 2. The aim of Phase 2 of CHARM PCP was to develop and evaluate prototypes from the more promising concepts successfully completed in Phase 1. Halfway through Phase 2, contractors gave a midterm demonstration accompanied by a short descriptive document explaining the status of the development of the prototype (the midterm report). In February 2016, contractors gave an end-of-phase demonstration of the prototype, and they handed in an end-of-phase report two weeks later. The assessment of the end-of-phase reports has yet to take place. We will first present our findings and then the lessons learnt and recommendations for Phase 3 and future PCP projects.

3.2 Findings

27 Our main finding is that according to the interviewees, the execution of Phase 2 was a positive learning experience as the prerequisites for innovation were present and both the consortium and the contractors gained new insights from one another and questions to think about. The midterm and end-of-phase demonstrations were also seen as successful. However, some issues arose during the execution of Phase 2 regarding the delay of CHARM main and a non-disclosure agreement (NDA). These issues had only a limited impact on the development of the prototypes.

28 In the following subsections we present our findings regarding the execution phase.

3.2.1 The lessons learnt and recommendations from previous phases have mostly been successfully put into practice

29 Several lessons learnt and recommendations formulated in the previous evaluation report were successfully put into practice during the execution of Phase 2, according to the interviewees. Implementation of the existing PCP expertise and lessons learnt from the previous phases was safeguarded as most of the people who had been involved in the previous phases were also involved in Phase 2. Also the consortium made plans and notified the contractors early on regarding the deployment of resources as clear agreements had been made about the availability of resources (see 3.2.2). A good understanding was also maintained between supervisors and contractors (see 3.2.3). However, despite much effort, the link between CHARM PCP and CHARM main remained weak (3.2.4).

3.2.2 Phase 2 was on schedule and within budget

30 The interviewees were positive about the planning of the timeline of Phase 2 as the execution was on schedule and within budget. Contractors felt that they had enough time to develop their prototypes. Also the supervisors' workload proved to be better in comparison with Phase 1. As it was made very explicit to the contractors how many days of supervision were available to them, the supervisors were better able to keep within the days and budget allocated to their task. However, one interviewee also mentioned that it was not

always possible to deliver the promised results and perform the task at hand due to peaks in the workload and responsibilities in other projects.

3.2.3 Good cooperation between supervisors and contractors

31 The recommendation formulated in the previous evaluation report to 'maintain a good understanding between supervisors and contractors' was successfully put into practice in Phase 2. According to interviewees, the supervisors gave good guidance on how to deal with the challenges and were collaborating with the contractors instead of just checking up on them. In addition, the supervisors were open and explicit about what they required from the modules. Contractors found this very helpful in developing their prototypes. One contractor described the relationship as 'professional with a personal match'. Having a two-person team performing the role as supervisor was seen to be of great value. Examples given are that a backup supervisor is beneficial for discussion and consultation and that the backup supervisor can provide help in case of workload issues. The regular catching up between all the supervisors was seen as a positive aspect as this helps to exchange experiences and ensures that the same level of assistance is provided to all the contractors. This way of working also proved to be beneficial for new supervisors in getting them up to speed in the new role.

3.2.4 Link between PCP and CHARM main remained weak

According to the interviewees, the recommendation to 'ensure the link between CHARM PCP and CHARM main' from the previous evaluation could not be implemented properly in Phase 2 due to a delay in CHARM main. Because of the delay, contractors did not receive information and guidelines in good time on how to integrate their modules with the Kapsch system (Dynac). An NDA issue contributed to this as well (see 3.2.5). Questions put by the contractors about the integration with Dynac remained partially unanswered, even after useful meetings with Kapsch. As a result, it was difficult for the contractors to demonstrate how their prototype could potentially interface with the CHARM main system. The actual integration with the Kapsch system will be part of Phase 3. Despite the delay in CHARM main and the resulting weak link between CHARM main and CHARM PCP, the contractors were able to continue the development of their prototype by making assumptions. They developed prototypes that could also be connected to systems other than the Kapsch system. Although the limited amount of information about the Kapsch system did not stop contractors developing their prototypes, they did have to design a temporary interface, which made their work less efficient.

According to one interviewee, it is an advantage to have CHARM PCP and CHARM main as two separate projects rather than one single project. This helps the innovative branch of the programme (CHARM PCP) to continue with its intended development despite the delay in the overarching programme (CHARM main).

3.2.5 The NDA was an issue for the contractors

32 During the execution phase, the framework agreement between the consortium and the contractors proved to be non-conclusive regarding the confidentiality of Kapsch's information. Therefore the contractors had to sign a non-disclosure agreement (NDA) before they could access information about the Kapsch

system. This proved to be an issue as the penalty for an NDA breach was seen as disproportionally high and some contractors had insurance policies that would not cover it. Another issue for the contractors that was mentioned in interviews was the timing of the NDA. They saw it as a late change introduced in Phase 2 and as a contractual risk. They also had the feeling that they had no choice but to sign the NDA and there was no room for alterations. Furthermore, it was unclear whether the NDA was reciprocal or not. One contractor mentioned that if they would have known about the NDA before Phase 2, they might not have proceeded to this phase.

33 The result of the NDA issue is that to date one contractor has refused to sign the DNA, which would mean it would not be able to continue onto Phase 3. The other contractors did not receive the required information about how to integrate their solution with the CHARM main system until very late on.

3.2.6 The prerequisites for innovation were present

34 Interviewees stressed that innovation is only possible when certain conditions are met. The contractors felt they had enough freedom and not too many restrictions, so that they were able to be innovative. They also had enough time to develop a prototype. According to interviewees, the way the supervisors facilitated the contractors and gave them insights into the needs of the customer was very helpful for the innovation process and speeded up the learning process. The PCP project also stimulated cooperation as most of the parties involved were trying to look for ways to commercialise the product jointly instead of working independently on a product.

3.2.7 Both the midterm and end-of-phase demonstrations were a success

35 The interviewees clearly agreed that both the midterm and the end-of-phase demonstrations were a success. The locations of the demonstrations were seen as well chosen. The midterm demonstrations took place on site at the contractor's, which enabled consortium members to experience the atmosphere there. The end-of-phase demonstrations took place in the Dutch Traffic Innovation Centre, which was appreciated for its innovative ambiance and the proximity to the end users.

36 Contractors had enough time during the presentations to present their prototype, and a broad range of people including operators (the end users) were present. This resulted in good discussions afterwards with constructive feedback. The contractors especially valued the presence of the operators as they provided insights into the needs of the end users. The demonstrations were not only useful for the contractors but also for the other people present as they learnt more about the technology and possibilities of the prototypes.

37 The demonstrations showed to what extent the contractors' prototypes met the specifications of the consortium. According to interviewees, it was positive that there were two occasions for this. The midterm demonstrations offered a possibility for the consortium to see the work in progress and give the contractors feedback about how well their prototype met the specifications. This helped the contractors make adjustments, which they presented in the-end-of phase demonstrations.

38 An aspect for improvement that was mentioned in interviews was the communication about the demonstrations. Contractors felt that they were only informed at a late stage in the process that all the end-of-phase demonstrations would be held in the same week. Also, it was not clear for some contractors that operators would be joining the mid-term demonstrations until late on, despite the information about this in the tender documents. Another point for attention is the length of the demonstrations (three hours), which proved to be intense and meant there was a need for breaks. Besides this, four demonstration days in a row proved to be too much for people to attend them all. There were therefore fewer people present during the last two days.

3.2.8 The involvement of organisations and people from outside the consortium was only a partial success

39 Interviewees mentioned that the involvement of organisations and people from outside the consortium is important to establish early involvement. A broad range of people attended the midterm and end-of-phase demonstrations, including operators, employees from the municipality of Amsterdam and the consortium itself. However, although more people from the P4-ITS network and the sounding board were invited and intended to come only one member of the sounding board was present during the demonstration days. It also appeared to be difficult to get other road authorities and traffic managers from other countries involved. As mentioned in 3.2.7, the fact that the end-of-phase demonstrations took four days made it difficult for people to attend all the sessions. As a result, communication with other road authorities remained limited in Phase 2.

3.3 Lessons learnt and recommendations

3.3.1 For Phase 3

Lesson learnt	Due to the delay in CHARM main, it proved difficult to link up the two projects.
Recommendation	Put a high priority on ensuring the link between CHARM PCP and CHARM main. One way of doing this is to let Kapsch and the PCP contractors work together in an iterative way so that they can exploit the innovations from the PCP procedure.
Lesson learnt	Getting other road authorities and the sounding board involved in the PCP project is seen as important but has proved to be difficult.
Recommendation	Put more effort into attracting other road authorities and members of the sounding board by lowering the threshold for people to visit demonstrations and by using a more condensed form of communication. For example: i. Record the demonstrations and publish them online. ii. Combine a demonstration of the results of the PCP project with a scheduled international congress where members of the sounding board, road authorities and operators will be present.

3.3.2 For future PCP projects

Lesson learnt	The unexpected need to sign an NDA was an issue in Phase 2.
Recommendation	Pay attention to necessary arrangement regarding confidential information from stakeholders at the start of the procurement procedure to prevent difficult situations with contractors and contractual risks. For example: i. Make it explicit in tender documents that signing an NDA can be part of a phase. ii. Clarify what kind of information can be shared and what kind of information cannot be shared.

Lesson learnt	The prerequisites for innovation were present in Phase 2, which is seen as a success factor for PCP projects.
Recommendation	Find a good balance between giving the contractors enough freedom to innovate while also being clear about the requirements of the road authorities.

Lesson learnt	Having a two-person team for the role of supervisor worked out well in Phase 2.
Recommendation	Use two-person teams for the role of supervisor and have them exchange experiences with other supervisors to ensure the same level of assistance is provided to all contractors and to get new supervisors quickly up to speed.

4. Results of Phase 2

4.1 Introduction

40 In this chapter we present the evaluation results regarding the results of Phase 2. The deliverables of Phase 2 are the midterm and end-of-phase demonstrations, the midterm report and the end-of-phase report. We will first present our findings and then the lessons learnt and recommendations for Phase 3 and future PCP projects.

4.2 Findings

41 Although the official final assessment of the results still has to take place, we conclude from the interviews that the results from Phase 2 are promising. The PCP project is seen by interviewees as a good way to stimulate innovation. The midterm and end-of-phase demonstrations showed that the contractors made progress and the results have potential added value for the Traffic Management Centres (TMCs). However, differences existed between the contractors in the degree of innovation and the extent to which their prototype met the needs of the consortium. Also, because of the delay of CHARM main the integration of the developed prototypes with the Kapsch system is identified as a risk for Phase 3.

42 In the following subsections we will present our findings regarding the results of Phase 2.

4.2.1 The contractors booked real progress in Phase 2

43 At the end of Phase 1 the feeling prevailed that the contractors still had a lot of work to do in order to meet the requirements of the consortium. Doubts existed about whether or not the projects would be commercially feasible and if they would actually work. According to interviewees, the demonstrations showed that some contractors had booked real results. One contractor explained that it was very good to be able to show their concept in front of the broad audience that attended the midterm demonstrations. The feedback given helped them make alterations to the prototype to better meet the requirements of the road authorities.

4.2.2 The promising results make it more certain that challenges are going to be met

44 According to interviewees, the products that have been talked about for a long time became tangible in Phase 2. The development of the prototypes has given the consortium the conviction and belief that the concepts have a strong potential and show promise. The smaller contractors have also been able to show promising results. This has given the consortium more certainty that the contractors can meet the challenges and that their products can turn out to be real commercial products. Despite the results booked in Phase 2, the products are not finished products. They still require a significant amount of work, in particular in making them suitable for integration with Kapsch's system.

4.2.3 The execution of Phase 2 improved the consortium's understanding of the market and vice versa

45 Phase 2 is seen by interviewees as a valuable exercise for determining the current state of the art in the market with respect to the three different challenges. Phase 2 was helpful in gaining insight into what are realistic propositions at this point in time. Consortium members stress that it helped them to get a better understanding of the market. In turn, contractors mentioned that it gave them insight into the needs of the customer and how TMCs work. Interviewees agree that working together helps to increases the chance that the end results will be workable solutions.

4.2.4 Differences exist between contractors in quality and level of innovation

46 In general the level of innovation that the interviewees experienced in Phase 2 was high with a good success rate. However, interviewees also mentioned that there are differences in the quality of the prototypes and the extent to which they are innovative. This is in line with what is expected to happen in a PCP project. According to one interviewee, the smaller companies proved to have a greater ability to be innovative than the larger companies. The more innovative approaches will have more value in the end while the contractors who are less innovative and more cautious are expected to have a smaller impact.

4.2.5 The integration of the prototypes with the Kapsch system is identified as a risk for Phase 3.

47 One result of Phase 2 was that the contractors were not able to demonstrate well how their prototype could interface with the Kapsch system. Regarding Phase 3, it remains unclear if and when it will be possible to test or demonstrate the contractors' prototypes in the operational environment of the Kapsch system in the near future. Some consortium members pointed out that Kapsch has an incentive to get the ATMS operational within their budget so the integration of innovative modules is not a priority.

48 Not being able to create an interface for the prototypes would mean for the consortium that they would not have succeeded in their objective of testing the extent to which the system of Kapsch is open and modular. One intended benefit of the PCP project for the consortium was to have an early opportunity to test this. Furthermore, the consortium wants proof of the functionality of a prototype before considering whether to buy it. This will only partly be possible if the prototype cannot be tested in the Kapsch system.

49 If the interface with Kapsch turns out to be possible in Phase 3, then another issue mentioned is that Kapsch is trying to make the interface between the ATMS and the prototypes as simple as possible. According to one contractor, the current graphical user interface (GUI) of the Dynac is not advanced enough to integrate all the features of the contractors' products. Clear guidelines on how to integrate their products with the Kapsch system are necessary in order to prevent the loss of innovative elements when integrating with the system.

50 The consortium is taking several measures to minimise the risk of contractors not being able to test their prototypes in Phase 3. The European Commission has been informed about the issue and several scenarios are being developed for alternative ways to test the modules. According to interviewees, live testing in an operational environment is crucial for some contractors as their prototypes interact directly with the ATMS.

Testing offline will not prove their functionality. The consortium is now preparing to create a test environment that is able to run the different prototypes.

51 Contractors feel that they are currently in the dark about what will happen in Phase 3 (and after Phase 3). For example, it is not clear to them whether the test series will be undertaken in an operational or in a test environment, how much they will have to invest in terms of resources, how the technical fit with the system of Kapsch will be assessed and when the consortium will be satisfied with the results. The answers to these questions are important for the contractors as they may affect whether or not the contractors would want to submit a tender in Phase 3.

4.3 Lessons learnt and recommendations

4.3.1 For Phase 3

Lesson learnt	Although it is still they aim of the consortium, testing in the operational environment of the Kapsch system will be a difficult challenge for Phase 3.
Recommendation	Explore the possibilities for testing in the operational environment of the Kapsch system prior to Phase 3 and then make an informed decision about the aims and expectations for Phase 3.
Lesson learnt	Contractors feel that the communication about what will happen in and after Phase 3 has been insufficient.
Recommendation	Provide the contractors with clear information about the design of Phase 3 and what will happen after Phase 3 so they can make an informed decision about whether or not to submit a tender for Phase 3.

4.3.2 For future PCP projects

No specific recommendations.

5. Cooperation within the consortium

5.1 Introduction

52 In this chapter we present the evaluation results regarding the cooperation within the consortium in Phase 2. As the importance to the success of CHARM PCP of good cooperation within the consortium has been stressed in the interviews, we discuss this topic in a separate chapter. We will first present our findings and then the lessons learnt and recommendations for Phase 3 and future PCP projects.

5.2 Findings

53 Regarding the cooperation within the consortium, we can state that the consortium members experienced a good working relationship within the consortium and a lot of effort was put into making sure that the PCP project is a success. There was some confusion in Phase 2 about roles and responsibilities regarding project management but they are now being addressed. The possibility of key staff leaving the programme causes some concern for Phase 3 as tacit knowledge is hard to hand over.

54 In the following subsections we will present our findings regarding the cooperation within the consortium in Phase 2.

5.2.1 Some confusion in Phase 2 about roles and responsibilities regarding project management

55 During the preparation of the procurement procedure and the execution of Phase 2, it was unclear to consortium members whether HE or RWS was responsible for project management. This led to a less efficient way of working, for example in the communication with the contractors and the communication with Kapsch. Also it was not always clear whether the project team or supervisors should perform a certain task. The change in the project managers in the middle of Phase 2 contributed to the confusion regarding project management but it also helped when the new project managers sat down together to discuss the issues. One interviewee mentioned that the CHARM programme managers (Marion Braams and Nick Field) have to decide on roles and responsibilities regarding the PCP project management. So far no decision has been made.

56 In general, consortium members felt that the above-mentioned change in the project managers in the middle of Phase 2 went quite smoothly. The new project managers are seen as very well equipped for their new role and are credited for the effort they put into it. For example it was much appreciated that a new project manager came to MOW to meet everyone personally.

5.2.2 Strong relationships within the consortium are very important and it takes time to build them

57 According to interviewees strong relationships within the consortium serve a wider purpose than just ensuring the execution of the PCP project. Examples given in the interviews are that relationships help to share knowledge on other aspects of traffic management operations and so on how other organisations work. Also, strong relationships have a positive effect on the contacts between senior management at HE and RWS. Building relationships takes time and effort in order to achieve the same level of understanding. The

consortium members see face-to-face communication as very important in building relationships. However, they also mention that the extra time, money and effort that comes with the travelling should be justified by the purpose of the meeting. Overall, the interviewees felt that the right decisions were made about when to meet face to face and when to have a conference call.

5.2.3 Finding a good replacement proves to be difficult, which gives some cause for concern for Phase 3

58 The possible loss of key staff in Phase 3 does give some cause for concern as there is no clear succession planning. Previous experience shows that it is hard to find a good replacement as it took more than two years to find a successor for the project manager role at RWS. Also, a vacancy for the position of a technical manager for Phase 3 has been open since last October. The downside of losing key staff members is that tacit knowledge is hard to hand over. Ensuring an overlap when one person takes over from another has helped to minimise this risk in Phase 2, as happened at HE with the current and previous project managers.

59 Multiple interviewees stressed the importance of good planning on when to involve technical management and traffic engineers at HE and RWS for the testing of the modules in Phase 3. The delay in CHARM main in particular makes the timeline for Phase 3 uncertain. RWS is in need of a technical manager but has so far been unable to find one.

5.3 Lessons learnt and recommendations

5.3.1 For Phase 3

Lesson learnt	Definition of roles and responsibilities regarding project management caused confusion in Phase 2.
Recommendation	Have a clear definition of roles, tasks and responsibilities for project management. A project management plan at the strategic level with a single owner would help to define the roles, tasks and responsibilities, keep the project in check and solve the problems of joint ownership.
Lesson learnt	Key staff leaving the programme gives cause for concern as tacit knowledge is hard to hand over.
Recommendation	Put emphasis on succession planning, for example by creating an overlap with predecessors, when possible.

Lesson learnt	Finding a technical manager for Phase 3 proves to be a challenge for RWS.
Recommendation	Make sure that there is enough IT-technical expertise for testing the prototypes in Phase 3.

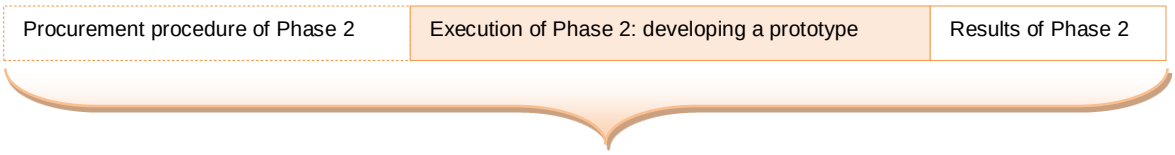
5.3.2 For future PCP projects

Lesson learnt	Strong relationships within the consortium are seen as very important but it takes time to build them.
Recommendation	Have regular face-to-face sessions to help build strong relationships and to achieve the same level of understanding. Also plan enough time for the project team to learn to collaborate well together.

Appendix I Questionnaire

Dear participant,

Thank you very much for your effort in participating in this evaluation. Your input will be essential in the final evaluation report of Phase 2: Prototype. The evaluation consists of the following elements:



The elements of evaluation in Phase 2

In the table on the following pages there are several questions relating to the topics that we would like to discuss with you. Please notice that this is a tailor made questionnaire and topics may vary across participants. Hence the numbering of the questions may seem odd.
We would like to ask you to provide a concise and complete response to the questions if possible. These answers will be (I) used as preparation for the phone interview, but also (II) used as an internal appendix (made anonymous and only available to the consortium project team) of the final report to account for the statements in the evaluation. We therefore ask all participants to answer the questions in *English*. During the phone interview we will elaborate further on the same topics as mentioned below. The answers to the questions, together with the notes that will be made from the phone interview, will be sent to you for approval before the anonymous version of the notes will be included in the report.
Finally we kindly ask you to return this questionnaire before Friday 26 February at noon. If you have difficulties in meeting this deadline or if you have any questions related to the questionnaire or evaluation, please contact Nienke Boneschansker (+31(0)6 2345 9658) or nienke.boneschansker@significant.nl).

Kind regards,
The evaluation team.

0	Introduction
0.1	Please describe your own role and activities during the CHARM PCP project.
Response:	Name: Role/position in own organisation: Role description (including activities) in CHARM PCP:
1	**Questions related to the preparation and procurement procedure of Phase 2**
1.1	How did you experience the **preparation** of the procurement procedure for Phase 2? Please mention both positive aspects and aspects for improvement.
Response:	Positive aspects: • Aspects for improvement: •
1.2	How did you experience the **procurement procedure** of Phase 2? Please mention both positive aspects and aspects for improvement.
Response:	Positive aspects: • Aspects for improvement: •
2	**Questions related to the execution of Phase 2: Developing a prototype**
2.1	How did you experience the **execution** of Phase 2? Please mention both positive aspects and aspects for improvement.
Response:	Positive aspects: • Aspects for improvement: •

2.2	To what extent have you experienced issues while building a prototype in Phase 2 that were due to previously made choices in Phase 0 and Phase 1?
Response:	•
2.3	How did you experience the cooperation between the PCP consortium project team and the contractors?
Response:	•
3	**Questions related to the results of Phase 2**
3.1	To what extent were you able to deliver the promised results / perform your task in Phase 2 with the resources you had available ?
Response:	•
3.2	To what extent do the results of Phase 2 meet the requirements and/or needs of the road authorities?
Response:	•
4	**General questions related to Phase 2**
4.1	To what extent are the 'lessons learnt' in Phase 1 and recommendations in the previous evaluation report successfully put into practice in Phase 2? **The previous evaluation report is enclosed to this e-mail**. Please reflect briefly on the following recommendations: a. Use PCP expertise in future phases and PCP projects (section 4.3.1); b. Secure link between PCP and wider programme (section 3.4.1); c. Plan and communicate the amount of resources early on (section 4.3.2); d. Discuss and organise the process of future phases (section 6.3.1); e. Maintain good understanding between supervisors and contractors (section 6.3.3).
Response:	The extent to which the 'lessons learnt' in Phase 1 are successfully put into practice in Phase 2: • • The extent to which the recommendations in the previous evaluation report are successfully put into practice in Phase 2: a. Use PCP expertise in future phases and PCP projects: • b. Secure link between PCP and wider programme: • c. Plan and communicate the amount of resources early on: • d. Discuss and organise the process of future phases: • e. Maintain good understanding between supervisors and contractors: •

4.2	What lessons learnt can be identified in Phase 2 regarding the cooperation within the consortium (Rijkswaterstaat, Highways England, Departement Mobiliteit & Openbare Werken, Rijksdienst voor Ondernemend Nederland, Innovate UK)?
Response:	• •
4.3	If you consider the results of Phase 2, to what extent do you think it was worth the effort?
Response:	• •
4.4	What would be your most important recommendation for Phase 3?
Response:	• •

CHARM-PCP End of Phase 2 report assessment

20 april 2016
Version 1.0

Introduction

This report describes both the procedure and the results of the assessment of the CHARM-PCP End of Phase 2 reports. It was written by Ruben Prins, Neil Widdop and Robin Coomber.

Assessment procedure

Demonstrations

Demonstrations of the 8 projects were held in Helmond from 15 – 18 February 2016. At the end of each day the supervisors that were present briefly got together to discuss the demonstrations. It was decided that the Goudappel demonstration did not show to satisfaction that the module could predict incidents. They were asked to provide an additional demonstration. This was held on the 14th of March 2016 in Amsterdam. The assessors for Lot 2 were present at this additional demonstration. For the other seven demonstrations it was decided that they were adequate.

End of phase reports

The End of Phase 2 reports were submitted to Highways England through Bravo.

Individual assessment

The end of phase reports were provided to the assessors for each Lot. Together they are the consensus panel.

Lot 1:

1. Aranta van den Broeke
2. Frans Gerritse
3. Joe Castle
4. Andre Ingelse
5. Jan Maarten van Den Berg

Frans Gerritse is the independent member of the consensus panel. Joe Castle represents HE. Aranta van den Broeke, Andre Ingelse and Jan Maarten represent RWS.

Lot 2:

1. Jill Hayden
2. Ad Coppens
3. Gerald Prast

Ad Coppens is the independent member of the consensus panel. Jill Hayden represents HE. Gerald Prast represents RWS.

Lot 3:

1. Phil Petit
2. Phil Proctor
3. Fred Verweij

Phil Petit is the independent member of the consensus panel. Phil Proctor represents HE. Fred Verweij represents RWS.

The instruction provided to the assessors prior to the meeting is attached in appendix 1. The assessors were also provided a scoresheet. The assessors provided their individual assessment to Ruben Prins who collated them into an overview prior to each consensus meeting.

Consensus meeting

The consensus meetings were held by teleconference on:

1. 16th of March for Lot 3.
2. 21st of March for Lot 1.
3. 31st of March for Lot 2.

The meeting for Lot 2 had been planned to take place earlier, but the Fileradar report was submitted late. It was decided to give them a bit more time to submit their report. It was felt there was no need to disqualify them.

The agenda for the consensus meeting was:

1. Introduction
2. End of Phase demonstration (to reaffirm that the demonstrations were done to satisfaction).
3. End of Phase report
    a. Individual assessments
    b. Consensus assessment
4. Process after consensus panel on end of phase 2 reports
    a. Informing program management
    b. Communication to contractors
    c. Assessment of the phase 3 proposals in July.
5. Close of meeting

Present at the consensus meeting were for Lot 1:

1. Aranta van den Broeke
2. Frans Gerritse
3. Joe Castle
4. Andre Ingelse
5. Jan Maarten van Den Berg
6. Ruben Prins (Chair)

7. Robin Coomber (minutes)

Present at the consensus meeting were for Lot 2:

1. Jill Hayden
2. Ad Coppens
3. Gerald Prast
4. Ruben Prins (Chair)
5. Neil Widdop (minutes)

Present at the consensus meeting were for Lot 3:

1. Phil Petit
2. Phil Proctor
3. Fred Verweij
4. Ruben Prins (Chair)
5. Neil Widdop (minutes)

Consensus on the end of Phase 2 report

The outcome of the meetings was:

1. It was reaffirmed that for all the eight contractors the End of Phase 2 demonstration was adequate.

2. All the eight contractors were felt to have performed to satisfaction and have been successful in their approach.

3. Differences in assessment were discussed. The assessors in each Lot unanimously decided on the score for each of the sub criteria and the rationale for that score.

4. The scores and rationale for each of the reports can be found in appendices.

Furthermore it was discussed that Neil Widdop will communicate to the contractors after Marion Braams and Nick Fields have been informed. The supervisors will not yet communicate with the contractors.

Marion Braams and Nick Fields, CHARM Program management were informed of the assessment of the end of phase 2 reports. They were sent the results of the assessment panels also contained in this report. A brief teleconference was held on the 8th of April 2016 to inform them of the results. Present at the meeting were: Marion Braams, Nick Fields, Glyn Evans, Jacco de Kok, Robin Coomber and Ruben Prins. Marion Braams and Nick Fields were content with the results of the assessment.

Appendix 1: instruction to the assessors prior to the meeting

Below you will find the meeting request with instruction that was sent for Lot 3. The same instructions were sent for the other two Lots.

Dear Phil, Phil and Fred,
As indicated before, we will have the meeting to assess the end of Phase reports of Lot 3 on the 16th of March by teleconference. Please read the text below carefully. It has the instructions on how to prepare for the meeting.

Each of you will assess the end of Phase reports prior to the meeting individually. We expect to be able to provide the reports a week in advance of the meeting. They will be placed on Bravo (https://highways.bravosolution.co.uk/web/login.shtml). Please make sure you can still access Bravo. If not, please inform Neil Widdop and myself.

In addition to yourselves, Neil Widdop and / or Robin Coomber and I will be present for the teleconference.

Goal of the meeting
At the end of the meeting we will have 3 unanimous decisions:

1. Was Phase 2 finished satisfactorily? Payment for phase 2 depends on this.
2. Was Phase finished successfully? The invitation to tender for Phase 3 depends on this.
3. What score should be given to the report? This score will be used in assessing the proposal for Phase 3 (planned for July).

Guidelines for assessment

1. For the first point. The Framework Agreement states:
"43.2 When assessing if a milestone or a phase has been concluded to satisfaction the Authority checks:
if the work proposed in the submitted tender has been carried out;
if the funds have been allocated to the planned objectives;
if a reasonable minimum quality has been delivered and
if the reports have been submitted on time.

43.2.1 Reasonable minimum quality of a report means:
The report can be read by somebody who is familiar with the topic, but not an expert.
The report gives insight in the tasks performed in and the results of the project.
The report is made using the end of phase report form or (if applicable) the milestone report form and the requirements of this form have been met.

43.2.2 Reasonable minimum quality of a demonstration (for phase 2 or 3) means:
The demonstration can be understood by somebody who is familiar with the topic, but not an expert. This could, for instance, be somebody with operational but not technical knowledge.
The demonstration shows how the innovation works, how it can be used and (if applicable) how it is operated and maintained.
The demonstration is accessible to parties appointed by the Authority, unless these are direct competitors of the Contractor."

2. With regards to the second point, the successfulness of the project the Framework Agreement states:
"43.5 Successful completion of a Phase is a prerequisite to receive an invitation to bid for the next phase (as described in clause 2.2 and 2.3).
Successful completion means:

- successful completion of all related milestones as described in the contracted tender and,
- the results of the R&D are considered to be promising.
- the minimum requirements as formulated in the Challenge Brief per challenge.

For Phase 1 „promising" means that the feasibility is convincing. For Phase 2 it means that the Authority is convinced of the feasibility, the applicability in an operational setting and the potential impact of the product."

3. For the third point we will assess the end of Phase reports for phase 2 against the score model that was published in the ITT:

"IX. Quality of the end of Phase report of Phase 1 or 2.
Scoring Guide
For the end of Phase report, each of the following areas is assessed:
1. There is evidence that the work has been carried out completely and diligently.
2. The results are good and consistent with the original tender.
3. There is a clear potential for further development.
4. The report is well written with the appropriate level of detail.

On each of these areas a tender can score a maximum of 2.5 point (adding up to a total of 1 – 10 points)."

In attachment an excel sheet that can be used to register your scores. Could you return this to me by Tuesday the 15th of March?
Also in attachment the draft 'Guidance for assessors for Phase 3'. This may give some guidance. Please do note that we are currently only assessing the the end of Phase reports of Phase 2, and not on any of the other criteria.

Finally: To enter the meeting please call: +44 2035455901.

Look forward to speak to you on the 16th. Please be in touch if you have any questions.
Best regards, Ruben Prins

Appendix 2: consensus on Mott McDonald

1.	Was Phase 2 finished to satisfaction?	yes
2.	Was Phase 2 successful?	yes

3.	Quality of the end of Phase report of 2.	score (max 2.5 for each subcriterion)	
	1. There is evidence that the work has been carried out completely and diligently.	2	Good evidence provided and demonstrated well, Clear programme, progress reports and costs allocated to tasks. Reports were a good quality and delivered on time. although MM had no time for validation of KPI results. Reports were of good quality and delivered on time.
	2. The results are good and consistent with the original tender.	2	The system works as described in the original tender and the results came back as promised and expected. Self Learning remains a concern but this has been discussed with the supervisors and changes have been made for the better.
	3. There is a clear potential for further development.	1,5	There are some concerns regarding the narrow scope of the solution which may need to be addressed. The use of monetisation aspects of the solution however are extremely promising and could have significant operational value.
	4. The report is well written with the appropriate level of detail.	2	The end-term demonstration was good and this was reflected in the report with a good level of detail focussed at an appropriate level. Some on the panel felt that a more analytical approach would've been useful.
	Total	7,5	

Appendix 3: consensus on PSI

1.	Was Phase 2 finished to satisfaction?	yes
2.	Was Phase 2 successful?	yes

3.	Quality of the end of Phase report of 2.	score (max 2.5 for each subcriterion)	
	1. There is evidence that the work has been carried out completely and diligently.	2	The results shown at the end of phase demonstration were good. Excellent operational detail provided supported by documentation and the use of the dashboard through the process to communicate and display progress was particularly successful. PSI demonstrated the ability to learn from feedback.
	2. The results are good and consistent with the original tender.	2	The results were good and consistent, with Self Learning proven to be feasible. We appreciate the fact that PSI has hired a traffic management expert and we have seen improvement in that field, but they will need to grow further into the traffic management world for phase 3.
	3. There is a clear potential for further development.	1,5	There was evidence of clear potential but concerns remain in regard to how the solution has been modelled. The application of fuzzy logic is very interesting but the solution needs considerable work
	4. The report is well written with the appropriate level of detail.	1,5	The report was too brief and whilst large amounts of additional supporting documentation was provided it was left to the reader to disseminate and filter the appropriate evidence in support of the report. It would've been preferable for PSI to have referenced and cited the appropriate sections to assist assessment.
	Total	7	

Appendix 4: consensus on Technolution

1.	Was Phase 2 finished to satisfaction?	Yes
2.	Was Phase 2 successful?	Yes

3.	Quality of the end of Phase report of 2.	score (max 2.5 for each subcriterion)	
	1. There is evidence that the work has been carried out completely and diligently.	2	Progress communicated well against activities set in their proposal. Despite the usage of a very simple model Technolution has demonstrated that all objectives have been met.
	2. The results are good and consistent with the original tender.	1,5	Some concerns regarding the effectiveness of self-learning aspects of the solution, despite the honest assessment of the theoretical barriers to self-learning. There are also concerns that the solution may require considerable configuration.
	3. There is a clear potential for further development.	2	Demonstrative understanding of the market potential of the solution with clear potential for further development. Again concerns regarding the level of configuration that could be required.
	4. The report is well written with the appropriate level of detail.	2	The report was written in a technical style that didn't read particularly well however all the key information was provided and it gave good insight into the results and approach with appropriate elaboration provided when required. Any further reports presented should focus on the combination of the same good technical content but improved use of English.
	Total	7,5	

Appendix 5: consensus on Fileradar

1.	Was Phase 2 finished to satisfaction?	yes
2.	Was Phase 2 successful?	yes
3.	Quality of the end of Phase report of 2.	score (max 2.5 for each subcriterion)

1. There is evidence that the work has been carried out completely and diligently.	2	Good engagement throughout PCP with positive results. However, the report acknowledges that not all of the work in the plan has been completed (the most notable issue being the UK network implementation) and there is evidence of occasional resourcing or scheduling issues.
2. The results are good and consistent with the original tender.	2	The results are good and mostly consistent with the original tender (with only a few minor features omitted), showing a good awareness of the end user need. However, the phase would've benefited from a UK demonstration and more attention given to the quality of predictions.
3. There is a clear potential for further development.	2,5	The product is almost market ready, but there is scope for further development pertaining to additional data sources, integration with CHARM ATMS and extending the market for the product. The architecture lends itself very well to the development required.
4. The report is well written with the appropriate level of detail.	2	A comprehensive report, well written in a good level of detail. Assessors would've preferred to have seen more information pertaining to performance against the Challenge specifically.
Total	8,5	

Appendix 6: consensus on Goudappel

	Was Phase 2 finished to satisfaction?	yes	
1.			
2.	Was Phase 2 successful?	yes	
3.	Quality of the end of Phase report of 2.	score (max 2.5 for each subcriterion)	
	1. There is evidence that the work has been carried out completely and diligently.	1	Material concerns remain regarding the contractors capacity, capability, communication skills and probity of resourcing costs.
	2. The results are good and consistent with the original tender.	1,5	The approach was changed half way through phase 2, of which the rationale was not fully adequate. The scope of the demonstration network is very limited, does not include the UK network and emergency detection only appears feasible in high to medium traffic flows. However, the final results appear to show some success in meeting the Challenge.
	3. There is a clear potential for further development.	2	If the results are verified, the product clearly has potential and is ready for pre-production modelling. If the prediction method is valid elsewhere on motorways and scalable, there is clear potential for development for use in urban networks. However, there is ample room for improvement. The intention to resolve issues in phase 3 (which is quoted throughout the end of phase report) needs to be used in moderation and with caution.
	4. The report is well written with the appropriate level of detail.	2	The report is well written and clear, including performance results against the Challenge. However, the focus is much more on the method than the results of the detection and prediction.
	Total	6,5	

Appendix 7: consensus on Beijer

1.	Was Phase 2 finished to satisfaction?	yes	
2.	Was Phase 2 successful?	yes	
3.	Quality of the end of Phase report of 2.	score (max 2.5 for each subcriterion)	
	1. There is evidence that the work has been carried out completely and diligently.	2	Good evidence provided and convingly demonstrated.
	2. The results are good and consistent with the original tender.	2	Results convincingly demonstrated in accordance with the original tender. A sound approach to vehicle communications, however more information regarding control room development would have been desirable.
	3. There is a clear potential for further development.	2,5	The product as described has a strong basis for short, medium and long term potential, convincingly demonstrating that all necessary resources are in place to deliverable a successful product.
	4. The report is well written with the appropriate level of detail.	2	The report has room for improvement but is a very clear exposition of the product, with sufficient detail to understand what work has been undertaken.
	Total	8,5	

Appendix 8: consensus on Cubic

1.	Was Phase 2 finished to satisfaction?	yes
2.	Was Phase 2 successful?	yes
3.	Quality of the end of Phase report of 2.	score (max 2.5 for each subcriterion)

1. There is evidence that the work has been carried out completely and diligently.	2	A good description of the module and sound evidence provided regarding its development.
2. The results are good and consistent with the original tender.	1,5	The report gives confidence that the prototype works as expected. However, the approach is a little dismissive of ITS-G5 and additionally, the report does not clearly articulate how the module interoperates and shares data with the vehicle itself (as described in the tender documents).
3. There is a clear potential for further development.	2,5	The prototype has a strong short term potential. Medium and longer term potential was less clear, since the response focuses heavily on the development of an app, and a move away from WiFi-P. Whilst there are benefits to this approach (not the least the avoidance of immediate infrastructure costs), issues remain regarding the revenues from smart phone apps and how consumers would be encouraged to purchase the app.
4. The report is well written with the appropriate level of detail.	2	A good report with a sufficient level of detail, giving confidence in the solution as development. Some outcomes may have been better articulated in a pictorial format.
Total	8	

Appendix 9: consensus on Dynniq

1. Was Phase 2 finished to satisfaction? yes
2. Was Phase 2 successful? yes

3. Quality of the end of Phase report of 2. score (max 2.5 for each subcriterion)

1. There is evidence that the work has been carried out completely and diligently.	2	Strong evidence of robust development. Very close dialogue with the PCP supervisors and a detailed report evidences diligence in delivery of the technical objectives.
2. The results are good and consistent with the original tender.	2	A strong response, clearly showing that the prototype will operate as expected. However, the response is a little dismissive of hybrid communications solutions, and heavily favours ITS-G5.
3. There is a clear potential for further development.	2	A strong potential in the medium and long term. However, the report was unclear on how the product would deliver benefits in the short term as heavily interdependent on ITS-G5 infrastructure. Remarks about the NTCIP standard are noted.
4. The report is well written with the appropriate level of detail.	2	A very comprehensive report. However, a high level of detail led to information overload, whereby the response was not clear which elements of the report were part of their PCP or evidence of success in other C-ITS projects.

Total	8