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iDREAMS

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DEAR READER,

It has been a while ago since you could read a newsletter from us. But I can assure you that the i-DREAMS team has been very busy. Over the past year, our project has made significant progress, despite the enormous challenges that COVID has also confronted us with. This pandemic that has been raging around the world for almost two years now is leaving its mark everywhere. Last year was the year in which we were going to test our developed equipment in vehicles, to see how driving behaviour could be improved. But major delays in the delivery of key components, as well as the impact of COVID on staffing levels, have left their mark. But our project has been extended by one year, which enables us to carry out the proposed plans after all.

One of these plans is the start-up of the field trials. In five different countries, our developed i-DREAMS equipment is tested in different vehicles: cars, trucks, buses, trains and trams. The Belgian field trial was the first to start. In this edition of the newsletter, we would like to look back with you on our experiences during that field trial. In order to give you a clear idea of the whole picture, we would first like to explain how the field trials are approached within the i-DREAMS team.

Field trials are organized in Belgium, Germany, Greece, Portugal and the United Kingdom. Within each country, the focus is on specific modes. Belgium organizes tests in cars and trucks, Germany and Greece focus on cars only, Portugal organizes field trials in trucks and buses, and in the United Kingdom, tests are carried out in cars, trains and trams.

In each country, testing takes place in two waves. Each test wave will take 18 weeks in total. After the first wave, we adjust our approach (where necessary), which we then apply in the second wave, which again lasts 18 weeks. In mid-2021 the Belgian team equipped 25 cars and 30 trucks with the i-DREAMS system. Each driver drove around with the equipment for 18 weeks and interventions were introduced in four phases:

- During the first 4 weeks, the driver does not see any intervention and driving parameters are measured in the background.
- During the next 4 weeks, the driver receives real time in-vehicle driving assistance for risky driving behaviors. These in-vehicle interventions are given until the end of the road study.
- In the following 4 weeks, the driver can consult his own trips in the i-DREAMS app. He then gets more information about how the system evaluates the driving behavior (via scores) and can watch videos about the most dangerous situations that occurred.
- During the last 6 weeks, we challenge drivers via the i-DREAMS app with game elements that should further motivate and stimulate them to keep improving their driving behavior.

The first wave with Belgian car drivers is almost over. We managed to collect more than 120,000 km of data, which is about three times around the world. The data for trucks is also coming in smoothly, but this first wave of the field trial with truck drivers will only be completed in the spring of 2022.

What follows in this newsletter are testimonies of various people involved in the first wave of the Belgian field trial. We hope it will give you an idea of what we have been working on and how we have experienced it ourselves. Furthermore we provide you an overview of the technical reports, submitted in 2021, the status of the i-DREAMS output and the i-DREAMS calendar.

I hope you will enjoy reading this newsletter. In addition, together with the entire i-DREAMS team, I wish you and your loved ones a Merry Christmas and a healthy and prosperous New Year.

PROF. DR. TOM BRIJS
COORDINATOR

THE TEAM'S VIEW ON THE BELGIAN FIELD TRIAL

Organizing this field trial was quite a big challenge. Finding participants, developing and testing the prototypes, following-up on each different participant during the field trial, while at the same time trying to think a couple of steps ahead, in order to prepare for the next wave of the field trial. All of this in a context where our every day activities are dictated by a global pandemic.

Rest assured, it was a challenge. But, we did it! How we did it and what it was that we did exactly, is explained in the following pages. We tried to capture the team's experiences in 10 questions.

1 WHAT WAS / IS YOUR ROLE IN THIS FIRST WAVE OF THE FIELD TRIALS?

TOM BRIJS
Project coordinator

"It is my job to monitor the various field trials in the different countries. To this end, a coordination meeting is organized every other week with the partners involved. For the Belgian field trial, I was mainly responsible for the contacts with the transport companies. In addition, it was my job to coordinate the overall picture, to ensure that everyone working on it stayed on track, and to detect where adjustments might be needed, technically, process-wise and in terms of communication.
Of course, I also played a role in the preparation. I looked at how we could best start the whole procedure in terms of installation, GDPR, insurance, the intake, the recruitment, the scientific approach ..."

EDITH DONDERS
Communication manager

"I was responsible for participant recruitment, planning and communication during the field trial. Priority 1 was to find Belgian car drivers who were willing to participate. Next, I organized the process. This involved planning the installations of the equipment, informing all participants about what to expect during their participation, and once the equipment was installed, communicating regularly with them about their experiences and the next steps. For the field trial with trucks, our coordinator Tom Brijs is in charge of recruiting transport companies. Once they have been recruited and the trucks equipped, I am again responsible for the communication during the participation. Finally, I also provide support for the legal aspects that need to be arranged with regard to the cooperation with transport companies."

EVELIEN POLDERS
Field trial coordinator

"I drew up the script describing how we were going to approach the field trial in Belgium. The other partners were able to use that as a basis for organizing their own field trials. The script actually provided an overview of everything we had to think about. The different phases of participation, which documents we had to prepare, which agreements we had to make, which communication strategy we had to link to it (drawn up by my colleague Edith) ...
I was also involved in selecting the recruits who were willing to participate. I checked who did and did not meet the inclusion criteria we had set. Finally, I also helped to welcome the participants for the intake interview. That interview took place when our technicians installed the cars with our equipment."

THOMAS STIEGLITZ
BART DE VOS
IMOB Technicians

Thomas: "Bart and I install all measuring equipment: all cameras, all antennas and the gateway. We test them beforehand and afterwards we de-install everything."

CARLOS CARREIRAS
ANDRÉ LOURENÇO
CardioID Technicians

André: "We were supporting local installation teams in terms of hardware and software. We co-developed the system together with IMOB. Some of the parts were developed by ourselves and throughout the process we were in continuous contact with the IMOB team."

2 HOW DID YOU PREPARE FOR THE FIRST WAVE OF THE FIELD TRIALS?

TOM BRIJS
Project coordinator

“I tried to monitor and steer all aspects related to the field trial as well as possible. There are so many aspects to it, that it sometimes becomes a real jumble and you easily overlook something. Even though everyone is doing their best. All legal aspects must be covered, insurance must be in order, hardware and software must be ready, recruitment must take place, a communication plan needs be worked out ... and employees must be appointed to carry it all out. Monitoring that helicopter view and seeing where adjustments have to be made so that everything happens within the set deadlines, that was the core of my preparation.”

EDITH DONDERS
Communication manager

“For the recruitment, I developed a recruitment video and flyer that we distributed through our various social media channels. But mainly thanks to the exposure we got through a few local and national news media, we managed to find 300 car drivers willing to participate. From these, 25 drivers were selected for the first wave and 25 for the second wave of the field trial. This was the starting point for me to draw up the process planning and communication. For the planning of the installation sessions, we used an online calendar where participants could make their own appointments. Meanwhile, I prepared a briefing, forms to officialize participation, manuals and all communications that I would send to participants during the field trial (which lasts 18 weeks).”

EVELIEN POLDERS
Field trial coordinator

“Actually, drawing up that script was the ideal preparation. It was also just a matter of finetuning with other colleagues. For example, we did the intake interviews with three different people. We went through the PowerPoint presentation together and agreed on the emphasis we would be placing on the topics in the presentation. This way, we were sure that each participant got the same story.”

THOMAS STIEGLITZ
BART DE VOS
IMOB Technicians

Bart: “We first tested a lot of prototypes to get the hang of how the equipment works. And then installed it in our own cars and in colleagues' cars to make the first mistakes in our own vehicle before doing something in other vehicles. And of course, we also watched a lot of YouTube videos (laughs).”

Thomas: “We also followed an online course because we had to be certified to install Mobileye (smart camera that observes the environment). That only concerned the installation of Mobileye. For the other parts, the technicians from CARDIOID came to IMOB to train us.”

CARLOS CARREIRAS
ANDRÉ LOURENÇO
CardioID Technicians

André: “Our preparation started long before the start of the actual field trials, since we first did a couple of test pilots. So, we just continued the work that we did before and during the pilots. The channels of conversation were already established, the local teams knew already with whom they should speak. So, when the field trial started in Belgium we were already very much in sync with mainly Bart and Thomas, the IMOB technicians, and of course with Tom as well. We gave local support in the very beginning and later on we already started testing gateways for the pilots … and we just continued that line of work.”

3 DID YOU PREPARE DIFFERENTLY FOR THE FIELD TRIAL WITH CARS THEN FOR THE FIELD TRIAL WITH TRUCK? IF YES, WHAT WAS DIFFERENT?

TOM BRIJS
Project coordinator

“Yes, there are some facets that are different. In a transport company, the coach's role is very important. You have to include them in the story, and that hasn't turned out to be very easy. They already have many operational responsibilities and this project comes on top of that. And all the consequences of COVID, they don't help that situation.
There are also some technical differences. Car drivers identify themselves in the vehicle by clicking on the display, for truck drivers this is done automatically via the driver's ID which we read from the tachograph. With trucks, we planned to measure the heart rate via a steering wheel cover (with cars it is via a bracelet), but here too, COVID disrupts the plans. We are currently still missing crucial components to be able to implement these steering wheel covers.”

EDITH DONDERS
Communication manager

“Yes, absolutely. Since I was not involved in the recruitment of transport companies, that meant a lot less workload. With the transport companies, I mainly focused on the communication plan (and how to adapt it) to inform the participants during their participation. In this setting, there is also another party involved, namely the coach, affiliated to the transport company. Although I communicate directly with the truck drivers, their feedback usually reaches the coach first, who then communicates with me and the rest of the i-DREAMS team.”

EVELIEN POLDERS
Field trial coordinator

“I wasn’t involved in the field trial with trucks, so I didn’t have to prepare for that.”

THOMAS STIEGLITZ
BART DE VOS
IMOB Technicians

Bart: “When it came to installing cars, we were on our own and that was not the case for trucks. We started installing them in the truck companies themselves, and there were always mechanics and workshop people around to lend a hand.”

Thomas: “There is also a site that we used a lot where you can find for each car model where, for example, you can get power, so power for the system. And when it comes to removing the upholstery of cars, I've mainly watched a lot of YouTube videos to see and learn how mechanics do it.

Bart: “In our software, we also have a list of all vehicles where we can see where the CANbus is in each vehicle. Via the CANbus, we have to read all signals from the vehicle. Based on that list, we check in advance where the CANbus is in each vehicle and which signals we will have available.”

CARLOS CARREIRAS
ANDRÉ LOURENÇO
CardioID Technicians

Carlos: “What is different is the driver identification. In trucks we use the FMS (Fleet Management System) to identify who is driving. In cars the drivers identify manually on the intervention display, installed in the vehicle.”

André: “There is also CardioWheel, a steering wheel cover for trucks we use to measure heart rate. In cars we use bracelets for that. Unfortunately, due to COVID, there was a worldwide shortage in chips, which we needed to produce them. This delay resulted in the fact that the CardioWheel sets were not ready for the first wave of the field trials. Good news is that we currently are finishing the production, so we will be able to use the CardioWheel sets in the second wave of the field trials.”

4 WHAT WERE YOUR MAIN TASKS AFTER THE START OF THE FIRST WAVE OF THE FIELD TRIALS?

TOM BRIJS
Project coordinator

“In addition to coordinating, I try to gain insight into the effects of what we do as quickly as possible. We want to establish effects on driving behavior, of course. We use real-time and post-trip interventions. We are introducing these gradually in four steps in order to be able to measure the effects. Once the data is in, we want to gain insight into what works and what doesn't ... so we can make adjustments in the second wave. We also need to assess how COVID influences mobility and thus possibly our data as well. For example, we observed that due to COVID, during the second half of the data collection many more trips were made than at the start... but we cannot really say at this point what influence this has on the results.”

EDITH DONDERS
Communication manager

“While installing our equipment in the vehicles, I thoroughly briefed each participant on what would happen during their participation. As soon as they left our premises, I planned all follow-up communications and reported on each interaction in our team logbook. This way, everyone was kept informed of the progress, feedback and problems that the participants encountered. I ensured that all participant questions were answered within 48 hours. And if any technical interventions were needed, Bart and Thomas made sure they were carried out as quickly as possible.”

EVELIEN POLDERS
Field trial coordinator

“Once the field trial has started, my part in the story become quite small. The data itself was studied and analyzed by other colleagues. The daily follow-up was done by Edith and I just checked once in a while whether everyone had received and filled in all the questionnaires. In fact, you could say that the largest part of my contribution to the field trial was in the preparation of it, more specifically, in drawing up the scenario.”

THOMAS STIEGLITZ
BART DE VOS
IMOB Technicians

Bart: “When the car leaves our premises, it is our job to follow it up technically. Based on the feedback that comes in from the participants and the data we see coming in, we can already make a lot of estimations about what is and is not going well technically. It is then our job to anticipate these things and come up with solutions. In some cases, it could be solved remotely via an ‘over-the-air’ software update. In other cases, the problem was hardware related and we had to visit the participants to solve it.”

CARLOS CARREIRAS
ANDRÉ LOURENÇO
CardioID Technicians

Carlos: “We continuously monitored the system while the trip data was coming in, to check if everything was working fine. We have made software updates to increase performance and we closely followed up the effects.”

5 WHICH ASPECTS OF THE FIELD TRIALS CAUSED YOU MOST CONCERN (BEFORE THE START OF THE FIRST WAVE)?

TOM BRIJS
Project coordinator

“Initially, this was mainly recruitment. But that turned out to be much better than expected. And then came COVID, which meant that hardware was delivered much too late and slowed down the project. We are still struggling with that. The steering wheel covers for trucks are still not available.
The time pressure that this created has certainly had an impact on our quality control system. Not only the delay in the delivery of material, but also lower staffing levels due to COVID played a role in this.
As project coordinator, we communicated transparently with the Project Officer of the European Commission and were able to argue for an extension of the project by one year in order to meet our original objectives.”

EDITH DONDERS
Communication manager

“In the first place, I was afraid that we would not find enough participants, but fortunately that turned out not to be a problem at all. In addition, I feared that we would have to deal with early dropouts of participants after the first installations in cars. The first few installations still presented a lot of problems, which made me fear that the participants would lose their patience. But nothing was further from the truth.
Thanks to their quick feedback, we were able to switch immediately and solve most of the problems quickly.”

EVELIEN POLDERS
Field trial coordinator

“How are we going to find all those participants? And is all the equipment going to be ready in time with that COVID situation? In the end, it all worked out fine. There were so many interested people that we had to disappoint a lot of people. I expected that!
As far as the equipment is concerned... it has been very exciting and it caused some problems in the beginning. But that too was quickly solved thanks to everyone's efforts. And the participants understood that too.”

THOMAS STIEGLITZ
BART DE VOS
IMOB Technicians

Thomas: “I was mainly afraid of breaking things. During the training that we received from our CARDIOID colleagues, they had also warned us about this and said that it would certainly happen. But fortunately, it didn't happen.”

Bart: “I am still worried about the compatibility of the equipment. We do select the most suitable vehicles in advance, but it sometimes happens - and it has happened - that there are vehicles for which not everything is fully compatible. In the worst case, we then have to abort the installation or only carry it out partially. That takes a lot of time and is not good for the participants.”

CARLOS CARREIRAS
ANDRÉ LOURENÇO
CardioID Technicians

André: “The robustness of the entire system concerned us the most. And of course, the fact that everything was going to be installed and used far away from us. That implied that we didn’t have everything in our own hands anymore. Giving away control was difficult (laughing). Of course, we believed in the rest of the local teams that were prepared for it. That is also why everything worked out in the end. Installations were executed very well and predefined procedures were followed. That’s all we could wish for.”

6 HOW DID YOU EXPERIENCE THE INSTALLATIONS OF THE EQUIPMENT? WHAT WENT WELL, WHAT WAS A CHALLENGE?

TOM BRIJS
Project coordinator

“That did cause me some stress. We had our processes in order, but the technology showed some teething problems. We had to decide whether to temporarily stop the installations or to continue them anyway. We opted for the former. Fortunately, when the installations were restarted, things went much more smoothly and there were only a few exceptional problems. But the equipment was stable by then. You can feel the stress of the people who do the installations. Time pressure also played a part there, which is much less now because we have found a routine and have learnt a lot more. You try to motivate people when you see that they are struggling. Bart and Thomas did a great job. They identified and helped solve a lot of problems ... and that wasn't really their job.”

EDITH DONDERS
Communication manager

“That was quite exciting, although I had to take care of the easy part: the briefing of the participants. Due to the hardware challenges in the beginning, the installations did not go according to plan. But thanks to the coolness of Bart and Thomas (our technicians), but also thanks to the understanding and patience of the participants, it all ended well.
After the first 9 installations, we did stop the installations for a while to further test the equipment and receive new parts. Due to COVID delays, it was not easy to obtain new parts. When we finally started up again, the installations went almost without a hitch.”

EVELIEN POLDERS
Field trial coordinator

“The briefings I conducted during the installations went well. After the briefings, the participants also had to fill in an online questionnaire, which did not go smoothly for everyone. Some participants did not understand all the questions or had difficulty with the fact that it was online. But these were all small issues that could easily be resolved. Occasionally, I went to Thomas and Bart to see how things were going, and the stress was palpable there, especially in the beginning. But I also found it interesting to see how they did it, especially since I know very little about it myself. There are moments when I really admired them, because it was such a stressful thing for them and they handled it so well.”

THOMAS STIEGLITZ
BART DE VOS
IMOB Technicians

Thomas: “In the beginning, there were some hardware problems. That caused a lot of frustration. Then it happened that at the end of an installation we ran into a hardware problem. There was no time to start again and we had no spare parts.”

Bart: “In the beginning it was really difficult, even though we had prepared ourselves well. Every problem was new, difficult to recognize and difficult to solve. And it all had to happen quickly, because people were waiting. After a while, we recognized problems quickly and knew the solution immediately. The hardware was also more reliable ... that gave more confidence. Also, to send people away again. With those first cars, we did stand behind the window with a small heart, looking at the cars to see if they could drive away. But fortunately, that was never a problem (laughs).”

CARLOS CARREIRAS
ANDRÉ LOURENÇO
CardioID Technicians

Carlos: “It was a bit stressful (laughing). There was a lot of back and forth communication between me and Bart specifically. Not everything was implemented correctly the first time. Changes were necessary in the gateway, in the interventions, in the API’s, in the pre-processing … So, we had to change all that. It was a lot of work on the fly and a lot of communication between the teams. We also made some changes to the installer app, used by the people who installed the systems in the vehicles. This helped me to get a better insight in wat was going on.”

7 HOW DID YOU EXPERIENCE THE FIRST WAVE OF THE FIELD TRIALS ONCE IT HAD STARTED? WHAT WENT WELL, WHAT WAS A CHALLENGE?

TOM BRIJS
Project coordinator

“I found that very fascinating. Suddenly you see that everything fits together like a puzzle: the app works, the dashboard where trips come in and where you see events and videos. At a certain point, the systems are stable and that gives a sense of relief and satisfaction. Seeing the data flowing in, that's really gratifying. It was hard work, but it paid off.”

EDITH DONDERS
Communication manager

“After we had solved the growing pains in the beginning (mainly hardware problems), the rest went according to expectations. Solving technical problems here and there, following up on feedback from participants, answering their questions, explaining each new step in the participation. It was a lot of work, more than I expected, but it was under control and kept evolving in the right direction.”

EVELIEN POLDERS
Field trial coordinator

“I actually feel pretty good about that. Ok, there were the growing pains in the beginning. And although they were very frustrating at the time, especially for the technicians, they were solved relatively quickly. And the cooperation with the participants was so pleasant that I can't help but look back with a good feeling.”

THOMAS STIEGLITZ
BART DE VOS
IMOB Technicians

Thomas: “The first weeks after the first installations were very disappointing. It felt like nothing was going our way. But we learnt so much so fast and the equipment soon became a lot more reliable. So, once we got further into the process, I had a lot more confidence in it. Also, with the de-installations. It all went so easily. Actually, it was a really nice learning experience for me, because it was so far out of my comfort zone.”

Bart: “In the beginning, there was just a lot of frustration because of the problems that arose. But thanks to everyone's efforts, things improved very quickly ... and then suddenly we see all the data coming in. It's great to see the progress all of a sudden.”

CARLOS CARREIRAS
ANDRÉ LOURENÇO
Engineers

André: “Despite of the challenges we have a positive feeling about it. The interaction between the teams went really well. Of course, with IMOB we had the chance to also physically work together since some things were done before COVID hit us. And that really helped. With other partners we had to do everything remotely and that is a lot more difficult. Some things are difficult to explain or to show via remote channels. So that was extra challenging.”

8 BASED ON YOUR EXPERIENCE WITH THE FIRST WAVE OF THE FIELD TRIALS, IS THERE ANYTHING YOU WILL DO DIFFERENTLY IN THE SECOND WAVE?

TOM BRIJS
Project coordinator

“There is certainly something we are seriously considering. In the post-trip interventions, we use a strategy of motivating people through challenges to improve their driving behavior in the last phase of participation. We are looking at whether we should also link an external reward to this. An attractive prize, for example, if you turn out to be the driver with the highest road safety score at the end. We suspect we will have to do that to maximize the potential of our strategy. In a commercial context, such a reward could be a discount on your car insurance. Obviously, we cannot offer that at this stage of research. Without this extrinsic reward, it will of course remain non-committal and dependent on the goodwill of the participant.”

EDITH DONDERS
Communication manager

“Yes, I will. Participants go through 4 phases during their participation. The communication I give them relates to these and explains the new phase that is coming up. I have learned which aspects of my communication work and which do not. So, I have a good idea of how I should adjust my communication plan and which aspects I should explain in more detail. I will definitely work on that in the second wave.
We will also have all participants from the second wave start at the same time. This was not the case in the first wave. There, each participant started his/her trajectory on the day of installation. That meant there were 25 different communication flow. By having everyone start on the same day, we can make it a lot more efficient, which makes it easier to keep track of everything.”

EVELIEN POLDERS
Field trial coordinator

“Yes, definitely. For the second wave, we did approach the final selection a little differently. We continued with the list of 300 registrations and we had pre-selected quite a few people. They were told that we would do the final selection for the second wave at a later date. And after our experiences in the first wave, we were a bit more specific in our final selection. We have very specifically targeted car brands and models of which we know the installation goes relatively smoothly. And we also excluded some brands and models.”

THOMAS STIEGLITZ
BART DE VOS
IMOB Technicians

Thomas: “In a lot of de-installations, I did notice that some cars were installed 'too well' (laughs). Some things we fixed so well and in places that are difficult to reach afterwards. With the next installations, I will certainly take de-installations more into account.”

Bart: “It's indeed that kind of small things that we find out by doing it. We have also adjusted the order in which we install things. In this new order we have started to use, it goes much faster and the result is much more reliable. Because we are now also familiar with specific problems that may occur, we can test the equipment more specifically for them in advance. We will certainly do this in order to prevent problems.”

CARLOS CARREIRAS
ANDRÉ LOURENÇO
CardioID Technicians

Carlos: “All the procedures are in place and well oiled, so I hope we don’t have to change much anymore. Of course, there will always be some issues here and there, but the main steps are in place and have been perfected along the way. I hope we can now just repeat them.”

9 DID ANYTHING HAPPEN DURING THE FIRST WAVE OF THE FIELD TRIAL THAT SURPRISED YOU?

TOM BRIJS
Project coordinator

“From the trips and the scores and the events, you could tell quite quickly what type of driver it was. That pleasantly surprised me! You quickly pick out the rascals. The system really gives a true picture of the driver's behavior. One of the coaches from the participating transport companies confirmed this and said that the information we provide via the dashboard really helps him. It was good to see that.”

EDITH DONDERS
Communication manager

“Gosh, what struck me most ... and I have often said this to my close colleagues in the office ... is that I was very pleasantly surprised by the cooperation of the participants. They all handled it thoroughly and very meticulously. They always gave us very good and constructive feedback when asked and showed great patience in everything. I felt really proud of them.”

EVELIEN POLDERS
Field trial coordinator

“Yes, I have already mentioned it. The cooperation of the participants and the commitment they showed during those 18 weeks surprised me. I feared that we would have to look for new participants due to intermediate dropouts, but that was not the case at all. I think that their involvement is really commendable. It was not about the reward they got from us, they each had a specific intention to participate.”

THOMAS STIEGLITZ
BART DE VOS
IMOB Technicians

Bart: “We very much underestimated the importance of quality control. Of course, everything was tested beforehand, but experience has shown that it has to be done much more thoroughly. We can do that much better now, because we know which potential problems to test for.”

CARLOS CARREIRAS
ANDRÉ LOURENÇO
CardioID Technicians

André: “We were expecting some issues, but what surprised us a bit were the connectivity issues we had. It was mainly due to loss of 4G coverage. The 4G network in Portugal is really good, there are almost no areas with bad 4G coverage, but that is not the case abroad. And we were a bit surprised by that. The system is now robust for that, but it was not originally.”

10 WHAT EXPECTATIONS DO YOU HAVE REGARDING THE SECOND WAVE OF THE FIELD TRIALS AND ITS OVERALL RESULTS?

TOM BRIJS
Project coordinator

“I hope that after the second wave we can also see seasonal effects. Then we will have covered almost a whole year. But then there is still COVID. That remains an uncertain factor that could also completely interfere with and influence our second wave of the field trials. We can already see it on the road, there is a lot less traffic, so that will certainly have an impact.”

EDITH DONDERS
Communication manager

“I expect the process to be easier and more efficient thanks to all the experiences we have had and what we have learned from them. On the other hand, I sometimes worry about the context in which everything takes place. COVID leaves its mark on everything: not only on the progress of our project, but also on mobility itself. COVID has changed the patterns of mobility. At the beginning of the first wave, we saw that in general there were far fewer trips. After a few weeks, it normalized and people started to travel more. I do worry about what effect this will have on our data. This will also play a role in the second wave. Now, that is force majeure and we have little control over it, of course.”

EVELIEN POLDERS
Field trial coordinator

“Despite the setbacks, the overall experience was positive for me. And I hope in the second wave that we will have an equally great group of participants. It will be difficult to surpass the group in the first wave, that's for sure. We see that the system works and it points out the pain points that people are often not aware of themselves. That already provides good insights. I am very curious about the learning effects that we hope to achieve. But it is still too early to tell.”

THOMAS STIEGLITZ
BART DE VOS
IMOB Technicians

Thomas: “I expect far fewer technical problems in the second wave. We have learned so much, can prevent so much and can solve so much more. So, I am convinced that the second wave will be a much smoother experience.”

CARLOS CARREIRAS
ANDRÉ LOURENÇO
CardioID Technicians

Carlos: “From my side I expect more consistency and that we will have all the data types from the beginning. This is not the case for the first wave. But, having it will help the data analysis afterwards.”

André: “I agree with Carlos. We are satisfied with the quality of our product in terms of robustness. We are prepared for some extra optimizations. Also, the installation app now has more features, so that makes us feel quite confident about what is coming.”

THE PARTICIPANT'S VIEW ON THE BELGIAN FIELD TRIAL

Read below the interviews with Mr. Jo Bronckaers (participant of the first wave of the i-DREAMS field trial with cars) and Mr. Tom Van Gestel, coach at the transport company Group Op de Beeck, who participates with 8 trucks in the i-DREAMS field trial. Why did they decide to join our project and how do they experience their participation?

JO BRONCKAERS, 69 YEARS OF AGE

Completed the entire field trial in the first wave – participation ended on 12/10/'21

Why did you decide to participate in this study?

"Because in my professional life I have been close to regulations and have always driven a lot of kilometres. I was a technical advisor at Febiac (the Federation of Belgian Motor Manufacturers) for many years. By participating in this study, I felt that I could still contribute something to road safety. That is important to me."

How did you hear about the project?

"Through the media. What I saw there really triggered me. After discussing it with my wife and children, I was completely convinced. They said it was tailor-made for me... and voilà, the rest is history."

How did you experience your participation?

"Very positive. It is a study and sometimes things go wrong. I fully understand that. Everything was solved quickly by your team and that was interesting to see. During my participation, I was also confronted with myself a few times. My scores on steering were not that great. And I know what caused it by checking afterwards the videos in the i-DREAMS app. I take my turns rather quickly (laughs). It's probably because of my past. I used to do some car racing and it seems to have left me with a few habits. My car is also quite a fast machine, which certainly plays a role.

In addition, the system helps me to be more conscious of my speeding habits. I never consciously intend to drive too fast. And where you are allowed to drive 120 km/h, for instance, I manage to comply pretty well. But at lower speeds, I can easily go over the limit. i-DREAMS keeps me in line there. But my good points are also becoming clearer. I certainly don't consider myself an aggressive driver and always do my best to keep enough distance from the car in front. i-DREAMS also confirms this when I look at my scores for tailgating. So, feel free to call the system a strong awareness-raiser, because that is what it does for me."

In addition to the interventions in the vehicle, you received a lot of information via the i-DREAMS app in the last 2 phases of your participation. Was this interesting for you?

"Yes, it was. As I said, I find those scores really interesting. I learn a lot about myself from them. I'm also really curious to go and look at it every day, at least when I have made trips. We also regularly got tips through the app that could help improve driving behavior. I found that very interesting. The goals and the challenges that we could take up through the i-DREAMS app, however, didn't really catch my eye. I mainly do short trips, so that was less interesting for me."

What are the most important working points for you in the system as you have experienced it?

"For me, that's mainly in the smaller things. We had to wear a bracelet that registers the heartbeat and is used by the system to determine how tired we are. I found the bracelet uncomfortable and inconvenient to use.

I am largely enthusiastic about the warnings in the car though. Most of the warnings, for example about tailgating, were accurate. But the speed warnings were not always correct in the car, which was sometimes annoying. But there was a correction system behind it, so that the speed information about the trips provided in the app was correct and thus overruled the errors of the in-vehicle warnings. So, in the end, this was solved. Given my past in the racing circuit, it would also have been interesting for me to get acceleration warnings in the car. But we did find information about acceleration in the app as well."

What do you consider to be the main strengths of the system as you have experienced it?

"Especially the awareness effect it has. I found that very stimulating. And maybe even apart from the specific system, I found it very nice and instructive to be involved in such a study. To see how you go about it. My experience with your team was very positive."

That is nice to hear! If we were to do a follow-up to this study in the future, would you be willing to participate again?

"Absolutely, I would love to!"

Super, thank you very much for this interview Jo!

EDITH DONDERS
DISCOM MANAGER i-DREAMS

TOM VAN GESTEL, DRIVER COACH GROUP OP DE BEECK

Participates with 8 drivers in the first wave of the i-DREAMS field trials. Group Op de Beeck's participation officially started on 29/11/'21

Why is Group Op de Beeck interested in participating in the i-DREAMS project?

"If we can contribute to road safety and to new systems that may come onto the market, we will jump at the chance because safety is very important to us. Because it is important to us that our drivers have a very safe, efficient driving style in order to leave on Monday and arrive home safely on Friday or Saturday. And if there are systems in place to coach their driving style and make them drive more safely, we are more than happy to help."

What is your position in Group Op de Beeck?

"I give internal training to drivers, including the CPC training[1], and I monitor the drivers on the basis of driving style reports. So, I know how they move around on the road. I am really part of the driver team. That makes it a really nice job here. It also means that our damage claims are reducing, which is positive."

[1] CPC training = training for obtaining a certificate of professional driving competence

Was it difficult to convince the drivers to participate in i-DREAMS?

“No, it wasn't difficult at all. Every driver I called immediately agreed and wanted to join. Officially, our participation only started on 29 November because it took a while for all trucks to be installed. But during the installations, we already saw the first data coming in from the trucks that were already equipped. As a coach, I can also see this via the i-DREAMS web dashboard. I have already shown 2 or 3 drivers some of these data and what it shows and they think it is super! So, it will be very easy for me to coach that. Some drivers have already tried to download the i-DREAMS app, but that will only be introduced at a later stage of participation. But it does show that when our guys commit, they want to look at their results right away. They are like that (laughs). We are also a company with a pronounced safety culture. We expect our drivers to go along with that. If they don't, they don't fit in with our company. So, the drivers we have on board, I can guarantee that if we ask them to participate, they will do so in a serious manner and with genuine interest.”

How did you get to know i-DREAMS?

“Through a colleague from another transport company who was already in touch with you about i-DREAMS. Me and this colleague used to work together at a company that focused very much on coaching drivers to drive differently and more safely. We both left that employer to take on roles in other transport companies, but our priorities are still the same: to help drivers in the transport sector do their job as safely as possible.”

What do you expect from your drivers' participation in i-DREAMS?

“If I can get half of my eight drivers to adopt a calmer, more efficient and safer driving style ... then I will be immensely happy. If I can get all of them to do that, then I'll be in heaven. Making sure our drivers are safe on the road. That is a primary goal for us.

I have also committed myself to sit down with our drivers every month, individually or as a group, because peer pressure can sometimes also help in such a situation where we focus on improving the driving style. I haven't quite worked out how I want to do that, but I want to see them every month to have a chat about what and how, look at their results and then that should work out.”

EDITH DONDERS
DISCOM MANAGER i-DREAMS

SEVEN NEW TECHNICAL REPORTS SUBMITTED IN 2021

Deliverable 4.4: A flexible driver-machine interface for real-time warning interventions

The i-DREAMS project hardware aims to inform and warn the driver, in real-time, about the context-aware safety envelope for driving. This device provides visual and sound alerts, information on the state of the STZ, and for certain situations collects information about the driver (e.g. identification of the driver).
This report presents the intervention device, justifying the choices for the hardware, embedded software and integration with the gateway.

Deliverable 4.5: A smartphone app (Android) for personalized driving behavioural feedback

An Android smart-phone app was developed to provide the driver feedback about important safety driver behavior variables once a trip has been completed. Based on the driver's safety performance, new goals are communicated to the driver and tips, tricks and rewards are provided to achieve those goals. The driver is able to see her/his safety performance in relation to her/his fellow drivers.

Deliverable 4.6: A web platform for personalized goal setting, tips & tricks, and social gamification

A web-platform software for goal setting and social gamification has been developed where the fleet managers/operators are able to set and receive goals and configure or consult a set of gamification features to improve driver behavior in a sustainable way. Based on the driver's safety performance, the fleet manager/operator is also able to compare individual performances of different drivers.

Deliverable 4.7: A guide for driver/operator coaches and trainers on improving safety in transport companies based on real driver data

A web-platform software for goal setting and social gamification has been developed where the fleet managers/operators are able to set and receive goals and configure or consult a set of gamification features to improve driver behavior in a sustainable way. The manual, which is the subject of this deliverable will help company coaches while using the web platform.

Deliverable 4.1: A set of flexible modules for sensor data collection, integration and real-time processing

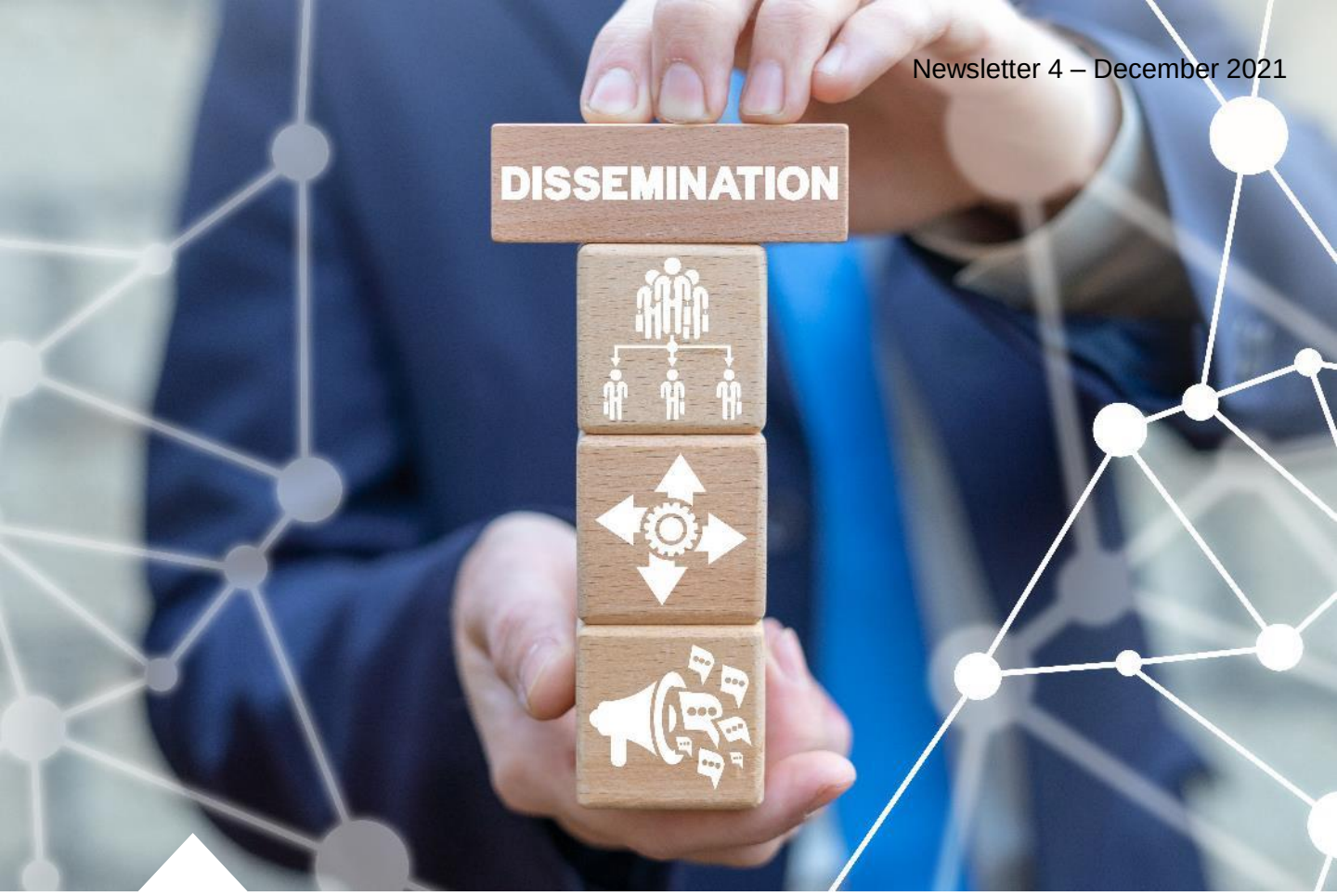
This deliverable describes the in-vehicle sensor technologies, that monitor the context, the operator and the vehicle. It describes how the system estimates the task complexity and coping capacity, and how it will aggregate all the information and perform the real-time processing necessary to trigger the interventions to keep drivers in a safe driving zone.

Deliverable 5.3: Description of the on-road driving trials for identifying safety tolerance zones and the performance of in-vehicle interventions

This deliverable describes the field trials based on the development from design recommendations and specifications that were presented previously in D3.4. This is achieved by showing the current planning and resources that have been created to execute the trials.

Deliverable 3.6: Enhanced toolbox of recommended data collection tools, monitoring methods and interventions including thresholds for the STZ

This deliverable constitutes an update to a number of selected sections of D3.2. The original authors have worked with the WP3 partnership to update original text and added new text to this deliverable to reflect developments in WP4, 6 and 7 as well as the Mathematical Model Working Group's work.



i-DREAMS DISSEMINATIE ACTIVITEITEN IN 2021

Conference participation

16 - 17 Jun 2021

7th International IEEE Conference on Models and Technologies for Intelligent Transportation Systems, online

- Presentation by Fran Pilkington-Cheney entitled: *The i-DREAMS intervention strategies to reduce driver fatigue and sleepiness for different transport modes.* DOI: https://doi.org/10.1109/MT-ITS49943.2021.9529340
- Presentation by Roja Ezzati Amini entitled: *Risk scenario designs for driving simulator experiments.* DOI: https://doi.org/10.1109/MT-ITS49943.2021.9529268

1 - 3 Sep 2021

10th International Congress on Transportation Research, Rhodes Islands, Greece

- Presentation by Eva Michelaraki entitled: *Modelling the safety tolerance zone: recommendations from the i-DREAMS project* (Related publication online available).

26 - 27 Okt 2021

7th Humanist Conference, Rhodes Islands, Greece

- Presentation by Eva Michelaraki entitled: *State-of-the-art technologies for post-trip safety interventions* (Presentation online available)
- Presentation by Eva Michelaraki entitled: *A review of real-time safety intervention technologies* (Presentation online available)

10 - 12 Nov 2021

9th International Cycling Safety Conference 2022, online

- Presentation by Tom Brijs entitled: *Driving simulator evaluation of an advance warning system for safe cyclist overtaking* (Abstract online available)

Publications in journals

E. Michelaraki, C. Katrakazas, G. Yannis, A. Filtness, R. Talbot, G. Hancox, F. Pilkington-Cheney, K. Brijs, V. Ross, H. Dirix, A. Neven, R. Paul, T. Brijs, P. Fortsakis, E. Konstantina Frantzola and R. Taveira (2021). *Post-trip safety interventions: state-of-the-art, challenges, and practical implications*. In: Journal of Safety Research, Vol. 77 (2021), pp. 67-85. DOI: https://doi.org/10.1016/j.jsr.2021.02.005

Publications in conference proceedings

M. R. Alam, C. Al Haddad, C. Antoniou, C. Carreiras, Y. Vanrompay and T. Brijs, *"A big data-as-a-service architecture for naturalistic driving studies"*, In: 7th International Conference on Models and Technologies for Intelligent Transportation Systems (MT-ITS), 2021, pp. 1-6, DOI: https://doi.org/10.1109/MT-ITS49943.2021.9529322

R. E. Amini, E. Michelaraki, C. Katrakazas, C. Al Haddad, B. De Vos, A. Cuenen, G. Yannis, T. Brijs and C. Antoniou, *"Risk scenario designs for driving simulator experiments"*, In: 7th International Conference on Models and Technologies for Intelligent Transportation Systems (MT-ITS), 2021, pp. 1-6, DOI: https://doi.org/10.1109/MT-ITS49943.2021.9529268

E. Michelaraki , C. Katrakazas, G. Yannis , E. Konstantina Frantzola, F. Kalokathi , S. Kaiser , V. Ross , K. Brijs and T. Brijs. *"A Review of Real-Time Safety Intervention Technologies.* In: Proceedings of the 7th Humanist Conference, Rhodes Islands, Greece, October 26-27, 2021. ISBN : 978-2-9531712-6-6 (Article online available)

E. Michelaraki, C. Katrakazas, G. Yannis, A. Filtness, R. Talbot, G. Hancox, Fran Pilkington-Cheney, K. Brijs, V. Ross, H. Dirix, A. Neven, R. Paul, T. Brijs, P. Fortsakis, E. Konstantina Frantzola and R. Taveira, *"State-of-the-art Technologies for Post-Trip Safety Interventions"*, In: Proceedings of the 7th Humanist Conference, Rhodes Islands, Greece, October 26-27, 2021. ISBN : 978-2-9531712-6-6 (Article online available)

i-DREAMS CONSORTIUM CALENDAR

Internal activities

16 - 17 Mar 2021

i-DREAMS Sixth Steering Committee / Second User Advisory Board
Online (due to COVID-19)

8 Jun 2021

i-DREAMS Seventh Steering Committee
Online (due to COVID-19)

8 Oct 2021

i-DREAMS Eigth Steering Committee
Online (due to COVID-19)

Planned activities

19 - 20 Jan 2022	**i-DREAMS Nineth Steering Committee / General Assembly** Online (due to COVID-19)
tbd Apr 2022	**i-DREAMS Second Mid-Term Review Meeting** Online (due to COVID-19) or Physical (to be decided)
8 - 10 Jun 2022	**Participation in the '8th Road Safety & Simulation International Conference', https://www.nrso.ntua.gr/rss2022/ -** Athens, Greece – With several presentations of the i-DREAMS consortium and Prof. dr. Tom Brijs as keynote speaker
14 - 17 Nov 2022	**Participation in the 'Transport Research Arena' conference, https://traconference.eu/ -** Lisbon, Portugal – With several presentations of the i-DREAMS consortium

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