Capacity building programme format

E2DRIVER H2020 project

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PROJECT PARTNERS

CIRCE: Fundación CIRCE Centro de Investigación de Recursos y Consumos Energéticos

FRAUNHOFER: Fraunhofer Gesellschaft zur Förderung der Angewandten Forschung e.V.

POLITO: Politecnico di Torino

EPROPLAN: EPROPLAN GmbH Beratende Ingenieure

SINERGIE: Sinergie Società Consortile a Responsabilità Limitata

ENGIE: ENGIE Lab CRIGEN

SERNAUTO: Asociacion Espanola de Proveedoresde Automocion

AEN: Automotive.Engineering.Network – Das Mobilitätscluser e.V.

MESAP: Centro Servizi Industrie SRL

MOV'EO: Pole Mov'eo – Mobility Competitiveness Cluster

EPC: EPC Project Corporation Climate. Sustainability. Communications. mbH

MERIT: MERIT Consulting House

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PUBLISHABLE SUMMARY

The goal of this deliverable is to define the format of the **E2DRIVER Capacity building programme** as a first step for designing the customized training for the companies involved in the project. For that reason, it considers all aspects analysed in the Work Package 2 – *Benchmarking and analysis of training programmes at the automotive sector* and, together with the Deliverable 2.3 – *E2DRIVER platform specifications*, establishes the baseline for the development of the Work Package 3 – *Development of the training methodology and E2DRIVER platform*.

Considering that purpose, this deliverable is divided into three parts:

1. A section about the format of the E2DRIVER trainings,
2. a part where the format of the training materials is addressed and
3. a closing point where the format impact in the Methodology and the Platform is analyzed.

In line with that, the main outputs obtained in this Task 2.4 – *Profile design and characterisation of different roles within industries* are explained below:

(1) In this deliverable, it is defined the main structure of the **E2DRIVER Capacity building programme**. There will be one E2DRIVER Capacity building programme per company. It will constitute the customized training designed for each company. Each E2DRIVER Capacity building programme will contain one **E2DRIVER Adjustment session** in order to fine tune the capacity building programme, one or more **E2DRIVER Training** that constitute the core of the training action in the project and one **E2DRIVER virtual reality session** as closing session.

(2) Furthermore, the structure of two additional expected training actions are explained: The **Training of Trainers** and the **E2DRIVER Training 100% online**.

(3) On the other hand, in this deliverable, the format of the **training materials** is also detailed. Therefore, it is explained the characteristics that videos, written documents, exercises, presentations, virtual reality, and so on that will compose the E2DRIVER repository must fulfil.

(4) Finally, the last result of this deliverable is an explanation of the main **impacts** that these formats will have in the two main results of the project: The **Methodology** and the **Platform**. Therefore, the role that the format plays in the methodology is detailed, as well as practical aspects such as how to organize the training materials and courses in the online training platform.

It is important to remark that this public deliverable will be checked by MUNER (Motorvehicle University of Emilia Romagna) which is member of the E2DRIVER Advisory Board. This E2DRIVER Advisory Board is composed of a group of independent experts, from both public and private sector from different European countries that provide qualitative advice, guidance and expertise to the E2DRIVER partners. Their comments and suggestions will be taken into consideration for the next steps of the project.

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1 INTRODUCTION

The objective of this deliverable is to develop the format of the **E2DRIVER Capacity building programmes**, considering the analysis performed in the whole Work Package 2 – *Benchmarking and analysis of training programmes at the automotive sector*. Based on other capacity building programme experiences, the format is in charge of defining **how to develop plan, program and objectives** for every E2DRIVER training actions according to the target group. With this end, the general structure of the courses will be defined, as well as their **specific objectives, duration, topics, methodological strategies, learning activities, learning assessment systems** and so on. Thank to that, during the execution of the Task 3.2 - *Development of the overall training methodology*, the E2DRIVER experts could design the training itineraries, as well as, together with the specifications of Task 2.3, the software developer will be able to program the E2DRIVER platform in Task 3.5 – *Platform development and modules integration* for an automatic (and customized) capacity building programme generation.

Considering the information above, this deliverable will be divided into three parts:

(1) The **format** and **terminology** of the E2DRIVER training actions (section 2 and 3): In this part, the names of the different kinds of trainings and the structure of the E2DRIVER Capacity building programme is defined. The goal of this part is to set a clear, understandable and easy-implementing approach of training structure that allow E2DRIVER project to achieve its objectives.

(2) The format of the **E2DRIVER contents** (section 4): where it is determined the main characteristics of the training materials which are been made in Task 3.1 – *Information gathering and repository development*. The purpose of this section is to maintain clear rules about how to develop the training materials which can be shared by all training entities involved, as well as by the future entities that could participate in the project or the post project.

(3) And, finally, the **impacts** that the determined formats have in the E2DRIVER Methodology and the platform of the project (section 5).

Thanks to the definition of those format, as was previously said, the baseline of the future methodology and training implementation are set, as well as the main instructions for developing the training materials and the training platform. Therefore, this task will have a great impact in the whole Work Package 3 – *Development of the training methodology and E2DRIVER platform*. In line with that, considering the importance of this deliverable because its impact in the two main outputs of the project (the **methodology** and the **platform**), this deliverable reserves the last section to assess how the format affects to those two results.

2 GENERAL CONSIDERATIONS ABOUT THE E2DRIVER TRAINING FORMAT.

2.1 Training implementation methodology in Grant Agreement.

In this part, the types of training actions that the GA foresaw for this project are explained. These types of training were presented briefly and with general names. For that reason, also in this section, some adjustments are performed about names and organization of the E2DRIVER training actions.

In E2DRIVER Grant Agreement Part B, the training implementation methodology is described by following the next scheme[1]:

(1) **Introductory sessions and lessons (5 hours)** in which face-to-face meetings and interviews will be carried out and information mainly on the benefits of energy audits and energy management issues will be provided. These sessions will be of special importance to develop the adaptive learning environment and will be performed in parallel with the customization step in order to gather their first insights on the lessons taught and modify accordingly the content of the training.

(2) **Specific training (15 hours)** consisting on about 5 on-line lessons with a total duration of 10 hours, a theoretical exam and a final face-to-face practical lesson including an interactive session to discuss about potential energy efficiency measures that could be implemented in the company. Employees will be trained on energy efficiency issues in general with insights from behavioural, cultural and organizational perspectives through blended learning and making use of an ontological flip teaching method. Accordingly, E2DRIVER training will enable trainees to generate their own knowledge and training materials and share it at two levels, within the company to influence other staff of relevance for energy use and consumption, and outside the company to increase the collective intelligence on energy related issues of the automotive sector. Thus, first, a significant part of the training will consist in topics like motivating employees to support energy efficiency measures and how to communicate energy efficiency issues within the company, while a second part will train them about energy audits, energy management, energy efficiency in thermal and electrical processes and energy monitoring systems. Moreover, one “change agent” or “energy expert” will be selected as the company’s responsible for improving energy efficiency and therefore will be trained also on implementing the right interventions to ensure a change in the organization towards energy efficiency.

(3) **Interactive workshops (5 hours per 10 people)** where a more interactive training will be performed. The aim of these workshops will be to engage the majority of the actors in changing towards an improved energy culture. For this reason, instead of just giving a speech on the importance of energy efficiency, these workshops will also include interactive storytelling, brainstorming sessions, discussions addressing emotional insight and value redefinition, etc. VR training material will be crucial in this regard, enabling an enhanced real-life experience that tap user’s emotions and force them to act.

[1] E2DRIVER Grant Agreement. Part B. Page 16-17.

Additionally, regarding the replication mechanisms, it is explained that "E2DRIVER will train 15 people per country to become certified trainers, which will require 20 hours of additional training, so the results will be transferred to the newly created permanent capacity of E2DRIVER trainers".

Considering this information, **4 types of training actions** were included in the proposal of the E2DRIVER project:

1. The introductory sessions and lessons (5 hours).
2. The specific training (15 hours) with the training for change agents inserted on it.
3. The interactive workshops (5 hours per 10 people).
4. The training to be a certified as E2DRIVER trainer (20 hours per 15 people).

As previously was said, the names and the organization of the training are so general. So, it is needed to perform some **tuning measures**.

- ❖ Re-naming:

(1) Regarding the first one, the "**Introductory sessions and lessons**" are not a course strictly speaking. It is true that some information about energy efficiency and energy audits is provided, but the main goal of these sessions is methodological. They are crucial for the final customization of the training, since they constitute an opportunity to present the capacity building programme designed by the project to the company and, afterwards, to get their feedback. Therefore, from now on, the "Introductory sessions and lessons" will be receive the name of "**E2DRIVER adjustment sessions**" (Figure 1). A name that is more appropriate taking into account the nature of these sessions.

Figure 1. Re-naming (1)

(2) About the second one, the "**Specific trainings**" are the core of the E2DRIVER training actions. They are the customized trainings that each trainee will receive in the context of the project. The rest of the actions are just complementing. So, in this case, the "Specific training" (having included the "Interactive workshop") will receive the name of "**E2DRIVER training**" because they are the real training of the project (Figure 2).

Figure 2. Re-naming (2)

(3) Regarding the fourth type of course, taking into account that the goal is to train and certify 15 trainers to be replicators of the project, these courses will receive the name of "**E2DRIVER Training of Trainers (ToT)**" (Figure 3).

Figure 3. Re-naming (3)

- ❖ Organizing:

(4) On one hand, regarding the general organization of the project, it is appropriate to define a name for the whole training plan of the company. Each training plan in a company will be composed by one

"E2DRIVER adjustment session" (for fine-tuning with company's feedback), one or more "E2DRIVER training" (the real training) and one "E2DRIVER virtual reality session". This whole training plan that E2DRIVER designs for a specific company will receives the name of "**E2DRIVER capacity building programme**" (Figure 4).

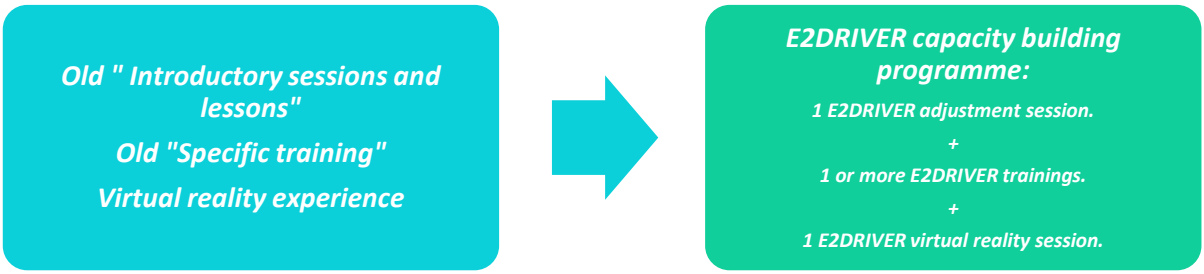

Figure 4. Organizing (1)

(5) On the other side, taking into account that the target groups of the "Interactive workshops" are the change agents[2], the "**Interactive workshops**" are not an independent training action anymore and they are included inside the "E2DRIVER training" that is aimed at change agents (Figure 5). It is important to remark that the virtual reality experience is not included in these interactive workshops, but in the end of each Capacity building programme of each company.

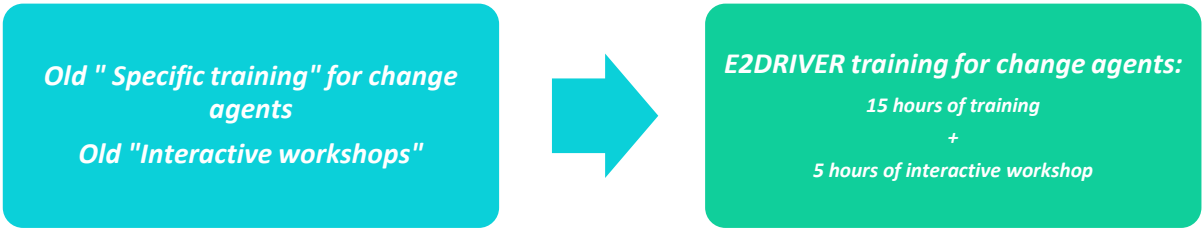

Figure 5. Organizing (2)

- ❖ New training action:

(6) Finally, as a plus, considering some post-project forecasts, an additional type of training has been included inside the E2DRIVER training classification: the "**E2DRIVER training 100% online**".

2.2 General structure and terminology of the training actions.

As a conclusion of the previous section, this is the list of E2DRIVER training actions:

1. **E2DRIVER capacity building programme**: the whole training plan for a company. It is composed by one "E2DRIVER adjustment session", one or more "E2DRIVER training" and one "E2DRIVER virtual reality session".
    - 1.1 **E2DRIVER adjustment sessions (5 hours):** not real training but a meeting with the company looking for feedback. It renames the old "Introductory sessions and lessons".
    - 2.1 **E2DRIVER trainings:** they are the core of the training actions and they provide customized training to each trainee. It renames the old "Specific training" and absorbs the "Interactive workshops". The five preliminary types of E2DRIVER trainings are:
        - E2DRIVER training for Managers (12 hours).

[2] „One „change agent" or „energy expert" will be selected as the company's responsible for improving energy efficiency and therefore will be trained also on implementing the right interventions to ensure a change in the organizaiton towards energy efficiency"

- E2DRIVER training for Science and Engineering professionals (15 hours).
- E2DRIVER training for Technical Managers (15 hours).
- E2DRIVER training for Technicians (2 hours).
- E2DRIVER training for Change agents (20 hours). Interactive workshops are a part of this course.

3.1 **E2DRIVER virtual reality session (1 hour)**: performed at the end of the Capacity building programme, the idea is that the users are those employees who have or would have a role in possible energy measures in the company, while the rest of the trainees observe the exercise together with the trainers' explanation.

2. **E2DRIVER Training of Trainers (ToT) (20 hours):** it is the name for the training that is aimed at future replicators.
3. **E2DRIVER Training 100% online (15 hours):** post-project alternative for a wide public of trainees interested in E2DRIVER topics.

As can be seen in Figure 6, regarding the trainings' structure and the organization of the lessons and units inside the trainings, each "**E2DRIVER training**" has inside several "**units**". The units are composed by "**resources**" which are the tools or training materials used for the training, such as a theoretical content in a written document, a video, a guideline, a link or whatever other format that could be used for creating a training experience. Hence, it may be considered that the repository is composed by "**resources**", while the "**unit**" is a way to organize them and the "**E2DRIVER training**" is the customized and sequential way to present the units to each trainee.

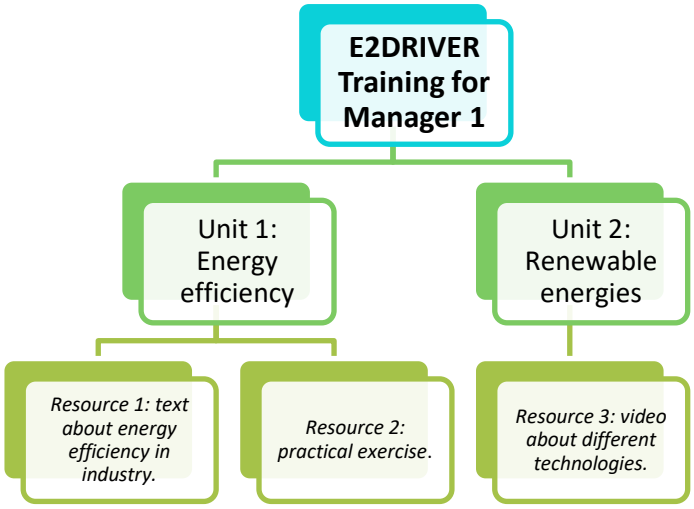

Figure 6. Example of the internal structure of an E2DRIVER training.

3 FORMAT OF THE E2DRIVER TRAINING ACTIONS.

3.1 E2DRIVER Capacity building programme.

An "**E2DRIVER capacity building programme**", as explained previously, is a training plan for a company. As can be seen in next Figure 7, it is composed by one "E2DRIVER adjustment sessions", one or more "E2DRIVER trainings" and one closing "E2DRIVER virtual reality session".

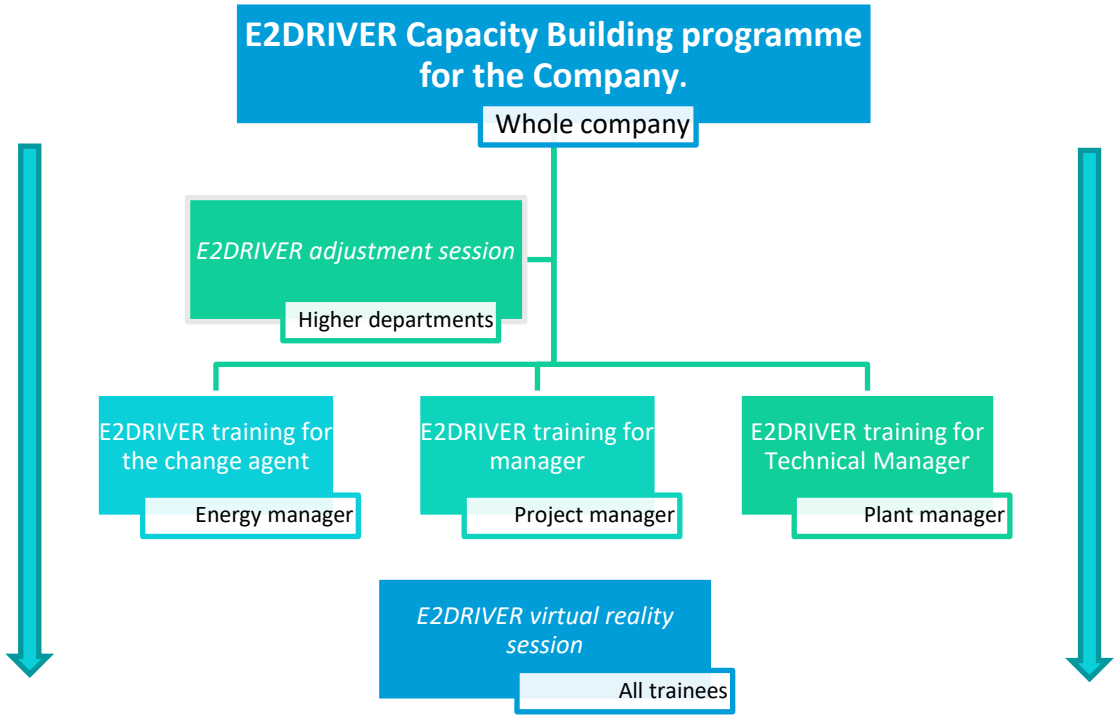

Figure 7. Example of the structure of an E2DRIVER capacity building programme.

The "E2DRIVER adjustment session" is in charge of ensuring the correct **customization** of the E2DRIVER capacity building programme of the company, looking for the best adaptation of the several "E2DRIVER trainings" to the **needs and interests** of each target group. Once the "E2DRIVER trainings" are perfected, they can be implemented. Finally, the closing session will be focused on the virtual reality.

3.1.1 E2DRIVER Adjustment sessions (5 hours).

E2DRIVER Adjustment sessions	
Objective	(1) To show energy audits benefits and (2) to perform the final adjustment.
Duration	5 hours.
Mode	Face-to-face.
Type of training	Meeting.
Topic	(1) Benefits of energy audits and energy management and (2) final adjustment of E2DRIVER Capacity building programme.
Target	Higher department of the company and the energy/maintenance manager.

Table 3. E2DRIVER Adjustment sessions

After a preliminary customization of the training, the first contact with the companies will be performed through the **E2DRIVER adjustment session** in order to verify training needs and adjust the final version of E2DRIVER Capacity building programme that will be tailor-made for each pilot/replication company (Table 3). Each company will hold one of those sessions that will have a duration of **5 hours**. They are **not a training strictly speaking**. In spite of the fact that some information about the benefits of the energy audits and energy efficiency will be provided with the purpose to encourage company to implement a correct energy management and to perform an energy audit, the final objective of these sessions is to **put the finishing touches** to the E2DRIVER Capacity building programme designed by the project for the company. Therefore, these sessions constitute the last step of the **customization** process where the project will be able to collect more information regarding the needs, expectations and interest of the company thanks to the inputs from the higher departments.

Regarding the format of those **E2DRIVER adjustment sessions**, considering the limited time available of the expected target groups, it is appropriate that this type of session would be **tight** and enclosed in **only one day**. Besides, during their execution, trainers should be **patient** and **flexible**, since continual interruptions are likely to happen due to the nature of the work of the expected attenders: managers and direction. Sometimes, they may be forced to absent for a while in order to attend another meeting or to answer a call or another possible event.

On the other hand, it is advisable that this session is divided into **four main parts**:

(1) Firstly, the trainer or E2DRIVER expert will explain some key points about the **assessment** performed in the specific company, sharing with the attenders the results of the analysis performed during the characterization of the enterprise. The E2DRIVER experts will show the results of the energy assessment, the data obtained in the technical and non-technical measuring, as well as the data obtained in the surveys, interviews and meetings performed during customization phase. Thanks to this explanation of the main results obtained, the company's higher departments could express their opinion and considerations, being possible to know if the company's view that E2DRIVER project has is **complete** and **correct**.

(2) Secondly, taking advantage of the first part where the company assessment is explained, the E2DRIVER experts could present the **benefits of the energy audits**. The analysis performed in the company during characterisation[3] is similar than an energy audit, so it is possible to extract conclusions and to assess possible energy measures from it. Hence, thanks to the example of this performed analysis, the company's higher departments are able to see the benefits of having **energy audits** regularly and of implementing a correct energy management system.

(3) The third part of the session is expected to be the most **dynamic** one. The purpose is to encourage attenders to share with the group their opinion regarding the expected training planned. For getting that, first, the E2DRIVER experts will present the E2DRIVER Capacity building programme designed. Afterwards, the attenders will express their opinions about it, providing **feedback** about the most appropriate format, changes in the topics addressed or whatever other considerations could be improved.

(4) Finally, once the whole session has been completed, the E2DRIVER expert(s) will explain the conclusions and the general ideal of the expected **E2DRIVER Capacity building programme**. As

[3] Task 4.1 – Detail characterisation of the pilot industries and staff.

far as it is possible, the experts would include in the conclusions the points and feedback collected during this session.

Once the **E2DRIVER adjustment session** is over, on one hand, the attenders should be more **aware** of the benefits that energy audit and energy management provide to an industry and, on the other hand, the E2DRIVER experts would have gathered the very last **inputs** from the company to put the finishing touches to the capacity building programme. If both points are achieved, the E2DRIVER adjustment session has been developed successfully.

As last step, it is important to send the **final version of the E2DRIVER Capacity building programme** to the company in order to get the **final validation**.

3.1.2 E2DRIVER Training (2-20 hours).

E2DRIVER Trainings	
Objective	(1) To train companies' staff and (2) to improve the collective intelligence of the sector.
Duration	Among 2-20 hours. Depending on the target group.
Mode	Face-to-face and online.
Type of training	Online and face-to-face or only on-site. Depending on the target group.
Topic	Not fixed. It depends on the target group.
Target	Companies' employees.

Table 4. E2DRIVER Training

In general, the E2DRIVER training (Table 4) will have a duration of **15 hours** with 10 hours of online training and a final face-to-face practical class of 5 hours[4].

The objectives of these **E2DRIVER training** plans for the companies is two-fold: (1) to **train** employees in energy efficiency and energy audit topics and (2) to improve the **collective intelligence** of the automotive sector. The first one can be achieved thanks to the organization and implementation of the training actions. On the other hand, regarding the second one, the use of the Ontological Flip Teaching[5] as a main methodology of the project is critically important in order to catalyse the beginning of the collective intelligence continual progress up.

Ontological Flip Teaching will be deeply explained in D3.2 – *E2DRIVER training methodology*. In summary form, this methodology includes the features of the Flip Teaching: "the FT model is usually based on two main activities, "lesson at home" through explicit knowledge (videos in most of the cases) and "homework in class" through educational activities in the classroom"[6]. Furthermore, when trainees are "at home", they are encouraged to perform "academic work based on the teacher's videos

[4] E2DRIVER Grant Agreement. Part B. Page 17.

[5] More details in the Deliverable 3.2 E2DRIVER training methodology expected for M16.

[6] Fidalgo-Blanco, Á., Sein-Echaluce, M. L., & García-Peñalvo, F. J. (2018). Ontological flip teaching: A flip teaching model based on knowledge management. Universal Access in the Information Society, 17(3), 475–489. doi:10.1007/s10209-017-0556-6. https://repositorio.grial.eu/bitstream/grial/1581/1/Fidalgo-BlancoPostPrint.pdf

and the complementary material"[7]. These academic works can be used in on-site sessions and, furthermore, in future training actions[8]. Therefore, a spiral where new knowledge is continuously collected can be catalysed, being possible to increase the collective intelligence of the automotive sector.

Regarding the topics addressed, during these sessions, the trainee will receive knowledge about **technical** and **non-technical** issues, highlighting the specific state of their company and doing an effort to **contextualize** the acquired knowledge in order to make it applicable to their work place. In line with that, employees will be trained on **energy efficiency** issues with insights from **behavioural**, **cultural** and **organizational** perspective[9]. In addition, the trainers will address **motivating** contents as well, trying to transfer employees the need to have a responsible behaviour during their work in the field of energy and environmental. They should be fully aware that their actions have economic effects on their company, social consequences and environmental impacts.

In general, the format of the E2DRIVER Training will consist of three parts: **online** lessons, one **face-to-face** session and **generation of training material** by the trainees.

Regarding the contents that are addressed in each part, these have an important methodological stamp. The **Ontological Flip Teaching** remarks that all the **theoretical** contents and all the activities that each individual can perform by their own should be place at home using **online** tools or other types of training tools. Meanwhile, the **practical exercises** and dynamics which have a collective essence should be place **in class**, fostering the collaborative way of work.

For that reason, all the **theoretical** aspects about the **energy efficiency** (energy audits, energy management, energy efficiency in thermal and electrical processes and energy monitoring systems) and about **organization** will be addressed during the E2DRIVER training in **online** format by using the **E2DRIVER platform**. Meanwhile, in **class**, the trainers will be focused, on one hand, on **motivating**, **behavioural** aspects and **communication** skills[10] and, on the other hand, on the **specific state** of the company, trying to make employees aware about which is the situation in their case, which are the most appropriate changes and **energy measures** that should be implemented and which is the **role** that each one must play in order to achieve a successful change in the company. This last face-to-face lesson must be **practical** and **interactive**[11].

Finally, as mentioned, it is important to highlight that the Ontological Flip Teaching has a third pillar that aims to increase the **collective intelligence** of the automotive sector: the **generation** of **training materials**. The purpose of this part is that trainees collaborate with E2DRIVER by generating new materials which feed the E2DRIVER repository. This will cause an increase of E2DRIVER resources (new

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[7] Fidalgo-Blanco, Á., Sein-Echaluce, M. L., & García-Peñalvo, F. J. (2018). Ontological flip teaching: A flip teaching model based on knowledge management. Universal Access in the Information Society, 17(3), 475–489. doi:10.1007/s10209-017-0556-6. https://repositorio.grial.eu/bitstream/grial/1581/1/Fidalgo-BlancoPostPrint.pdf

[8] Fidalgo-Blanco, Á., Sein-Echaluce, M. L., & García-Peñalvo, F. J. (2018). Ontological flip teaching: A flip teaching model based on knowledge management. Universal Access in the Information Society, 17(3), 475–489. doi:10.1007/s10209-017-0556-6. https://repositorio.grial.eu/bitstream/grial/1581/1/Fidalgo-BlancoPostPrint.pdf

[9] E2DRIVER Grant Agreement. Part B. Page 17.

[10] „how to communicate energy efficiency issues within the company" (E2DRIVER Grant Agreement. Part B. Page 17).

[11] E2DRIVER Grant Agreement. Part B. Page 17.

knowledge) available for future trainings and, consequently, an increase of the collective intelligence of the sector and their workers one. These new contents can be shared with other trainees in case the materials have an appropriate quality. E2DRIVER platform will enable to **spread** these new contents in two levels: within the company to influence other staff of relevance for energy use and consumption, and outside the company to increase the collective intelligence on energy related issues of the automotive sector[12].

The evaluation of the trainee's performance will be assessed by a **theoretical exam** that will be hosted in the E2DRIVER platform. In addition, the trainer can consider **extra practical exercises** to be performed during face-to-face sessions.

To conclude, it must be noted that this is just a **general scheme** of an E2DRIVER training. All training types explained in this deliverable are "ideal types". Training's characteristics will necessarily vary depending on the company, the trainee's group and the personal background. In line with that, in following subsections, the deliverable will go deeper. It will explain the general expected E2DRIVER training for the four main trainee's groups defined in T2.2: **Managers**, **Science and Engineering Professionals**, **Technical Managers** and **Technician**. This can be done and is useful because (1) the trainee's groups have been already defined, (2) those trainee's groups will be the main scheme for classifying the trainees and for creating the first version of the training, and because (3) the "company" and the "personal background", in spite of the fact that they will cause changes in the final version of the training, they will act on the basis of that first training version created by classifying the trainees into one trainee's group.

Therefore, next, it is possible to consult the general E2DRIVER training expected for each trainee's group. Additionally, the special E2DRIVER training that is focused on **change agents** has been included.

3.1.2.1 E2DRIVER training for Managers.

E2DRIVER Training for Managers	
Objective	(1) To train companies' managers and (2) to improve the collective intelligence of the sector.
Duration	12 hours.
Mode	Face-to-face and online.
Type of training	10 hours using a learning platform + 2 hours of on-site session.
Topic	Technical and non-technical aspects with high-level perspectives.
Target	Companies' managers.

Table 5. E2DRIVER Training for Managers

This E2DRIVER training for Managers (Table 5) is expected to have a duration of **12 hours** with 10 online hours and a final face-to-face practical class of 2 hours.

The **target group** are the **Managers** who are those employees working as medium or high-level managers, senior officers, managing directors in traditional management areas, such as general management, sales, marketing etc. They usually hold a graduate or post-graduate degree in management, business administration, finance, accounting etc. Generally, their background is business

[12] E2DRIVER Grant Agreement. Part B. Page 17.

oriented or theoretical, while having little technical knowledge. They also participate quite often in self-educational programs in order to improve their skills, while utilizing new technologies.

Methodologically, this type of E2DRIVER training will maintain the general structure of the **Ontological Flip Teaching** model:

(1) **Online lessons (10 hours)**: thanks to the theoretical contents that they could find in the platform, they will be aware of practices and process related to energy management, as well as with more technical aspects, from a high-level perspective, like energy flows and conversions. Additionally, they will receive training about best practices, renewable energies and integration of energy management in existing management systems.

(2) **One face-to-face session (2 hours)**: this session will be two-fold: (1) it will have a part where coaching, mentoring, behavioural, cultural and organizational aspects will be addressed, and (2) a second part where a discussion will be addressed about the current state of the company and its potential to improve energy performance.

(3) **Generation of new materials**: the third pillar in this training can be quite open. Trainees will suggest to trainers an option of coursework that could increase the collective intelligence of the sector and/or could improve the energy performance of their company.

3.1.2.2 E2DRIVER training for Science and Engineering Professionals.

E2DRIVER Training for Science and Engineering Professionals	
Objective	(1) To train companies' science and engineering professionals and (2) to improve the collective intelligence of the sector.
Duration	15 hours.
Mode	Face-to-face and online.
Type of training	10 hours using a learning platform + 5 hours of on-site session.
Topic	Wide knowledge in technical issues and economic, social and environmental impacts.
Target	Companies' science and engineering professionals.

Table 6. E2DRIVER Training for Science and Engineering Professionals

This E2DRIVER training for Science and Engineering Professionals (Table 6) is expected to have a duration of **15 hours** with 10 online hours and a final face-to-face practical class of 5 hours.

The **target group** are the **Science and Engineering Professionals** who are those employees working as technology experts, researchers, engineers leading the R&D department, supervising the whole production line, or implementing new designs, processes and equipment. They work in highly technical and technological positions such as ICT, system design, process design, holding a graduate, post-graduate educational or even a PhD degree usually in engineering, but also in physics, mathematic etc. They are technology experts, and they master the learning process using different sources to develop their skills, including the internet or other novel methods.

Methodologically, this type of E2DRIVER training will maintain the general structure of the **Ontological Flip Teaching** model with few changes respecting the training for Managers:

(1) **Online lessons (10 hours)**: their activities will be composed by training on monitoring systems, tools, performance indicators, data analysis and energy management. Moreover, they should

get a broader knowledge on the topic, including economic impacts for the company and environmental impact.

(2) **One face-to-face session (5 hours)**[13]: this session will be a practical exercise where the main topic addressed will be the current state of the company and the possible energy measures that are necessary to be implemented. Connected with this, the internal and external economic, social and environmental impacts derived from the activity of the company will be addressed, trying to understand how energy management is relevant and why energy audits should be performed regularly.

(3) **Generation of new materials**: they will be encouraged to suggest possible energy measures in order to create an E2DRIVER repository of energy measures. The applicable energy measures could be used during the face-to-face session.

3.1.2.3 E2DRIVER training for Technical Managers.

E2DRIVER Training for Technical Managers	
Objective	(1) To train companies' technical managers and (2) to improve the collective intelligence of the sector.
Duration	15 hours.
Mode	Face-to-face and online.
Type of training	10 hours using a learning platform + 5 hours of on-site session.
Topic	Wide knowledge in technical aspects.
Target	Companies' technical managers.

Table 7. E2DRIVER Training for Technical Managers

This E2DRIVER training for Technical Managers (Table 7) is expected to have a duration of **15 hours** with 10 online hours and a final face-to-face practical class of 5 hours.

The **target group** are the **Technical Managers**. This is the most versatile and mixed group of trainees. It includes workers that could also belong to another group under certain conditions, working in in middle and lower management level positions with a technical orientation. In that terms it consists of engineers with managerial skills that become technical managers, manufacturing managers, line managers etc. It can also include managers with some technical skills who have a better understanding of technology and can be production managers, operations managers etc. Finally, it can include some former technicians who do not have some kind of academic degree but hold substantial experience. They may have managed to acquire some kind of typical educational certificate and have proven themselves over the years for their effectiveness, expertise and intelligence. They can also work in one of the above positions, mostly in lower management though.

Methodologically, this type of E2DRIVER training will maintain the general structure of the **Ontological Flip Teaching** model with few changes respecting the training of the rest profiles:

(1) Online lessons (10 hours): their activities will be composed by training on energy saving practices and tips, on monitoring systems, tools, performance indicators, data analysis and

[13] This session can be held together with the face-to-face session of the Technical Managers and Change Agents, due to the contents will be the same.

energy management, economic impacts for the company and environmental impact. Moreover, training on technical aspects included in the ISO 50001 and the staff involvement.

(2) **One face-to-face session (5 hours)**[14]: this session will be a practical exercise where the main topic addressed will be the current state of the company and the possible energy measures that are necessary to be implemented. Connected with this, the internal and external economic, social and environmental impacts derived from the activity of the company will be addressed, trying to understand how energy management is relevant and why energy audits should be performed regularly.

(3) **Generation of new materials**: Technical Managers will be encouraged to suggest possible energy measures in order to create an E2DRIVER repository of energy measures. The applicable energy measures could be used during the face-to-face session.

3.1.2.4 E2DRIVER training for Technicians.

E2DRIVER Training for Technicians	
Objective	To train companies' technicians
Duration	2 hours.
Mode	Face-to-face.
Type of training	2 hours of on-site session.
Topic	Energy aspects applied to their daily work.
Target	Companies' technicians.

Table 8. E2DRIVER Training for Technicians

Technicians are those employees who do not have some kind of academic degree. The usually work in production, maintenance or other technical positions, following procedures and well-established processes based on their technical skills.

The format of this E2DRIVER training for Technicians changes a lot if we compare it with the rest trainings (Table 8). **These sessions will consist on 1 face-to-face session of 2 hours**. This format has been selected because it is considered the most appropriate format for them due to their academic and professional background, and because the technicians' sample that answered the survey of the Task 2.2 – *Profile design and characterisation of different roles within industries*[15] expressed their preference of on-site training.

These sessions will be totally focused on their daily work, looking for a very practical class.

[14] This session can be held together with the face-to-face session of the Science and Engineering Professionals and Change Agents, due to the contents will be the same.

[15] See Deliverable 2.2 – *E2DRIVER trainees' target groups definition.*

3.1.2.5 E2DRIVER training for change agents.

E2DRIVER Training for Change agents	
Objective	To provide a specific training for the future change agents.
Duration	20 hours.
Mode	Face-to-face and online.
Type of training	10 hours using a learning platform + 5 hours of on-site session + 5 hours of interactive workshop.
Topic	High technical knowledge, communication, leadership and other soft skills.
Target	Future "change agents" from each company.

Table 9. E2DRIVER Training for Change agents

E2DRIVER project foresees to select one "**change agent**" or "energy expert" in each company in order to be the **responsible** person for **improving energy efficiency** and therefore will be trained also on implementing the **right interventions** to ensure a change in the organization towards energy efficiency[16]. This specific training action (Table 9) is foreseen to have both **face-to-face and online** mode and the duration would be around **20 hours**.

The **purpose** of this training is to make that chosen person becomes the **leader** in the change process where the company will adapt their processes to the energy management best practices and will implement as much energy measures as possible. Probably, the most appropriate person to be the change agent would be the person in charge of energy management, or who controls energy consumptions, if any, and on the other hand, also the person responsible for maintenance. In spite of that, depending on the specific company, another person could be selected to perform this role according to their responsibilities.

Regarding the contents of the training, the additional capacity programme provided to these agents will contain both main parts. On one hand, a **high technical knowledge** is expected from them, so a deeper theoretical content will be provided to them, while, on the other hand, **communication** and **leadership** skills will be consider as one of the main tools in order to achieve the objective of changing the company's way of work. In line with that, a package of **soft skills** contents will try to improve the non-technical abilities of the future change agents. This pack will contain issues connected with energy consumption control, motivation, how to communicate, people management, cultural management, and so on.

Methodologically, this type of E2DRIVER training will also maintain the general structure of the **Ontological Flip Teaching**:

(1) Online lessons (10 hours): as mentioned, the technical contents that they will receive in their online session will be more advanced. It is expected that they have a high level of energy knowledge: ISO 50001, energy management, industrial processes, energy audits, etc.

(2) **One face-to-face session (5 hours)**[17]: this session will be a practical exercise where the main topic addressed will be the current state of the company and the possible energy measures

[16] E2DRIVER Grant Agreement. Part B. Page 17.

[17] This session can be held together with the face-to-face session of the Science and Engineering Professionals and Technical Managers, due to the contents will be the same.

that are necessary to be implemented. Connected with this, the internal and external economic, social and environmental impacts derived from the activity of the company will be addressed, trying to understand how energy management is relevant and why energy audits should be performed regularly.

(3) **Generation of new materials**: they will be encouraged to suggest possible energy measures in order to create an E2DRIVER repository of energy measures. The applicable energy measures could be used during the face-to-face session.

(4) **Interactive workshop (5 hours)**: the aim of these workshops will be to engage the majority of the actors in changing towards an improved energy culture. For this reason, instead of just giving a speech on the importance of energy efficiency, these workshops will also include interactive storytelling, brainstorming sessions, discussions addressing emotional insight and value redefinition, etc. Here is the most appropriate place where the soft skills can be improved.

As mentioned, the **interactive workshops** will be an additional tool in order to retain knowledge and skills provided during the training actions for change agents. Furthermore, it will constitute a great **networking** opportunity, since only one interactive workshop per country will be held with all the change agents from this country[18].

Thus, interactive workshops will consist on **an event per country** where companies' change agents will perform different activities such as interactive storytelling, brainstorming sessions, discussions addressing emotional insight and value redefinition, etc. To develop this workshop, the training entities of each country should define where it is the **most appropriate place** to hold the event, considering the workplace of each attender and the need to concentrate all of them in one point. Ideally, the event will be held in the **facilities** of the **E2DRIVER training entities** (EPROPLAN, CIRCE, ENGIE and SINERGIE). However, other place could be defined considering the specific circumstances of each country.

The session of 5 hours could be divided like it is explained next:

- First, a brief explanation of the project will be performed, trying to collect **impressions** from the change agents about the experience of their companies during the training execution.
- Secondly, a part composed by different group dynamics where the trainees could improve their knowledge in collaboration with their colleagues from Automotive sector companies: discussions, practical exercises, etc. Taking into account that the "hard skills" have been studied during online and face-to-face session in their respective companies, the workshop is expected to be more focused on "**soft skills**".

3.1.3 E2DRIVER Virtual reality session (1 hour)

Once all E2DRIVER training are has been completed, a closing session will be held. In this one, the **Virtual Reality** will be the main character. It will be **1-hour** length and the attenders will be all the E2DRIVER trainees that have participated in the project in this company. However, due to the limited

[18] So, one interactive workshop in Germany with the 10 changes agents of the 10 companies from this country, one interactive workshop in Spain with the 10 changes agents of the 10 companies from this country and so on.

time available[19], in case it is not possible that all attenders perform the VR exercise, only those who are or will be in charge of energy measuring will perform the exercises. In spite of that, the E2DRIVER trainers will try that all trainees have the opportunity to play with the Virtual Reality exercise and, furthermore, a screen will enable them to see how others perform the exercise.

This exercise will be focused on **energy consumption measuring** in the companies' facilities. For instance, how to place and connect a measurement equipment in an electric switchboard. This kind of knowledge is highly interesting in order to know how to quantify energy consumptions related to electricity in industrial processes as a critical point before the procedure of defining energy efficiency measures of improvement and their implementation in the industry. Due to the difficulty and for safety reasons, the use of Virtual Reality facilitates the teaching and understanding of this example of measurement that is usually carried out in energy audits and for energy consumption control.

3.2 E2DRIVER Training of Trainers (20 hours).

E2DRIVER Training of Trainers	
Objective	To ensure the replicability of the E2DRIVER project.
Duration	20 hours.
Mode	Face-to-face and online.
Type of training	8 on-site session + 6 online sessions of 2 hours each.
Topic	E2DRIVER methodology, E2DRIVER platform and technical aspects.
Target	15 people per country to become certified trainers.

Table 10. E2DRIVER Training of Trainers

The E2DRIVER training of trainers (ToT) is expected to be performed in the end of the project execution. This training against previous ones has not the objective to increase the knowledge of the trainees in energy efficiency and energy audits (even it can be an indirect effect), but **to ensure the replication of the E2DRIVER capacity building programmes and training actions** by certifying new trainers in the project's methodology (Table 10). Indeed, the aim of this ToT is to transfer, not the contents, but the teach methods that E2DRIVER trainers had used during the project execution in order to achieve that these new after-the-project-end trainers could replicate this methodology to other training actions in energy efficiency and energy audits in the automotive sector.

The purpose of this project is "*to boosting the automotive sector collective intelligence on energy efficiency*". E2DRIVER project is not just a tool to train 40 companies around the European Union, but a **catalyst** for boosting the **collective intelligence** of the sector. So that's why the project attaches a lot of importance on this kind of ToT actions that ensure the continuation of the E2DRIVER after the end of the project.

This ToT will have a duration of **20 hours**, being divided into different **online** and **face-to-face** sessions that will provide all the needed knowledge in order to achieve that future trainers count with all technical and methodological tools to address their role of E2DRIVER replicator.

[19] One-person virtual reality experience is expected to have a duration of 15 minutes. So, only 4 people could perform the whole exercise in the planned 1-hour session.

The attenders of this training sessions will be **15 people per country**. Four ToT trainings in total. By the moment, the selection process that E2DRIVER project will perform to involve these potential trainers in the project is not decided. This is because it will be linked with WP5 (evaluation and exploitation) where the techniques to ensure a replication of the project will be addressed. Depending on the exploitation strategy, the involvement process of trainers will necessarily vary.

In spite of the fact that each country could consider other options considering the circumstances and needs, generically speaking, the ToT will have the next **structure**:

- First of all, an **on-site session** (8 hours in one day) will be held. In this event, the participants will introduce themselves and will take advantage of the event for networking with the rest of the future trainers, who they will likely to be part of companies of the sector. Then, the E2DRIVER Methodology will be presented, trying to make future trainers fully aware what this project represents and which is the role that is expected they will play. After, the E2DRIVER team would explain the characteristics and functionalities of the platform, explaining how they can have access to the training materials, how to build capacity building programme for a specific company, how to manage the training and how to participate in the several collaborative-cooperative tools the E2DRIVER platform has embedded. Finally, in spite of the fact that E2DRIVER project expects that the future trainers have already a technical background that enable them to perform training, E2DRIVER team will explain the main characteristics of the contents to them, being possible to address in detail some technical parts depending on the training needs of the future trainers.
- On the other hand, the ToT will be completed with **6 online lessons of 2 hours each** with a "conference call" format where the future trainers could absorb additional technical and non-technical knowledge. In these sessions, all the experience and lessons learnt acquired from the activities carried out with the pilot companies is transferred to the future trainers.

Finally, the ToT action will conclude with the realisation of an **evaluation test and/or exercise** where it is possible to verify that future trainers are ready to perform energy efficiency and energy audit training on behalf of E2DRIVER project. Once it is verified, they will receive an **E2DRIVER certification**.

3.3 E2DRIVER Training 100% online (15-20 hours)

E2DRIVER Training 100% online	
Objective	To increase the knowledge and skills in energy efficiency in the context of the Automotive sector.
Duration	15-20 hours.
Mode	Online.
Type of training	Online lessons and exercises.
Topic	Energy efficiency and energy audit in Automotive sector supply industries.
Target	Wide audience of potential trainees interested to take the course after the EU funding period of the E2DRIVER project.

Table 11. E2DRIVER Training 100% online

The complete online (Table 11) course has been considered as an option to **confront** two detected problems in the context of the future E2DRIVER courses developed **after the end of the project**:

- Some future companies who are interested in the project and its training could **prefer** an online option for their workers or a group of their workers. It could depend on the company's features and its time availability.
- On the other hand, in the context of an **open sources' platform** like E2DRIVER one, it is highly recommended to enable the option to log in, join and participate in the training actions without supervision and without considering the possibility to participate in a whole E2DRIVER training scheme and just consulting online contents.

Regarding the first of those two issues, the platform has **embedded an algorithm** which is able to design an ad-hoc training by considering **needs** and **interests** of the projects. Thus, when the company will register its profile in the platform, it will be able to determine that it prefers the online mode for their whole group of employees or (maybe) just for some of them.

Regarding the second one, it can be considered as much more critical, since it can determine if the E2DRIVER platform is truly an open one or not. In fact, this 100% online option has been considered as a way to ensure the totally **open** essence of the platform. The whole structure of the platform and the project have been designed as a tool that will benefit companies in their labour of training their workers. However, being aware that E2DRIVER platform must be an **open sources tool** with free access and participation[20], without considering if the potential user is a company, a student or an expert, E2DRIVER team has considered the possibility to create this additional learning option, **100% online**, for those people who would like to enter and participate in the E2DRIVER training, despite the fact that they are not endorsed by an automotive sector company, who are the target group of the project.

In spite of the fact that some parts of the platform will be locked for those *unverified* trainees[21], they will be able to fill in the questionnaire of classification that workers must complete in order to know their interests and training needs. And, thanks to that, the E2DRIVER platform's algorithm will enable them to get their own **ad-hoc training course**. However, it will not be endorsed or validated by a teacher or expert. The only way to get a validated course totally adapted to their needs is to achieve that the company where they work also creates its profile in the platform in order to collect the information about the energy framework where the new user works. This is because of E2DRIVER project considers, not only the background of the worker (their academic level, professional experience and so on), but the characteristics of the energy framework of the company where (s)he works as well[22].

Finally, as an additional reason to create a 100% online alternative, we must necessarily mention that, depending on the circumstances, it is highly recommended to give all needed functionalities to the E2DRIVER platform in order to be able to do this kind of online trainings. Thus, in these times of uncertainty where Europe is been devastated by the coronavirus pandemic and ignoring how long it will be, it is appropriate to make platform capable to perform 100% online training. So, in spite of the fact that this total online option is thought for post-project training, it could be used in the project in

[20] At least, during the project and the three years after.

[21] Unverified trainees are those users who could join to the platform and they are not endorsed by a company. Then, the trainers are not able to know if this trainee is really an automotive sector's worker or not.

[22] In line with that, it is also important to keep in mind that the E2DRIVER Platform and the E2DRIVER Methodology have been designed as product/service for the companies. The automotive sector companies are the end users.

case we are forced and we have the permission of the Project Officer from the European Commission. Therefore, the different kinds of E2DRIVER training could be tuned for an adaptation to the circumstances.

To sum up, this option can be seen as an extra option for after-the-end-of-the-project training actions, as well as like a contingency measure against a hypothetical impossibility of conducting on-site sessions during (and after) the project.

4 FORMAT OF THE E2DRIVER CONTENTS.

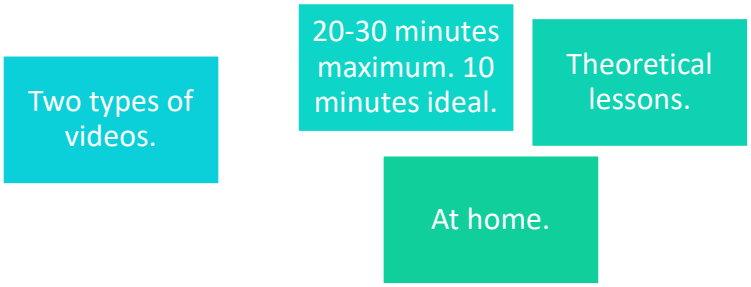
Once the format of the E2DRIVER training actions have been defined, the other pillar that this deliverable must address is the format of the E2DRIVER contents.

In this project, there is a great diversity of E2DRIVER contents format: presentations, texts, technical documents, practical exercises and so on, that address several topics. The selection of the format for each topic is performed considering **pedagogical criteria**, the **training actions** characteristics and the **Ontological Flip Teaching** methodology that permeate the whole project.

Considering all these aspects, the expected E2DRIVER contents' formats are the next:

- Videos.
- Texts.
- Presentations.
- Exercises.
- Evaluation exercises.
- Virtual Reality.

4.1 Videos.



The development of videos is really useful when a flip teaching paradigm is implemented in a training. They host the **theoretical** contents that a trainee should learn. Videos have the advantage to provide **effortlessly** and **directly** information about the basic aspects of the units. The experts recommend generating short videos of around 10 minutes where the trainer could explain the most important concepts of the units[23]. Due to the nature of the training contents of the E2DRIVER, this can be too much strict, since E2DRIVER will deploy only one face-to-face session per training. Therefore, there will not be a balance between online and face-to-face classes, so it is convenient to make a consistent and complete online part. For that reason, it is considered appropriate to allow longer videos of **20-30 mins**. However, trainers must work to summarize as much as possible the contents of the video-units, trying to include only **applicable** and **useful contents** and **concepts**[24]. Indeed, 10 minutes video would be the ideal approach if it is possible.

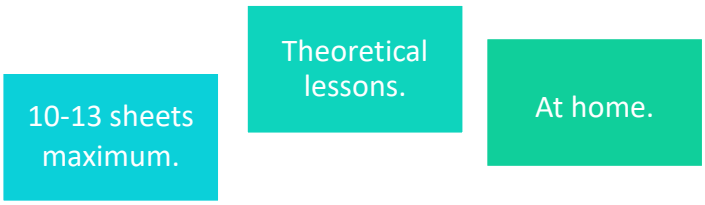
[23] Universidad Politécnica de Madrid - MOOC, 2017. *MOOC Aprendizaje: Micro Flip Teaching. La Lección En Casa*. [video] Available at: <https://www.youtube.com/watch?v=kwyDnFRXSZ0&feature=youtu.be> [Accessed 28 April 2020].

[24] Universidad Politécnica de Madrid - MOOC, 2017. *MOOC Aprendizaje: Micro Flip Teaching. La Lección En Casa*. [video] Available at: <https://www.youtube.com/watch?v=kwyDnFRXSZ0&feature=youtu.be> [Accessed 28 April 2020].

In the E2DRIVER project, two types of videos are expected:

- Videos where **a trainer is recorded** while (s)he explains a unit in front of a board or a power point presentation. These kinds of videos are more dynamic and are able to create a connection between the trainees and the project, due to them being less "impersonal" than the videos where only the screen is recorded.
- Videos where **a screen is recorded** while the trainer's voice explains the content of a presentation. They are less dynamic but much more direct and productive.

4.2 Texts.

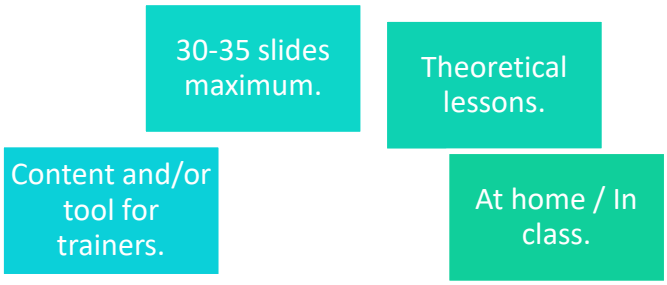


In Flip Teaching models, a video is normally considered as a way to simplify the study of the theoretical contents, but it is not mandatory to use only this kind of tool[25]. Indeed, in our case, the E2DRIVER project is building a platform where training can be deployed entirely online. For that reason, documents where additional training contents are explained are useful and advisable. Furthermore, the justification for having longer videos is applied here too in order to justify the generation of writing contents. The lack of balance between online and face-to-face session in a training means that complete information should be provided in the online part.

E2DRIVER project will generate text in **Word** or **PDF** format about different topics. These will be available for consulting at home as theoretical content. It should not be so long. So, the document should be limited to at most **10-13 pages maximum**. However, longer texts are allowed in case it is justified.

In Annex I, a template of written document for training materials is included.

4.3 Presentations.



Presentations will be also included in the E2DRIVER repository. The objective of these presentations is two-fold. They can be used as a theoretical summary for trainees. Therefore, in some cases, they can

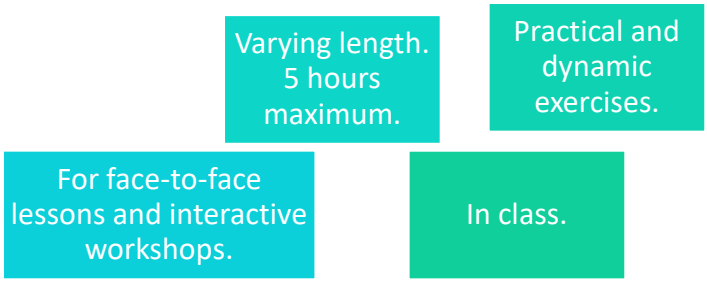
[25] Fidalgo Blanco, Á., Sein Echaluce Lacleta, M. and García Peñalvo, F., 2019. *Método Flip Teaching, Aula Invertida, Flipped Classroom O Aula Inversa*. [ebook] Available at: <http://ie-liti.digym.upm.es/rd/bitstream/123456789/23/1/modelos%20ft_v1_jul_19.pdf> [Accessed 28 April 2020].

be provided to trainees for **strengthening knowledge**. On the other hand, trainers will use it as **a support tool** for making the videos and for performing the face-to-face classes as well.

The presentations will have a size of no more than **30-35 slides** and they should be **visual** as much as possible. For that reason, they should contain images, graphs, diagrams, tables and so on, trying to restring long writing explanations.

In Annex II, a template of a presentation is included.

4.4 Practical/Hands-on exercises.

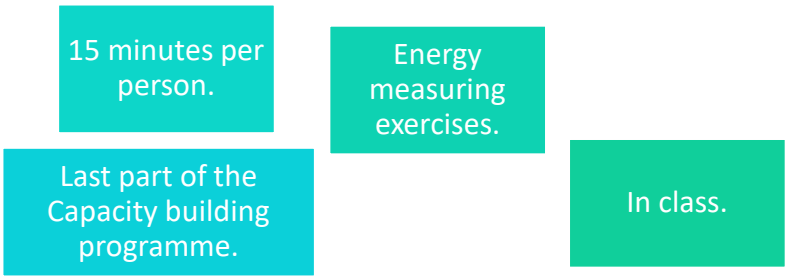


Taking into account the characteristics of the Ontological Flip Teaching methodology used in this project, the face-to-face session performed in each training, as well as the interactive workshops foreseen, must be **highly practical and dynamics**. All theoretical contents have to be learnt at home, being able to reserve the classes only for exercises and group dynamics.

These kinds of exercises will **vary in length**, being aware that each face-to-face lesson has a duration of 5 hours. So more than this duration is not allowed. Some of these exercises will be previously made by E2DRIVER experts and embedded into the **E2DRIVER repository**. However, other exercises will be totally customized (for instance, the exercise where trainees will analyse the state of their companies looking for energy measures). In that cases, only a general guide about how to develop this exercise could be included in the repository.

Trainers are **totally free** to design the best exercise to strengthen trainee's knowledge. They have only the limitation of time and space (5 hours and 1 class).

4.5 Virtual reality.



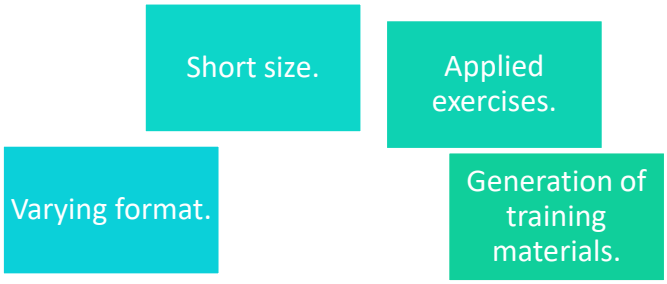
Virtual Reality is expected in E2DRIVER to be an exercise that enable an enhanced **real-life experience** that tap user's emotions and force them to act. This will be focused on measurement equipment practical exercises. This part will be further explained in the Deliverable 3.4 – *Virtual reality training material*.

The Virtual Reality exercise will be performed in the last part of the Capacity building programme of the company in the **E2DRIVER Virtual reality session**. It is expected that the "gamers" will be those employees who is or will be **in charge of the energy measurement** in the company. The rest of the trainees will be able to stare the exercise through a screen. Finally, if there is more time, the exercise could be performed by the people who are interested. The duration will be of 15 minutes per person.

4.6 Evaluation exercises.

Generically speaking, the trainee's performance will be assessed by a **test** hosted on E2DRIVER platform. Trainees will have to perform this test when they finish the whole training programme. Therefore, it is expected to be performed after the face-to-face session. However, additional evaluation exercises could be determined by the trainers, such as exercises more sophisticated in the platform or, taking advantage of the face-to-face lesson, a small exercise in class.

4.7 Format of the training materials generated by E2DRIVER trainees.



As explained previously, the third pillar of the Ontological Flip Teaching method is the generation of training materials by the trainees. Therefore, these materials can be used for the trainer during the course or, even, in future editions of the training. This technique is, indeed, what enable E2DRIVER to create a system of **continual collective intelligence improvement** in the sector.

To perform this part, the trainer will suggest each trainee group a training material to be developed. The **suggestion** will depend on the academic and professional background of the trainee. In this document, in the part of the training actions types, some examples in this respect are explained. However, each trainer could raise other exercises if (s)he thinks those are able to strengthen the trainee's knowledge more efficiently and effectively.

The **format** of the training material could be freely decided by the trainee agreed with the trainer. Written documents, presentations, papers, reports, images, graphs, videos, etc. are perfectly valid if they provide an add-value to the E2DRIVER repository.

In these exercises, depending if there is or there is not **sensitive information** of the company in the material, the trainee will be able to share it with the whole sector in the platform or just among the workers of the company.

5 E2DRIVER FORMAT IMPACT IN THE METHODOLOGY AND THE PLATFORM.

E2DRIVER Methodology and Platform are the two main outputs of the project. The platform as a product and the methodology as a way of work are the key points that enable the execution of the E2DRIVER training action in the project period, as well as the future trainings performed after the end of the project. For that reason, it is important to extract what this deliverable will provide regarding the format to these E2DRIVER project's outputs. This is the aim of this fifth section.

5.1 Impact in the E2DRIVER Methodology.

The E2DRIVER Methodology is the **method** that enable the design of effective **capacity building programmes** on **energy audits** and **energy efficiency tailored** to particular **companies** and enterprises in the **automotive supply sector**.

This methodology will be fed by several sources from the WP2 and WP3, such as the definition of the E2DRIVER trainee's groups (T2.2) and the development of training materials (T3.1), but the **format** defined in this deliverable constitutes the **baseline** from where the Methodology will be able to generate the Capacity building programme for each company (Figure 8).

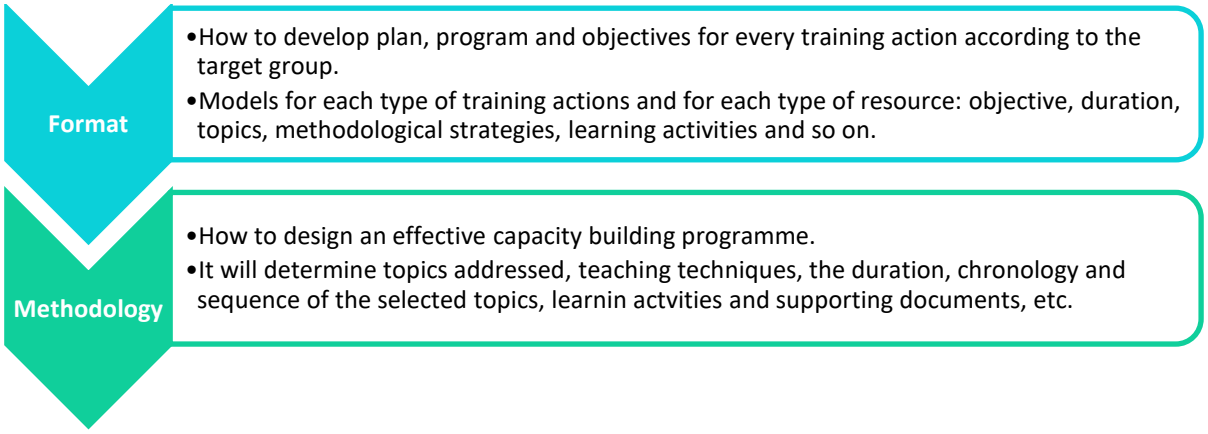


Figure 8. Objective of the format and the methodology inside E2DRIVER project

Therefore, as can be seen in Figure 8, the **format** defines the structure of the **Capacity building programme**, while the Methodology defines how those Capacity building programmes are developed and the general Capacity building programme for each training group using as baseline the format. While the final adjustment is performed in the T4.2 – *Training adjustment to the specifications and requirements of each pilot industry* based on T4.1 – *Detail characterisation of the pilot industries and staff*.

5.2 Impact in the E2DRIVER Platform.

E2DRIVER platform is the tool that will enable the manifestation of the Methodology. For that reason, the Methodology will permeate the whole platform. Furthermore, and in line with the previous statement, several aspects about the format must be embedded into the platform.

Among its functionalities, the E2DRIVER platform will be where the **online part** of the trainings is carried out (1), as well as it is the site where the **repository of contents** will be hosted (2). Both aspects are impacted by the format.

(1) Regarding the online part of the training, the E2DRIVER platform must **reproduce** the scheme and organization of training actions defined in the section 2 and 3. Therefore, each company will see in its profile of the platform the structure of its **E2DRIVER Capacity building programme** that will be composed by:

- 1 E2DRIVER Adjustment session.
- 1 or more E2DRIVER Training: one per trainee.
- 1 E2DRIVER Virtual reality session.

Therefore, the **company** could see the whole E2DRIVER training expected for their workers. In the part of E2DRIVER Adjustment session and E2DRIVER Virtual reality session, the company will only find an **explanation** about how these sessions will be performed. Regarding the E2DRIVER Training, the company could consult the **contents** of each training and the associated trainees. The possibility that the company could see the trainee's performance of their company can be considered as well.

If we consider now the **trainees**' perspective, they could see in their profile the online contents, the explanation of their face-to-face session and, depending on the case, they could observe further information about the expected virtual reality exercises and the materials that the project expects they perform.

Further information about this point can be found in Deliverable 2.3 – *E2DRIVER platform specifications*.

(2) On the other hand, the **repository of contents** will be hosted and available in the platform as well. As it is explained in D2.3, the algorithm of the platform will get contents from the repository in order to create a first version of the Capacity building programme from each company and the specific E2DRIVER training for each trainee. Afterwards, the trainers could perform adjustment. For that reason, the repository can be directly consulted by trainers. For ease of reference, when the trainers consult the repository, it will have several filters which will allow an easy consultation and contents selection.

Next, the expected **filters** are presented:

- Topics.
- Types of documents.
- Ontological Flip Teaching Pillar.
- Target group.
- Difficulty level.
- Languages.

Each field will have the filter options presented in Figure 9. Therefore, when trainers select the variables that they want, the contents that have the correspondent **tag** will appear. Also, trainees and companies could access the repository but with some restrictions. For instance, they will have no access to evaluation exercises or methodological contents.

Topics

- Introduction about energy.
- Energy efficiency.
- Renewable energies.
- Energy culture.
- Regulation.
- Electric vehicle.
- E2DRIVER methodological aspects.

Types of documents

- Video.
- Written document.
- Exercises.
- Practical/hands-on exercises.
- Virtual reality.
- Evaluation execises.

Ontological Flip Teaching Pillar

- At home - Theoretical concents.
- In class - Practical exercises.
- Generation of training materials.

Target group

- For Manager.
- For Science and Engineering Professionals.
- For Technical Managers.
- For Technicians.
- For Change agents.
- For Trainers

Difficulty level

- Elementary.
- Intermediate.
- Advanced.

Languages

- English (EN)
- French (FR)
- German (DE)
- Italian (IT)
- Spanish (ES)

Figure 9. Filters in the platform.

6 CONCLUSIONS

In this deliverable, the general characteristics of the E2DRIVER Capacity building programmes are defined. The plan, expected program, objectives, duration, topics, methodological strategies and learning activities have been set for every training action according to the target group. The structure and types of E2DRIVER trainings are the next:

- Each **E2DRIVER Capacity building programme** for each company will content:
  - One **E2DRIVER Adjustment session**.
  - One or more **E2DRIVER Trainings** (including interactive workshops for change agents).
  - One **E2DRIVER Virtual reality session**.
- Furthermore, four **E2DRIVER Training of Trainers** are expected: one per country with the objective to certify trainers for replication after the end of the project.

Additionally, the **E2DRIVER Training 100% online** is considered as an alternative of on-site courses. Despite the fact that this kind of actions are expected for after-the-end-of-the-project's actions, it is also considered as a contingency option in case of an event that does not allow to perform the face-to-face part of the trainings.

Furthermore, in this deliverable, the main features of the **training materials** are explained as well.

To sum up, it is important to know where this deliverable will impact among the different tasks of the project. Thanks to the format:

- **Task 2.3 – *Definition of specifications*** is able to know the main characteristics of the E2DRIVER trainings in order to prepare the platform taking into account the characteristics of the training actions that it will host.
- **Task 3.1 – *Information gathering and repository development*** could adjust the contents which are been developing by taking into account the formats of the materials.
- **Task 3.2 – *Development of the overall training methodology*** will get the format baseline. This is critical because T3.2 will create the itineraries, taking into account the Task 3.1 and the format.
- **Task 3.3 – *Customized training plan module development*** will be impacted by the structural baseline provided by this deliverable.
- **Task 3.4 – *Development of virtual/augmented reality training material*** will consider the characteristics of the E2DRIVER Virtual reality sessions for defining specifications.

7 REFERENCES

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8 ANNEXES

8.1 Annex I: Format of resources – Writing documents templates.


Document/ Title
E2DRIVER H2020 project

MAIN AUTHOR: [LEAD PARTNER]
DATE: [DD MONTH 201X]
[DISSEMINATION LEVEL (PUBLIC/CONFIDENTIAL)]

Project E2DRIVER
"Training on energy audits as an Energy Efficiency DRIVER for the automotive sector"
Grant Agreement no. 847038
H2020-LC-SC3-EE-2018

Disclaimer excluding Agency responsibility
Responsibility for the information and views set out in this document lies entirely with the authors

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PROJECT PARTNERS

CIRCE: Fundación CIRCE Centro de Investigación de Recursos y Consumos Energéticos
FRAUNHOFER: Fraunhofer Gesellschaft zur Förderung der Angewandten Forschung e.V.
POLITO: Politecnico di Torino
EPROPLAN: EPROPLAN GmbH Beratende Ingenieure
SINERGIE: Sinergie Società Consortile a Responsabilità Limitata
ENGIE: ENGIE Lab CRIGEN
SERNAUTO: Asociacion Espanola de Proveedoresde Automocion
AEN: Automotive.Engineering.Network – Das Mobilitätscluser e.V.
MESAP: Centro Servizi Industrie SRL
MOV'EO: Pole Mov'eo – Mobility Competitiveness Cluster
EPC: EPC Project Corporation Climate. Sustainability. Communications. mbH
MERIT: MERIT Consulting House

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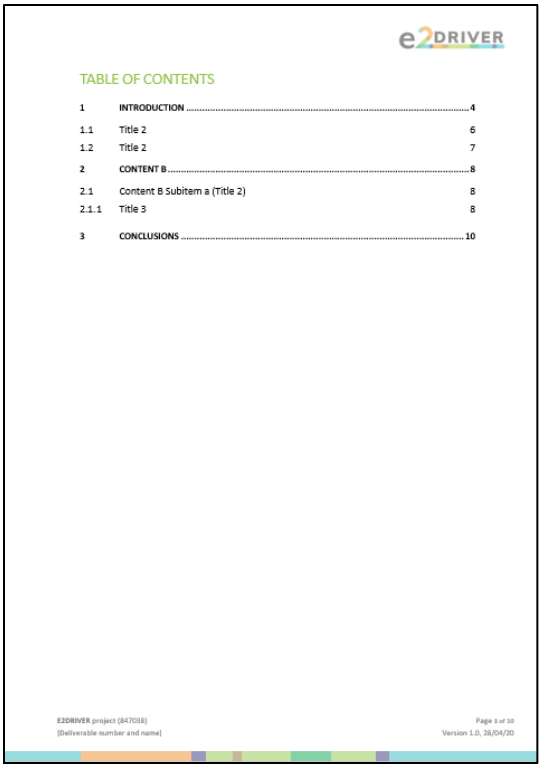
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TITLE
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1 INTRODUCTION

La electricidad, como fuente de energía secundaria, es producida a partir de otras fuentes de energía primaria convencionales como el petróleo, el carbón, el gas natural, o por fuentes renovables, en las correspondientes centrales de producción (térmicas de carbón, de gas de ciclo combinado, nucleares, de fuel, eólica, hidráulica, de biomasa, solar, etc.).

La generación de electricidad, al no ser ésta almacenable, se planifica atendiendo a las variaciones de la curva de demanda (entre el día y la noche, dependiendo del uso industrial y de los hogares, del clima, de los turnos de trabajo de la gran industria, etc.). Una vez producido, se conduce hasta los consumidores a través de las redes de transporte, primero, y las redes de distribución, después.

Para mejorar la seguridad de abastecimiento, flexibilizar la oferta, permitir la competencia y ofrecer al consumidor la posibilidad de elección de suministro eléctrico, las redes eléctricas de los distintos países están interconectadas. En el interior de la UE se consigue la cobertura total de la demanda gracias a los intercambios internacionales de energía eléctrica. Los principales países exportadores de electricidad son Francia y Alemania, mientras que los principales importadores son Italia y Holanda.

La Directiva 2003/54 establece los criterios generales de concesión y autorización, a partir de los cuales los Estados miembros fijan los criterios y requisitos necesarios para las nuevas instalaciones generadoras, así como las condiciones para que puedan operar en el mercado. Así mismo, se establece la independencia y separación de los gestores de las redes de transportes y distribución, fijándose una serie de criterios para favorecer la transparencia en los peajes y normas no discriminatorias de acceso, así como normas de gestión técnica.

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Como establece la Directiva, son las empresas propietarias de redes de transporte o distribución las que designan uno o varios gestores de redes. Si el gestor de la red forma parte de una empresa integrada verticalmente, deberá ser independiente de las demás actividades no relacionadas con el transporte o la distribución, al menos en lo que se refiere a la personalidad jurídica, la organización y la toma de decisiones. Las funciones encargadas a cada gestor son garantizar la seguridad, la fiabilidad y la eficiencia de la red, por el tramo de red y la zona que abarque, y sin ninguna discriminación entre usuarios de la red o categorías de usuarios.
En España, antes incluso de la aprobación de la Directiva europea 96/92/CE, ya se habían iniciado procesos conducentes a una apertura del sector hacia el mercado libre, como refleja el Protocolo firmado en 1996 para "una nueva regulación del Sistema Eléctrico Nacional".
La Ley 54/1997 del Sector Eléctrico y la posterior Ley 17/2007, suponen la transposición de las mencionadas Directivas europeas, abandonándose la noción tradicional de "Servicio Público", y configurando un modelo basado en los principios de objetividad, transparencia y libre competencia, sin perjuicio del principio de garantía de suministro a todos los consumidores.
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DOMESTIC SUPPLY CHAIN
Value of products going into automotive, £ billion and % of total
Products used as inputs into automotive production as a % of total supply into the automotive sector.
Parts of motor vehicles, trailers and semi-trailers
Other basic metals and casting
Machinery and equipment
Fabricated metal products
Electrical equipment
Basic iron and steel
Rubber and plastic products
Computer, electronic and optical products
Petrochemicals
Figure 1: Title
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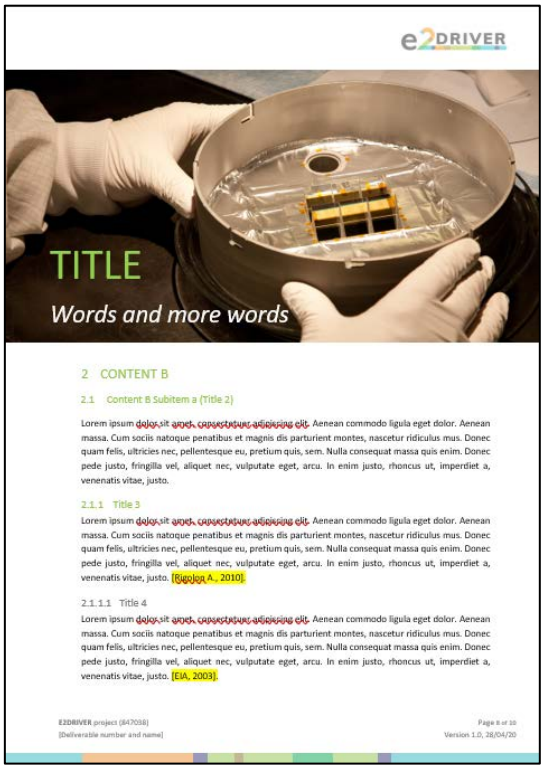
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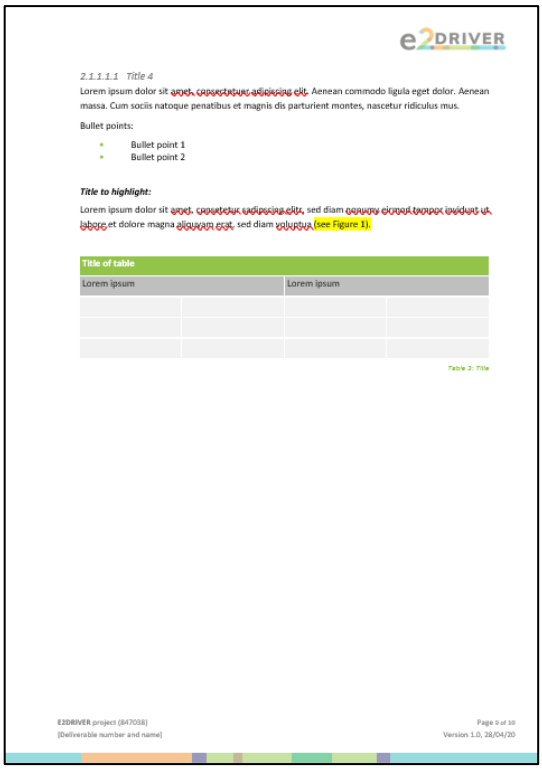

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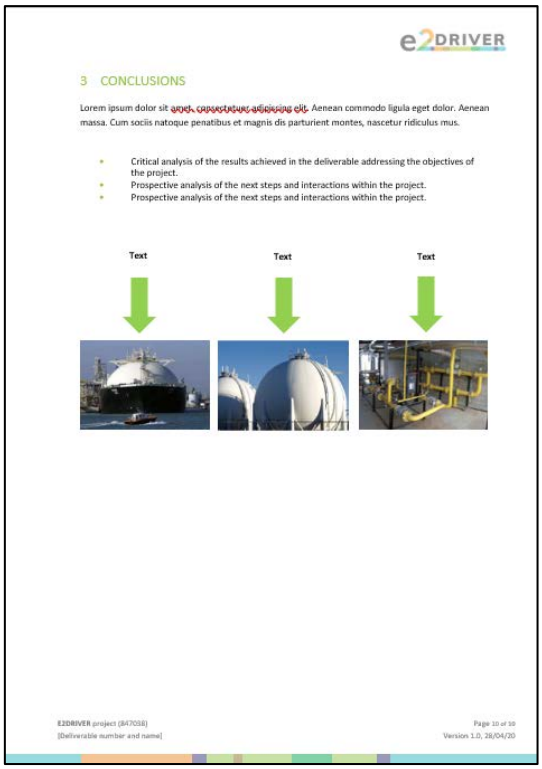

3 CONCLUSIONS

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- Critical analysis of the results achieved in the deliverable addressing the objectives of the project.
- Prospective analysis of the next steps and interactions within the project.
- Prospective analysis of the next steps and interactions within the project.

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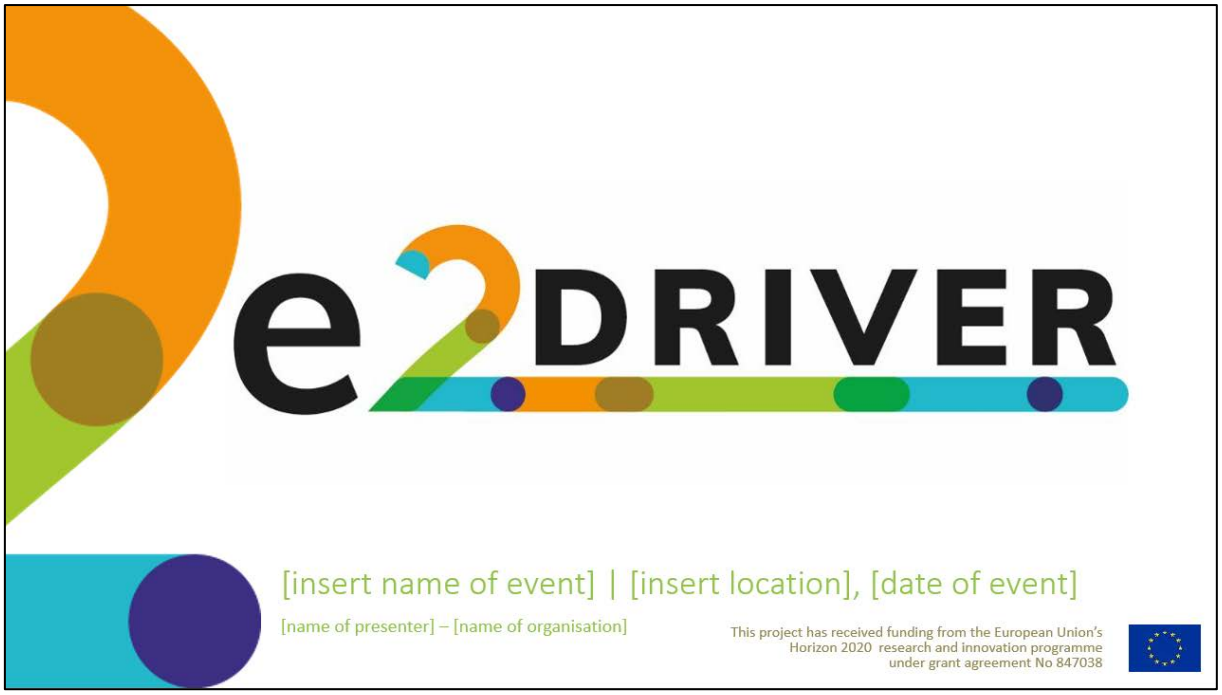
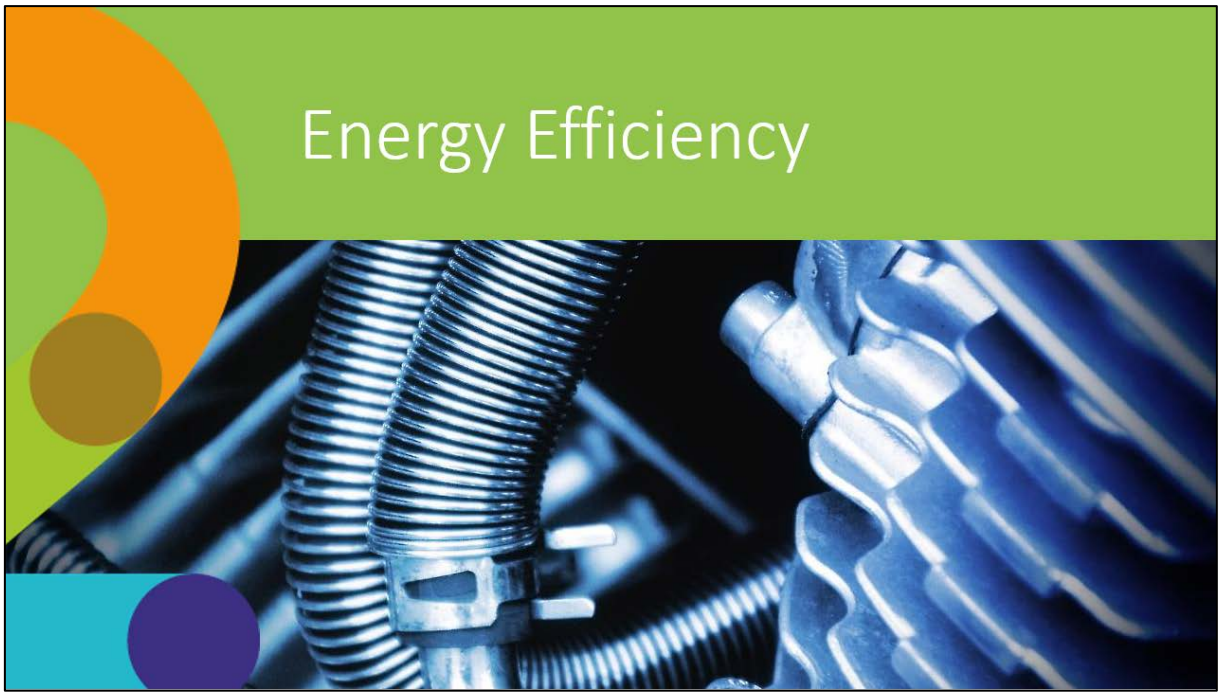
8.2 Annex II: Format of resources – Presentation template.





What is?

It refers to the use of technologies that require a smaller amount of energy to achieve the same performance or perform the same function

Energy saving is based on the way people act to use less energy (for example, using natural light instead of artificial light to reduce electricity consumption).

Energy efficiency focuses on technology, equipment or machinery used in buildings.

Steeep: Support & training for an Escellent Energy Efficiency Performance

ENERGY EFFICIENCY

Pie de página

4

Energy Policy of the EU

Energy Efficiency

- New energy efficiency target of at least 32.5% by 2030
- New energy performance of buildings rules aiming at decarbonisation of building stock by 2050
- Clearer and simpler energy efficiency labelling rules help households save almost €500 per year

Decarbonisation

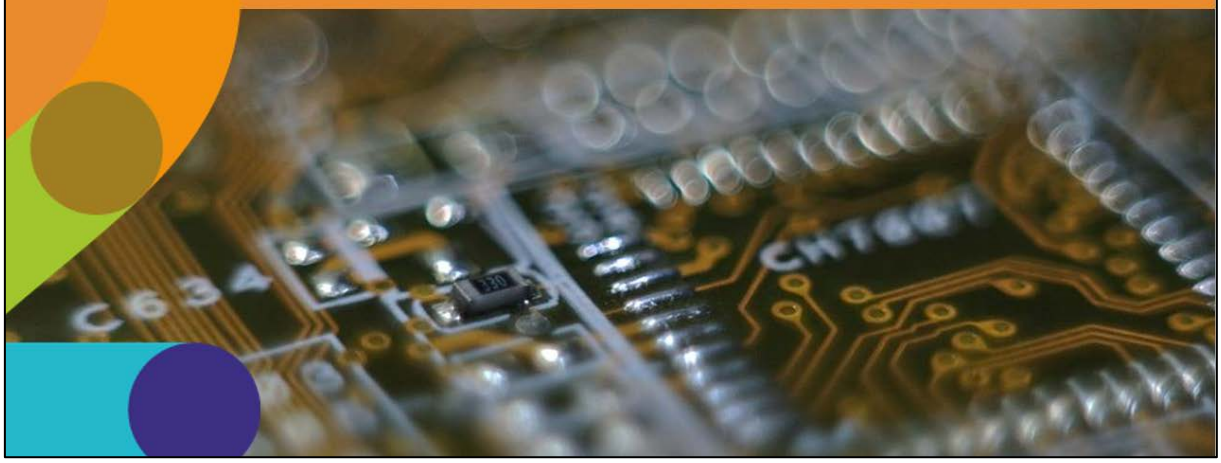
- The EU was instrumental in brokering the Paris Agreement and making it operational
- The EU has put in place a comprehensive legislative framework to achieve at least 40% emission reduction by 2030
- New renewable energy target of at least 32% by 2030

ENERGY EFFICIENCY

Pie de página

5

Energy Management



Energy Management

Energy Management has to do with the systematic use of management tools and technology to improve the energy performance of an organization. To be fully effective, it needs to be integrated, proactive and should encompass energy purchases, energy efficiency and renewable energies.

Carbon Trust Energy Management Guide

ENERGY MANAGEMENT

Pie de página

8

New section – photo slides


E2DRIVER website and social media
www.e2driver.eu
@E2DRIVERProject
E2DRIVER Project
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Thank you for your attention!
[Name of presenter]
[Email of presenter]
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