CARWASH

CAR WORKSHOPS: A SERIOUS GAME APPROACH TO MANAGING WASTE CONSIDERED HAZARDOUS

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IO8-9 Pilot testing methodology and evaluation

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1. **INTRODUCTION**

This document provides a description of the methodology to be used across the countries for implementation of internal and external testing of CARWASH serious game and platform. The common approach and templates guarantee to ensure the elaboration of a coherent overall set of conclusions and recommendations after the IO6.

The methodology of the testing include the procedure and criteria on how to select the analysis sample, the ways to reach the target groups (through the organisations/networks they belong to, e.g. associations, other local and regional organisations, through events, project website), motivate its representatives to take part in the survey, the type of interaction (direct interviews, online survey, e-mail survey), etc.

1.1. **Field of application - Scope**

Scope is the way that we describe the state of the art of the CARWASH serious game and platform. It defines what the game deliver and what we have to develop. This heading indicates the scope of a specific results.

The methodological framework is developed in two steps: CTRIA presented the first structure of the methodology and collected the first partners’ feedback. Afterwards CTRIA provided the final methodology to the partners and ask for them for the implementation of internal and external testing.

2. **IO8 – CARWASH PILOT TESTING METHODOLOGY**

CTRIA with the support from other partners will design the testing and evaluation methodology, including evaluation questionnaires. The aim of the pilot testing methodology is to test and evaluate the CARWASH serious game and support training platform.

It will describe how the double innovation loop approach, which increments the number of users and bringing the testing towards the end-user, will be implemented and executed. And how the 1st stage test by internal experts of the consortium should be realised and results collected, as well as how the 2nd stage through a selected larger sample of representatives of the target public in Spain, Bulgaria, Hungary, Belgium and Italy will be realized. It will describe how to detect any possible improvements in the serious game and the training support platform, while at the same time encouraging the target group to use the project results.

The questionnaire for recollecting the data on the validation by the users will be translated in all project languages.

The test scenarios are elaborated in line with the game scenarios, as each game scenario modelled in the CARWASH game will need to have at least one related test scenario.
The partners will distribute the evaluation questionnaires (or make them available online) to the participants in the pilot evaluation in their countries, will collect the feedback and will present the results of the evaluation in short country reports. CTRIA will compile the results and will develop a synthesis evaluation report that will serve as a basis for decisions and actions on further improvement of the serious game and platform, for its transformation from pilot release to final release.

Regarding the content and pilot tests both the Suitability and clarity of content, materials and game will be assessed, as well the Technical issues: accessibility, userfriendliness, speed of access, ease of navigation, etc, this will be done by implementing the follow steps:

- Draft piloting methodology developed.
- Distributed to all partners for feedback and approval.
- Final methodology developed.
- Preparation of pilot test methodology and questionnaires.
- Internal pilot testing by staff members of the consortium members.
- Feedback to material and tools developers.
- Principle pilot test in all target and transfer countries;
- Each partner compiles report outlining key findings to be sent to IO leader for evaluation.
- IO leader analyses and synthesizes reports into a Pilot Test Evaluation Report which indicates proposed amendments and is circulated to all partners.
- AVACA amend content and tools according to evaluation.

Executive summaries will be realised in each local language.

CTRIA will coordinate this task, and partners will realise the pilot testing in their countries; Aspremetal in Spain; EP 2000 in Bulgaria; CTRIA in Hungary; VOKA in Belgium and TRAINING2000 in Italy.

After pilots, feedback will be gathered from participants through questionnaires, possibly complemented with interviews or dialogue with participants (depending on what has been defined in the pilot methodology - output 8).

Corrections and improvements are recorded and reported back on, to be integrated into the last and final release of the CARWASH serious game and support training platform. This way, the adequacy of the serious game and training platform to the training needs is maximized.

This task completes the second innovation loop.
Each partner is responsible for the reporting on the activity in their country: Aspremetal in Spain; EP 2000 in Bulgaria; CTRIA in Hungary; VOKA in Belgium and TRAINING2000 in Italy. CTRIA is responsible for the overall report for the project as a whole.

4. **DOUBLE INNOVATION LOOP**

**Internal testing:**

- Each partner (except AVACA) will provide 1 or 2 experts for internal testing of the game and the platform.
  - staff
  - experts who are involved
- The online questionnaire contains less questions (reduced with the experience related questions), but it is compulsory to answer the open questions in order to make easier the communication of the necessary improvements to AVACA.
- The partners (except AVACA) have to fill the evaluation form.
- **Deadline: 16th of September 2016**

**External testing:**

To ensure the adequate information gathering each partner has to organize an event with potential end users. The process starts with a pilot session of maximum half a day where the partner informs the pilot users about the CARWASH serious game and platform. Each pilot session will have a minimum number of 25 participants. From the participants in these pilot sessions, a sample of participants will be selected (or all of them, based on the interest) to take part in the full pilot tests. Each validation partner will carry out a pilot study with at least 10 users, which means a global validation study with at least 50 users.

**Potential participants:**

- staff of SMEs and other service providers;
- technical schools;
- VET training entities involved in repair and servicing of cars.

**The partners have to fulfil:**

- at least 2 interviews with the participants of their events. The interviews should be semi-structured. The template contains the compulsory questions
- at least 10 questionnaires.
5. Evaluation Template

1. Introduction

This document explains how to analyse the results of the questionnaire: background, general information, main objectives, structure and context of the results of respondents.

2. Background

Here you should shortly describe the context of the survey:

1. Dates and duration during which the survey took place.

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2. Main means how you contacted the respondents (if you cannot reach the desired amount of respondents on your event).
The partners used different channels to get feedback from the stakeholders. Most of them are involved via face to face meetings and events, others by e-mails and phone calls.

3. How many potential respondents were contacted / % of respondents with respect to the number of persons contacted.

- Hungary: Invitation was sent to 23 companies in an automotive cluster. 11 people answered for our questions.
- Spain: In total 168 persons were contacted, with a total of 36 assistants participating in the piloting event. Of 36 participants in the piloting event, 28 respondents were selected for the extended testing. For internal testing were contacted 9 experts and all were responded and participated in the extended testing.
- Bulgaria: 54 contacted of which 50 respondents from 2 target group – students from VET schools and SMSs employees (92.59% response rate).
- Belgium: The very first Dutch version of the game was presented to the 27 participants. A second moment of testing took place on the 2nd of October, at “Open Enterprise Day”, where the 110 visitors of the Voka offices in Dendermonde could try out the game. After the final Dutch translation was ready on the 9th of January 2017, all participants of the Multiplier event were sent the link to the game, asked to play it and fill in the feedback questionnaire.
- Italy: During the piloting period 4 interviews were carried out in order to collect a qualitative feedback from the participants. Overall 25 respondents filled in the questionnaire and evaluated the different elements
3. Analysis of the questionnaires

**Experience:** (This part need to be filled during just the external testing.)

1. What is the type of company you work for?
   - Car repair workshop: 72%
   - Car dealers with own workshop: 8%
   - Truck and bus repair workshop: 12%
   - Truck companies with own workshop: 4%
   - Motorcycle and cycling repair workshop: 1%

2. Current activity in the company:
   - Owner / general manager: 37%
   - Team leader / Workshop supervisor: 15%
   - Mechanic / Technical staff: 15%
   - Student / teacher: 29%
   - Other (please specific): 4%
ANALYSIS:

- Most respondent comes from car repair workshops and car dealers with own workshops.
- They were mostly mechanical staff and students, but all the 5 categories responded.
- Around half of them received trainings in the topic and 35% haven’t got the needed competences.

Regarding game please answer the following questions:

(From this point these are the compulsory questions for internal as well as external testing.)
**Design:** please grade (1 – very poor to 5- excellent)

**ANALYSIS OF DESIGN**

- Based on the respondents, the design is average, or good, but there are some common remarks.
- The rewarding system is fine. Motivate the players.
1. How much were the questions comprehensible? (1 – not at all to 5 – absolutely)

- 1: 23%
- 2: 29%
- 3: 41%
- 4: 6%
- 5: 0%

2. Were the questions valid for your profession?

- Yes: 85%
- No: 15%
3. Would you like to see the answers after wrong choice?

- Yes: 67%
- No: 33%

4. Please rate the difficulty of the questions!

- 1: 28%
- 2: 15%
- 3: 43%
- 4: 10%
- 5: 4%
5. How could you rate the amount of the newly gained knowledge?

- 1: 21%
- 2: 7%
- 3: 10%
- 4: 32%
- 5: 30%

6. Do the questions cover the entire waste management process?

- Yes: 43%
- No: 36%
- I do not know: 21%
8. Can you use the newly gained knowledge in your daily work?

- Yes: 91%
- No: 9%

10. Could you use the platform to get new information regarding waste management?

- Yes: 96%
- No: 4%
ANALYSIS OF CONTENT

- The majority said that the questions are comprehensive. 29% is average and 23% is absolutely comprehensive.
- 67% of respondents would like to see the correct answer in case of wrong choice.
- 43% said that the difficulty of the questions is average and other 38% is difficult or very difficult.
- 51% of respondents gained a lot new knowledge.
- The half of the respondents think that the game is just partly covers the waste management process.
- But they can use their newly gained knowledge in their daily work.
- The platform is fine, more than 90% of respondents are satisfied the comprehensiveness of the platform.
1. How do you rate the involvement of the users?

2. What kind of device did you play?
3. Was the game easily accessible?

- Yes: 95%
- No: 5%

4. How easy it was to understand how to play the game? (1 – very difficult to 5 – very easy)

- 1: 32%
- 2: 27%
- 3: 23%
- 4: 13%
- 5: 5%
ANALYSIS OF TECHNICAL ISSUES

- The involvement of the users is mostly good or excellent.
- The respondents played with the game on all the 3 devices (the most of them played on computers).
- It was easy to rich the game, but the understanding how to play with it was difficult. The learner’s guide will support to develop this result.
- It was easy to rich the game, but the understanding how to play with it was difficult. The learner’s guide will support to develop this result.
Duration:

1. How long have you played with the game? (minutes)

- 2% <15
- 26% 15-30
- 30% 30-60
- 41% >60

ANALYSIS OF DURATION

The most external testers play 15 to 30 minutes with the game. 30% of them played 30-60 minutes and 26% played more than an hour.

OVERALL ANALYSIS

The most tester enjoyed play and got knew knowledge about hazardous waste management. They are representing the higher management level. More than 80% of them said the design is average or poor. The questions are comprehensive and difficult, but it is ok. Easy to access the game and learn how to play with it. All of them played with computers, other devices should be test.
4. Analysis of interviews (based on the answers from interviews)

1. What are the main strengths of the play? Do you think that it is useful for learning about hazardous waste?

   • The system of reward makes that the player wants to continue playing.
   • The main strengths of the play the comprehensiveness and that the play is a new method to gain knowledge, to learn on an enjoyable way.

2. What do you think the comprehensiveness of the story? Is it fit to the daily tasks of a workshop?

   • The comprehensiveness of the play is fine. It is fit to the real life.

3. Which scenario is most liked? Please explain why!

   • All of them are popular based on the different target groups (age, profession, etc.)

4. What are the main shortcomings of the game and platform if it has any?

   • The design and that the play must wait a lot because the mechanics move slowly.
   • The translations are strange in some cases. The conjugation is based on the context.

4. Which scenario is less liked? Please explain why! How should we improve it?

   In general, all of them were correct, some of them is easier than others. Some questions are repeating at the waste handling department.
5. Conclusions

The game is enjoyable and a good tool for the workshops to gain new knowledge. The questions are comprehensive and easy to play and know the structure. The presented background databases (legislations, supporting organizations) are complete the game. Further, there are some lacks and weaknesses:

Experience:

- The answers cover the sector (got answers from 5 different type of businesses from all level).
- 35% haven't got the needed competences before.

Design:

- The design is average.
- Rewarding system motivates.

Content:

- Questions are comprehensive.
- Players would like to see the correct answer in case of wrong choice.
- Difficulty of the questions is OK, and the majority gained a lot new knowledge which can be used in the daily work.
- The platform completes the game and serves with a lot new information.

Technical issues:

- Involvement of users is good.
- The play tested on all the 3 devices
- It was easy to download but difficult to understand how to play with it.