ENCHANT
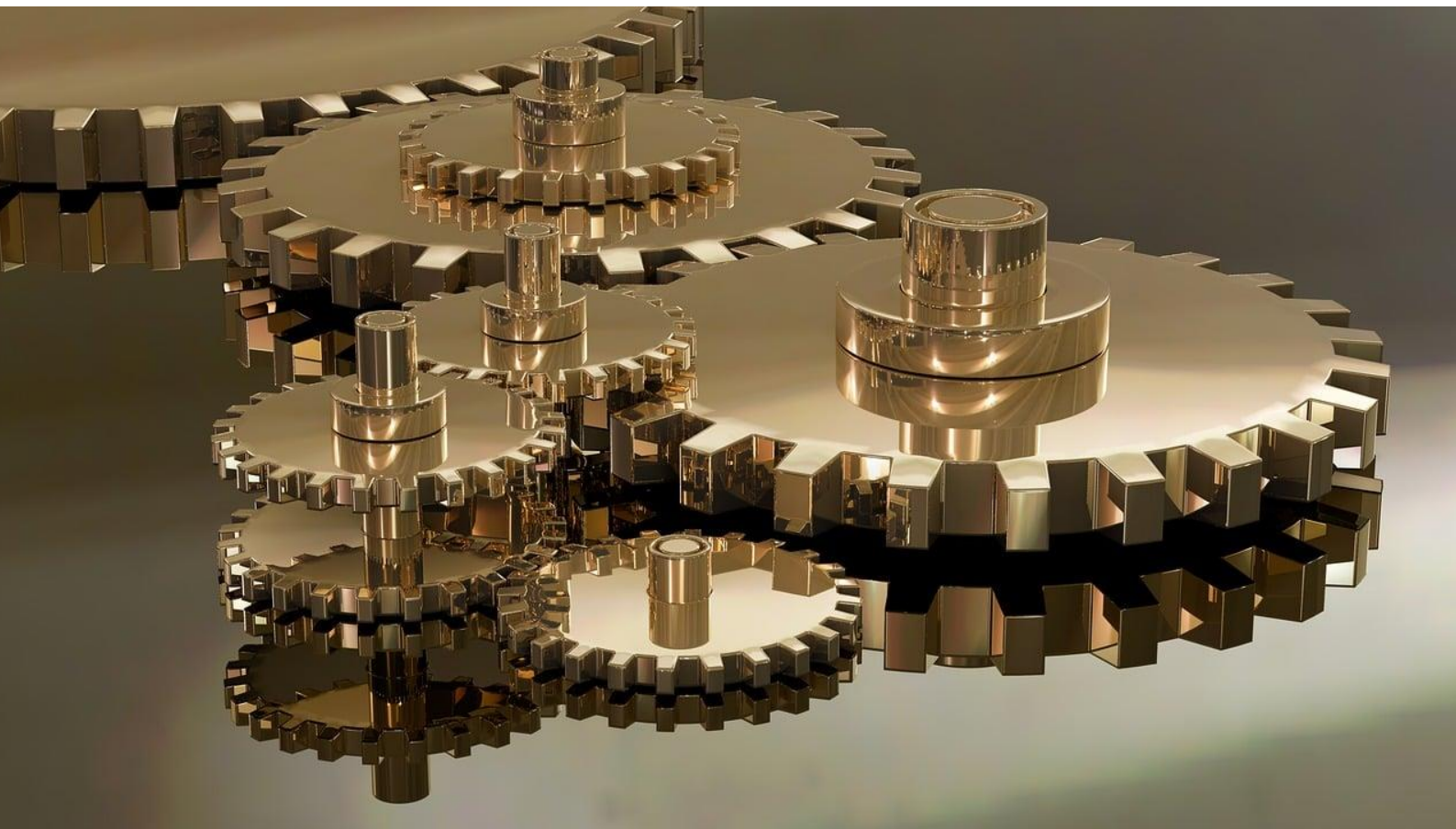Energy Efficiency through behaviour Change Transition Strategies

D6.3: Documentation of the final implementation of the web-tool.

WP6 – EnergyWizard usage documentation

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ENCHANT Report

D6.3: This report provides an overview for using the **EnergyWizard** delivered in the previous deliverables. It provides a comprehensive demonstration of the tool usage with an overview of all available options.
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ABSTRACT

The main objective of the report is demonstrate the functionalities of the EnergyWizard, which is the tool developed by WP6. It shows both the individual version of the tool for users who want to know the most likely successful intervention packages based on a limited selection of questions they answer and a version for institutions who would like to assess communication strategies based on a small selection of target group members answering the small set of questions.

DOCUMENT HISTORY:

VERSION	DATE	VERSION DESCRIPTION
1	21.12.2023	First version for quality check sent to partners
2	30.12.2023	Final version sent to the European Commission

Table of contents

1. Introduction and Overview

1.1   Purpose and scope of this document

The **EnergyWizard** is the tool that was developed as part of WP6 and was presented in the offline mode as part of deliverable 6.2. In the current deliverable we have deployed the tool online and provide a document summarizing the usage of the tool under various settings.

This document is organized as follows. In Chapter 1 – Section 1.2 is a summary of the analysis from the Romanian dataset is given that was missing in deliverable 6.2. because the data came in late.

Chapter 2 demonstrates all the available options in the online version of the tool.

1.2   Analysis of Romanian survey data

In line with the analyses conducted for Norway and Germany, also for Romania, the most successful interventions and communication channels based on electricity savings between the start and the end of the intervention period have been identified. For the detailed methodology, please see Deliverable 6.2. Table 1 presents the most successful intervention groups in all five groups that have been identified. Interestingly, these intervention groups are control groups in Romania in four out of five groups.

Table 1: Summary of best intervention for Romanian behavioural group

Group	Intervention	Coverage %	Success %	Channel
0	Control 2 (start-end)	23	90	MUNICIPALITY, FACEBOOK, OTHERS
	Info + SN + commitment + feedback + competition + collective framing	13	63	
	Info + collective framing	5	63	
1	Control 1 (weekly)	12	71	FACEBOOK, MUNICIPALITY, OTHERS
	Info + feedback + competition	10	66	
	Info + collective framing	17	62	
2	Control 2 (start-end)	3	69	MUNICIPALITY, FACEBOOK, OTHERS
	Info	9	65	
	Info + collective framing	12	63	
3	Control 2 (start-end)	32	80	FACEBOOK, MUNICIPALITY, OTHERS
	Info + SN + commitment + feedback + competition	8	73	
	Info + commitment	15	73	
4	Info + SN + commitment + feedback + competition + collective framing	14	73	MUNICIPALITY, FACEBOOK, OTHERS
	Info + SN + commitment + feedback + competition	9	67	
	Info + commitment	17	63	

There were five groups identified among the intervention participants in Romania as shown below. The top three interventions that benefit the behavior group and the best channel to communicate to the group as mentioned in the table.

Coverage: It is a statistic that corresponds to the percentage of the population within the group that are covered by the intervention.

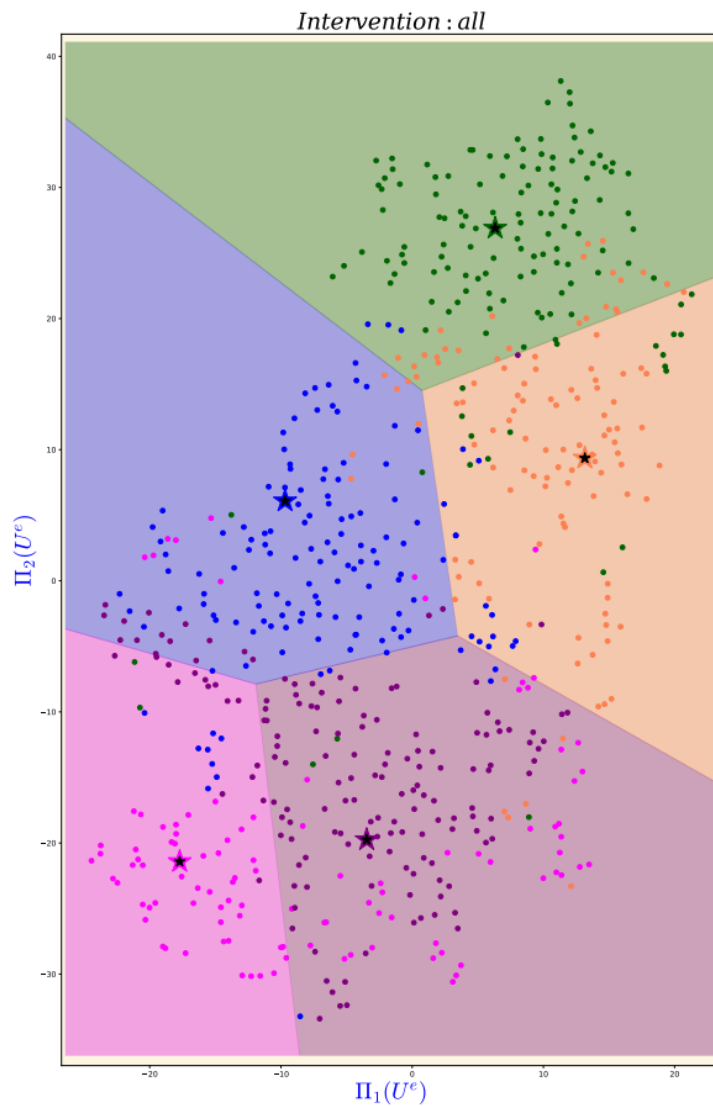Success: This statistic identifies the percentage of the population within the group that were benefitted by the intervention.

Figure 1: t-SNE clustering of the user embeddings from Romanian intervention

2. Online tool functionality

The tool is available at the URL: https://enchant.sinter.ai. The home page looks like the following:

Figure 2: Home page to the EnergyWizard tool

Fig 2 shows the following areas in the home page each of which is explained in the next section:

1. Dropdown options
2. Table summary
3. Definition area

2.1. Home page layout

Dropdown options

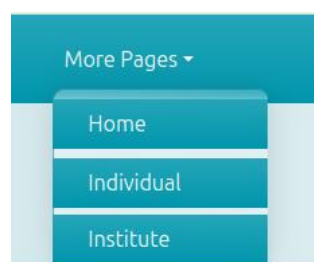The dropdown options show three possible options/modes of utilizing the webtool as shown below:

Figure 3: Three pages/options summarizing the results from the wizard.

a. Home page: The link to the home page of Energy wizard
b. Individual: Link to the page for individual users to use the wizard.
c. Institute: Page summarizing the results from the wizard that are insightful for policy makers

These options will be explained in detail in the following sections.

Table summary

This section of the home page captures the analysis from the interventions data in all three EU countries (Norway, Germany, and Romania) in a tabular format. It summarizes the results by showing the behavioral group identified in the analysis in the first column followed by the top three interventions suitable for each group.

Definition area

This section of the home page presents the success and coverage definitions mentioned in the last two columns in the results table. These terms were defined in the previous chapter.

2.2. Individual page layout

The page opens to the layout as shown in the image below:

Figure 4: Individual user page layout (top)

1. Usage
2. Intervention questions from the survey
3. User responses
4. Fill random responses button.
5. Guess button

Usage

Text passage for self-help, that suggests using the options available on the page.

Intervention questions from the survey

Intervention questions from the ENCHANT survey that the user needs to respond to.

User responses

Responses from the users to each question with choice provided in the form of dropdown list of options. They are yes/no type of questions or options that can be picked from a range of 1-5. With 1 corresponding to weakest opinion and 5 corresponding to the strongest opinion on the question in focus.

Fill random responses button

This option is provided for curious audiences who would like to see the tool in action. The user can also choose to fill the responses randomly but clicking on this button. All the intended survey questions will be filled randomly with random but valid options.

Note: This option is given as a demo feature and a serious individual should answer the question after deliberation, like answering a survey.

Guess button

This button collects when clicked all the user inputs from the survey questions to a recommendation system. The output from the recommendation system will be available below the survey questions in the bottom half of the page as:

6. Matched behavioral group

7. Behavioral group pattern

8. User representation

The page layout is shown in the image below.
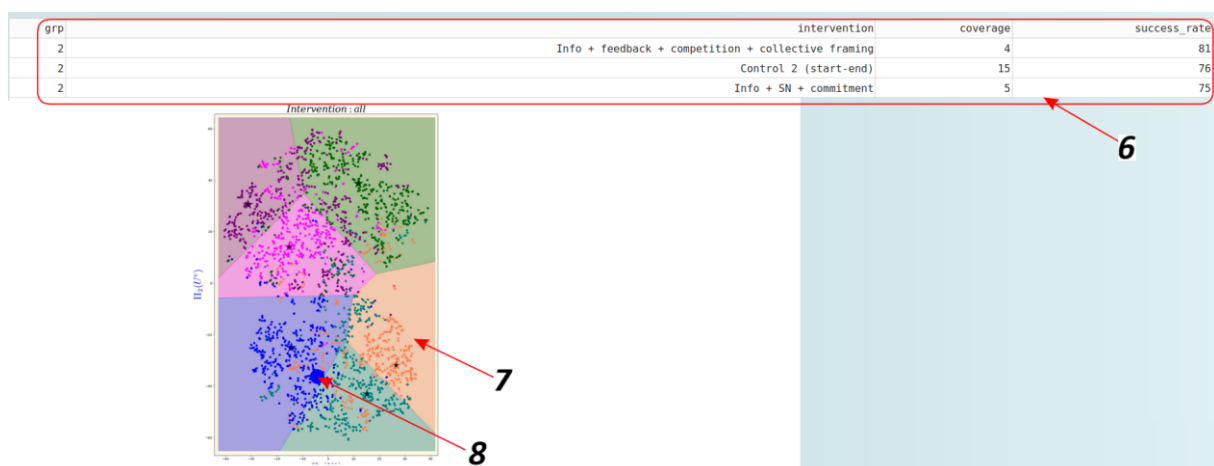
Figure 5: Results from the recommendation system

Matched behavioral group

Based on the response from the user the recommendation system matches the user to one of the behavioral groups identified based on the ENCHANT survey data. This table also shows the top three interventions that can provide energy savings for this type of user. The interventions are identified by the wizard based on the behavioral group the user was matched to from the original ENCHANT data analysis. Then the system extends the best intervention from the original analysis to the current user.

Behavioral group pattern

The behavioral clusters identified from all the EU countries plotted as a t-SNE plot as explained in the previous deliverable.

User representation

The user position is also plotted on the t-SNE plot, as a slightly bigger dot to make identification easy. This will provide a visual interpretation of the user in comparison to others who have taken the survey.
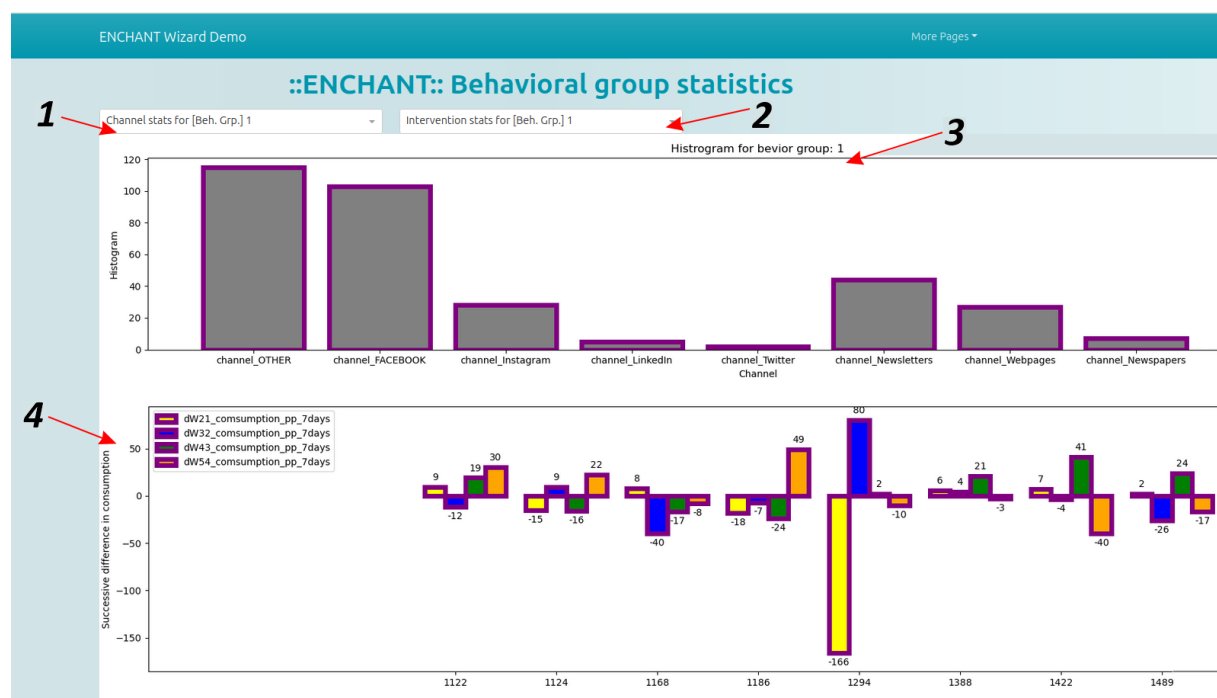
2.3. Institute page layout

Figure 6: Institutes page layout

This page provides institutes and policy makers easy access to all the analysis plots from the Energy Wizard.

1. Dropdown for channel analysis

2. Dropdown for intervention analysis

3. Channel analysis plots

4. Intervention analysis plots.

Dropdown for channel analysis

The dropdown options provide all the identified channel analysis for each of the behavioral groups.

Dropdown for intervention analysis

The dropdown options provide all the identified energy saving analysis for each of the behavioral groups.

Channel analysis plots

The channel histogram plots for the selected behavioral group are then displayed in this area.

Intervention analysis plots

The energy saving plots for the selected behavioral group are displayed in this area.

Note:

1. To compare corresponding channel and consumption plot the user can visually verify the outline colors of the plots.

2. The energy consumption plots can be lengthy, scroll horizontally to right to reach the intervention title in the middle of the plot.

3. In addition, any institute can benefit from the results by recruiting a small volunteer group to take the individual analysis and report back their behavioral group number as identified by the tool. The institute can then leverage from the channel and intervention analysis provided the wizard without the need to conduct the original ENCHANT survey.