

SDG Synergies

User Manual

2020 - Version 0.1

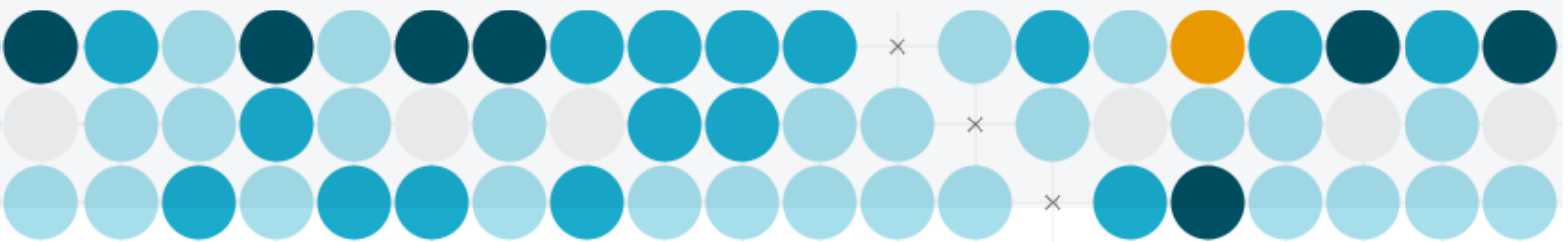


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Glossary

The terms included in this glossary are *italicized* on their first mention in the text.

Administrator:	Administrators are project managers and facilitators that access the tool through the Administrator interface. Administrators can create projects, assign tokens to respondents, and access the different visualizations and statistics associated to the results.
Agenda:	Policy strategies that group numerous goals or targets, e.g., the 2030 Agenda.
Cluster:	A community of highly connected goals. Goals within a cluster may reinforce each other and have common policy objectives
Cross-impact matrix:	A matrix composed of a set of items that are repeated in the rows and columns that constitute the matrix – the SDG Synergies tool. These items are composed of policy objectives. A cross-impact matrix makes it possible to examine how different policy objectives can influence each other.
Event:	An organized workshop or activity using the SDG Synergies tool. Also referred to as a project.
First-order interactions:	The direct links that one goal can have with the rest of the agenda. These connections can be either positive (synergies) or negative (trade-offs).
Goal:	A policy objective. In the SDG Synergies tool, goals are used as organizational indicators within an agenda and are used to construct the cross-impact matrix.
Indegree:	The sum of all the inward interactions of a goal, which expresses the extent through which one goal is influenced by all the rest. A high indegree value indicates that a goal is positively influenced by progress in the agenda, while a low or negative value means that the goal can be hindered by the rest of the objectives.
Negative interaction:	A negative link between two policy goals, meaning that progress in one can hinder progress in the other.
Network graph:	A visual representation of a numeric matrix using network theory. In the SDG Synergies tool, a network graph shows the relations between the goals used to construct the cross-impact matrix.
Outdegree:	The sum of all the outward interactions of a goal. Which expresses the extent to which one goal can influence the rest.

Project:	An organized workshop or activity using the SDG Synergies tool. Also referred to as an event.
Respondent:	A participant in any workshop or event that uses the SDG Synergies tool. Respondents access the event using a unique alphanumeric token and answer the cross-impact matrix.
Satellite graph:	A visual representation of the interactions (inwards or outwards) of one goal with the rest of the agenda.
SDG:	See <i>Sustainable Development Goals</i> .
Second-order interactions:	A calculation of how one goal indirectly influences every other through its impact on its neighbour's neighbours. For instance, if goal A has a strong positive interaction with goal B, and B in turn has a strong positive interaction with goal C, then A's influence on C will be positive and potentiated by its direct interaction with B. See more in the manual's Equations and Formulas section.
Seven-point-scale:	A scale used to value and numerically grade interactions in the cross-impact matrix. The most positive linkages are graded as +3, while the most negative are -3. A value of 0 means that there is no interaction.
Sustainable Development Goals:	A set of 17 Goals, divided into 169 targets, that were adopted by the international community. Also called the 2030 Agenda, the Sustainable Development Goals represent the global effort to achieve sustainable development by 2030.
Synergy:	A positive interaction between two goals, meaning that progress in one can promote the achievement of the other.
Systems thinking:	An understanding of how, in any policy agenda, different objectives or targets can interact, producing synergies and trade-offs. For policymakers, this means that different development sectors cannot be addressed individually – rather, they have to be treated as a system, where every policy outcome affects all the others.
Target:	A policy objective. In the SDG Synergies tool, targets are sub-objectives belonging to broader goals. For instance, the SDGs include 17 broad goals, which group 169 targets. Targets can also be used to construct the cross-impact matrix.
Token:	An alphanumeric code that respondents use to access the SDG Synergies tool and grade the cross-impact matrix.
Trade-off:	A negative interaction between two policy goals, meaning that progress in one can hinder progress in the other.

Overview

What is SDG Synergies?

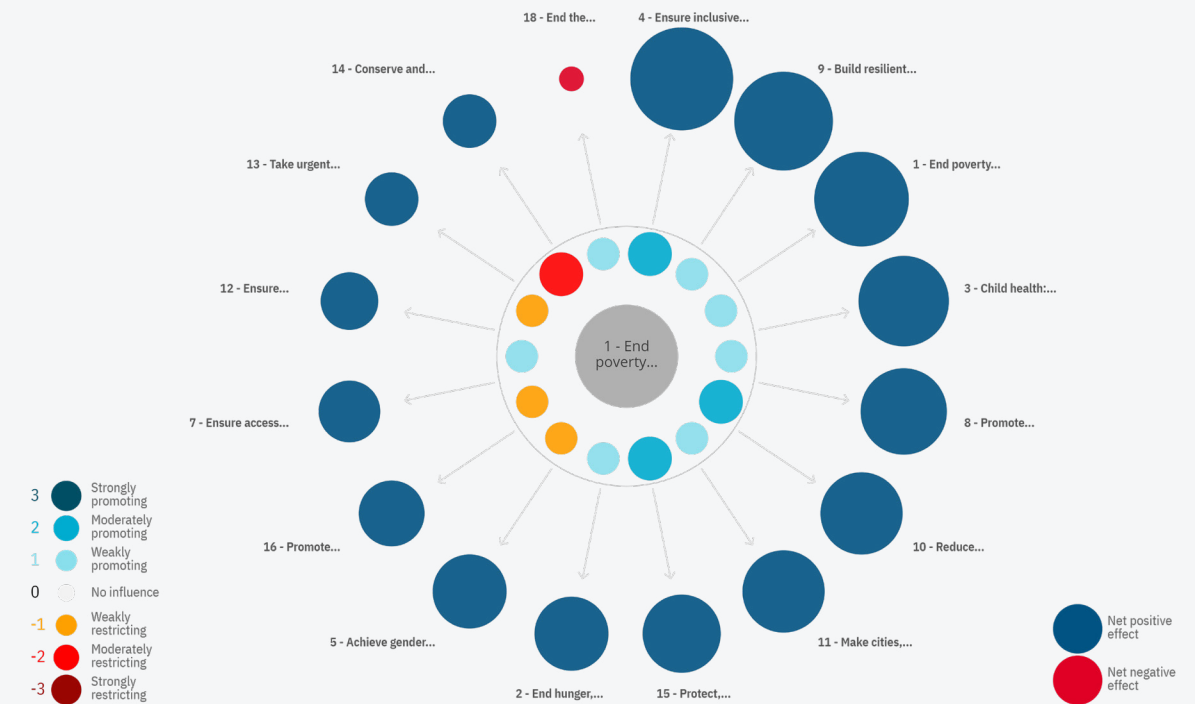
SDG Synergies is a practical tool for understanding how policy agendas and *goals* interact, using *systems thinking*. Originally designed by researchers at the Stockholm Environment Institute to support governments in implementing the *Sustainable Development Goals*, SDG Synergies can also be customized to include other agendas' policy goals – it could therefore be invaluable within and beyond the field of sustainability.

Based on a participatory, discussion-based scoring process, SDG Synergies develops a *cross-impact matrix* of interactions between all the objectives and targets being considered: how progress in one might affect progress in another, and vice versa. The methodology uses cross-impact analysis and a *seven-point-scale* to grade interactions – the most positive linkages are graded such as +3, while the most negatives are -3. With intuitive controls, it is then possible to regroup and rank these interactions to explore different system aspects.

Using advanced network analysis and visualization capabilities, SDG Synergies can surface more complex relationships, such as how the effects of one interaction could ripple through the entire system. The visualizations and analyses can, for example, inform decisions about how to prioritize or sequence the implementation of different goals or how best to manage potential *trade-offs* between them. They can also help to identify what cross-sectoral collaborations would be most productive.

Who is this manual for?

This manual is intended to support project managers or those in similar roles like (hereafter referred to as *Administrators*), who intend to conduct analyses using the SDG Synergies tool. The manual also contains instructions that can be shared with for example, workshop participants who grade the interactions.



What does this manual contain?

This manual contains information on how to create and manage *projects* using the SDG Synergies tool, including guidance on how to carry out and interpret the various analyses that the tool makes available. It also contains suggestions for running workshops using SDG Synergies. For a general introduction to the method, as well as additional resources and experiences using the SDG Synergies approach, please visit sdgsynergies.org.

Overview of the interfaces for Administrators and Respondents

The tool can be accessed through administrator and respondent interfaces. The administrator login is used to create and manage projects (also referred to as *events* in the online tool) and to create login *tokens* in the form of codes for *respondents*. Respondents use this code to access the tool and grade the cross-impact matrix. In this manual, we provide instructions on how to use the tool as both an administrator and a respondent, and we provide basic guidelines on how to conduct events.

The [Administrator interface](#) section of the guide is organized in the same way as the tool's online navigation menu, which includes the **Projects¹**, **Goals**, **Analysis**, and **Administrator** submenus. The [Respondent interface](#) section provides instructions on how respondents can access and grade the cross-impact matrix.

1. Throughout this manual, terms which appear as actionable items in the tool (such as buttons, section headings, fields and drop-down menus) are marked in **bold**.

Administrator interface

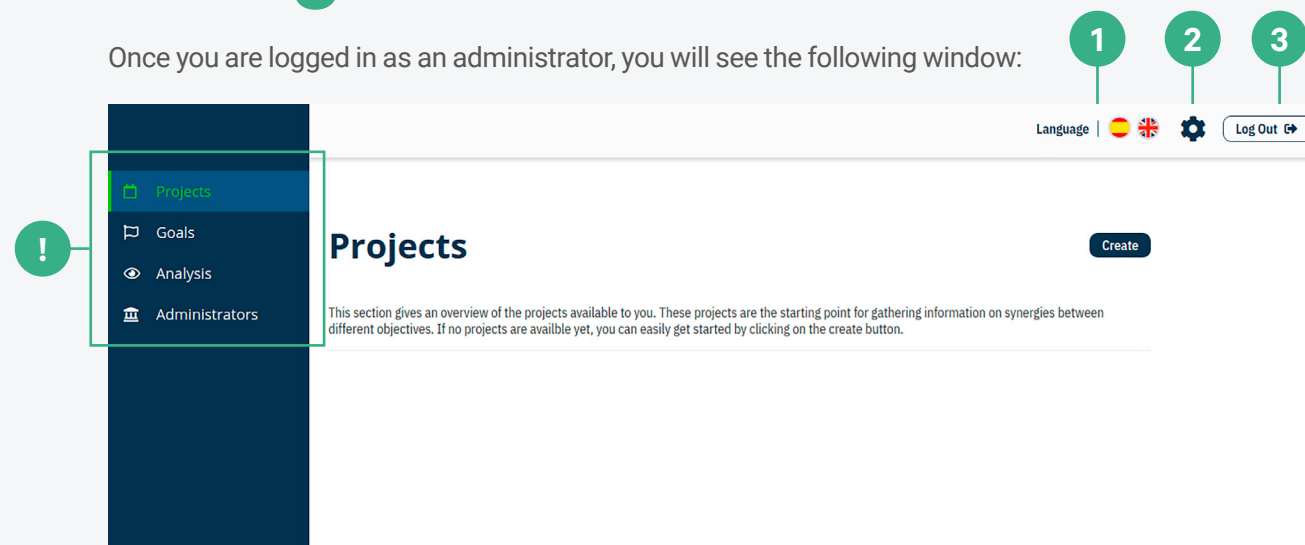
To create a project, an administrator account is needed, with an assigned username and password. You can then log in as administrator at <https://tool.sdgsynergies.org/admin/login>.

If you do not have access to an administrator account yet, you can contact sdgsynergies@sei.org, efraim.hernandez@sei.org or roy@showntelldata.com for more information.

All administrators are part of an organization inside the application. This means that any changes you make in the application by creating projects, agendas, or goals will only be visible to your particular organization's administrators.

Navigation

Once you are logged in as an administrator, you will see the following window:



The main navigation menu is on the left side; this allows you to move through the application. On the top right, you have access to the profile settings where you can: **1** change the language of the administrator dashboard; **2** adjust your profile settings; and **3** log out.

Profile Settings

As an administrator, you can always change **1** your username; **2** your linked email address; and **3** your password², by clicking on the cog in the top right corner of the screen. This will take you to the settings page shown on the right, where you can update these settings.

Projects

The first step in creating a cross-impact matrix between goals is to create a project where the administrator can **1** select the goals of interest; **2** generate tokens so that respondents can access the interaction matrix and give their interaction scores; and **3** link a predefined survey so that relevant information about the respondents can be captured.

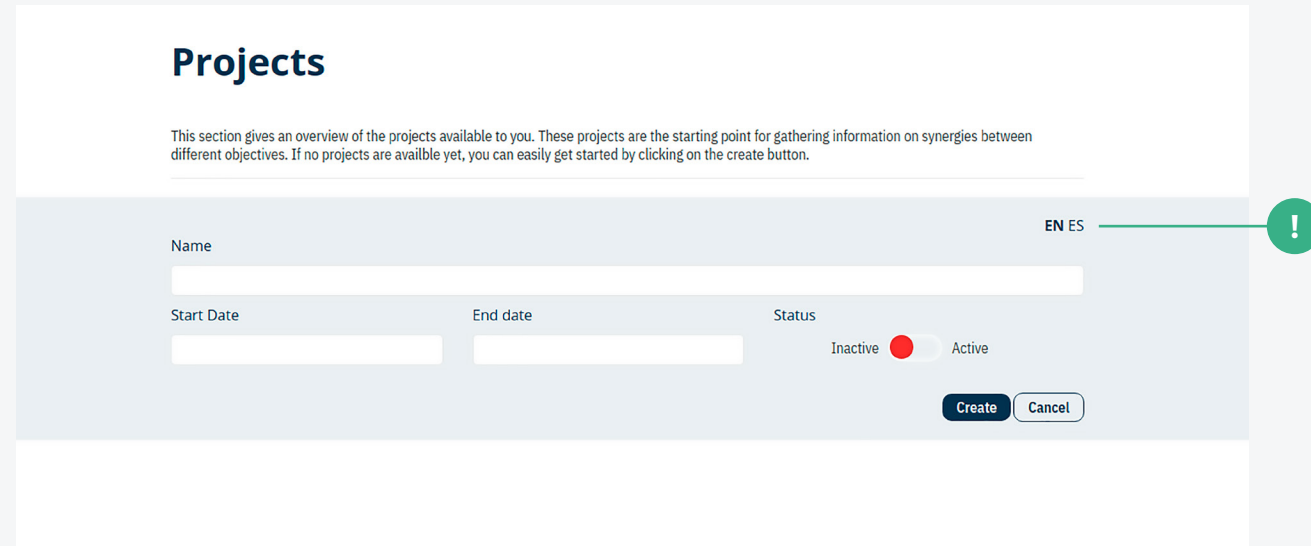
Creating or Editing Projects

To create a project, the administrator can click on the **Create** button in the application's **Projects** section, found in the main navigation menu on the left. This will open the form shown in the following image. For any project, the **Name** and the **Start Date** are obligatory fields, while the other fields are optional.

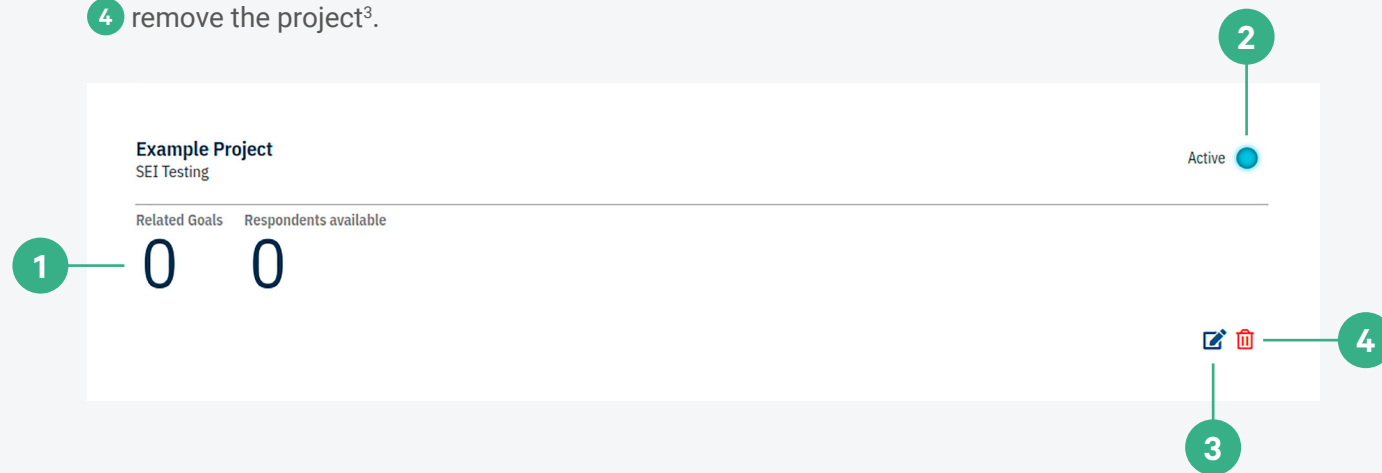
The start and end dates will define whether a project is active and can be accessed by respondents. If the current date (today) falls between the start and end dates, respondents will be able to find and access your project. As a fail-safe, there is an **Active/Inactive** switch, which will be automatically set to **Active** if the current date falls between the project's specified start and end dates. If the current date falls outside of the start and end dates, the switch will automatically be set to **Inactive**, but can be toggled by the administrator to make the project active.

² Please note that you need to know your old password to create a new one

Finally, the project can have an English (default language) and Spanish translation. To switch between the two languages, the administrator can choose **EN** or **ES** respectively in the top right corner form.



Once the project has been successfully created, it will appear in your project list, as shown in the next image. Here you (or any other administrator from your organization) can **1** see whether the goals and respondents are linked to the project; **2** see whether the project is active; **3** edit the project; and **4** remove the project³.

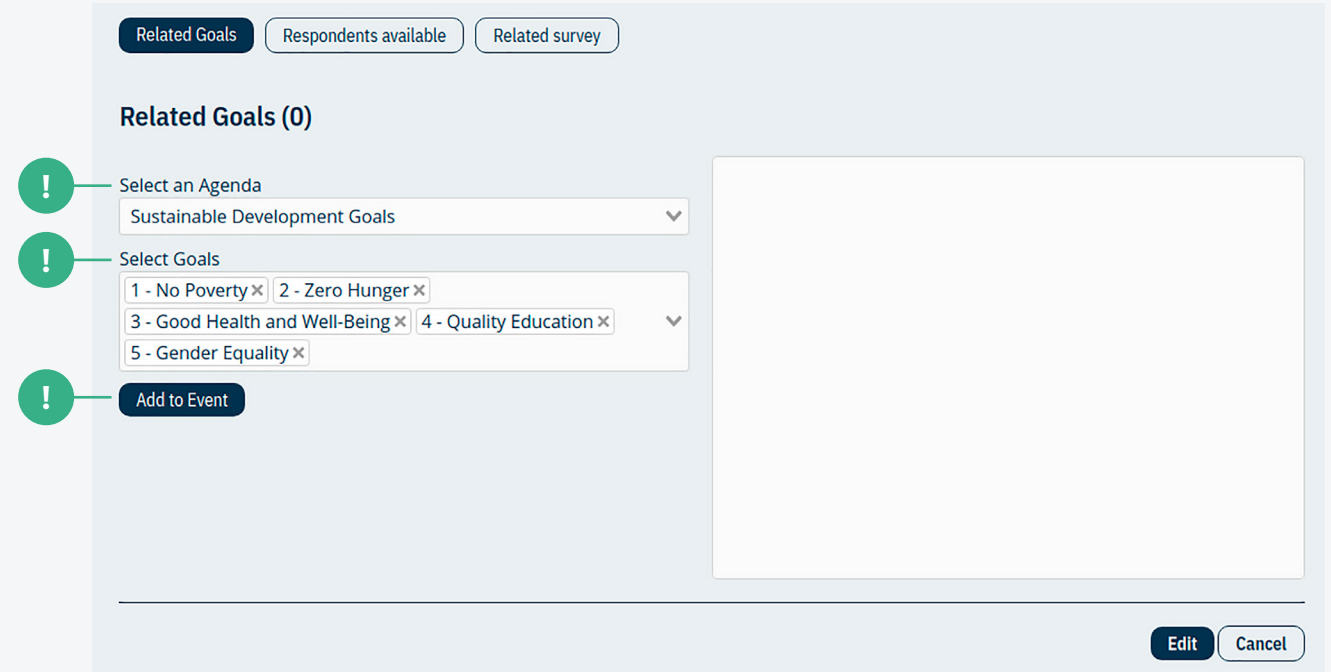


Linking Goals

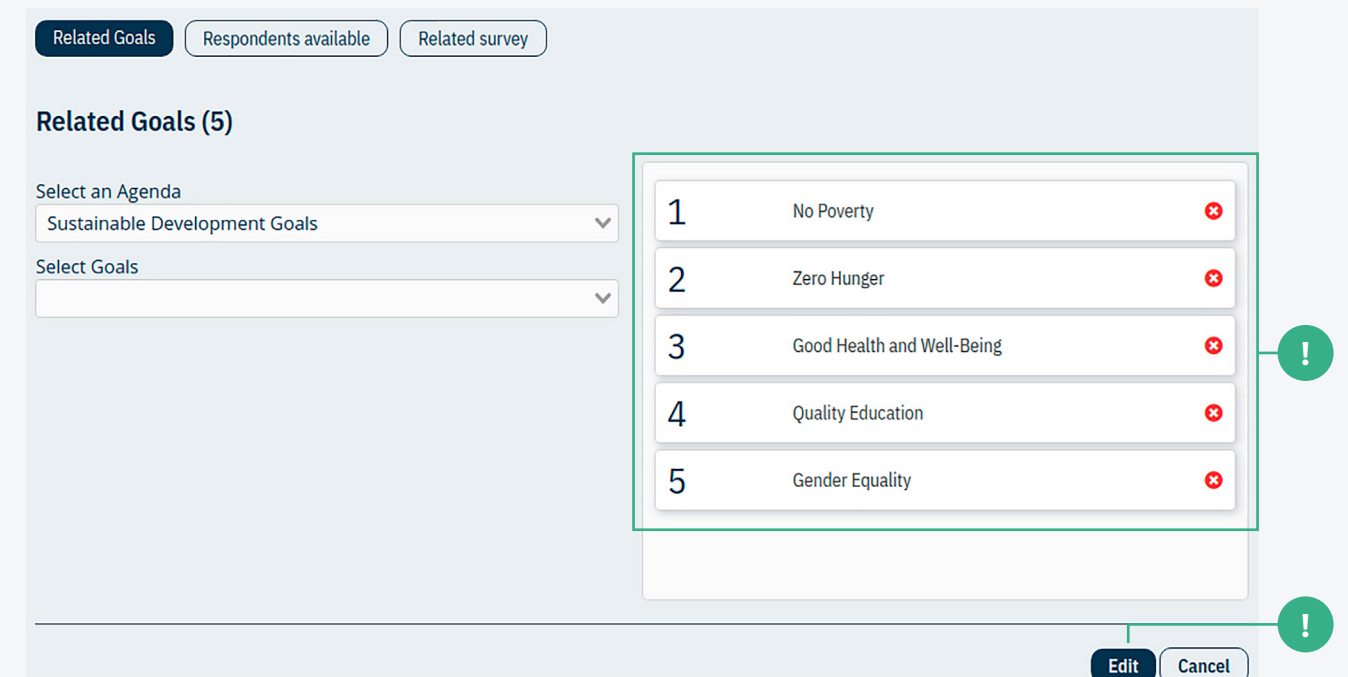
Once a project is created, the next step is to link goals to the project in order to create an empty cross-impact matrix. The application comes pre-loaded with all the Sustainable Development Goals (SDGs) and all 169 Sustainable Development Targets, available to any project. To link other agendas or goals to the project please see the [Goals & Agendas](#) section of this manual.

To link goals to your project, click on the **Edit** button (blue pencil), found in the bottom right corner of each project in the project list. This will open up a form where you will be able to edit the name and dates for the project and link goals by clicking on the **Related Goals** button.

3. Projects can be removed as long as respondents have not scored interactions for the project. Once scores are stored, projects will not be removable in order to prevent data losses.



The next step is to select the agenda containing the goals or *targets* you want to use from the **Select an Agenda** drop-down menu. Following this, you will be able to choose multiple goals in the **Select Goals** section. Once you click on the **Add to Event** button, your goals will show up in the list on the right hand of the screen.

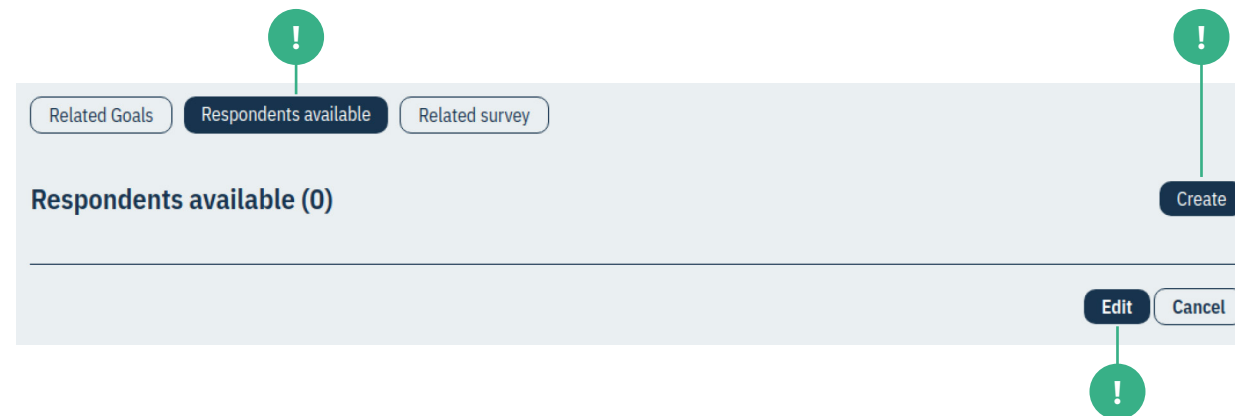


You can reorder the goals on this list (as you want them to be ordered in the cross-impact matrix) or remove them from the list if you've made a mistake⁴. If you're going to add more goals from a different agenda, you can just repeat the process by choosing a different one. Finally, any changes made will only be saved once you click on the **Edit** button at the bottom of the form.

4. You will be able unlink goals from your project as long as respondents have not yet scored interactions involving them.

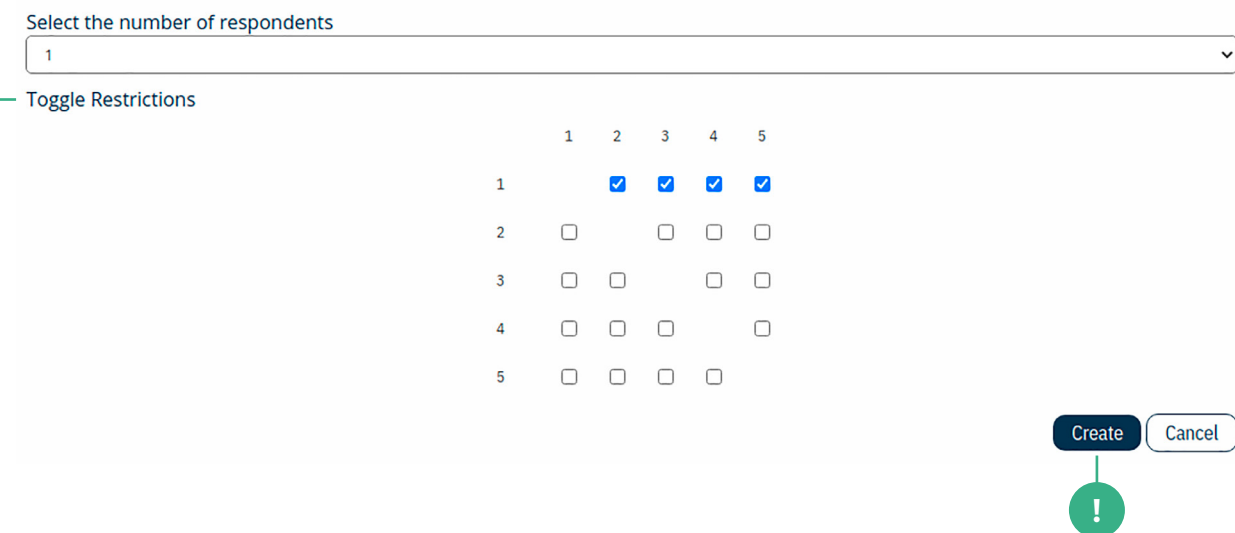
Creating Respondents and Tokens

When you're done linking goals to a project, the matrix is ready to be used. However, for people from the general public to access your project matrix, you will need to create tokens for them. A token is a unique six-figure code (letters and numbers) that identifies respondents and ensures that only those who have one can grade interactions in your project matrix. To create respondents and their respective tokens, you start by pressing the **Edit** button on your project and clicking on the **Respondents available** button. This will show that you have 0 respondents available, but you can create new ones by clicking on the **Create** button.

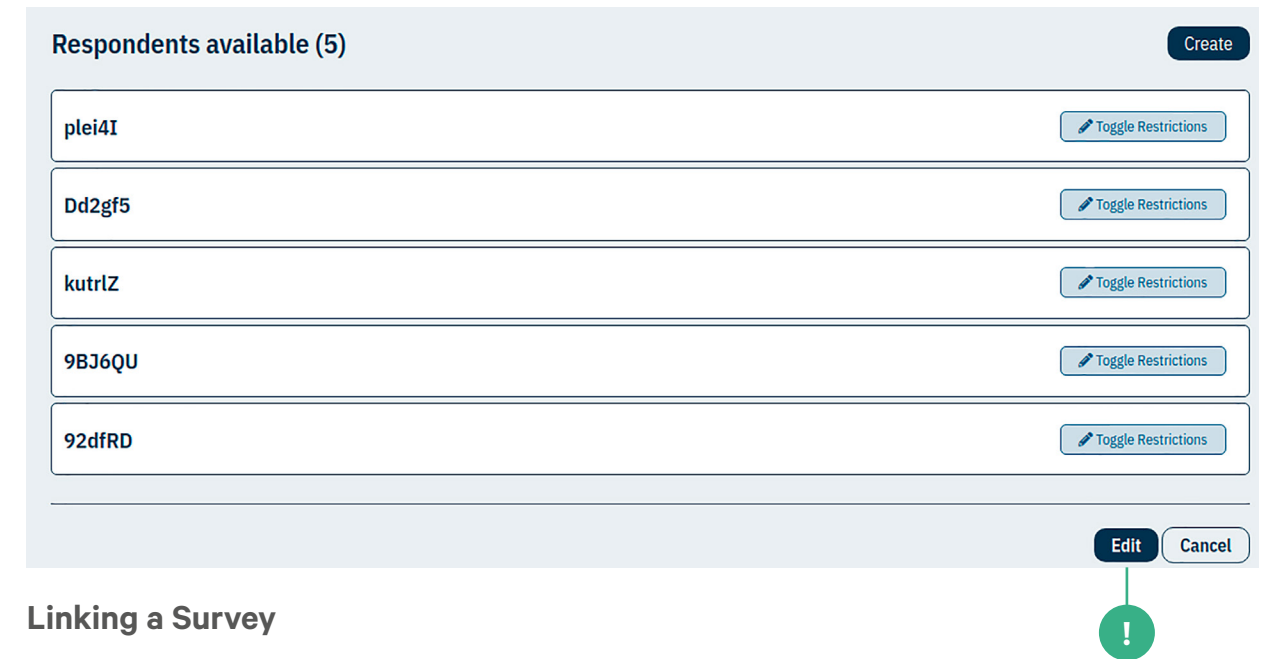


You will then have to select the number of respondents you wish to create. Additionally, you can indicate whether these new respondents should be restricted to answering only specific interactions, rows, or columns in the matrix. You do this by first clicking the **Toggle Restrictions** button, and then selecting specific interactions, as shown below. Only the selected interactions will be available to the respondent. If you leave the matrix blank, the respondents will be able to grade all interactions in your matrix. When you are satisfied, click the **Create** button, and the tokens will be created for the number of respondents you indicated. You can repeat this process to create new tokens as required.

Create Respondents

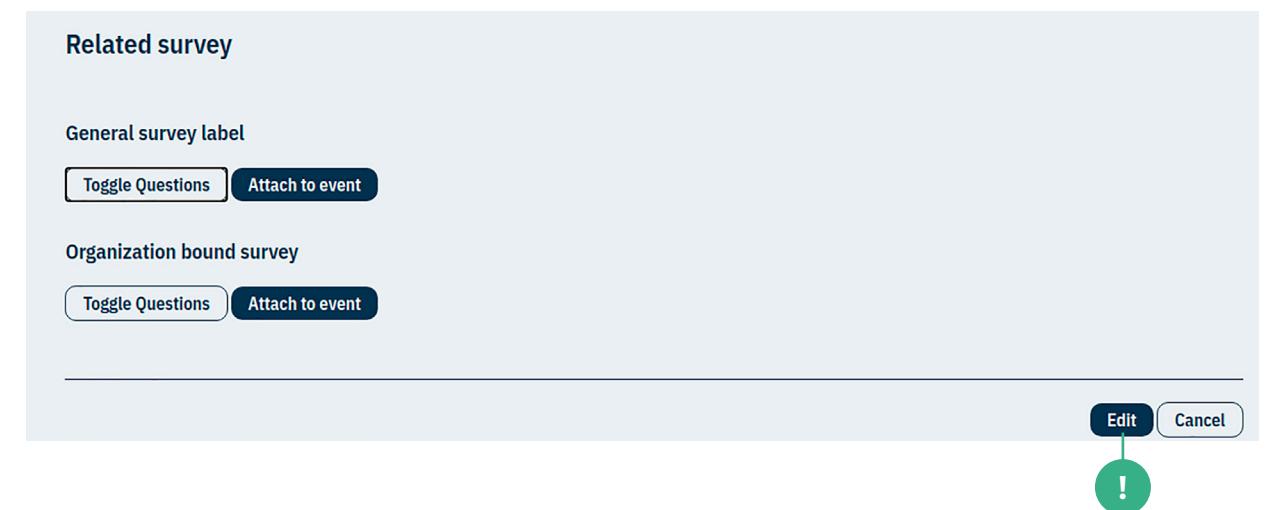


Once that the respondents have been created, they will show up in the **Respondents available** list, as is shown in the image below. Here you can see the token that was created on the left hand side and edit individual restrictions for each of the respondents. This can be helpful if, for example, respondents have restrictions but finish early during a workshop and could grade more interactions. You can then remove these respondents' restrictions and give them the possibility to score more interactions in the matrix than originally intended. Remember that after any modifications to a project, you have to click the **Edit** button at the bottom of the form to save any changes.



Linking a Survey

Once you have linked the goals and respondents to your project, you are ready to let respondents grade the interactions for your project (to see how respondents access your project, please see the [Respondent](#) section of this manual). However, there is one additional, optional step you can take. Should you so wish, you can link a survey to your project. This means that all respondents will be shown a predefined survey through which additional information about them can be gathered once they use their token to log in. To do this, you can again start by pressing the **Edit** button on your project and then clicking on the **Related Survey** button.



This will show you a list of available predefined surveys. To view the survey questions, you can click the **Toggle Questions** button. If you want to link a survey to an event, all you have to do is click on the **Attach to Event** button. If you wish to create new surveys for your project, please contact sdgsynergies@sei.org, efraim.hernandez@sei.org or roy@showntelldata.com for more information.

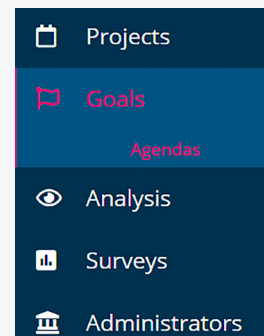
Once you have attached the survey, you can detach it from the project just as easily by clicking on the **Detach the Survey** button. You can also indicate whether the survey is optional (default option) or required by clicking on the blue circle next to **Optional**. If the survey is optional, respondents will be given the possibility to skip the survey. If the survey is obligatory, respondents will not be able to access the matrix for grading unless they answer the survey.

Goals & Agendas

The tool's goals are organized in agendas, which are sets of policy goals. The two default agendas in the application are the "Sustainable Development Goals" and the "Sustainable Development Targets". If you want to create and link custom goals to your project, you will first have to create an agenda to put them in. You can do so in the **Agendas** section of the application, which can be found under the **Goals** section in the main navigation menu on the left.

Creating or Editing an Agenda

In the **Agendas** section, you will see a list of the available Agendas and the **Create** button that will give you the possibility to create your own agenda using the form shown below. This agenda will only be available to your organization inside the application.



For any new Agenda, the name is a required field, while all the other fields are optional. Once you click on the **Create** button, your agenda will be added to the list of available agenda where you can also edit and remove the agenda⁵.

Creating or Editing Goals

Once you have created an agenda, you can add your custom goals to it in the **Goals** section of the application. The **Goals** section has a **Create** button, similar to those in the **Projects** and **Agendas** sections – when you click on the **Create** button, you will see the form that is shown in the image below.

Please note that when adding agendas in different languages, it is up to the administrator to ensure that translations for custom goals are added.

In this form, you will have to select the **Agenda** that your goals belong to. The **Number** and **Description** fields are also obligatory.

A note on Goal Numbers

The **Number** field is used as an organizational indicator within the agenda. In the tool, the 169 Sustainable Development Targets are contained in a separate Agenda from the 17 SDGs, but are defined as a Goal Number. Target Number, therefore indicating the SDG to which each belongs. The dot separates the main group from the secondary group. We recommend that you number your

⁵ An agenda can be removed as long as there are no goals linked to it.

goals in a similar fashion, in order to keep track of them easily (for instance, by using A.01 as in the example). This is useful when adding agendas that include goals and subgoals (or targets), such as the SDGs.

Full Goal Descriptions and Shorthands

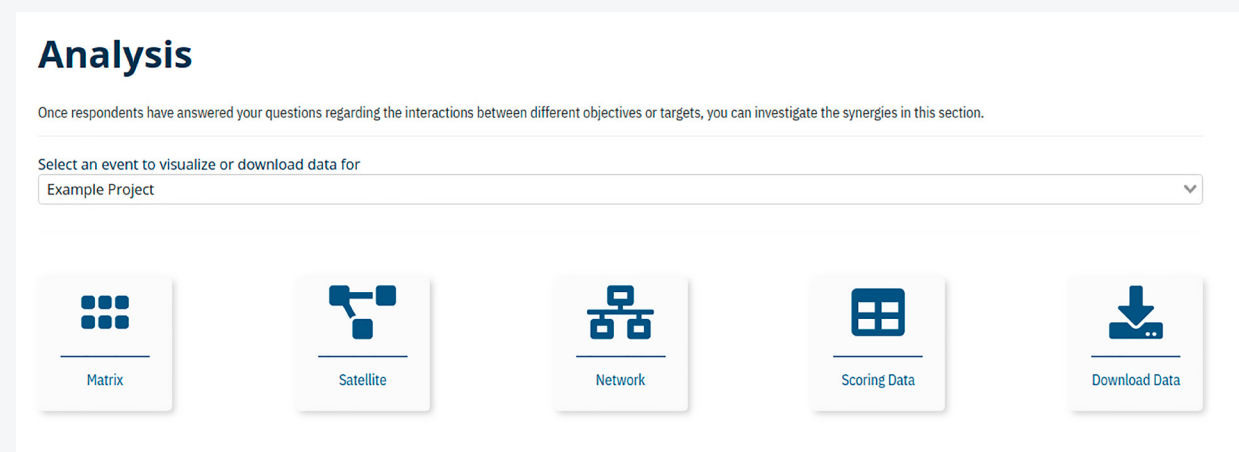
The **Description** field is for a full description of the goal, but there may not be enough space for figures. To remedy this, you will be given the option to add a **Shorthand** to your goal, which is a short title (preferably two to four words) describing it. These shorthands can then be used to identify the goals in some of the figures in the **Analysis** section.

Goal Images

Finally, you can attach an image to your goal to help respondents identify it. These images can be the pre-loaded images for the SDGs, or additional images you upload to the application. The images must be square and preferably measure a maximum size of 150px by 150px.

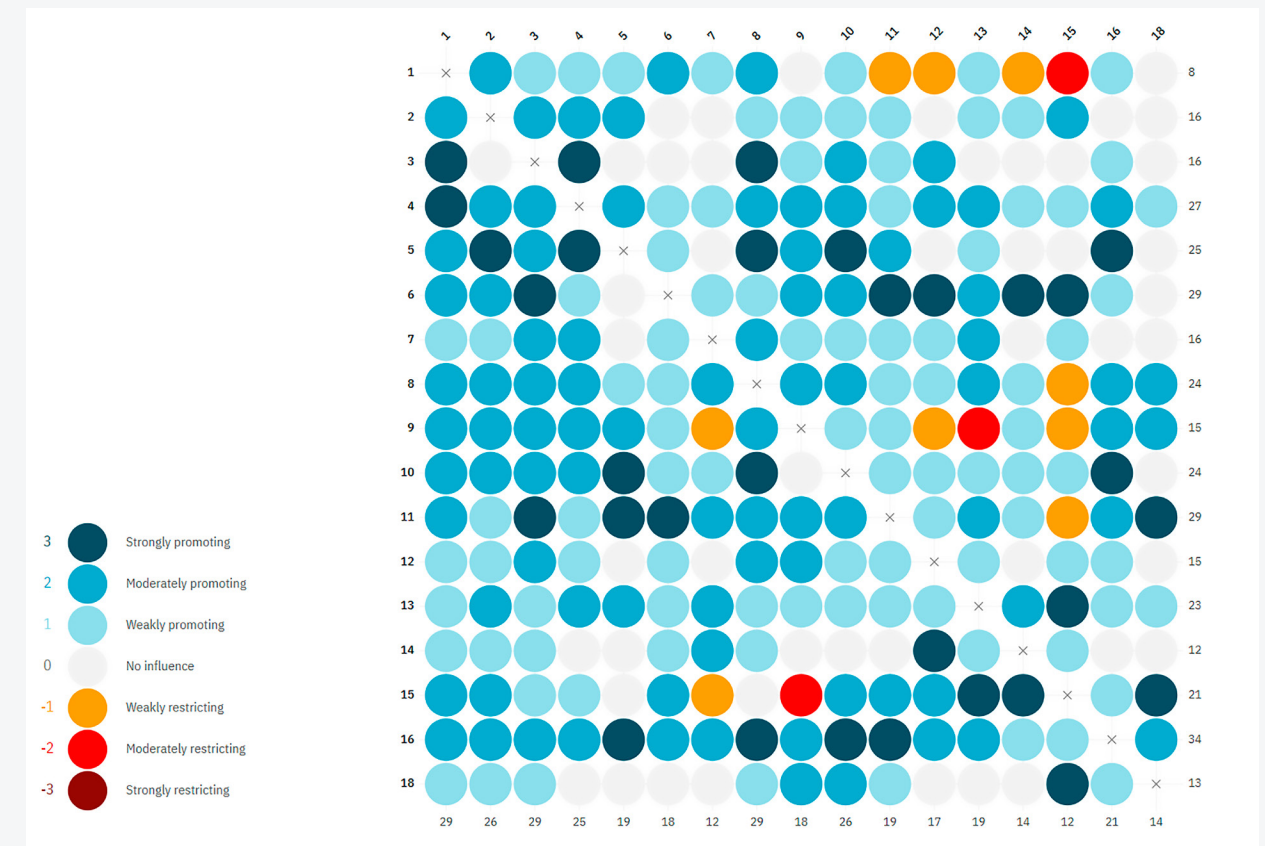
Analysis

The administrator interface also provided the option of displaying the results in a variety of figures once the matrix has been graded. To do so, click on the **Analysis** button on the main navigation menu on the left, to display the following window. Next, select the desired event from the drop-down menu, and choose one of the following viewing options to display the results and other data.



Matrix

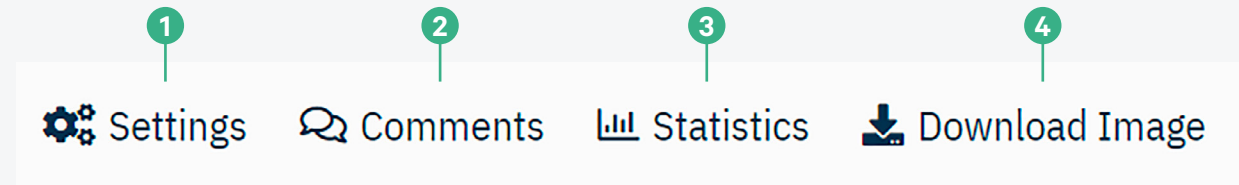
The full or partial results can be displayed on the **Matrix** view. The description of the goals linked to the project can be shown by hovering over the goal numbers shown at the edges of the matrix. The tool automatically aggregates all the scores submitted by the respondents, rounding the values to integer numbers and displaying them using the seven-point-scale symbology (displayed on the left of the matrix), as shown below. P represent positive interactions (or *synergies*) are shown in blue and *negative interactions* (or trade-offs) in red.



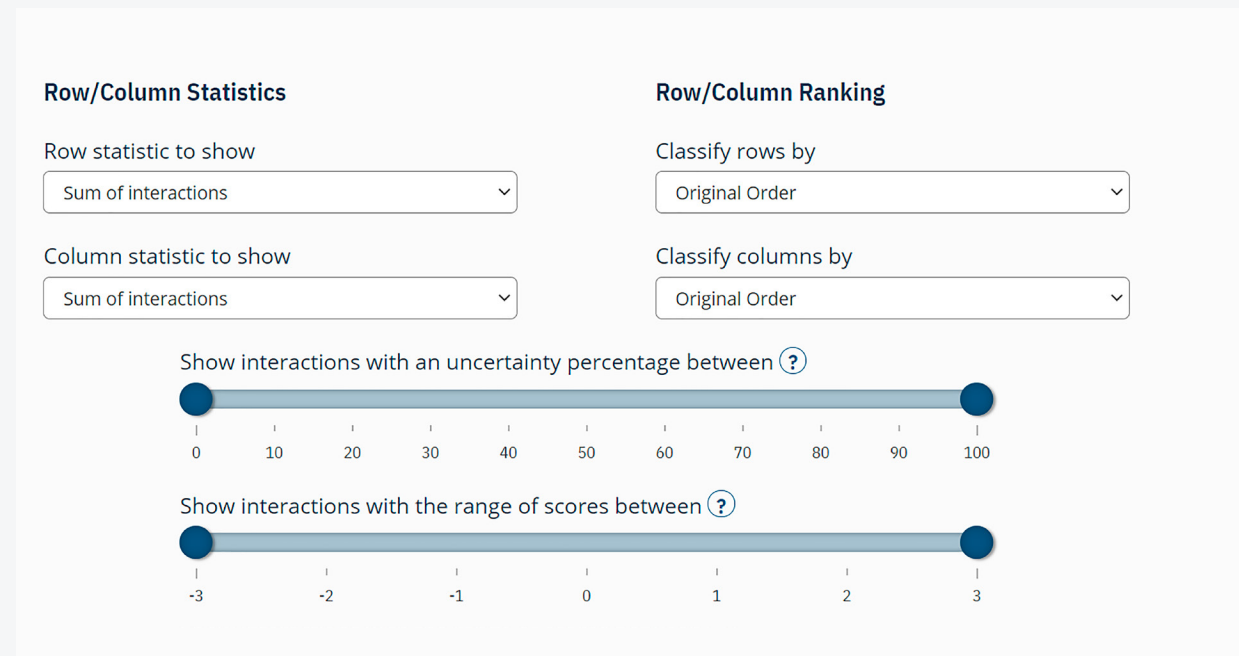
The overall impact that one goal has on every other (the *outdegree*) is shown as the sum of the row (displayed down the right-hand side of the matrix), whereas the sum of the column (displayed along the bottom of the matrix), shows the degree to which all others influence one goal (the *indegree*). From these two calculations, it is possible to infer whether individual goals can have an aggregated synergic (positive) or negative effect on the rest of the agenda.

A high row (outdegree) value indicates that a goal has a synergic effect – meaning that it can make the achievement of other goals easier. On the other hand, a low or negative row value, caused by many negative interaction scores, would suggest that this goal impedes the achievement of others. On the receiving end, a high column (indegree) value would indicate that the realization of the whole agenda positively influences the achievement of that particular goal. In contrast, a negative or low column value would mean that progress in the rest of the agenda can hinder progress in that goal.

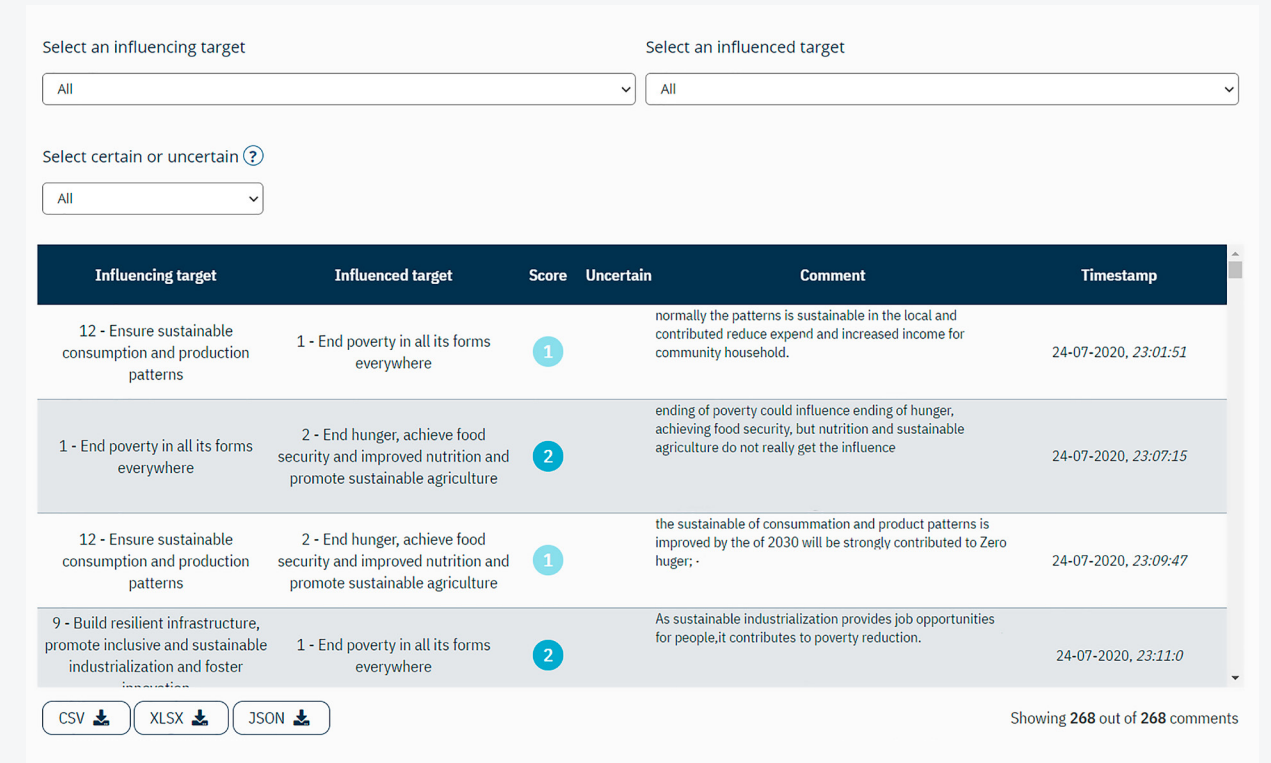
The **Matrix** view also includes the menu located above the cross-impact matrix, as shown below. It contains four buttons:



1 The **Settings** button in this menu will display options that show additional calculations and make it possible to sort the matrix by these values. Moreover, interactions can be displayed within any range of scores and according to their **Uncertainty Percentage** (to see how respondents can indicate whether a score is uncertain, please see the [Scoring Data](#) section of this manual). Finally, if your project is in progress, the **Toggle Automatic Update** button allows you to set the matrix view to be updated with incoming data from respondents every five minutes.



2 The **Comments** button will display the comments/justifications that the respondents provided while scoring the matrix. This information can be sorted by the influencing/influenced goal and by the level of uncertainty. Data can be downloaded in CSV, XLSX and JSON formats for further analysis. This information can be complemented by the data available in the **Scoring Data** view of the **Analysis** section, which is explained in the [Scoring Data](#) section of this manual.



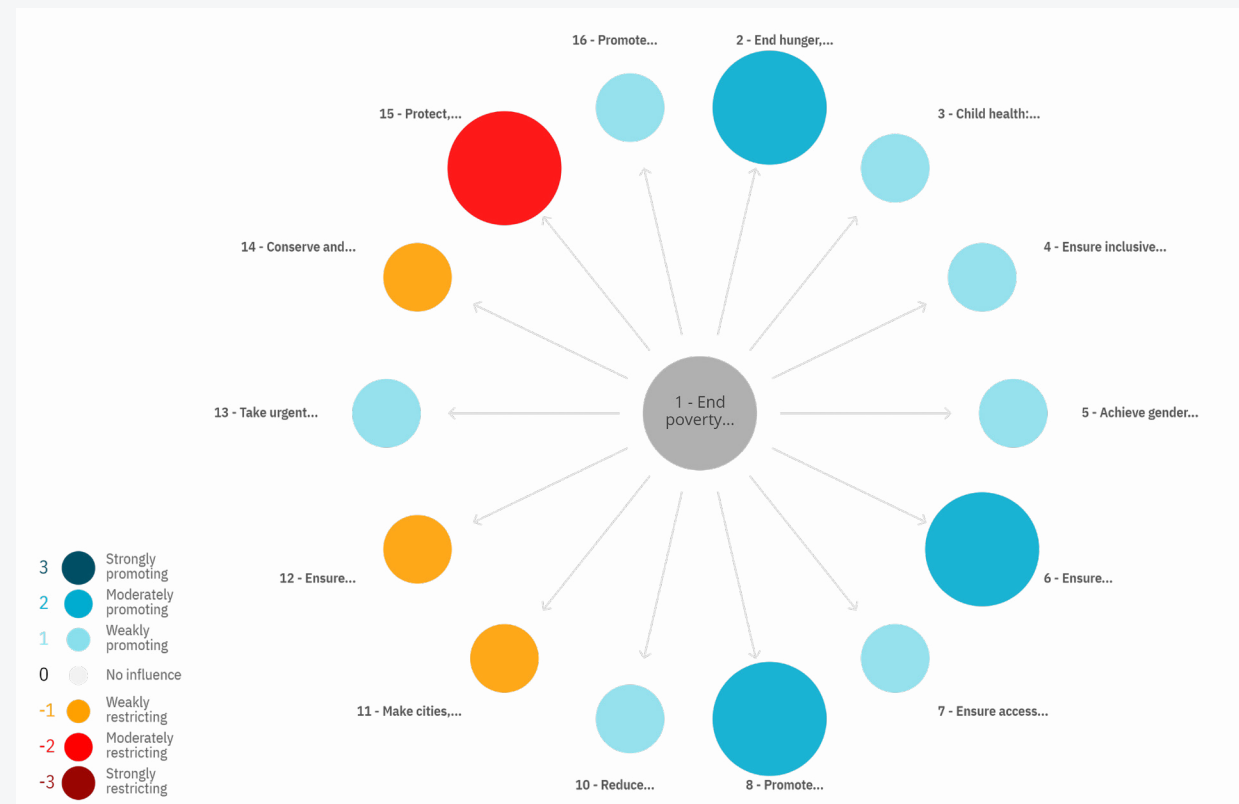
3 The **Statistics** button will reveal a column chart showing which scores were the most frequent either across the whole matrix or for a particular interaction. You can also choose to display the central tendency of the selected interactions. The mean is the average value of all the scores, while the median can be used to determine the percentage of high scores given to the interaction – for instance, a median of +2 would indicate that half of the scores are +2 and above.



4 Finally, you can click on the **Download Image** button to download the matrix in JPEG or PNG formats.

Satellite

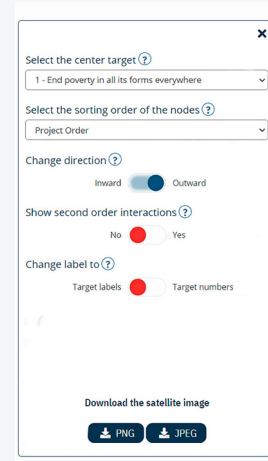
The **Satellite** view shows *satellite graphs* that allow you to inspect the connections, both inwards and outwards, of any specific goal. The diagrams use the same symbology as the matrix: the intensity and size of the colour both represent the graded value, with blue circles showing positive interactions, and the red circles, negative interactions, as shown below.



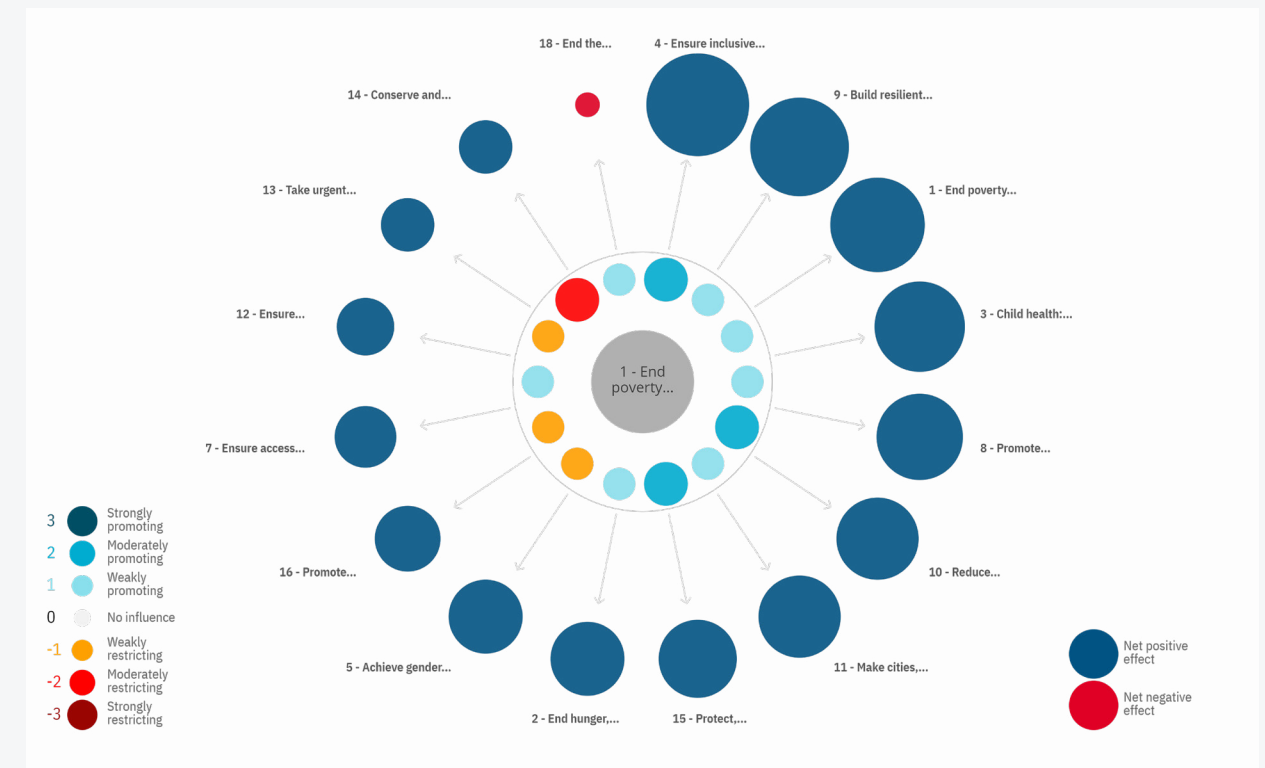
You can use the gear icon menu above and to the left of the symbology to select the interacting objective, toggle the order of the circling objectives, and change the direction of the interactions (inwards or outwards). The circling objectives can be sorted by their order in the matrix (project order) or by their values (so that the strongest interactions are shown first in a clockwise fashion).

You can also choose to display *second-order interaction* values, which show how one objective influences another through its impact on its neighbours' neighbours. Positive second-order interactions are shown in blue and negative interactions in red. The size of the circle represents the strength of the interaction.

The second-order degree shows how the impact of one goal ripples through the network, better illustrating the systemic impact of one objective over the others. For instance, if goal A has a strong positive interaction with goal B, and B in turn has a strong positive connection with goal C, then A will have a positive influence on C through its direct interaction with B. Second-order



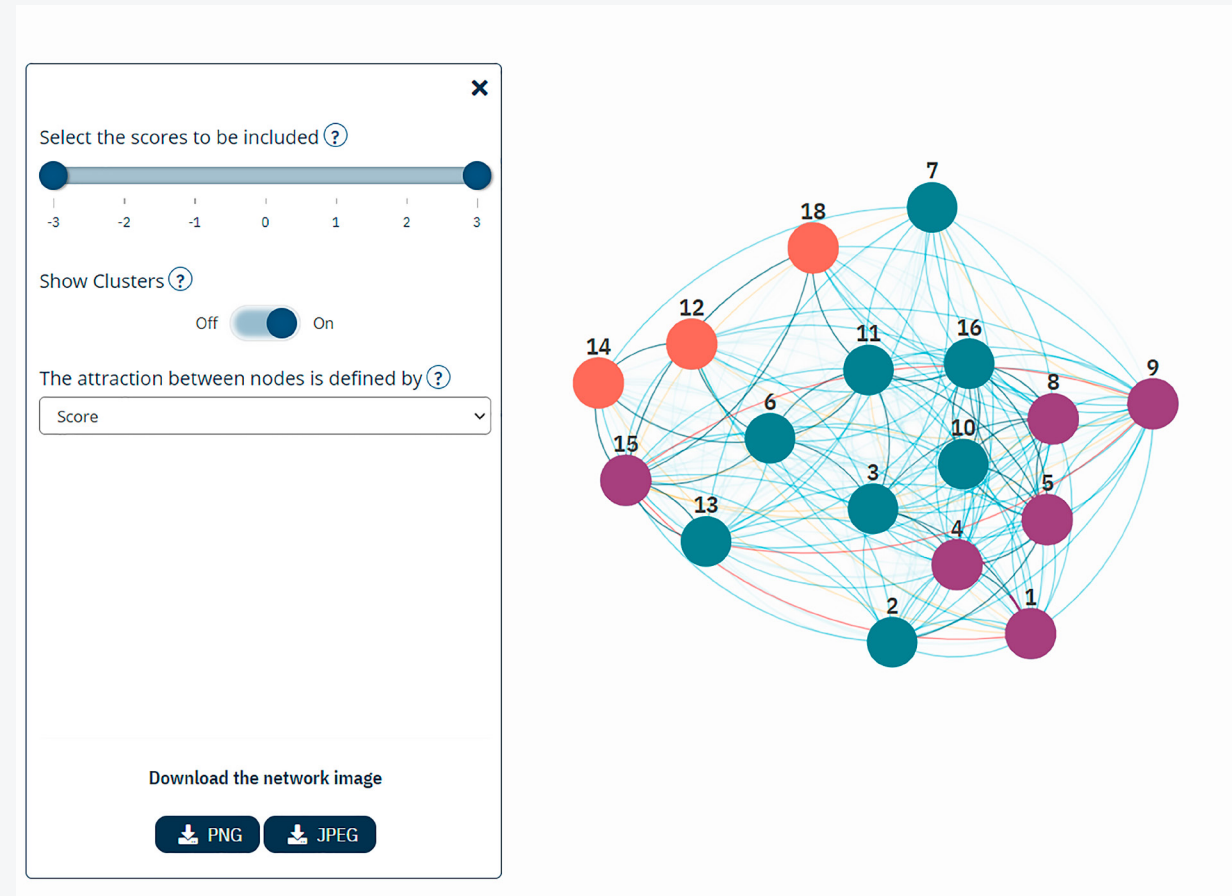
rankings tend to vary from the *first-order interaction* calculations and can be used as tiebreakers in policy prioritization strategies if two or more goals have the same outdegree values. Please see the [Equations and Formulas](#) section of this manual for more information about second-order degree calculations.



Network

The **Network** view uses network analysis to display a *network graph* of the interacting objectives. In this view, objectives are represented by circles, and the colour of the connecting links shows the intensity of the interaction, with positive links in blue and negative links in red. By default, the network displays all the interactions, but it can be set to only show interactions within a specific range of scores.

In the network, the position of a circle is determined by the number and the values of its connections – highly connected goals tend to be more central, and the attraction/repulsion factor between them can be changed. By default, the attraction between the goals in the graph is defined by their numeric score in the matrix (see **Score** in the drop-down menu), meaning that goals with highly positive interactions will be closer to each other. However, the attraction factor can be toggled by the strength of the interactions (meaning that two goals will be attracted to each other if they have a strong interaction value, regardless of whether it is positive or negative; i.e., +3 and -3) and by positive or negative connections – a network with goals attracted by their negative links will show objectives with negative interactions closer to each other.



Finally, *clusters* of goals can be identified in many different ways. In its current version, the tool identifies clusters with a high concentration of positive links, seeking to leave out negative connections between different clusters⁶. Goals inside a cluster reinforce each other and can be used as a basis for partnerships for governance. A different colour represents each cluster in the network, and objectives in the same cluster tend to be closer to each other. Note that the process of identifying clusters does not in general produce a single result. Depending on the algorithm, there are usually a few free input parameters that need to be specified (e.g., resolution, numbers of allowed steps in the calculation etc.) in order for the algorithm to return a network partitioned into clusters. In the current version of the tool these opportunities are not explored, hence the user does not have the freedom to set parameters.

Please also note that in some cases it might be difficult to identify more than one cluster. In fact, the networks produced in typical projects using SDG Synergies are very complicated for algorithms designed for cluster identification. The networks allow more than one link between the nodes, weighted links, and positive and negative connections. Furthermore, the networks are generally rather dense (i.e. the number of existing links compared to the number of possible links (which is $n(n-1)$ for a network with n nodes) is high).

6. The clustering feature is under constant development, and you may see changes in the number of clusters and their arrangement when using future versions of the tool.

Scoring Data

The **Scoring Data** view shows a table with data for any particular interaction, including the token of the respondent who graded it and his or her comment/justification. This information can be toggled by the influencing/influenced target, level of uncertainty, and token. Moreover, a range of scores to be displayed can be selected. This information can be downloaded for further analysis in CSV, XLSX, and JSON formats, by scrolling to the bottom of the page.

Influencing target	Influenced target	Score	Uncertain	Comment	Token
8.4 - Sustainable consumption and production	2.4 - Sustainable food production	3		Achieving sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all in Cambodia have a moderate impact on goal 2.	2vZpXS
8.4 - Sustainable consumption and production	6.5 - Implement integrated water resources management at all levels	1			2vZpXS
8.4 - Sustainable consumption and production	2.4 - Sustainable food production	-1			KsfvCM
8.4 - Sustainable consumption and production	2.4 - Sustainable food production	0			1Db889
8.4 - Sustainable consumption and production	2.4 - Sustainable food production	3			dGVqF6

Downloading Data

Finally, you can go to the **Download Data** view to download the matrix in a spreadsheet format or a summary table that displays the analysed objectives and their calculations. This information can be downloaded in CSV, XLSX, and JSON formats. You can also choose which measurement value you wish to see in the matrix: mean, median, sum, or adjacency values. If you want to download the matrix with the same values as in the **Matrix** view, choose **Mean**.

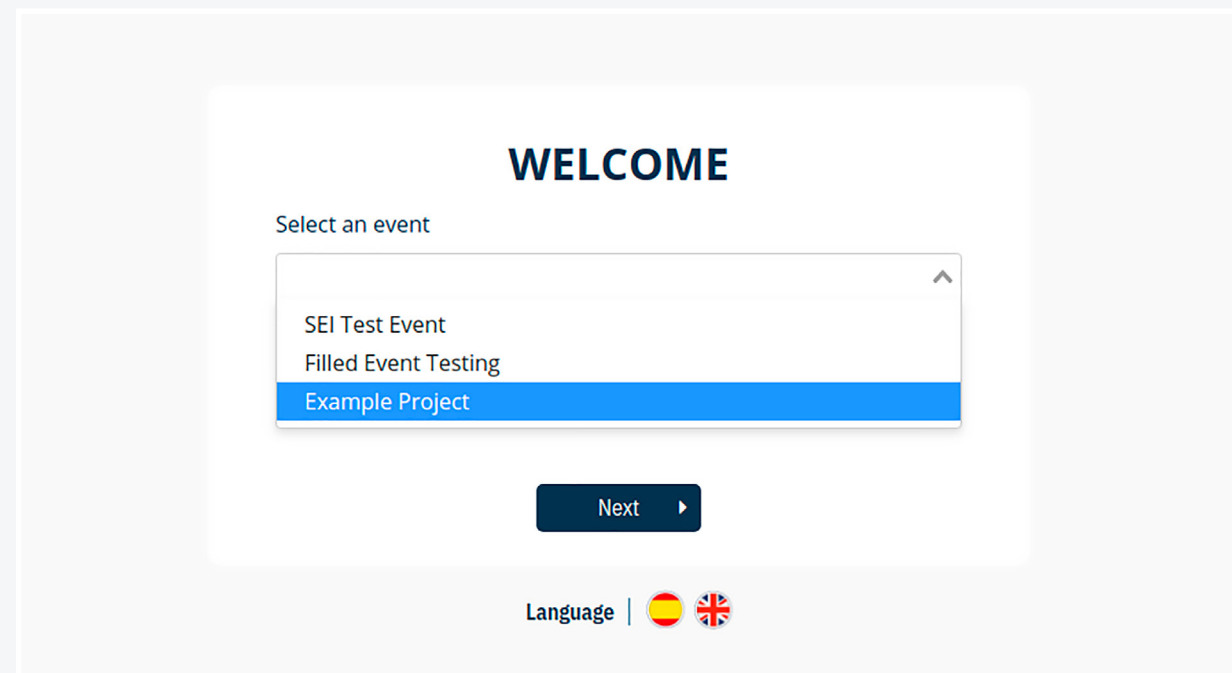
Administrators

The last item in the main navigation menu is the **Administrators** section. Here, you can create more administrators for your organization who, in turn, can create and edit projects and create tokens for respondents.

Respondent interface

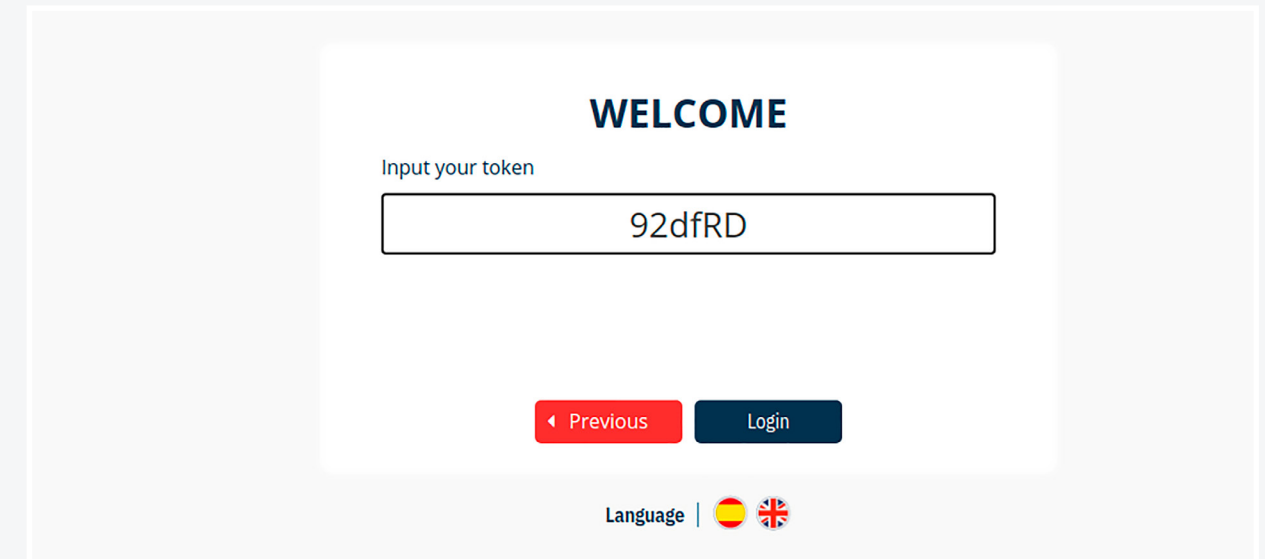
Accessing an Event

For respondents to access the scoring matrix created, they will have to access the application through the following link: [tool.sdgsynergies.org/\[organization-slug\]](https://tool.sdgsynergies.org/[organization-slug]). Here, the *[organization-slug]* is your organization's name in lowercase and with the spaces replaced by dashes. Also, any non-English characters are replaced by similar characters available in English. This means that the access link for an organization called "Organization Náme" will become tool.sdgsynergies.org/organization-name. This will lead respondents to the access screen that is shown in the image below.



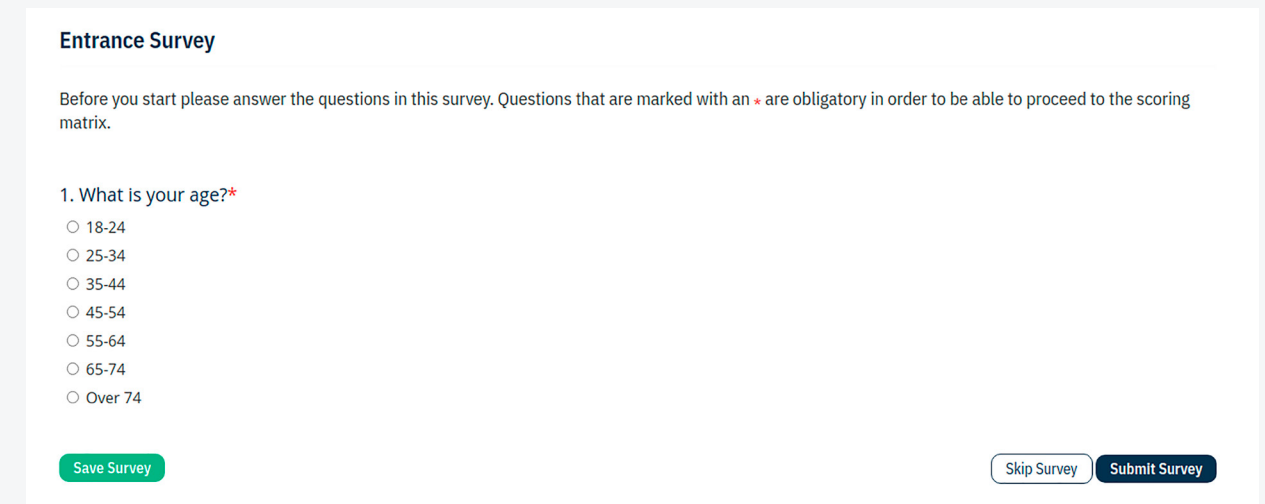
Here, respondents will pick the event they are participating in (this will be the name you gave to your project). Respondents can select their preferred language, and it is up to the administrator to ensure that translations for custom goals and agendas are added during the [creation of these goals and agendas](#).

Once a respondent has selected the correct event and clicked **Next**, they will have to enter the token that the administrator [created and provided](#) for them. This will look like the following image. Once this is done, respondents can click **login**.



The Project Survey (optional)

If the administrator has linked a survey to the project, this will be the first thing they see upon logging in.

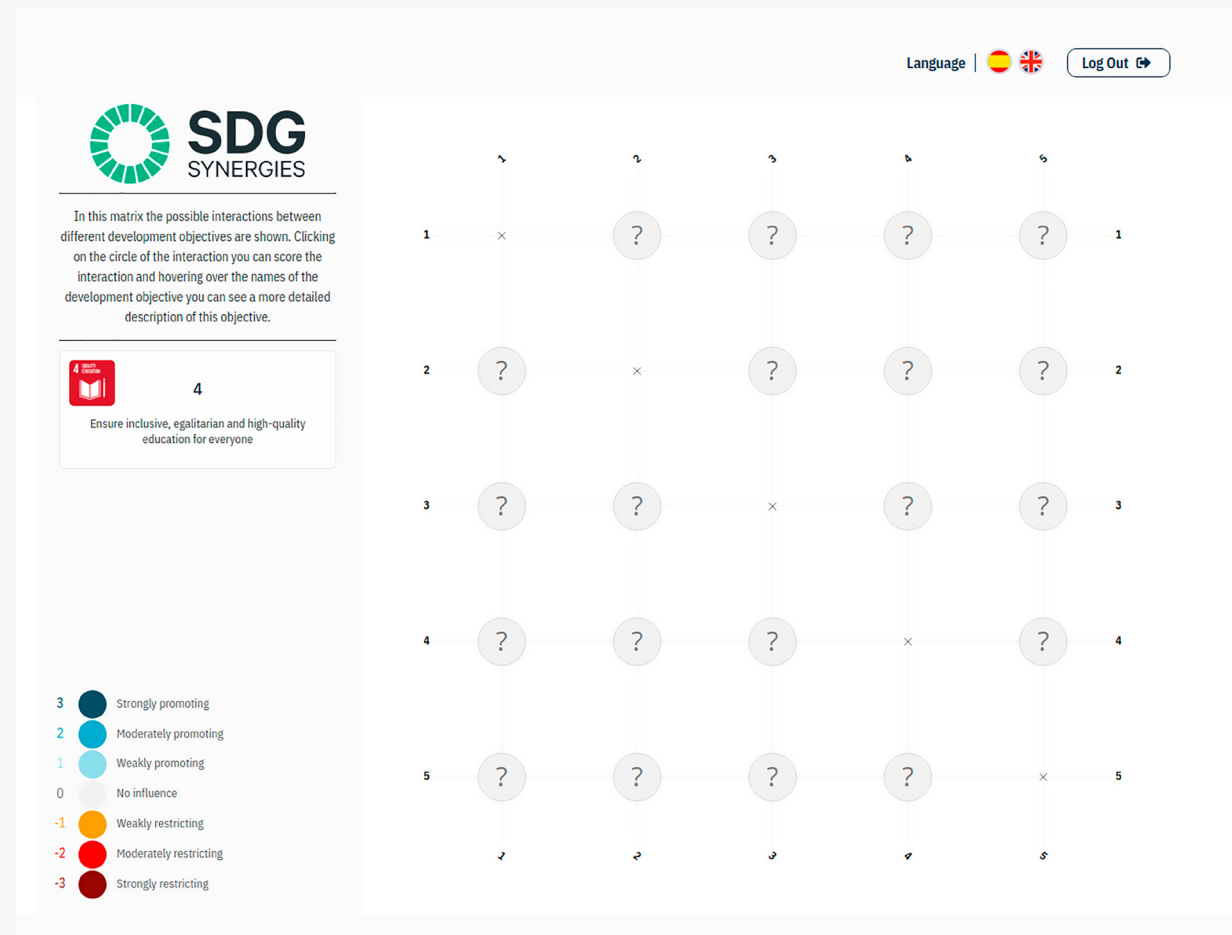


If the administrator has marked the survey as optional, respondents will be able to skip it if they so wish. If the administrator marked it as required, respondents will not be able to proceed to the matrix without answering and submitting the survey first.

If the administrator has not linked a survey to the project, respondents will progress straight to the matrix upon logging in.

The Project Matrix

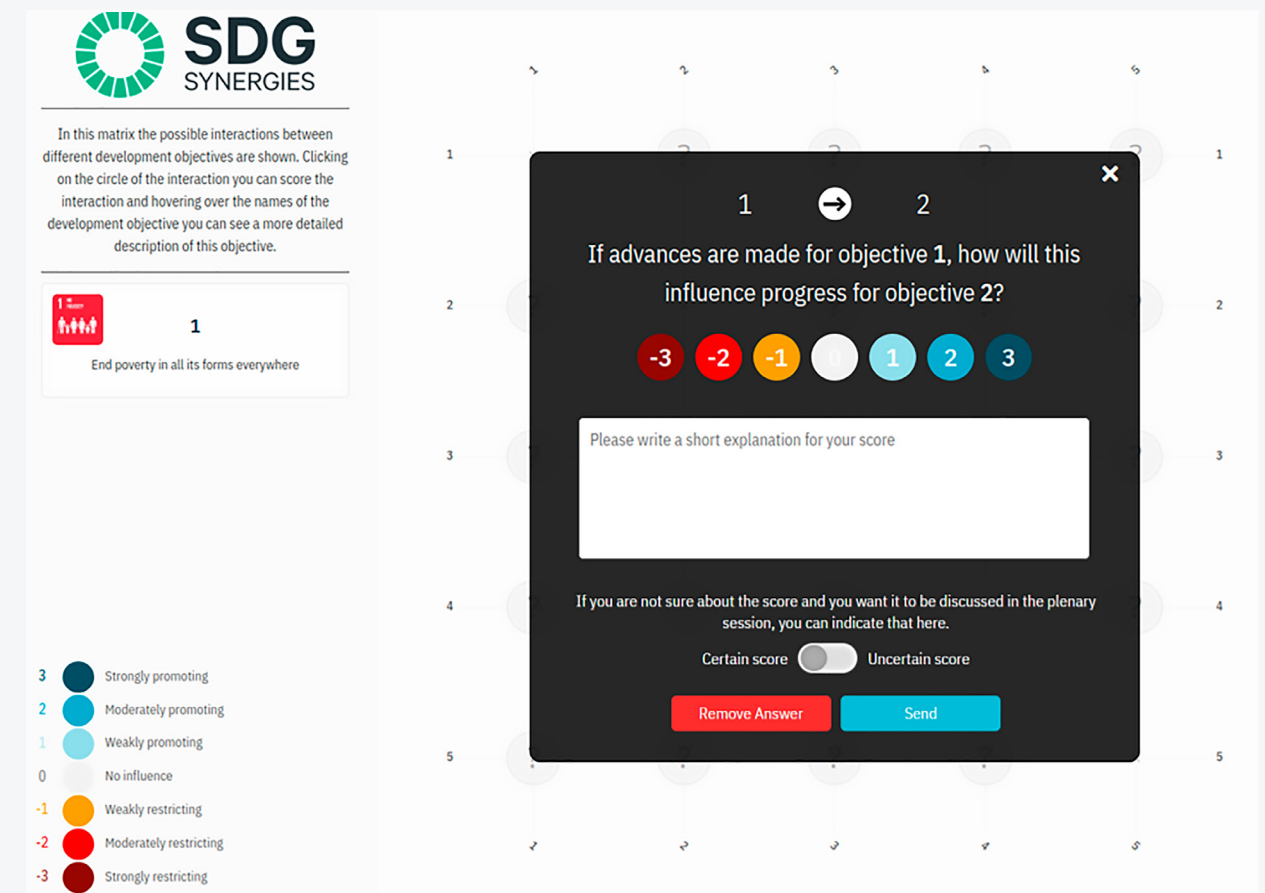
After logging in and potentially completing a survey, respondents will arrive at the **Project Matrix** section of the application where they will spend most of their time grading the interactions. The page will resemble the following image.



Respondents can view the description of the goals linked to the project by hovering over the numbers of the goals shown at the edge of the matrix. The interactions between goals are read from left to right, which means that the interaction at row 1 with column 2 represents the impact of goal 1 on goal 2, while the interaction at row 5 with column 4 represents the impact of goal 5 on goal 4. Finally, respondents will be able to grade the interactions between goals by clicking on the question mark displayed at that particular interaction.

Scoring an Interaction

If a respondent clicks on an interaction which the administrator has allowed them to grade, they will be presented with the scoring form, as shown in the following image. No scoring form will appear if respondents click on an interaction which the administrator has not allowed them to grade.




In this form, respondents can grade an interaction with a score of between -3 and 3 (strongly restricting to strongly promoting, as indicated in the caption on the left) by clicking on one of the circles. Underneath the score, respondents will be able to give an (optional) explanation for their score and indicate whether they are **Certain** or **Uncertain** about it. It is recommended that all respondents provide comments for their scores, as this information is valuable for the interpretation of the results and further policy recommendations.

Once respondents select a score, they can save the answer by clicking on the **Send** button. If they want to cancel, they can click on the white cross in the top right corner of the scoring form. Respondents can also review the descriptions of the two goals involved in the interaction by hovering over their numbers at the top of the form. These descriptions will be shown in the white square on the left of the matrix.


Once the score is submitted, it is immediately saved and stored in the tool's database and will not be lost, meaning that respondents do not have to worry about saving their progress.

Once they have graded an interaction, respondents will see the result of their grading in the matrix as is shown in the following image. All scores are automatically transferred to the Administrator view of the matrix, so that you can keep track of progress while your event takes place.

Respondents can always edit or eliminate the score by clicking on the coloured circle meaning that they do not have to worry about making a mistake because all their scores can be changed or undone at any time, if needed.



In this matrix the possible interactions between different development objectives are shown. Clicking on the circle of the interaction you can score the interaction and hovering over the names of the development objective you can see a more detailed description of this objective.


3
 Ensure healthy lives and promote well-being for all at all ages

- 3 ● Strongly promoting
- 2 ● Moderately promoting
- 1 ● Weakly promoting
- 0 ● No influence
- 1 ● Weakly restricting
- 2 ● Moderately restricting
- 3 ● Strongly restricting

Basic guidelines for designing workshops

In order to manage a successful event using the SDG Synergies tool, a number of aspects must be considered in relation to the time it takes to explain the methodology and tool, grade each interaction, and show the results.

We recommend that you set aside a minimum of 20 minutes to explain the methodology and what a cross-impact matrix is and show participants the seven-point-scale that they will use to grade interactions. Also, please make sure that the respondents know that the matrix is graded from left to right, beginning in the first row. During this explanation, it is also vital that you verify that every respondent has their access token ready and understands how to access the website; you can create extra tokens and have them readily available in case someone requires one.

Generally, each interaction takes a minimum of 3 minutes to grade. However, this time may vary depending on whether you wish to allow group discussions between the respondents before they grade each interaction. Depending on the number of respondents, discussions can be lengthy, and you may wish to allocate more minutes for scoring each interaction but debates must be moderated to ensure that the allotted time is respected and to avoid setbacks. You can also decide whether every respondent will use a token to record scores individually after the group discussion, or whether each group will be given a single token between them and therefore grade by consensus.

A matrix that contains 20 goals would have a total of 380 interactions – if 3 minutes are assigned per interaction, it will take an average of 1520 minutes or 25 hours to complete, meaning that you would have to hold your event over several days. Consider this when planning the workshop and selecting the number of objectives in the event. Alternatively, you can divide the respondents into groups so that each group records scores for specific rows. If you wish to do so, we recommend that you have the groups organized before the date of the event, and, on the day of the event, allocate sufficient time for respondents to gather in their groups and identify which rows they will grade before starting the exercise.

After completing the matrix, allow time to display and discuss the results. During this process, the participants can share valuable insights from the exercise that can be used for policy design and recommendations. First, show the full matrix (via the **Analysis** section of the administrator interface, as discussed above) and review the most influential goals and the strongest positive and negative links – remember that you can toggle the information in the matrix by clicking on the **Settings** button in the menu above the symbology. Any goal of interest can then be shown using satellite graphs. The network graph and respondents table can be used to scrutinize particular interactions.

Finally, if you wish to use the uncertainty percentage of the scores, you need to decide in advance how to use that information. For instance, it can be used as a “quality measure” of your data. You can set aside time towards the end of the workshop to discuss and resolve uncertain interactions, or follow up with research after the event.

Appendix: Equations and Formulas

Outdegree

$$D_i^{Out} = \sum_{j \neq i} I_{ij}$$

The outdegree of node i is the sum of the total number of links coming from that node. Where I_{ij} is the interaction values from target i to target j .

Indegree

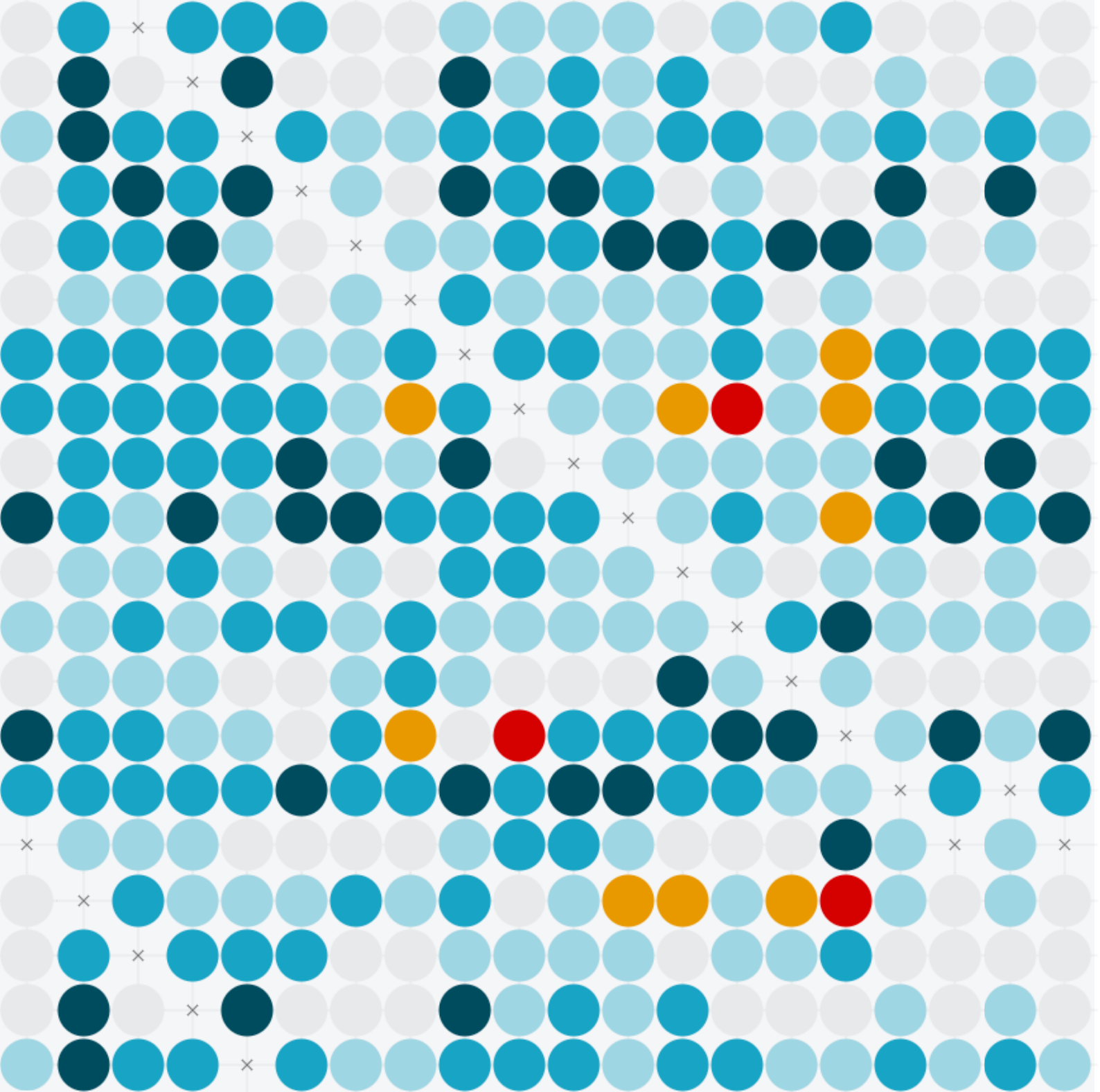
$$D_i^{in} = \sum_{j \neq i} I_{ji}$$

The indegree of node i is the sum of the total number of links coming into that node. Where I_{ji} is the interaction values from target j to target i .

Second-order interactions

$$I_i^{Total} = I_i^{1st} + \frac{1}{2} \sum_{j \neq i} I^{2nd} = D_i^{Out} + \frac{1}{2} \sum_{j \neq i} I_{ij} D_j^{Out}$$

Where I_i^{1st} is the influence of target i on its closest neighbours; I^{2nd} is the influences of i 's neighbour on its neighbours weighted by a factor $\frac{1}{2}$; D_i^{Out} is the outdegree of target i ; I_{ij} is the strengths of link from target i to target j ; and D_j^{Out} is the outdegree of target j .



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