

## D4.1 Blue Careers Pathway Tool mock-up

### Next BlueGeneration

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CONTENTS

**LIST OF FIGURES** ..... 3

1. INTRODUCTION ..... 4

2. METHODOLOGY ..... 5

    2.1. Description of Blue Career Pathway Tool ..... 5

    2.2. Soft Skills matching ..... 6

    2.3. Filtering by educational levels ..... 9

    2.4. Display of occupations in Job Cards ..... 10

    2.5. Flexible career path options ..... 11

3. CONCLUSIONS ..... 12

## LIST OF FIGURES

Figure 1 Presentation of the steps of the work packages WP3 and WP4 .....	5
Figure 2 Flow chart of Blue Careers Pathway Tool.....	6
Figure 3 The result for the user/student after the game .....	7
Figure 4 Soft skills needed for the profession VTS operator (defined by experts) .....	7
Figure 5 Comparison of skills (VTS Operator–Student) .....	8
Figure 6 Job Card first visualisation .....	11
Figure 6 Job Card first visualisation .....	11

## 1. INTRODUCTION

The Next BlueGeneration project will provide personal self-assessment to students through the BlueGeneration Game (WP3) and personal career guidance through the Interactive Blue Careers Pathway Tool (WP4).

Interactive Blue Careers Pathway Tool (WP4) is the second tool in the toolbox of the Next BlueGeneration and its aim is:

- To develop an interactive tool that uses the methodology and data collated in WP2.
- To follow on from the assessment results the students have gained in WP3.
- To provide a tool that enables students to find individual career pathways in the Blue Economy, especially in the six sectors of Nautical Tourism, Maritime Transport, Shipping/Shipbuilding, Marine Biotechnology, Aquaculture and Marine Conservation/Ocean Literacy.
- To enable the user to find mobility options between sectors (e.g. from Maritime Transport to Nautical Tourism, from Nautical Tourism to Aquaculture, etc.).

The main goal of the project and especially WP4 is to provide the students with a detailed understanding of careers in the Blue Economy and enhance the attractiveness of occupations in the Blue Economy.

To create an interactive career path, the project gathered in WP2 specific data needed to accurately describe career and training options in the targeted blue economy sectors.

These data include:

- Career Descriptions: Detailed information on job roles, responsibilities, and working environment.
- Training Options: Information on educational programs, certifications, and other training opportunities required for the successful execution of the tasks per occupation for the selected sectors.
- Soft skills reflecting the current and previously needed skills (during career development) to pursue a career in the selected blue sector and occupation.

A detailed description of the project's-specific methodology for the Blue Careers Pathway Tool follows in the next chapter.

## 2. METHODOLOGY

### 2.1. Description of Blue Career Pathway Tool

Deliverable 2.1, the Methodology Report of WP2, developed in detail the overall workflow of the project’s tools and the interconnection of WP3 (The Next BlueGeneration Game) and WP4 (The Pathway tool). Using the graphic below to visualise the overall flow, it explained how both work packages are tightly linked because the results of WP3 are incorporated into various steps of the Blue Careers Pathway Tool in WP4.

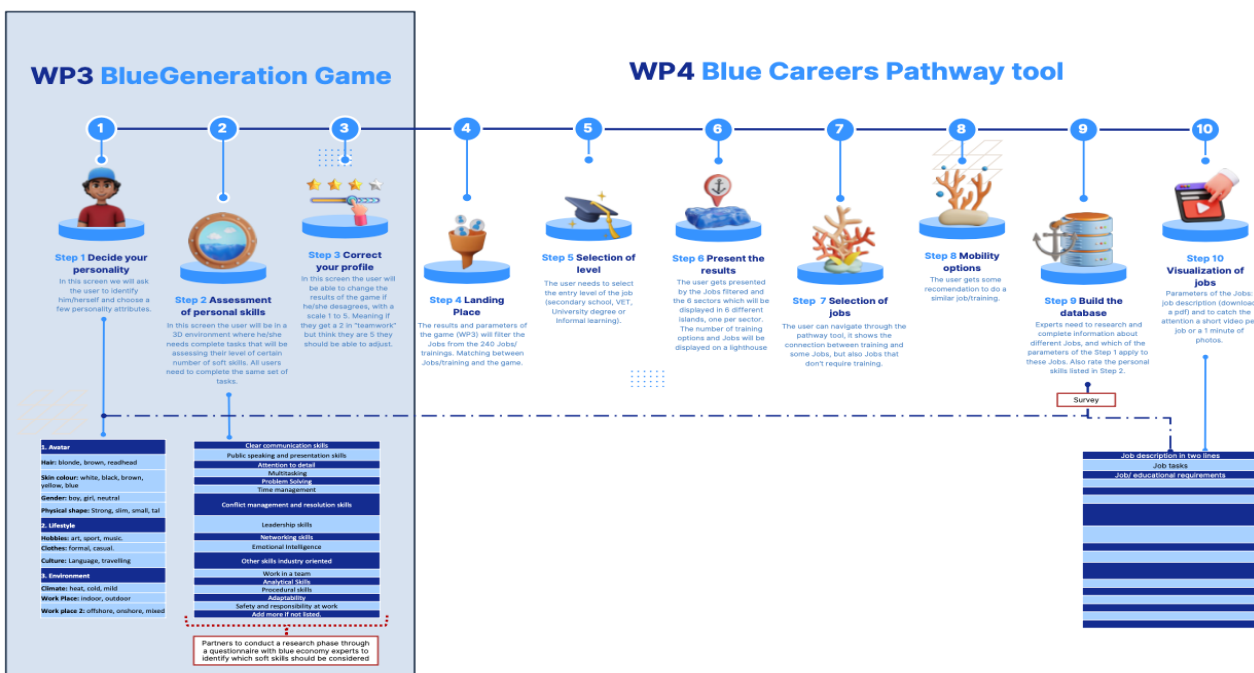


Figure 1 Presentation of the steps of the work packages WP3 and WP4

For this deliverable, the “Blue Careers Pathway Tool mock-up”, only the second part of this overall methodology was reviewed and developed in further detail to provide the next task of design and programming with the necessary information.

Each step is and the flow between the different actions and results are shown in this following flow chart and are described in detail below.

### Flow chart of Blue Careers Pathway Tool

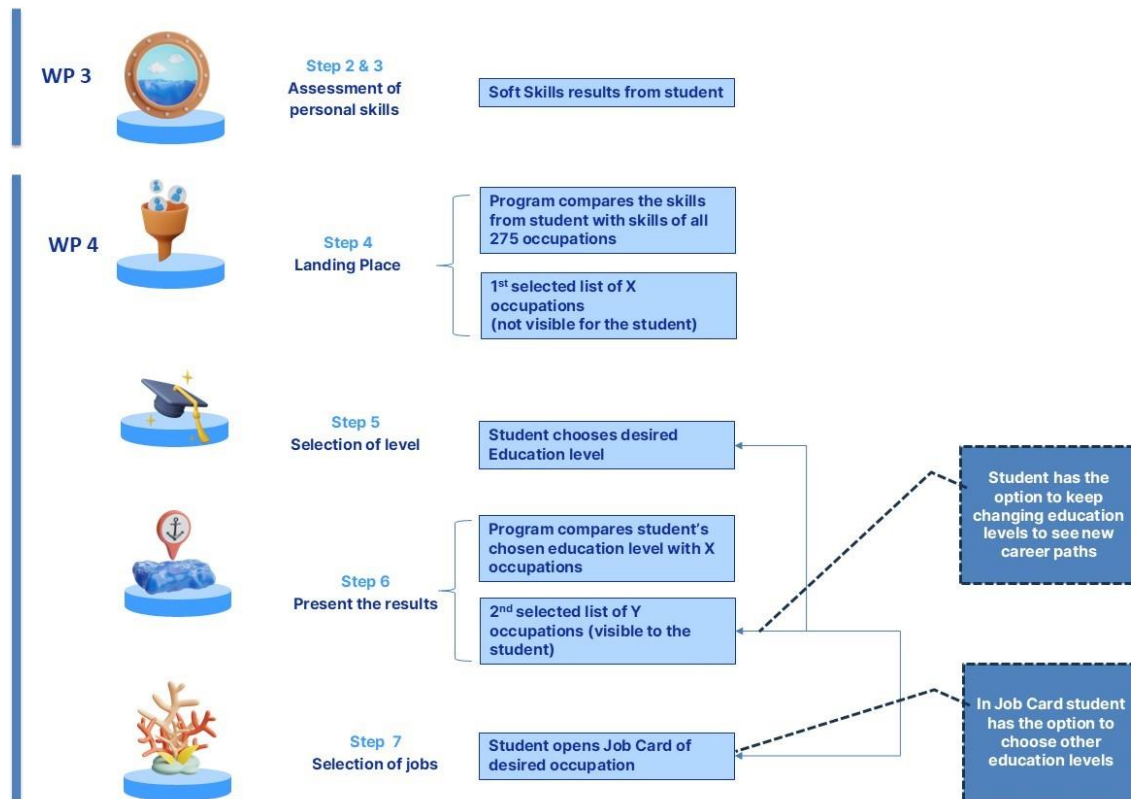


Figure 2 Flow chart of Blue Careers Pathway Tool

#### 2.2. Soft Skills matching

In WP4 a specially developed program will compare the matching of the personal soft skills of students and soft skills required for a particular profession/occupation. Furthermore, the Blue Careers Pathway tool will show to the students a brief description of each occupation for which the program has found that the soft skills possessed by the students match the soft skills for that particular occupation.

In the intersection of WP 3 and WP4, the result of Blue Generation Game assessment (WP 3) is a list of 10 soft skills and the corresponding level of each skill of the students. The soft skills of the students are shown in values from 1 to 5, where a score of 1 means that the student has a very low level of the tested skill, whilst a score of 5 means that the student has a very high level of the tested skill.

Here is an example of a possible result for a user:

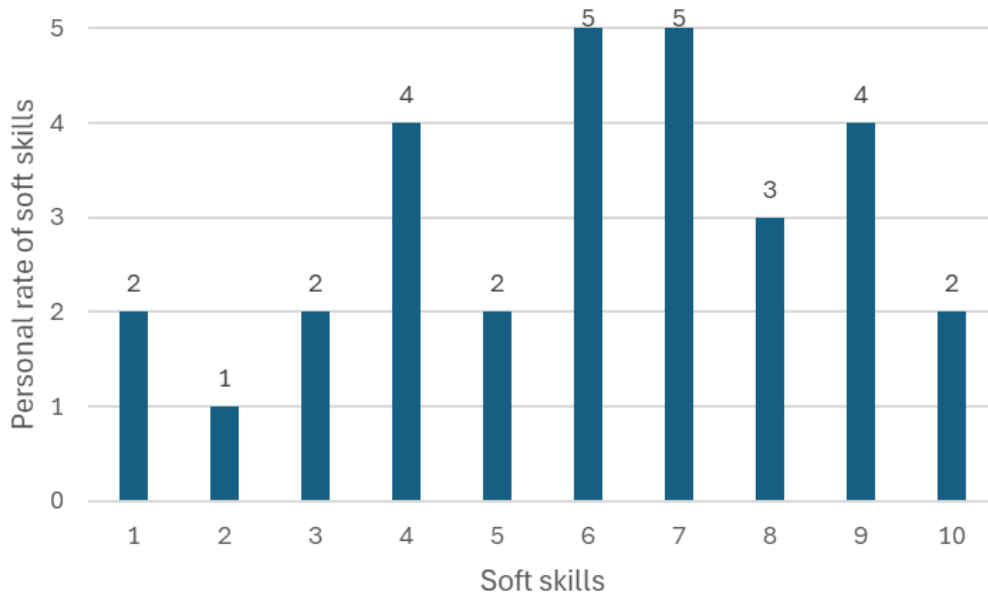


Figure 3 The result for the user/student after the game

This personal score of soft skills is the input or entry data for the Blue Careers Pathway Tool in WP4.

The Next BlueGeneration project has gathered in WP2 the detailed data of a total of 275 occupations in six sectors of the Blue Economy and has asked individual experts to rate 10 different soft skills for each of these occupations between 1 and 5 (1 being “not important” and 5 being “very important”).

Example of soft skills rating by importance for an occupation:

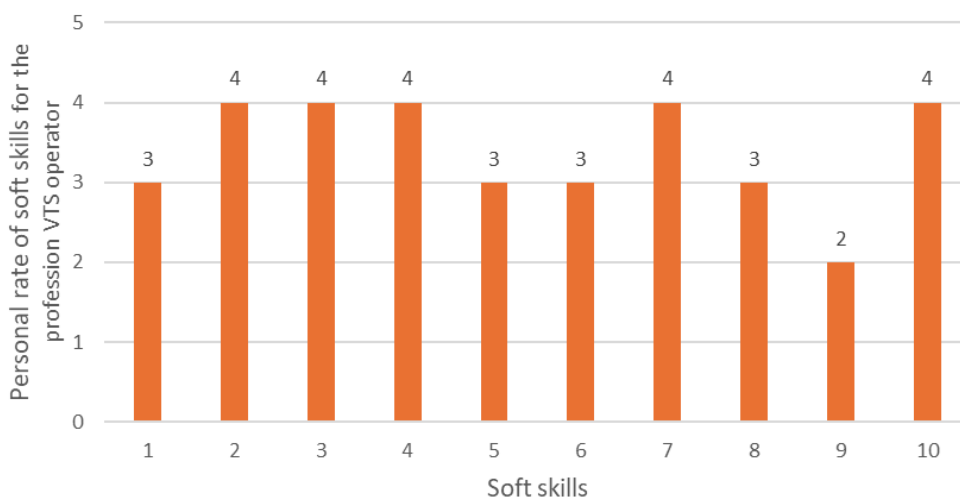


Figure 4 Soft skills needed for the profession VTS operator (defined by experts)

To not overload the students with a choice of 275 job opportunities and to adjust the suggested occupations in an individualised way, the personal soft skills are used as a filter.

Step 4 in the flow chart therefore conducts the first selection of X number of occupations from the pool of occupations by seeking a match between

- a) the personal results of each individual's soft skills, and
- b) the soft skills needed for a certain occupation.

In this step, it was necessary to define how the program will compare the skills required for a specific profession and student's personal result.

To answer this question, psychologists employed at the Youth Center Rijeka (Croatia) were consulted. Different principles of determining the matching of the student's soft skills and the soft skills required for a particular occupation were discussed.

When comparing skills, three scenarios are possible:

- the student possesses fewer soft skills than are required for the occupation,
- the student possesses more soft skills than are necessary for the occupation and
- the student possesses the same level of soft skills as required for the occupation.

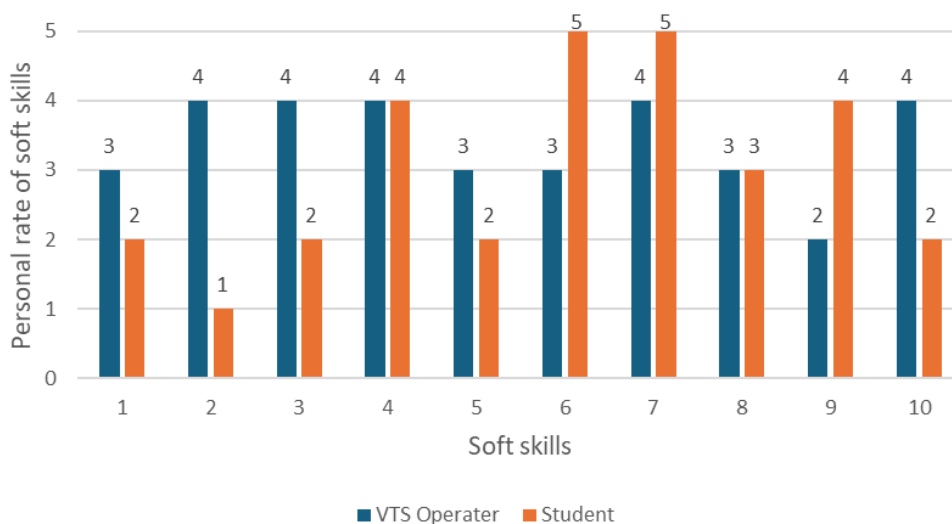


Figure 5 Comparison of skills (VTS Operator–Student)

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Based on the above three possible scenarios, the following was concluded:

- when the student possesses fewer soft skills than are required for the occupation, the program determines the size of the deviation of the student's skills from the required skills. In doing so, the skill level required for the occupation, determined by the expert, is taken as the maximum value.
- when the student possesses more soft skills than are necessary for the occupation, the program does not determine the size of the deviation of the student's skills from the required skills, but concludes that the student fully possesses the necessary skills.
- when the student possesses the same level of soft skills as required for the occupation, the program also concludes that the student fully possesses the necessary skill.

In addition to the above, the program looks for which skills are the most needed out of 10 skills for a particular occupation, and it does the same for a student, and those skills that are most needed or that the student possesses the most are the focus of the match between the student and the occupation.

The result of such approach is that after the program compares the skills, it must rank the match between student's skills and the skills needed for a particular occupation. The result is ordered from the highest match to the lowest.

The above-mentioned ranking is performed by the program for each individual sector. The program does not show the result of the ranking to the student because the student has not yet decided to which level she/he would like to be educated.

### 2.3. Filtering by educational levels

The possibility of choosing the educational level to which the student wants to be educated follows immediately after step 4 in step 5. In step 5, the student is given the opportunity to choose how much he wants to study and be educated.

The chosen education level by the student is compared with the required education level of those X chosen occupations. If the student has chosen the same or higher education level than is required for some occupation, the program selects that occupation and displays it. If the occupation requires a higher education level than the student has chosen, then the program will not display that occupation.

The relevant necessary educational levels needed for the occupations were determined by experts for each occupation when filling out the questionnaire in WP2. The education levels from the questionnaire are as follows:

1. Mandatory minimum school education
2. Secondary school - additional years/qualification
3. Secondary vocational school
4. Medium level/ higher level vocational school/ education
5. Faculty/university – undergraduate studies / Bachelor degree
6. Faculty/university – (post)graduate studies/ Master degree
7. Doctoral studies
8. Additional mandatory courses (non-formal education, not in school system)
9. Informal training (extra training outside the school system and non-formal training, e.g. language course)
10. Other

It is defined in the program that it searches for and compares the minimum required education level for the occupation with the education level chosen by the student.

#### 2.4. Display of occupations in Job Cards

In step number 6, the program displays X occupations to the student that correspond to his personal soft skills and the chosen level of education. Selected occupations are shown by sector (6 sectors).

Step 7 allows the student to search for occupations that are offered to him by sector and that interest him. When a student chooses an occupation, the so-called JOB CARD will be displayed. The Job Card is a visual display of information for a particular occupation that has been carefully selected so that there is neither too much nor too little information, taking into account the age of the students for who the Blue Careers Pathway Tool is intended.

The Job Card displays the following information:

- Short textual description of occupation
- Three basic occupation tasks

- Specific conditions regarding occupation and
- Special information if the profession has it.

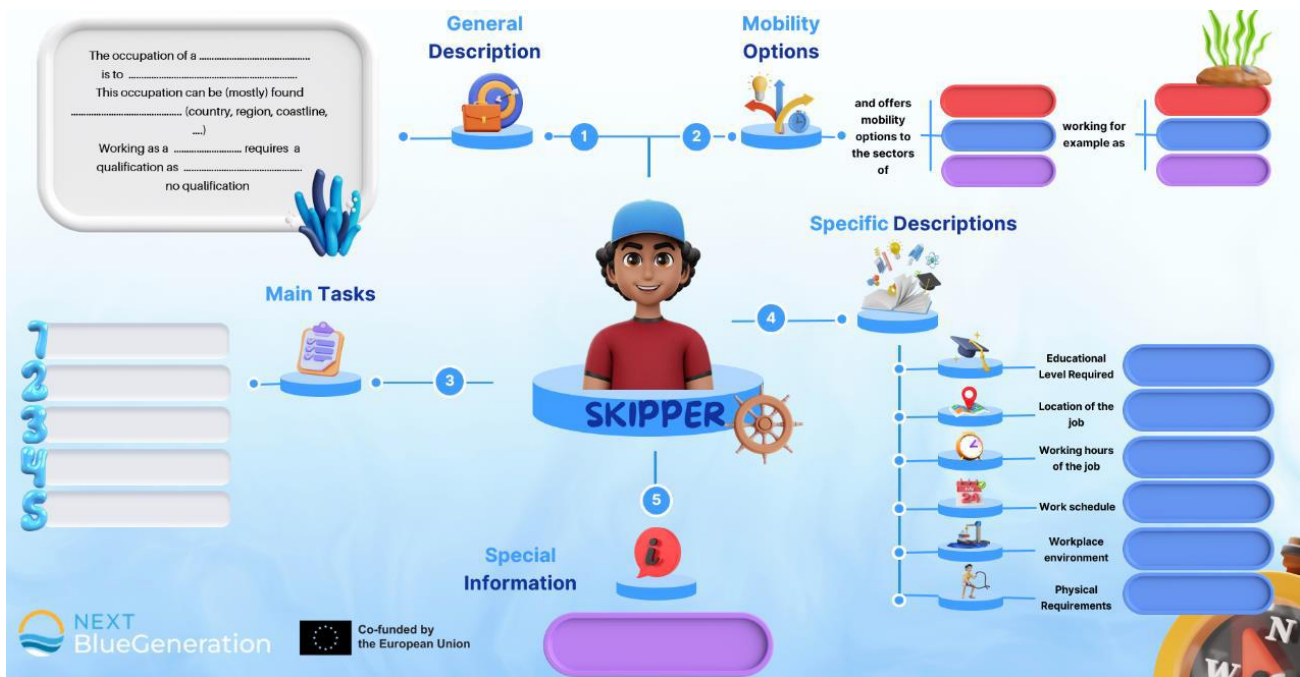


Figure 6 Job Card first visualisation

Figure 7 Job Card first visualisation

In addition to the aforementioned, where the student can get all the information about the chosen occupation, the Job Card enables the student to determine mobility paths between sectors in a way that offers him the option of choosing to move from sector to sector, where he is then shown occupations in other sectors of the Blue Economy that correspond to her/his personal skills and affinities.

After the student has been informed about possible occupations in step 7, he can also choose other educational levels and go back to step 5. If now the student chooses, for example, a faculty, which was already chosen before in step 5, then the program will respond that it can't offer any new occupations.

If the student chooses a higher or lower education level than before, then the program will re-filter the occupations obtained in step 4.

After the student has re-selected the education level, the program will show again the list of occupations by sectors, and now the student can again choose a specific occupation for further information (JOB CARD), as in step 7.

### 3. CONCLUSIONS

The Career Pathway Tool is designed to provide individualised career suggestions to the students, but will also include elements of flexibility, which allow the user to re-choose its path, find mobility options and discover other sectors or occupations.

Should, through testing and piloting, the necessity arise to change parameters, such as the number of 275 occupations, then this will be possible without affecting the work of the program at all.

The entire information gathered in the database and displayed in the Blue Careers Pathway Tool will also be reflected in the MOOC for teachers (WP5), which will include further information and links, so that the teachers can guide the students.