Methodological recommendations for the laboratory work

Content module 2
Organization and functioning of the customs risk management system

Topic 4. Analysis and assessment of customs risks, development of customs risk management measures to determine the forms and scope of customs control

Laboratory work 4
Choice of a financial institution from the State Customs Service of Ukraine (SCSU) Guarantor Register, whose conditions for guaranteeing the payment of customs duties and activities best meet the needs of business entities, using the decision support system (DSS)

The aim of the work is to gain practical skills in building decision support systems in *the Decision Making Helper* package on the example of the task of determining the most appropriate alternative for a foreign economic operator in choosing a financial institution to ensure payment of customs duties from the current register of guarantors of the State Customs Service of Ukraine (SCSU).

Task 4.1

To choice a financial institution from the current register of guarantors of the SCSU, whose conditions for guaranteeing the payment of customs duties and activities best meet the needs of business entities, using the algorithm described above.

It is necessary to determine the categories of financial services providers registered by the SCSU as guarantors as of (https://data.gov.ua/dataset/scsu-register-guarantors/resource/f14e4a13-4223-4c3f-8fd0-0036f0d7eee8).

Next, it is necessary to determine the selection criteria and conduct a situation game to select the best one in order to obtain the optimal solution.

Methodological recommendations for task 4.1

Before using DSS, it is necessary to form an array of data that is used in the decision-making process.

1. Task statement.

The client of a financial institution, a foreign economic operator, is looking for an alternative option for issuing a guarantee of payment of customs duties for placing goods under the common transit procedure. Several alternatives were selected:

1) object 1 – bank A;

2) object 2 – insurer B;

3) object 3 – financial company C.

The comparison of alternatives is based on the following three criteria: the level of ownership of the rights to issue a general guarantee, the cost of the guarantee service, and the stability of functioning in the financial services market.

2. Characteristics of the criteria.

The “Flexibility of guarantee conditions» is a quantitative criterion and has a unit of measurement – the tariff rate.

The criteria “Experience in providing customs guarantees” and “Availability of modern electronic services for issuing guarantees” are qualitative criteria and have the following ratings: “low”, “medium”, “high”.

3. Evaluation of alternatives.

Fill in the table with the scores by criteria for each alternative (Table 1).

Table 1

Evaluation of alternatives

Alternative and criterion	Bank A	Insurer B	Financial company C
Experience in providing customs guarantees			
Flexibility of guarantee conditions			
Availability of modern electronic services for issuing guarantees			

4. Determination of weight.

Determine the weight for each of the criteria based on their importance. In this software product, importance is assessed on a differential scale from 1 to 5 (from *low* to *high*). Submit the results in the Table 2.

Table 2

Weight according to the criteria

Criteria	Weight
Experience in providing customs guarantees	
Flexibility of guarantee conditions	
Availability of modern electronic services for issuing guarantees	

5. Enter data into the software product.

Launch *the Decision Making Helper*. The main working window will appear on the screen (Fig. 1). This working window has a simple toolbar that allows you to create a new project (*New*), open an existing project (*Open*), and save any changes (*Save*). Use the *Save* button and name your project *My Project*.

Options are added to the programme by clicking the button with the plus sign, as shown in Fig. 2. Each option must be named – in this case, it is a bank, insurer, or financial company. You can add 26 options to *the Decision Making Helper*, but since only the *Demo* version is used in the lab, the maximum number of alternatives are 3.

Criteria are added in the same way and their names are formed, which are presented in the source data (see Table 1). *The Decision Making Helper* allows you to create up to 300 criteria, but our version has permission for only 3 of them (Fig. 3).

The last step is to enter the weight of importance of each of the criteria (see Table 2). To do this, move the arrow to the required score (Fig. 4). By default, the arrow is on the *Importance* mark.



Fig. 1. **The main working window of *the Decision Making Helper***

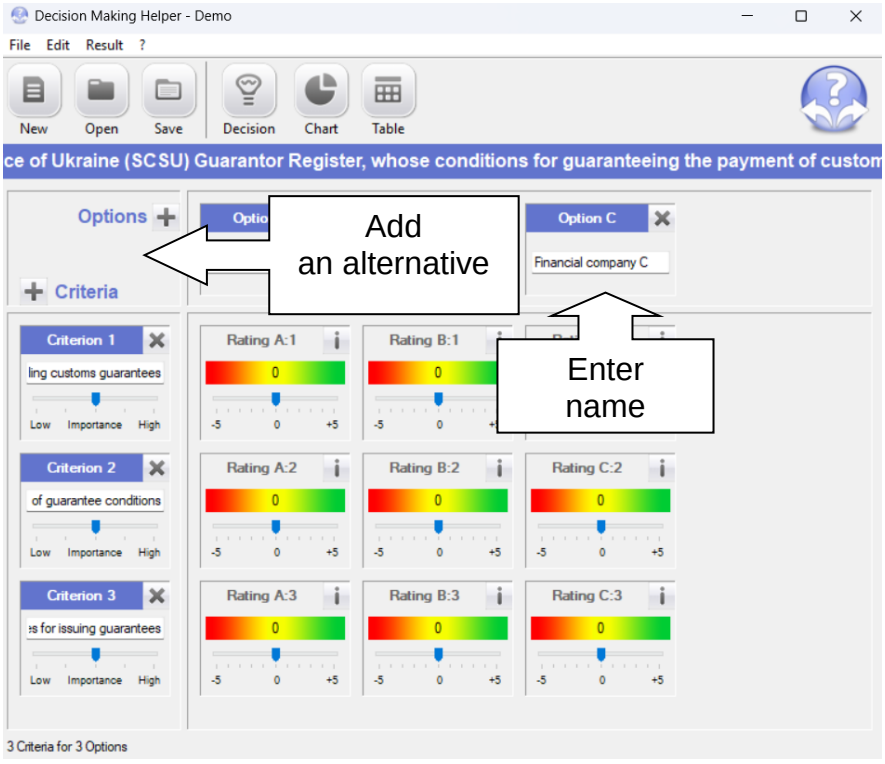


Fig. 2. **Options entry window (alternative)**

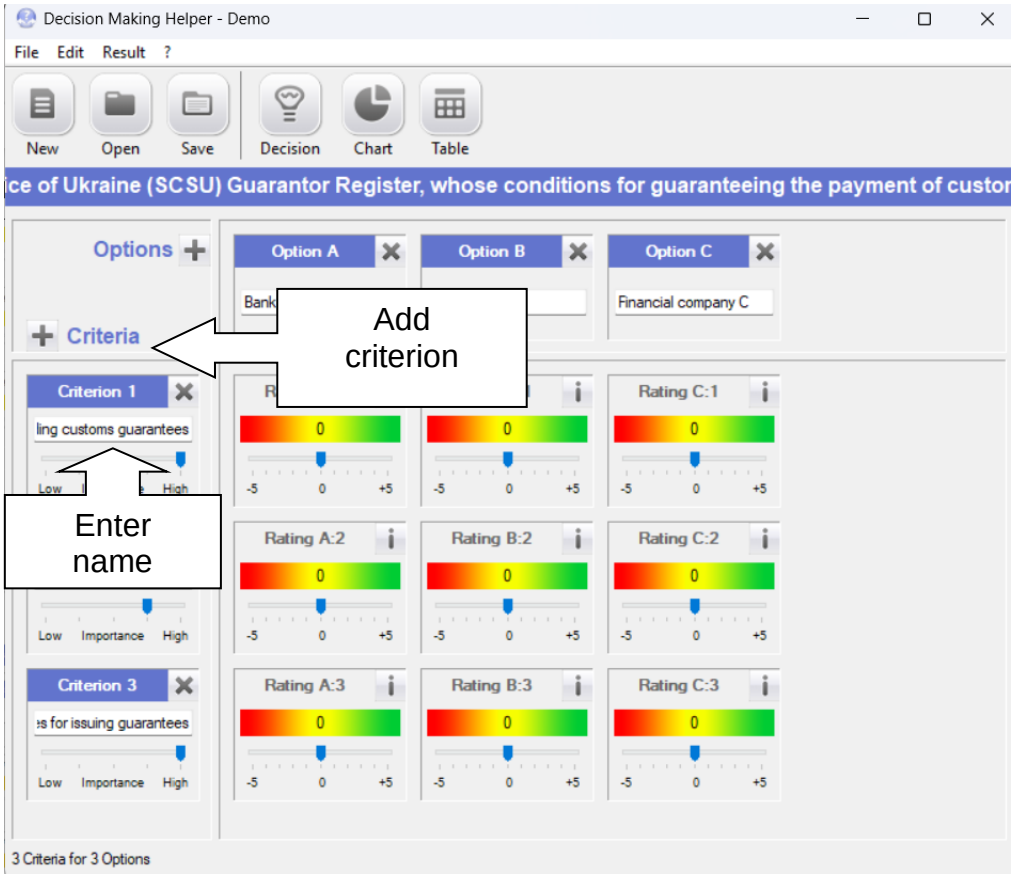


Fig. 3. **Procedure for entering criteria**



Fig. 4. **Window for entering criteria**

In Table 9, the student independently submitted the assessment of the objects. To enter them into the programme, it is necessary to determine the level of fulfilment of the criteria for each option by moving the arrow to the required rating (from -5 “low level” to +5 “high level”, 0 – neutral level) (Fig. 5). You can also make comments to each rating by using the corresponding button, comments can be either numerical values or qualitative characteristics.

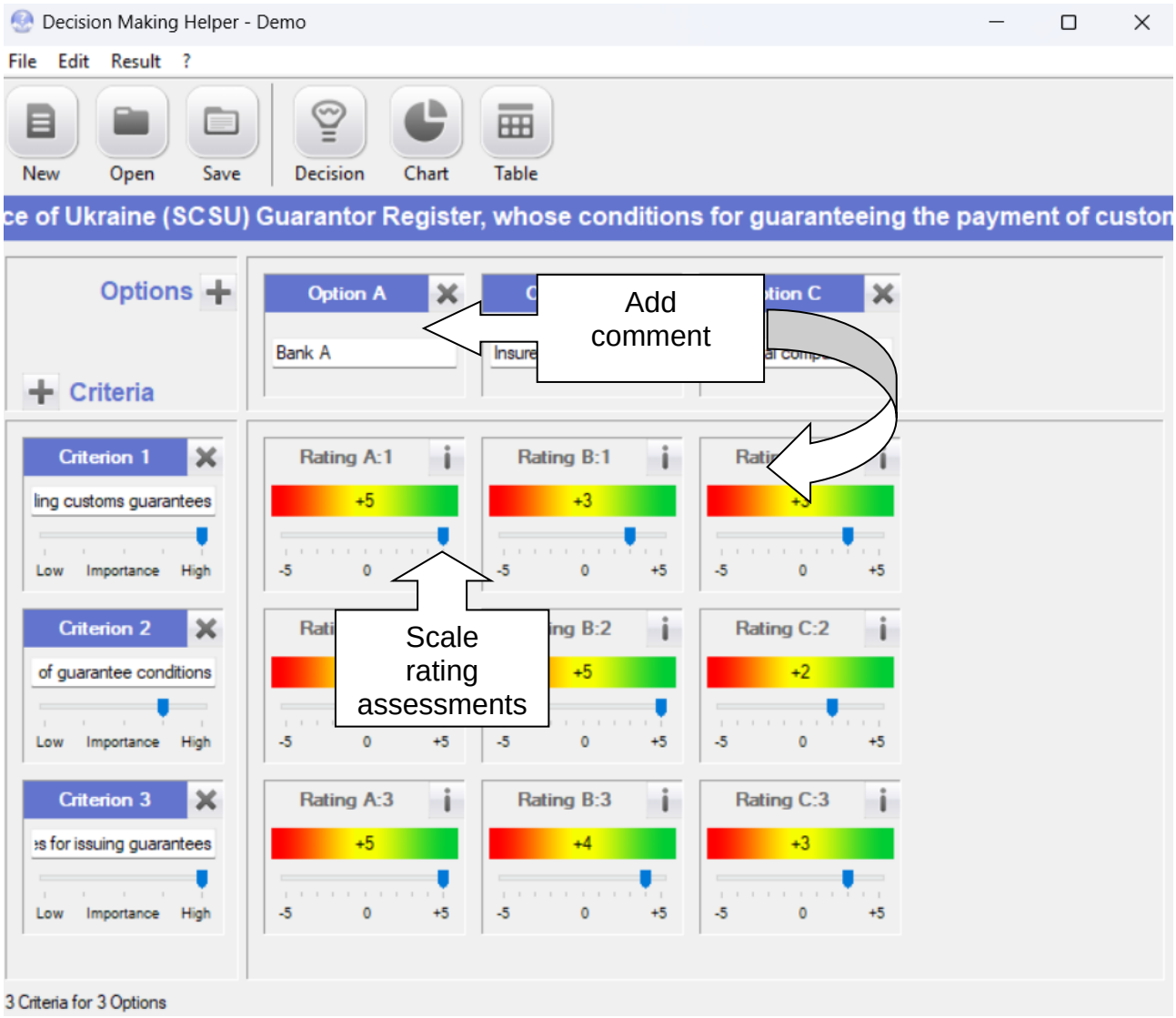


Fig. 5. **Algorithm for determining the level of fulfilment of criteria for each option**

6. Perform calculations of the built model with the system for selecting the best alternative.

To implement this stage, click the *Decision* button on the top panel of the

programme (Fig. 6). *The Decision Making Helper* software automatically calculates the decision value for each option (alternative), in percentage from -100 % to +100 % and in the words “unsatisfactory / rather unsatisfactory / neutral / rather positive / positive”. The results can also be seen in a tabular version (*Table*) (Fig. 7).

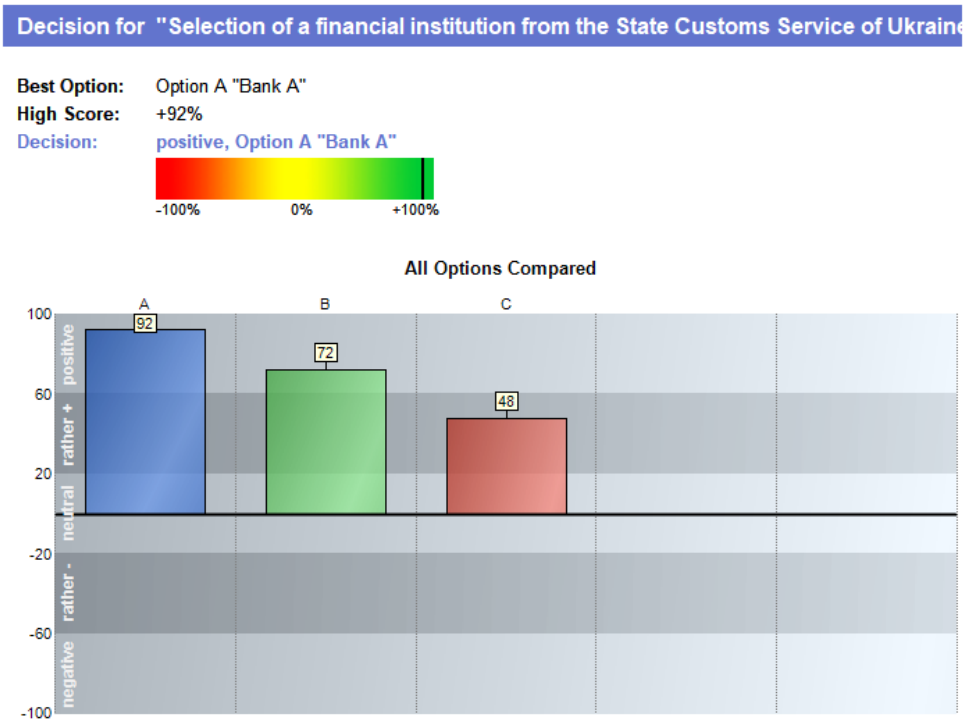


Fig. 6. **Summary window with results in *the Decision Making Helper* (according to rating points)**

Table - Decision Making Helper

Overview

Criteria	Option A	Option B	Option C
Title	**Bank A**	**Insurer B**	**Financial company C**
Score	**+92%**	**+72%**	**+48%**
Ranking	positive	positive	rather positive
1. Experience in providing customs guarantees Importance **5** of 5	Rating **+5** of ±5	Rating **+3** of ±5	Rating **+3** of ±5
2. Flexibility of guarantee conditions Importance **4** of 5	Rating **+5** of ±5	Rating **+5** of ±5	Rating **+2** of ±5
3. Availability of modern electronic services for issuing guarantees Importance **5** of 5	Rating **+5** of ±5	Rating **+4** of ±5	Rating **+3** of ±5

Fig. 7. **Summary table with results**

7. Graphical representation of the calculation results.

To graphically represent the calculation results, click the *Chart* button on the toolbar, which will allow you to see the results in three-dimensional space, on the so-called radar (Fig. 8). Please note that in each result window, if necessary, the functions of copying and printing are implemented, which are performed by the corresponding buttons located in the lower left corner of the window.

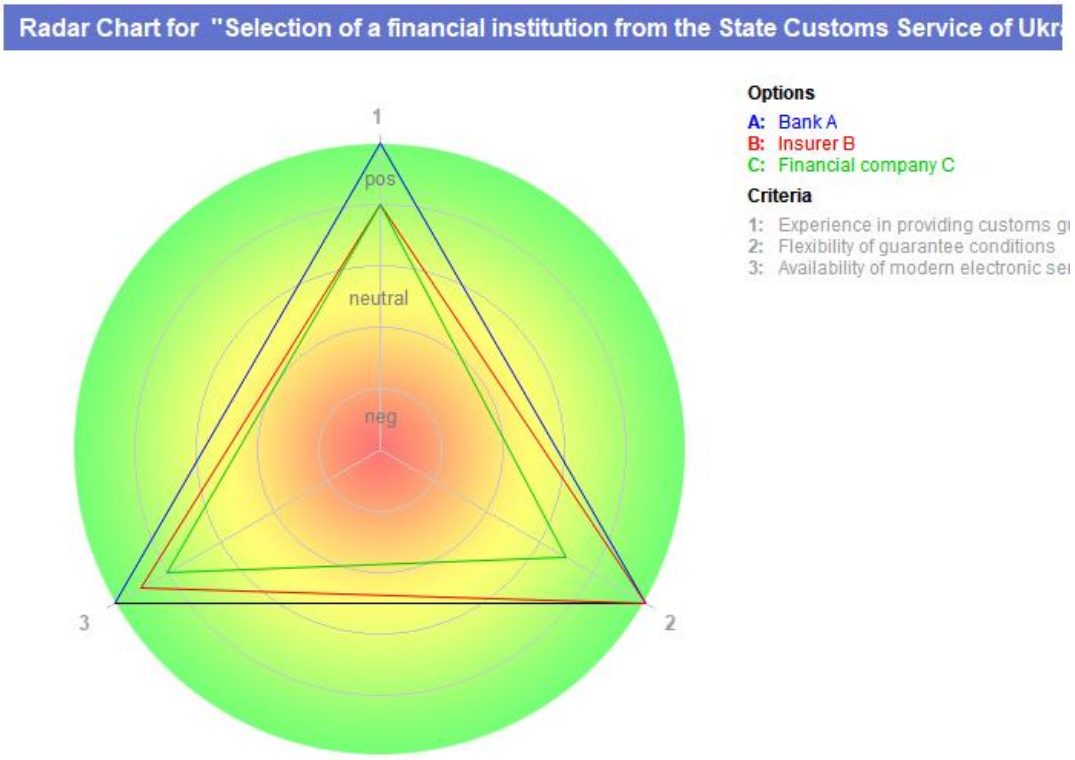


Fig. 8. **Graphical representation of the results**

Independently select three financial guarantors from the register of customs guarantors and complete the task of making a management decision to select one (highest priority) financial guarantor. Draw conclusions**.**