



A Company Improvement Analysis using the AHP/ANP Methods and the Modern Technology

Valerica NESTIAN^{*}, Silvia ISTRATE^{**}, Maria NEAGU^{***}

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ABSTRACT

This paper has as a goal the application of the modern technology (the "SuperDecisions" software) for the analysis of the factors that determine a company improvement and the determination of the priorities of the methods that the company management might consider in order to improve the company activity. Having as a point of start the analysis obtained using the AHP ("Analytic Hierarchy Process") and the ANP ("Analytic Network Process") methods through numerical methods, this work underlines the equality of the results provided by these two different ways of solving the problem and the way in which the modern technology changes the working environment for the AHP/ANP applications.

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1. Introduction

The modern technology and the commercial software available nowadays are offering to the user a way of solving the problems that is very close to an environment that is familiar to the young students, researchers, et al. SuperDecisions is one of this software programs. It translates the AHP ("Analytical Hierarchy Process") and the ANP ("Analytic Network Process") methods (Neagu, 2016, 2017) into a modern environment.

A great number of research works that are using the SuperDecisions software are encountered in the scientific literature, while their domains of study vary as follows:

- ✚ education (Aragoné-Beltrán, 2017; Gibney, 2007);
- ✚ industry (Hasan et al, 2012; Akyildiz et al., 2014; Milani et al, 2013; Aljuraiss et al., 2016; Mu et al., 2016; Öñüt et al., 2008);
- ✚ energy sector (Aragonés-Beltrán et al, 2014; Xu and Chan, 2013; Canemmit et al, 2014; Atmaca and Basar, 2012);
- ✚ transportation (Ivanović, 2013);
- ✚ decision-making process (De Ambroggi and Trucco, 2011; Hallikainen et al, 2009; Keramati and Salehi, 2013; Burnaz and Topcu, 2011).

This paper uses the analysis of Istrate et al. (2018) regarding a company activity improvement and translates it into the SuperDecisions environment. The results obtained show not only the equivalence of the two methods of solving the problem, but also the modern application of the AHP/ANP methods.

2. The problem formulation

2.1. The problem decomposition

An analysis realized by the leaders of a company (a company considered here as an example) underlines the objective of the study ("Company activity improvement"), the criteria ("Management", "Human Resources", "Acquisitions" and "IT") and the subcriteria as they are revealed by Table 1: "Acquisitions plan" and "Tenders", "Employment criteria" and "Personnel training", "Software" and "Software Usage", "Decisions" and "Tasks". Table 1 presents, also, the improvement methods that the analysis team considers as being appropriate for the company activity improvement: "Competence", "Economy", "Education", "Efficiency", "Evaluation", "Finance" and "Training".

Table 1. The criteria, the subcriteria and the methods of a company activity improvement.

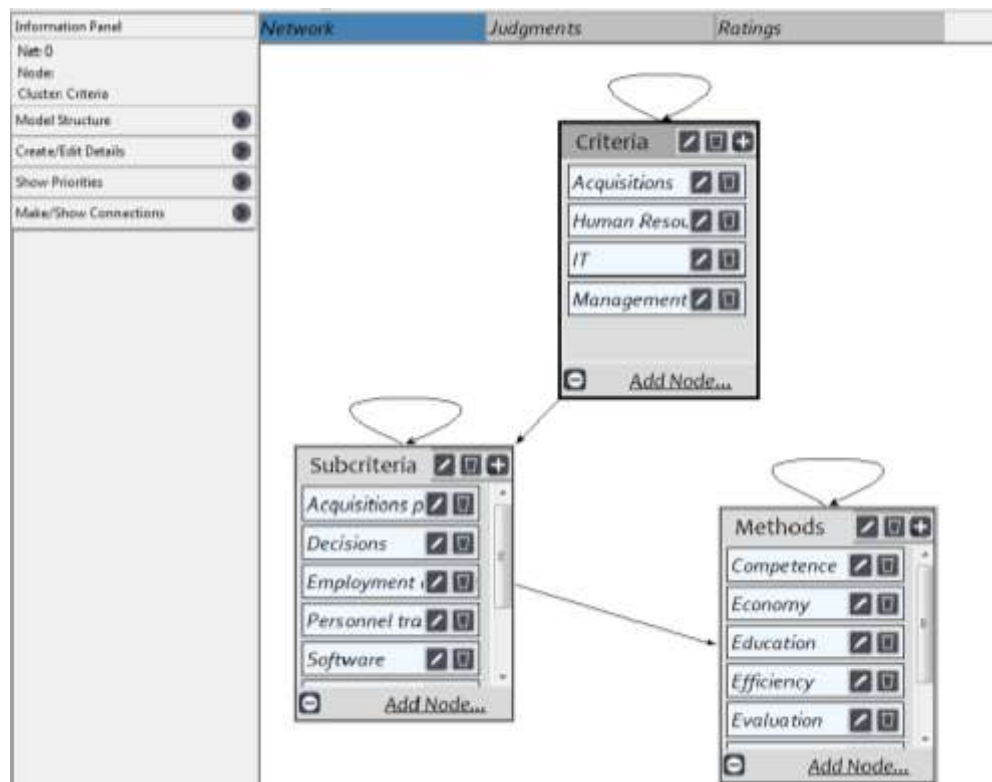
Objective	Company activity improvement							
Criteria	Acquisitions		Human resources		IT		Management	
Subcriteria	Acquisitions plan		Employment criteria		Software		Decisions	
	Tenders		Personel training		Software usage		Tasks	
Methods	Competence	Economy	Education	Efficiency	Evaluation	Finance	Training	

If the "Objective"→"Criteria"→"Subcriteria" part of the analysis requires the application of the AHP method, the "Subcriteria"→"Methods" part requires the ANP method application due to the inner dependencies of the "Subcriteria" and the "Methods" components. The simultaneous application of the AHP and the ANP methods conducts us to an original application of the steps that these methods require (Neagu, 2016, 2017).

2.2. The clusters and the nodes definition

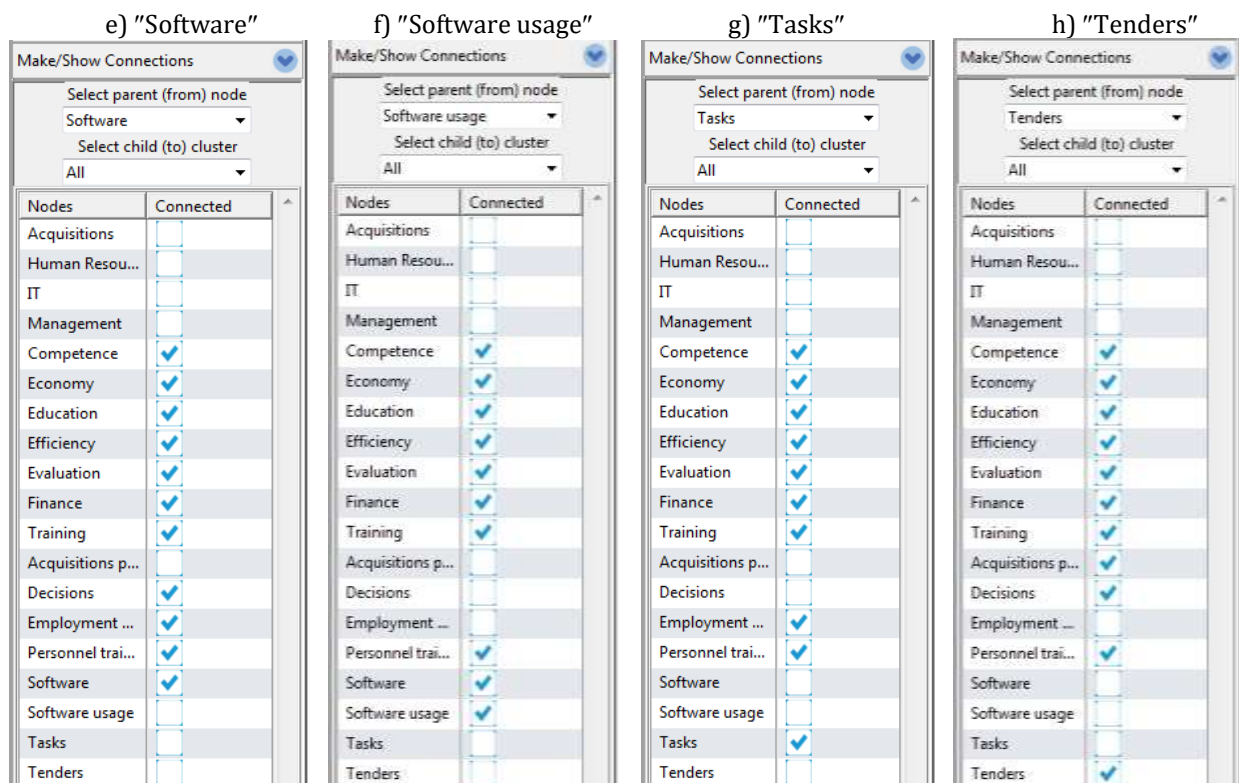
Figure 1 presents the clusters and the nodes of the SuperDecisions program that is developed here in order to solve the problem. There are three clusters: "Criteria", "Subcriteria" and "Methods". The cluster "Criteria" contains four nodes (a node for each criterion), the cluster "Subcriteria" contains eight nodes (a node for each subcriterion), while the cluster "Methods" contains seven nodes (a node for each method).

Figure 1. The clusters and the nodes of the SuperDecisions program for a company activity improvement



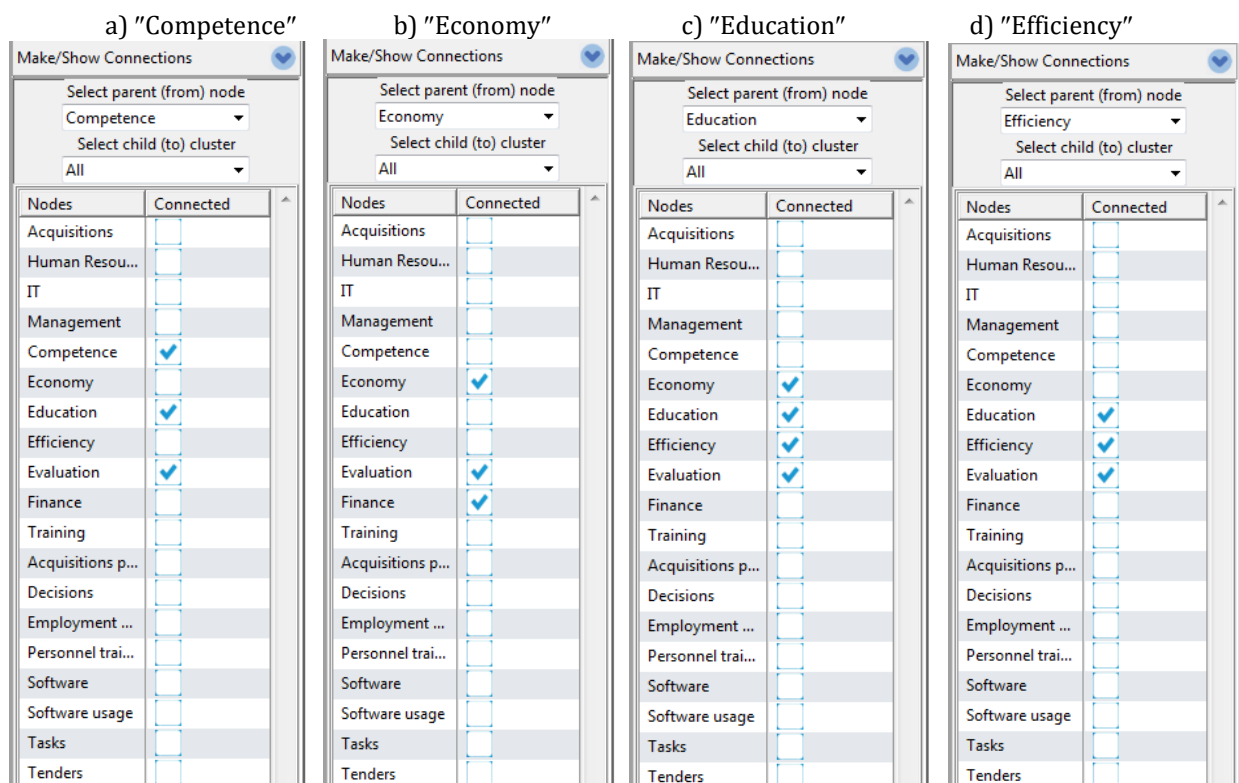
2.3. The connections definitions

Figure 2 shows the connections of the "Criteria" nodes: "Acquisition" (Figure 2a), "Human Resources" (Figure 2b), "IT" (Figure 2c) and "Management" (Figure 2d).



The nodes of the "Methods" cluster are inter-connected as Figure 4 reveals for the nodes "Competence" (Figure 4a), "Economy" (Figure 4b), "Education" (Figure 4c), "Efficiency" (Figure 4d), "Evaluation" (Figure 4e), "Finance" (Figure 4f) and "Training" (Figure 4g).

Figure 4. The connections of the nodes in the "Methods" cluster



e) "Evaluation"

f) "Finance"

g) "Training"

3. The matrices of comparison constructions

After the connections are defined, we build the matrices of comparison, in the "Judgments" section of the software window, by choosing carefully in the left side (the "1. Choose" section) the node and the cluster.

Having in view the particularities of this problem, the six steps of the ANP method (Neagu, 2017) will guide further the process.

Step 1. The identification of the subcriteria and the methods. They have already been presented.

Step 2. The weights of the subcriteria. Here, we choose the node "Acquisitions" and the cluster "Criteria" and we answer the questionnaire in the central section of the window (see Figure 5) according to Table 2.

Table 2. The matrix of comparison and the weights of the criteria (Istrate et al., 2018)

	Acquisitions	Human resources	IT	Management	Weight
Acquisitions	1	5	1	7	0.4407
Human resources	1/5	1	1/5	3	0.1167
IT	1	5	1	3	0.3693
Management	1/7	1/3	1/3	1	0.0733

Figure 5. The numerical comparison of the criteria

In the "3. Results" section, in the right side of the window, we notice that the criteria weights are the same as the values obtained in the Table 2. Similarly, keeping the same cluster, but changing successively the node: "Human resources", "IT" and "Management", we establish the inner dependence of all the nodes in the "Criteria" cluster.

The inconsistency of the answers is mentioned above the weights table allowing us to see instantly its value and to check that it is smaller than 10% as the AHP/ANP methods require.

The inner dependencies of the subcriteria are determined by choosing successively the nodes "Acquisitions" (Figure 6a), "Human resources" (Figure 6b), "IT" (Figure 6c) and "Management" (Figure 6d) and the cluster "Subcriteria". In the right window, the local weights reproduce the results of Tables 4÷8 of Istrate et al. (2018).

Figure 6. The numerical comparison of the subcriteria for the criteria nodes.

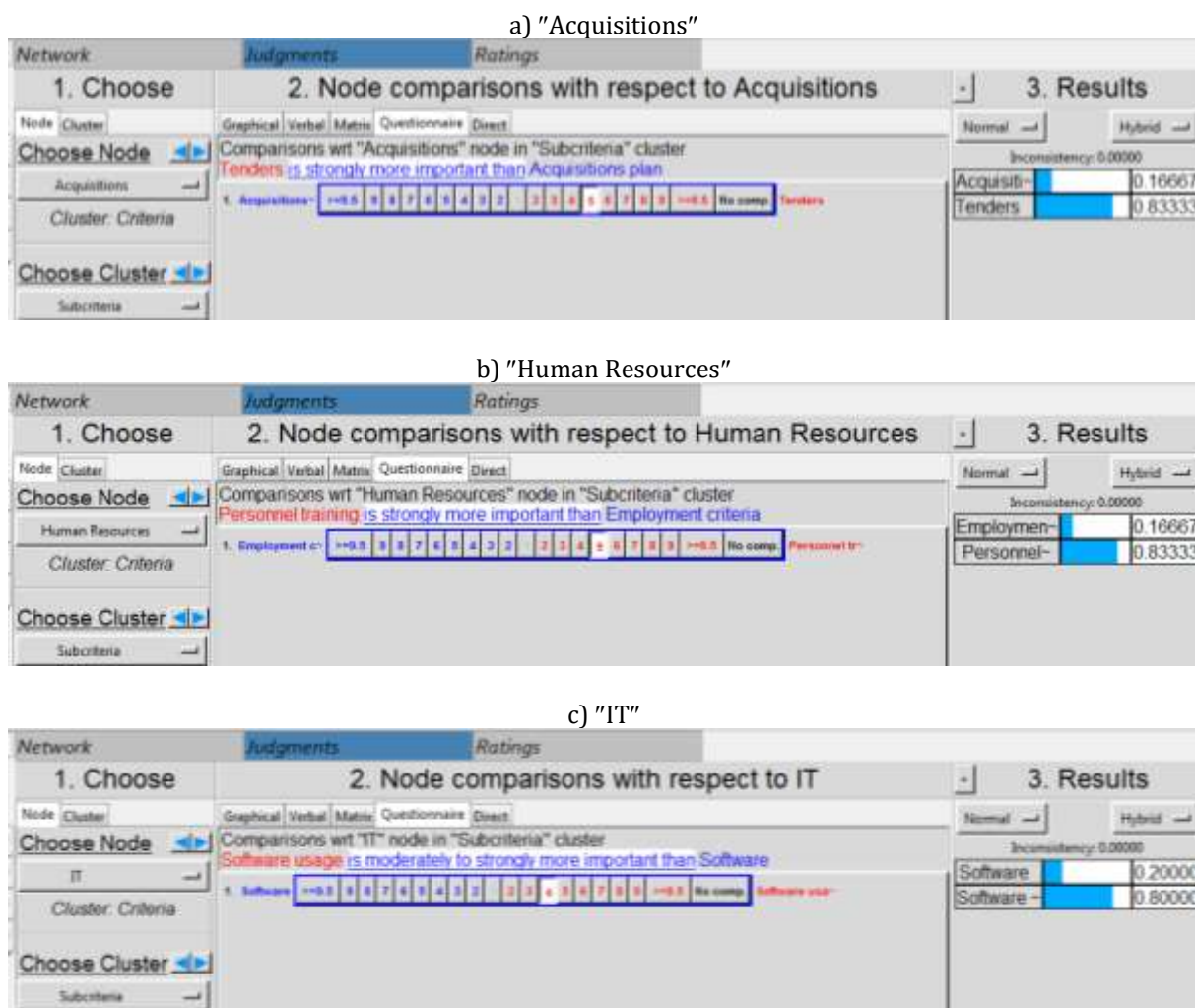


Figure 6. The numerical comparison of the subcriteria for the criteria nodes. d) "Management"



Step 3. The weights of the methods for each subcriterion

For each subcriterion, Figure 7 presents the questionnaire that compares the methods. For the nodes "Acquisitions plan" (Figure 7a), "Decisions" (Figure 7b), "Employment criteria" (Figure 7c), "Personnel

training" (Figure 7d), "Software" (Figure 7e), "Software usage" (Figure 7f), "Tasks" (Figure 7g) and "Tenders" (Figure 7h), the methods priorities are determined using the Tables 12÷19 of Istrate et al. (2018). As an example, Table 3 is translated using the SuperDecision software and it takes the form of Figure 7a.

Table 3. The measures comparison matrix for the "Acquisitions plan" subcriterion (Istrate et al., 2018)

Measures	Competence	Economy	Education	Efficiency	Evaluation	Finance	Training	Weight
Competence	1	3	1/2	3	5	1/2	1	0.1737
Economy	1/3	1	1/3	1/2	1/3	1/3	1	0.0633
Education	2	3	1	3	2	1/2	2	0.1953
Efficiency	1/3	2	1/6	1	1/2	1/6	1	0.0708
Evaluation	1/5	3	1/5	2	1	1/5	1	0.0965
Finance	2	3	2	6	5	1	2	0.3002
Training	1	1	1/2	1	1	1/2	1	0.1000

Figure 7. The numerical comparison of the methods for each subcriterion.

a) "Acquisition plan"

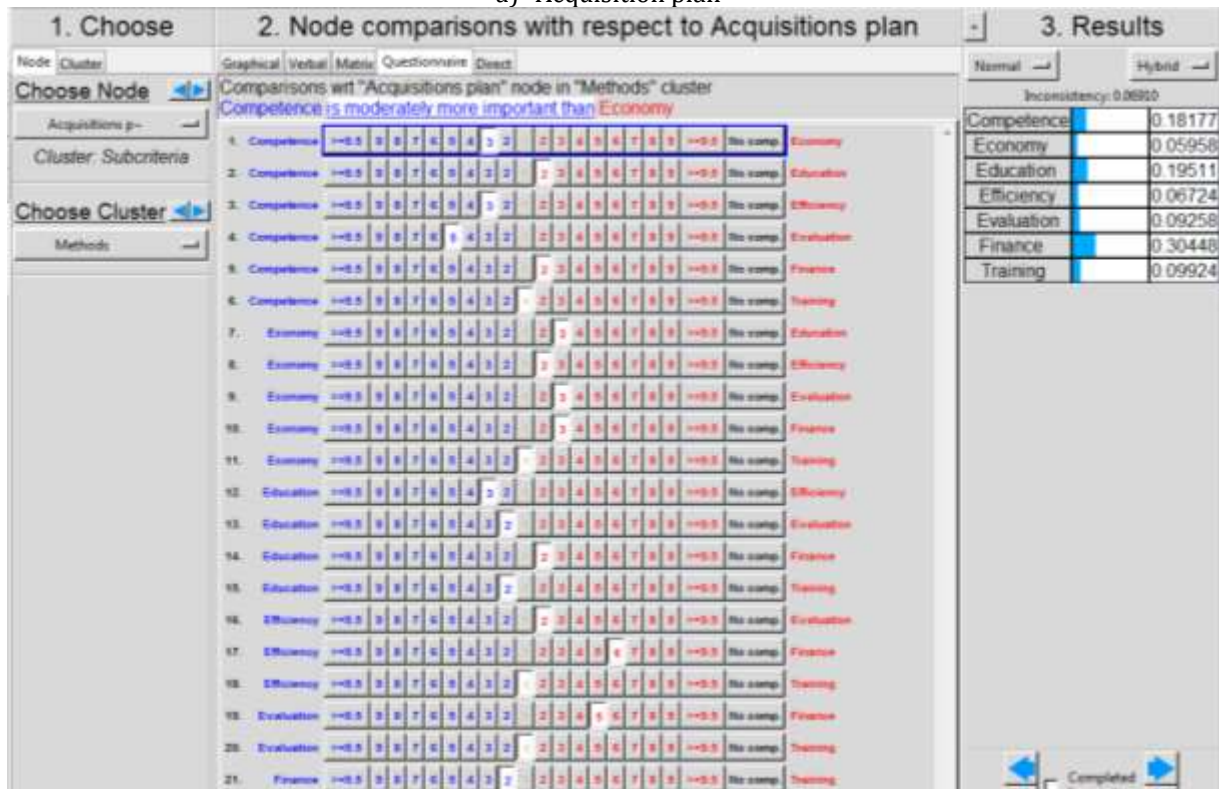


Figure 7. The numerical comparison of the methods for each subcriterion. (continued)

b) "Decisions"

1. Choose		2. Node comparisons with respect to Decisions					3. Results		
Node	Cluster	Graphical	Verbal	Matrix	Questionnaire	Direct	Normal	Hybrid	
Choose Node		Comparisons wrt "Decisions" node in "Methods" cluster						Inconsistency: 0.09461	
Decisions		Competence is very strongly more important than Economy						Competence 0.12676	
Cluster Subcriteria								Economy 0.02352	
Choose Cluster								Education 0.20258	
Methods								Efficiency 0.07758	
								Evaluation 0.10414	
								Finance 0.42150	
								Training 0.04392	
								Completed	

c) "Employment criteria"

1. Choose		2. Node comparisons with respect to Employment criteria					3. Results		
Node	Cluster	Graphical	Verbal	Matrix	Questionnaire	Direct	Normal	Hybrid	
Choose Node		Comparisons wrt "Employment criteria" node in "Methods" cluster						Inconsistency: 0.06911	
Employment cr-		Competence is moderately to strongly more important than Economy						Competence 0.10177	
Cluster Subcriteria								Economy 0.02889	
Choose Cluster								Education 0.16591	
Methods								Efficiency 0.06215	
								Evaluation 0.08906	
								Finance 0.51152	
								Training 0.04070	
								Completed	

Figure 7. The numerical comparison of the methods for each subcriterion. (continued)

d) "Personnel training"

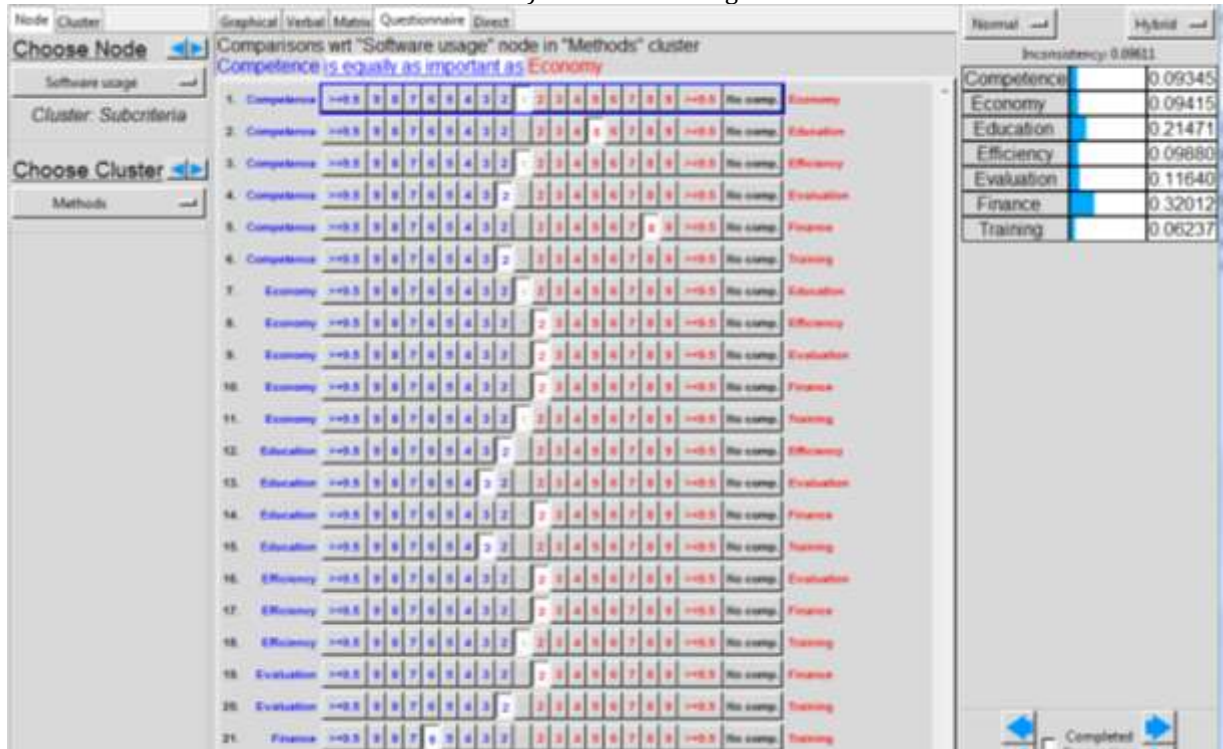
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Competence	Software	Competence is moderately more important than Evaluation	1	0.08790	4	5. Competence	Software	Competence is moderately more important than Finance	1	0.13064	5	6. Competence	Software	Competence is moderately more important than Training	1	0.28094	6	7. Economy	Software	Economy is moderately more important than Education	1	0.08002	2	8. Economy	Software	Economy is moderately more important than Efficiency	1	0.17329	3	9. Economy	Software	Economy is moderately more important than Evaluation	1	0.08790	4	10. Economy	Software	Economy is moderately more important than Finance	1	0.13064	5	11. Economy	Software	Economy is moderately more important than Training	1	0.28094	6	12. Education	Software	Education is moderately more important than Efficiency	1	0.17329	3	13. Education	Software	Education is moderately more important than Evaluation	1	0.08790	4	14. Education	Software	Education is moderately more important than Finance	1	0.13064	5	15. Education	Software	Education is moderately more important than Training	1	0.28094	6	16. Efficiency	Software	Efficiency is moderately more important than Evaluation	1	0.08790	4	17. Efficiency	Software	Efficiency is moderately more important than Finance	1	0.13064	5	18. Efficiency	Software	Efficiency is moderately more important than Training	1	0.28094	6	19. Evaluation	Software	Evaluation is moderately more important than Finance	1	0.13064	5	20. Evaluation	Software	Evaluation is moderately more important than Training	1	0.28094	6	21. Finance	Software	Finance is moderately more important than Training	1	0.28094	6
Node	Cluster	Comparison	Importance	Weight	Rank																																																																																																																																				
1. Competence	Software	Competence is moderately more important than Economy	1	0.19146	1																																																																																																																																				
2. Competence	Software	Competence is moderately more important than Education	1	0.08002	2																																																																																																																																				
3. Competence	Software	Competence is moderately more important than Efficiency	1	0.17329	3																																																																																																																																				
4. Competence	Software	Competence is moderately more important than Evaluation	1	0.08790	4																																																																																																																																				
5. Competence	Software	Competence is moderately more important than Finance	1	0.13064	5																																																																																																																																				
6. Competence	Software	Competence is moderately more important than Training	1	0.28094	6																																																																																																																																				
7. Economy	Software	Economy is moderately more important than Education	1	0.08002	2																																																																																																																																				
8. Economy	Software	Economy is moderately more important than Efficiency	1	0.17329	3																																																																																																																																				
9. Economy	Software	Economy is moderately more important than Evaluation	1	0.08790	4																																																																																																																																				
10. Economy	Software	Economy is moderately more important than Finance	1	0.13064	5																																																																																																																																				
11. Economy	Software	Economy is moderately more important than Training	1	0.28094	6																																																																																																																																				
12. Education	Software	Education is moderately more important than Efficiency	1	0.17329	3																																																																																																																																				
13. Education	Software	Education is moderately more important than Evaluation	1	0.08790	4																																																																																																																																				
14. Education	Software	Education is moderately more important than Finance	1	0.13064	5																																																																																																																																				
15. Education	Software	Education is moderately more important than Training	1	0.28094	6																																																																																																																																				
16. Efficiency	Software	Efficiency is moderately more important than Evaluation	1	0.08790	4																																																																																																																																				
17. Efficiency	Software	Efficiency is moderately more important than Finance	1	0.13064	5																																																																																																																																				
18. Efficiency	Software	Efficiency is moderately more important than Training	1	0.28094	6																																																																																																																																				
19. Evaluation	Software	Evaluation is moderately more important than Finance	1	0.13064	5																																																																																																																																				
20. Evaluation	Software	Evaluation is moderately more important than Training	1	0.28094	6																																																																																																																																				
21. Finance	Software	Finance is moderately more important than Training	1	0.28094	6																																																																																																																																				
Methods		Completed																																																																																																																																							

Figure 7. The numerical comparison of the methods for each subcriterion. (continued)

f) "Software usage"



g) "Tasks"

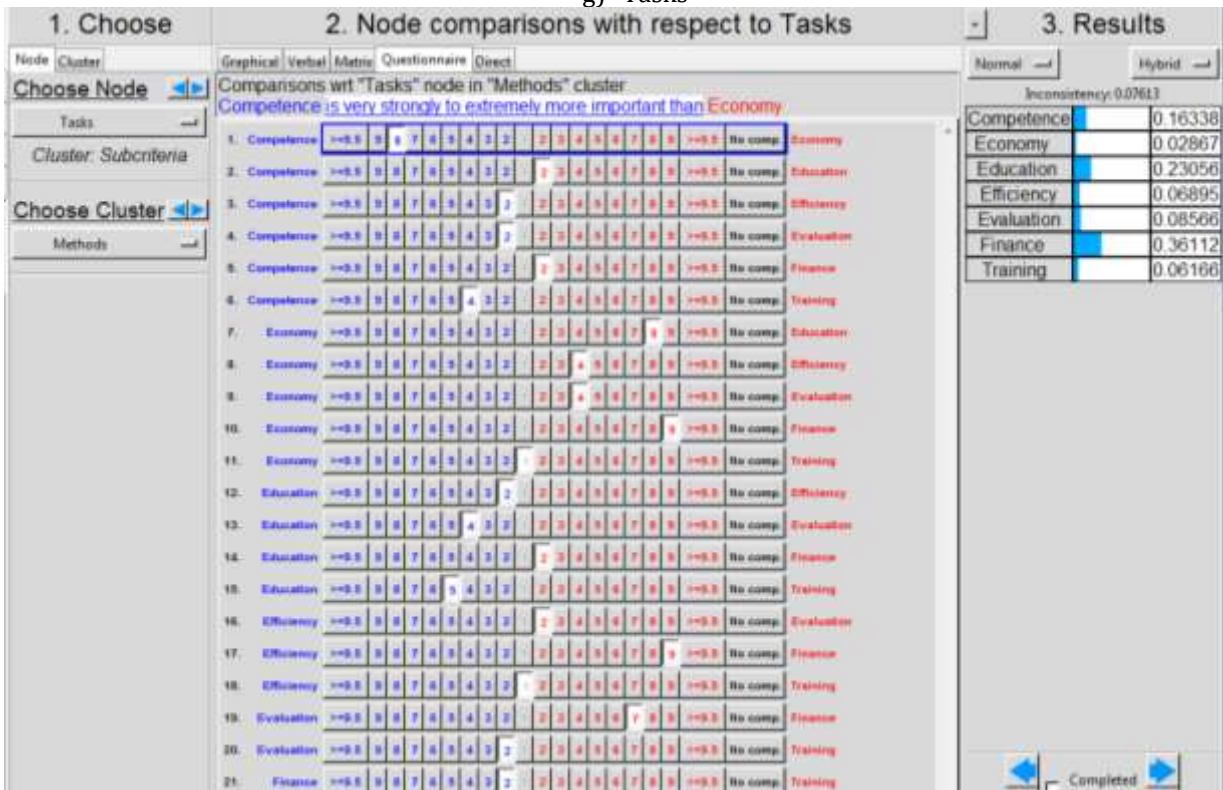
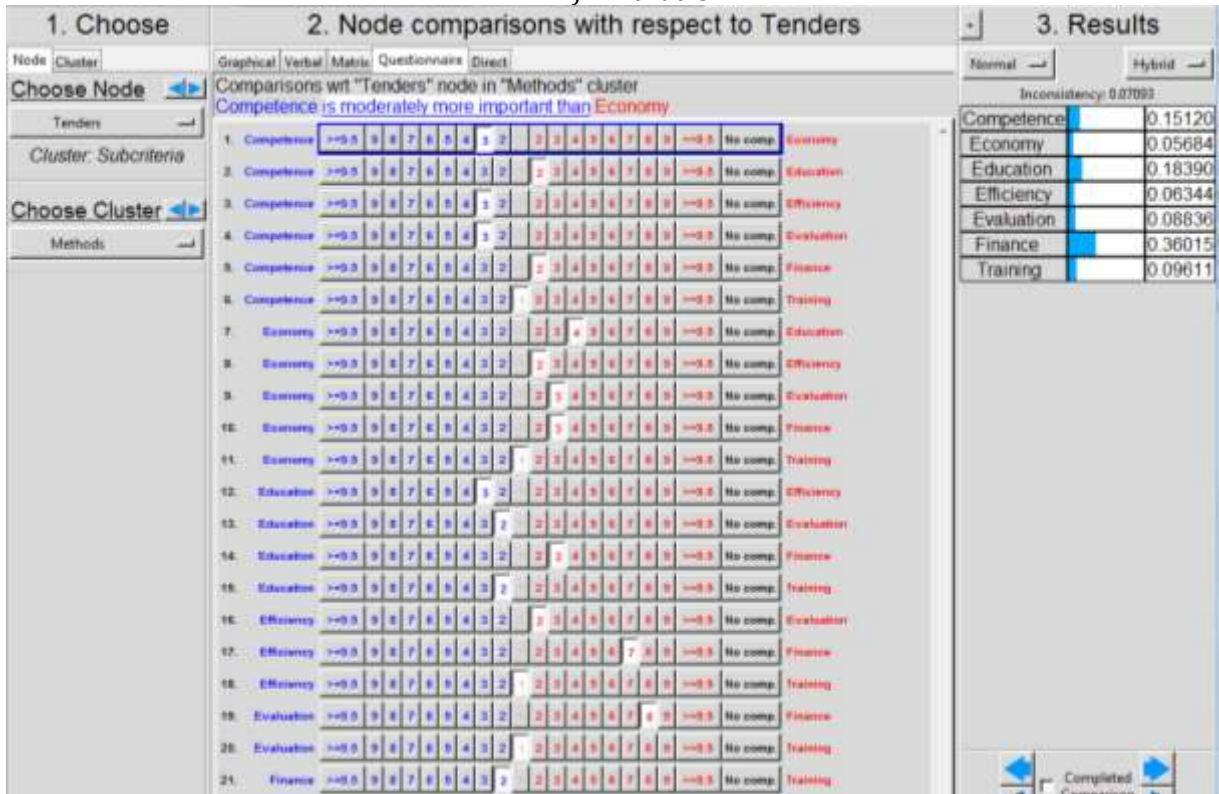


Figure 7. The numerical comparison of the methods for each subcriterion. (continued)
h) "Tenders"



Step 4. The inner dependencies of the subcriteria

It is established by choosing successively the subcriteria and answering the questionnaires corresponding to each of them according to the tables 20÷27 (Istrate et al. 2018) and Figure 3. These procedures are presented by Figure 8 for the subcriteria: "Acquisitions plan" (Figure 8a), "Decisions" (Figure 8b), "Employment criteria" (Figure 8c), "Personnel training" (Figure 8d), "Software" (Figure 8e), "Software usage" (Figure 8f), "Tasks" (Figure 8g) and "Tenders" (Figure 8h).

Figure 8. The inner dependencies of the subcriteria.

a) "Acquisitions plan"



b) "Decisions"

1. Choose	2. Node comparisons with respect to Decisions	3. Results
Node Cluster Choose Node Decisions Cluster: Subcriteria Choose Cluster Subcriteria	Graphical Verbal Matrix Questionnaire Direct Comparisons wrt "Decisions" node in "Subcriteria" cluster Decisions is moderately to strongly more important than Acquisitions plan 1. Acquisitions- >=0.5 9 8 7 6 5 4 3 2 2 3 4 5 6 7 8 9 >=0.5 No comp. Decisions 2. Acquisitions- >=0.5 9 8 7 6 5 4 3 2 2 3 4 5 6 7 8 9 >=0.5 No comp. Personnel tr- 3. Acquisitions- >=0.5 9 8 7 6 5 4 3 2 2 3 4 5 6 7 8 9 >=0.5 No comp. Software 4. Acquisitions- >=0.5 9 8 7 6 5 4 3 2 2 3 4 5 6 7 8 9 >=0.5 No comp. Tenders 5. Decisions >=0.5 9 8 7 6 5 4 3 2 2 3 4 5 6 7 8 9 >=0.5 No comp. Personnel tr- 6. Decisions >=0.5 9 8 7 6 5 4 3 2 2 3 4 5 6 7 8 9 >=0.5 No comp. Software 7. Decisions >=0.5 9 8 7 6 5 4 3 2 2 3 4 5 6 7 8 9 >=0.5 No comp. Tenders 8. Personnel tr- >=0.5 9 8 7 6 5 4 3 2 2 3 4 5 6 7 8 9 >=0.5 No comp. Software 9. Personnel tr- >=0.5 9 8 7 6 5 4 3 2 2 3 4 5 6 7 8 9 >=0.5 No comp. Tenders 10. Software >=0.5 9 8 7 6 5 4 3 2 2 3 4 5 6 7 8 9 >=0.5 No comp. Tenders	Normal Hybrid Inconsistency: 0.08239 Acquisitions- 0.12162 Decisions 0.57072 Personnel- 0.15505 Software 0.07210 Tenders 0.08051

Figure 8. The inner dependencies of the subcriteria. (continued)

c) "Employment criteria"

1. Choose	2. Node comparisons with respect to Employment criteria	3. Results
Node Cluster Choose Node Employment cr- Cluster: Subcriteria Choose Cluster Subcriteria	Graphical Verbal Matrix Questionnaire Direct Comparisons wrt "Employment criteria" node in "Subcriteria" cluster Decisions is extremely more important than Employment criteria 1. Decisions >=0.5 9 8 7 6 5 4 3 2 2 3 4 5 6 7 8 9 >=0.5 No comp. Employment cr- 2. Decisions >=0.5 9 8 7 6 5 4 3 2 2 3 4 5 6 7 8 9 >=0.5 No comp. Tasks 3. Employment cr- >=0.5 9 8 7 6 5 4 3 2 2 3 4 5 6 7 8 9 >=0.5 No comp. Tasks	Normal Hybrid Inconsistency: 0.18370 Decisions 0.70087 Employment- 0.05616 Tasks 0.24296

d) "Personnel training"

1. Choose	2. Node comparisons with respect to Personnel training	3. Results
Node Cluster Choose Node Personnel trai- Cluster: Subcriteria Choose Cluster Subcriteria	Graphical Verbal Matrix Questionnaire Direct Comparisons wrt "Personnel training" node in "Subcriteria" cluster Employment criteria is equally to moderately more important than Personnel training 1. Employment cr- >=0.5 9 8 7 6 5 4 3 2 2 3 4 5 6 7 8 9 >=0.5 No comp. Personnel tr- 2. Employment cr- >=0.5 9 8 7 6 5 4 3 2 2 3 4 5 6 7 8 9 >=0.5 No comp. Tasks 3. Personnel tr- >=0.5 9 8 7 6 5 4 3 2 2 3 4 5 6 7 8 9 >=0.5 No comp. Tasks	Normal Hybrid Inconsistency: 0.18370 Employment- 0.13401 Personnel- 0.09291 Tasks 0.77308

e) "Software"

1. Choose	2. Node comparisons with respect to Software	3. Results
Node Cluster Choose Node Software Cluster: Subcriteria Choose Cluster Subcriteria	Graphical Verbal Matrix Questionnaire Direct Comparisons wrt "Software" node in "Subcriteria" cluster Decisions is moderately to strongly more important than Employment criteria 1. Decisions >=0.5 9 8 7 6 5 4 3 2 2 3 4 5 6 7 8 9 >=0.5 No comp. Employment cr- 2. Decisions >=0.5 9 8 7 6 5 4 3 2 2 3 4 5 6 7 8 9 >=0.5 No comp. Personnel tr- 3. Decisions >=0.5 9 8 7 6 5 4 3 2 2 3 4 5 6 7 8 9 >=0.5 No comp. Software 4. Employment cr- >=0.5 9 8 7 6 5 4 3 2 2 3 4 5 6 7 8 9 >=0.5 No comp. Personnel tr- 5. Employment cr- >=0.5 9 8 7 6 5 4 3 2 2 3 4 5 6 7 8 9 >=0.5 No comp. Software 6. Personnel tr- >=0.5 9 8 7 6 5 4 3 2 2 3 4 5 6 7 8 9 >=0.5 No comp. Software	Normal Hybrid Inconsistency: 0.06395 Employment- 0.53116 Personnel- 0.15156 Software 0.19120 Software 0.12608

f) "Software usage"

Node Cluster	Graphical Verbal Matrix Questionnaire Direct	Normal Hybrid
Choose Node Software usage Cluster: Subcriteria Choose Cluster Subcriteria	Comparisons wrt "Software usage" node in "Subcriteria" cluster Software is equally to moderately more important than Personnel training 1. Personnel tr- >=0.5 9 8 7 6 5 4 3 2 2 3 4 5 6 7 8 9 >=0.5 No comp. Software 2. Personnel tr- >=0.5 9 8 7 6 5 4 3 2 2 3 4 5 6 7 8 9 >=0.5 No comp. Software usa- 3. Software >=0.5 9 8 7 6 5 4 3 2 2 3 4 5 6 7 8 9 >=0.5 No comp. Software usa-	Inconsistency: 0.18370 Personnel- 0.15146 Software 0.21844 Software 0.63010

1. Choose

2. Node comparisons with respect to Tasks

3. Results

Node: Cluster

Choose Node

Tasks

Cluster: Subcriteria

Choose Cluster

Subcriteria

Graphical Verbal Matrix Questionnaire Direct

Comparisons wrt "Tasks" node in "Subcriteria" cluster

Employment criteria is moderately more important than Personnel training

1. Employment c- >=0.5 5 5 7 6 5 4 3 2 -2 3 4 5 6 7 8 9 >=0.5 No comp. Personnel tr-

2. Employment c- >=0.5 3 3 7 6 5 4 3 2 -2 3 4 5 6 7 8 9 >=0.5 No comp. Tasks

3. Personnel tr- >=0.5 3 3 7 8 5 4 3 2 -2 3 4 5 6 7 8 9 >=0.5 No comp. Tasks

Normal Hybrid

Inconsistency: 0.02795

Employment-	0.1781
Personnel-	0.0704
Tasks	0.7514

1. Choose

2. Node comparisons with respect to Tenders

3. Results

Node Cluster

Graphical Verbal Matrix Questionnaire Direct

Choose Node

Tenders

Cluster: Subcriteria

Choose Cluster

Subcriteria

Comparisons wrt "Tenders" node in "Subcriteria" cluster

Decisions is moderately more important than Acquisitions plan

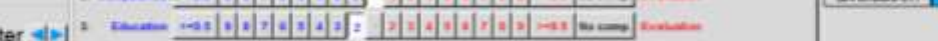
Hybrid

Inconsistency: 0.10771

		0.24938
		0.48143
		0.14816
		0.12103

We compare the measures and construct their inner dependencies taking into account the Tables 28÷34 (Istrate et al, 2018) and Figure 4. Figure 9 presents these inner dependencies for the methods: "Competence" (Figure 9a), "Economy" (Figure 9b), "Education" (Figure 9c), "Efficiency" (Figure 9d), "Evaluation" (Figure 9e), "Finance" (Figure 9f) and "Training" (Figure 9g).

a) "Competence"



1. Choose

2. Node comparisons with respect to Competence

3. Results

Node: **Competence**

Cluster: **Methods**

Comparisons wrt "Competence" node in "Methods" cluster

Education is equally to moderately more important than Competence

1. Competence vs Education: No comp

2. Competence vs Evaluation: No comp

3. Education vs Evaluation: Evaluation

Inconsistency: 0.0000

Competence: 0.25000

Education: 0.50000

Evaluation: 0.25000

1. Choose

Node: **Cluster**

Choose Node

Economy

Cluster Methods

Choose Cluster

Methods

2. Node comparisons with respect to Economy

Graphical Verbal Matrix Questionnaire Direct

Comparisons wrt "Economy" node in "Methods" cluster

Evaluation is moderately more important than Economy

1. Economy	>=0.5	0	0	7	6	5	4	3	2	1	2	3	4	5	6	7	6	5	<=0.5	No comp.	Evaluation
2. Economy	>=0.5	0	0	6	7	6	5	4	3	2	2	3	4	5	6	7	6	5	<=0.5	No comp.	Finance
3. Evaluation	>=0.5	0	0	6	7	6	5	4	3	2	2	3	4	5	6	7	6	5	<=0.5	No comp.	Finance

3. Results

Normal Hybrid

Inconsistency: 0.10037

Economy	0.07037
Evaluation	0.15304
Finance	0.77659

[illegible]

c) "Efficiency"

1. Choose	2. Node comparisons with respect to Efficiency	3. Results
Node: Cluster	Graphical Verbal Matrix Questionnaire Direct	Normal Hybrid
Choose Node	Comparisons wrt "Efficiency" node in "Methods" cluster Education is very strongly to extremely more important than Efficiency	Inconsistency: 0.0037
Efficiency		Education 0.77659
Cluster: Methods		Efficiency 0.07037
Choose Cluster		Evaluation 0.15304
Methods		

d) "Evaluation"

1. Choose	2. Node comparisons with respect to Evaluation	3. Results
Node: Cluster	Graphical Verbal Matrix Questionnaire Direct	Normal Hybrid
Choose Node	Comparisons wrt "Evaluation" node in "Methods" cluster Education is moderately to strongly more important than Competence	Inconsistency: 0.09295
Evaluation		Competence 0.26918
Cluster: Methods		Education 0.59056
Choose Cluster		Efficiency 0.05523
Methods		Evaluation 0.08503

Figure 9. The inner dependencies of the methods. (continued)

e) "Finance"

1. Choose	2. Node comparisons with respect to Finance	3. Results
Node: Cluster	Graphical Verbal Matrix Questionnaire Direct	Normal Hybrid
Choose Node	Comparisons wrt "Finance" node in "Methods" cluster Education is moderately to strongly more important than Economy	Inconsistency: 0.09295
Finance		Economy 0.03522
Cluster: Methods		Education 0.17842
Choose Cluster		Efficiency 0.04597
Methods		Evaluation 0.17467
		Finance 0.56572








f) "Training"

1. Choose	2. Node comparisons with respect to Training	3. Results
Node: Cluster	Graphical Verbal Matrix Questionnaire Direct	Normal Hybrid
Choose Node	Comparisons wrt "Training" node in "Methods" cluster Finance is strongly to very strongly more important than Training	Inconsistency: 0.00000
Training		Finance 0.85714
Cluster: Methods		Training 0.14286
Choose Cluster		
Methods		

Step 6. The methods priorities

Using the "Computations"→"Priorities" sequence, the software presents us the priorities of the methods considered in the analysis of the company performance. Figure 10 presents these priorities.

Figure 10. The methods priorities.

No Icon	Competence		0.05185	0.051851
No Icon	Economy		0.13254	0.132543
No Icon	Education		0.33901	0.339008
No Icon	Efficiency		0.04249	0.042489
No Icon	Evaluation		0.15558	0.155581
No Icon	Finance		0.26457	0.264569
No Icon	Training		0.01396	0.013960

4. Results and discussions

The priorities of the measures that a company should take in order to improve its activity show that the "Education" occupies the first place (a weight value of 0.339) followed immediately by the "Finance" (a weight value of 0.2645). The third measure that the analyzed company should take into consideration is "Evaluation" (0.1555) followed immediately by "Economy" (0.339). We find here the same conclusions that were obtained previously using the classical method of solving this AHP/ANP problem (see Istrate et al., 2018).

5. Conclusions

The modern technology represents an achievement that changes the way in which the new generations of students, researchers, et al. are defining their working environment. The well established numerical, analytical and computational methods are presented to the user in a manner that becomes friendlier, easier to understand and to use. The AHP/ANP methods are not an exception. A great number of software programs are presenting these methods in an actual, modern way and the SuperDecision software is one of them.

This paper presents the general problem of a company activity improvement. Considering general factors, using both the AHP and the ANP methods and the new technology available, this work leads the reader through the process of translation of the intuitive arguments into the new environment in order to establish the priorities that should lead the analysis team.

The company considered here is an example that can be modified and adapted for other particular cases that the reader is interested of. This paper, also, constitutes an example of the way in which the modern technology can improve the analysis activity in a company.

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