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Abstract
This article presents a method for nonprofits to calculate a budgetary allocation which is consistent with their strategic goals. The method is based on the application of Analytic Hierarchy Process (AHP) to budgetary allocation. A proposed index, which is based on a comparison between the calculated budgetary allocation and the actual one, can help nonprofits to determine the level of fit between their goals and their budgetary priorities.

(1) Introduction

Many nonprofits are going through a strategic planning process and determine their long and medium term goals. However, the results of the planning process are not always reflected in the organization's budgetary priorities. The translation of qualitative goals, which are usually stated in general terms, to an exact budgetary allocation is not a simple task. Nevertheless, if there is no connection between the organization's goals and its budgetary allocation, the significance of the entire planning process is severely diminished.

Several researchers have investigated the way nonprofits allocate their budgets and whether such allocation is in accordance with their declared mission. Nancy and Yontcheva (2006) examined the considerations that influence the budgetary allocation of NGOs that are engaged in humanitarian aid programs. Their conclusion is that NGOs "seem to keep up their promise of being advocates of the poor and vulnerable". Dreher et al (2007) compared the budgetary allocation of Swedish NGOs that provided humanitarian aid, to the allocation of official development assistance provided by the Swedish government. They reached the conclusion that, contrary to the claim made by many NGOs, they do not perform better than the government. Koch et al (2008) extended the previous study to more countries, and showed that "NGOs do not complement official aid through engaging in so-called difficult institutional environments. Rather, they tend to replicate the location choices of official donors from whom NGOs get part of their funding." Malki (2008) presented a budgetary allocation model that was used in an international NGO and showed how different strategic goals can be incorporated into such model.

This article presents a method to determine whether the organization's strategic goals are reflected in its budgetary allocation. The method is based on Analytic Hierarchy Process (AHP), originally developed by Thomas Saaty (Saaty 1990) as a method for consistent decision making. A concise review on the principles of AHP is presented by Kamal (2001).

AHP divides the decision process to hierarchical stages, and in each stage the alternatives in question are rated using pairwise comparison. The pairwise comparison enables the decision makers to focus only on the relevant considerations that distinguish between the two alternatives.

Given two alternatives A and B, decision makers are asked to express their opinion on their relative importance according to the following scale:

Table 1:

Verbal judgments of preferences	Numerical rating
Alternative A is extremely more important than alternative B	9
Alternative A is much more important than alternative B	7
Alternative A is more important than alternative B	5
Alternative A is somewhat more important than alternative B	3
Alternatives A and B are equally important	1

It is possible to use the numbers 2,4,6,8 for intermediate rating. For example, the grade 4 represents an intermediate level between somewhat more important and more important. Thus, the decision makers have a wide scale of 9 levels to express their preferences between the two alternatives. The advantage of AHP, in comparison to other decision-support methods, is that it has a built-in mechanism that ensures consistency. Ishizaka & Lusti (2004) present a thorough analysis of the conditions to consistency and their implementation in AHP. The following discussion is based on their presentation.
There are two rules that should be followed for a decision process to be consistent:

1) The rule of Reciprocity:
If alternative A is more important than alternative B, then alternative B has to be less important than alternative A.

2) The rule of Transitivity:
If alternative B is more important than alternative A, and alternative C is more important than alternative B, then alternative C cannot be less important than alternative A.
(The mathematical definition of consistency requires that alternative C will be more important than alternative A, however such level of consistency is not always intuitively clear in qualitative decisions and thus AHP settles for a weaker definition of consistency).

The reciprocity rule is applied by definition in the pairwise comparison. For example: if the decision makers want to attribute the value 3 to the comparison between alternative A and alternative B (meaning that A is somewhat more important than B) then the value in the comparison between B to A will be determined automatically to be 1/3 (meaning that B is somewhat less important than A). On the other hand, if the decision makers think that A is somewhat less important than B, they should assign the value 1/3 to the question how A relates to B.
After the completion of the pairwise comparison, AHP goes on with the calculation of normalized grades (weights), using an iterative mathematical procedure that will not be described here (see Haas & Meixner for a light, but clear illustration). The normalization of the grades ensures that their sum will equal 1, and thus, the transition from grades to budgetary allocation is straightforward.
The uniqueness of AHP is that it enables to check the existence of the rule of transitivity and to correct the choices if inconsistency is found.
The method that is proposed herein consists of four stages:
    1. Calculation of normalized grades (weights) of the organization's goals.
    2. Subject to each one of the goals, calculation of normalized grades of the organization's

activities. This process should be repeated for each one of the goals.
3. Weighting the normalized grades of each one of the activities, by the normalized grades of the goals, in order to receive a budgetary allocation for the activities that is in accordance with the goals.
4. Comparison of the computed budgetary allocation to the actual allocation and deriving an index for the level of fit between goals and actual budgetary priorities.

In order to illustrate the method I have used real data from a publicly available analysis report by Midot, an Israeli organization that rates nonprofits. The analysis report relates to an Israeli nonprofit named Elem that provides support and assistance to youth in distress.
It should be emphasized that the use of the data from the Midot report was done only in order to illustrate the process. Neither Midot, nor Elem, did not take part in the process and the results and conclusions presented hereinafter do not represent their views or opinions.

(2) Grading the organization's goals

The declared goals of Elem were taken from the Midot report and are presented herein:

A) To treat, educate and rehabilitate youth in distress.
B) To support, develop, establish and run intervention programs in therapeutic frameworks.
C) To promote prevention programs in the field of youth at risk and in distress.
D) To promote public awareness to the matter of youth at risk and in distress.
E) To cultivate and promote values of volunteering and social activism in Israel amongst youth for the sake of youth at risk.

Table 2 presents the pairwise comparison matrix for the five goals of Elem. In principle, such matrix should be filled by the organization's management. However, for the purpose of presenting the methodology, the actual choices made for the comparison are less important. Thus the pairwise comparison was done by me arbitrarily, for illustration purpose only.
As a result of the reciprocity rule the values of the pairwise comparison should be filled only above the diagonal. The values below the diagonal are computed automatically according to the reciprocity rule. For example, goal A was assumed to be somewhat more important than goal B and thus, the value 3 was entered into cell AB. As a result of that, the value in cell BA (which is below the diagonal) was determined automatically to be 1/3.

Table 2:
The relative importance of the organization's goals

	A	B	C	D	E	Initial	Final
A	1	3	1	5	5	34%	36%
B	1/3	1	1/2	3	3	18%	17%
C	1	2	1	5	5	32%	33%
D	1/5	1/3	1/5	1	3	11%	8%
E	1/5	1/3	1/5	1/3	1	5%	5%
						100%	100%
Consistency Index	**4.19%**						

The last line of Table 2 presents a consistency index that checks whether the transitivity rule holds. Unlike the reciprocity rule, the transitivity rule is not intuitively clear, and choices can easily become inconsistent, especially when there are many alternatives. Thus, the ability of AHP to test for consistency is very important for decision makers.
When the choices are fully consistent (by the mathematical definition) the value of the consistency Index will be 0. However, since full consistency is sometimes counter intuitive, AHP allows for a

weaker definition of consistency. The threshold for consistency is 10% and as long as the value of the consistency index is lower than that, the level of consistency is acceptable.

In Table 2 the value of the consistency index is 4.19% and thus the choices are acceptable. For illustration purpose I present in Table 3 herein a decision matrix which is not consistent.

Table 3:
The relative importance of the organization's goals

	A	B	C	D	E	Initial	Final
A	1	3	1	5	5	34%	35%
B	1/3	1	1/2	3	1/3	12%	12%
C	1	2	1	5	5	32%	33%
D	1/5	1/3	1/5	1	3	11%	10%
E	1/5	3	1/5	1/3	1	11%	11%
						100%	100%
Consistency Index	**22.18%**						

Except for the entry in cell BE, all the entries in Table 3 are identical to those in Table 2. Nevertheless, the consistency test value is 22.18% which implies that the choices made in Table 3 are not consistent. Obviously, the lack of consistency is a result of the pairwise comparison between alternatives B and E. The reason for the lack of consistency is explained herein:

- Alternative B was deemed to be somewhat more important than alternative D (the value in cell BD is 3).
- Alternative D was deemed to be somewhat more important than alternative E (the value in cell DE is 3).
- According to the transitivity rule alternative B cannot be less important than alternative E. However in Table 3 alternative B was deemed to be somewhat less important than alternative E (the value in cell BE is 1/3).

In such cases, it is advisable to present the lack of consistency to the decision makers so that they can reconsider their choices.

The two right columns in Tables 2 and 3 present the normalized grades of the five goals. The normalization means that the sum of all the grades is 100%. The first column to the right presents the initial normalized grades and the second one shows the final grades, after the completion of the iterative process. If we go back to Table 2, we can see that goal A is rated as the most important, followed by goals C, B, D and E respectively.

(3) Grading the organization's activities in relation to its goals

The activities of Elem were also taken from the Midot report and are presented in Table 4 herein. In order to keep the illustration simple, I used only the largest five activities that constitute 75% of the organization's budget (the financial figures are for 2007). The other 25% that were ignored are overhead (14%), business initiatives (6%) and partnerships (5%).

Table 4:

	Activity	Share of the budget
I	Information, Counseling & Community Programs	45.3%
II	Multicultural Programs	18.7%
III	Street Programs	16.0%
VI	Extreme Distress	10.7%
V	Girls	9.3%

In the next step I performed an illustrative pairwise comparison for all the activities in relation to each one of the goals. The results are presented in Tables 5 (A to E) hereinafter. For example, Table 5-A presents the results of the pairwise comparison in relation to goal A. In this table, the decision makers are asked to grade the importance of the five activities in view of goal A. For example, in order to achieve goal A activity I is deemed to be somewhat less important than activity III (the value in cell I-III in Table 5-A is 1/3).

Table 5-A:

The relative importance of the organization's activities in relation to goal A

	I	II	III	IV	V	Initial	Final
I	1	1	1/3	1/3	1/3	9%	9%
II	1	1	1/3	1/3	1/3	9%	9%
III	3	3	1	1	1	27%	27%
IV	3	3	1	1	1	27%	27%
V	3	3	1	1	1	27%	27%
						100%	100%
Consistency Index	0.00%						

Table 5-B:

The relative importance of the organization's activities in relation to goal B

	I	II	III	IV	V	Initial	Final
I	1	3	3	3	3	38%	42%
II	1/3	1	3	3	3	30%	26%
III	1/3	1/3	1	1	1	11%	11%
IV	1/3	1/3	1	1	1	11%	11%
V	1/3	1/3	1	1	1	11%	11%
						100%	100%
Consistency Index	3.37%						

Table 5-C:

The relative importance of the organization's activities in relation to goal C

	I	II	III	IV	V	Initial	Final
I	1	1	1/5	1/3	1/5	7%	7%
II	1	1	1/5	1/3	1/5	7%	7%
III	5	5	1	1	1	32%	31%
IV	3	3	1	1	1	22%	25%
V	5	5	1	1	1	32%	31%
						100%	100%
Consistency Index	0.94%						

Table 5-D:
The relative importance of the organization's activities in relation to goal D

	I	II	III	IV	V	Initial	Final
I	1	3	5	5	5	48%	50%
II	1/3	1	3	3	3	26%	24%
III	1/5	1/3	1	1	1	9%	9%
IV	1/5	1/3	1	1	1	9%	9%
V	1/5	1/3	1	1	1	9%	9%
						100%	100%
Consistency Index	**0.94%**						

Table 5-E:
The relative importance of the organization's activities in relation to goal E

	I	II	III	IV	V	Initial	Final
I	1	1	3	3	3	33%	33%
II	1	1	3	3	3	33%	33%
III	1/3	1/3	1	1	1	11%	11%
IV	1/3	1/3	1	1	1	11%	11%
V	1/3	1/3	1	1	1	11%	11%
						100%	100%
Consistency Index	**0.00%**						

The value of the consistency index in each one of the tables is less than 10% which means that the transitivity rule is followed by all the choices.

(4) Calculation of a goals-based budgetary allocation

Table 6 presents the calculation of the final budgetary allocation. The first line – Goals Priorities – is the normalized grades of the organization's goals from Table 2. Each one of the columns (A to E) presents the normalized grades of the activities, in view of each goal, from Tables 5 (A to E). The column Activities by Priorities presents the weighted normalized grades of the activities, after weighting the activities grades with the goals grades. These normalized grades represent a budgetary allocation which is in full accordance with the organization's goals. In this example, the two most important activities are III and V, and immediately after them comes activity IV.

Table 6:

Goals Priorities								
	36%	17%	33%	8%	5%			
	A	B	C	D	E	Activities by Priorities	Actual Allocation to Activities	Deviations
I	9%	42%	7%	50%	33%	19%	45%	0.27
II	9%	26%	7%	24%	33%	14%	19%	0.05
III	27%	11%	31%	9%	11%	23%	16%	0.07
IV	27%	11%	25%	9%	11%	21%	11%	0.11
V	27%	11%	31%	9%	11%	23%	9%	0.14
Total	100%	100%	100%	100%	100%	100%	100%	0.63
Index of Level of Fit								0.68

The column Actual Allocation to Activities presents the actual budgetary allocation of the organization (see Table 4). The last column of Table 6 presents the deviations of the actual budgetary allocation from the computed one. The deviations are presented in absolute values.

(5) The next step

How can a nonprofit benefit from such process? Budgetary allocation in nonprofits is influenced by many factors. In many cases, inertia plays a significant role in the budgetary process. Programs that were launched in the past and were very successful are kept alive, sometimes regardless of changes in the environment or the needs. There are also internal and external political constraints that affect nonprofits decisions. Sometimes staff members, in prominent positions in the organization, refuse to let go of programs that are identified with them. Commitments to donors also restrict the organization's flexibility in changing its budgetary allocation.

Nonprofits that have the flexibility to change their budgetary allocation can use this method to align their budgets with their strategic goals. My experience with such process suggests that it should be done gradually. The calculated budgetary allocation should be set as a multi-year target, and the budget should be adjusted by small steps every year. If possible, it is also recommended to conduct budgetary adjustments when the overall budget grows. It is always easier to change the allocation by increasing the budgets only for certain programs while keeping other budgets unchanged.

On the other hand, if the budgetary allocation is rigid it may be advisable for the nonprofit to measure the extent by which its budgetary allocation deviates from its goals. For that purpose I propose and index for the level of fit between the goals and the actual budgetary allocation. Such index can be calculated as follows:

$$\text{Index of the level of of fit} = 1 - \Sigma \ (\text{deviations}) \ / \ 2$$

This index is somewhat similar to a correlation coefficient, since its value can vary between 1 (perfect fit) and 0 (no fit). For practical use, I propose a qualitative scale for the level of fit between goals and budgetary allocation:

Table 7:

The level of fit between the goals to the actual budgetary allocation	Value of the Index
Good level of fit	Between 1 to 0.75
Medium level of fit	Between 0.74 to 0.5
Weak level of fit	Between 0.49 to 0.25
No fit	Between 0.24 to 0

The last line of Table 6 shows the calculation of the index in our example – 0.68, which means a medium level of fit between the goals and the actual budgetary allocation.

The proposed index can serve as a benchmark for nonprofits to determine how far is their budgetary allocation from their goals. When the the level of fit is weak, and the budgetary allocation is rigid, it may be advisable for the organization to reconsider its strategic goals. A significant discrepancy between what is being declared and what is actually being done, eventually erodes the creditability of the organization. For nonprofits, their creditability is their most important asset.

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