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A Conceptual Model of Value Apportioning among Organization's Stakeholders

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ABSTRACT

The article considers the problem of organization's resource flows distribution among its stakeholders. The distribution is aimed on increase of operations and development sustainability of the organization. In order to compare different alternatives of the apportioning a utility function is used and maximization of utility is considered as the main goal equivalent. The survey is expository and sets the framework for further investigations in the area.

Keywords: stakeholder, stakeholder theory, rent, utility, utility function, risk

INTRODUCTION

The problem of distribution of value added among the organization's stakeholders (shareholders, customers, employees, authorities, society etc.) could be considered as the measurement problem of the stakeholder theory. The theoretical and practical potential (especially in terms of its economical, not the ethical intention) of the theory is significantly reduced by the absence of means of apportioning of efforts to satisfy competing stakeholders' needs.

The theory applicability and the problem relevance is much higher for non-governmental and not-for-profit organizations since their goals are much wider distributed among stakeholders compared to "maximize free cash flow" shareholders' goal importance for a commercial company. The resources involved into exchange between a non-profit organization and its stakeholders involve lots of intangibles, making the introduced model relevance to be extremely high for this class of organizations.

An organization exists as a kind of merger of resources put in by stakeholders and used for the strategy implementation (Gurkov, 2007). These stakeholders also get some resources back from the organization, making their own strategies possible. The sustained resource exchange could be feasible only if both parties would assess the value of resources given to be less than the value of resources received. The difference in valuation of the same exchange is explained by the difference in strategies of exchange parties and, therefore difference in ways the resources could be used or consumed. This asymmetry leads to the effect when each exchange party becomes wealthier according to its own value system (Petrov, 2005).

The sustainable resource exchange is therefore prerequisite to the survival of an organization. The negative difference between values of resources given and received for a stakeholder could lead the exchange to discontinue. The break could happen even with positive difference of values, if the stakeholder finds an alternative way to use its resources, making the difference between value received and given even higher. The probability of this break will be lower if there are higher costs connected to the process of seeking for better alternative and establishing a new exchange. The exchange where one stakeholder believes it receives less value than gives could extend for a long period of time not only because of high costs of change, but also because of uncertainty of the environment (in terms of systems approach) and limited rationality of decision maker.

Let us assume that an organization produces rent which is distributed among its stakeholders. The amount of rent acquired by some stakeholder is determined in some bargain process between the stakeholder and management (Clarkson, 1995). The management's rent is the remainder after this rent distribution between all stakeholders. It should be mentioned that management is the special stakeholder, because it organizes the resource exchange and administers relationships with other stakeholders.

Thus, the management solves the rent distribution problem, taking into account risks of break of relationships with particular stakeholders. The management makes a choice between several strategic alternatives. These alternatives vary in quantitative and structural parameters of the relationships between the organization and its stakeholders. The criterion of choice is the sustainability of existence and development of the organizations. Let us assume the management is oriented on the long-term sustainability and maximization of utility of relationships between the organization and its stakeholders.

The Utility Maximization Problem

The strategic choice has a goal to maximize the integral utility of relationships and the rent re-distribution structure is the tool for the goal implementation. Obviously, some stakeholders will start to receive less than usual after the re-distribution and could decrease the resource return or even break the relationships. Management accepts this aftermath having that the released amount of rent being re-distributed to other stakeholders will increase the integral utility.

Let us consider the relationships between an organization and its particular stakeholder. Firstly, these relationships imply the existence of bi-directional resource flow. The utility is affected not only by the volumes of flows of wide variety of resources but also by the structure of the flow. Secondly, the utility is affected not only by the parameters of the resource flow. It depends on the business structure of the organization and the degree of involvement of the input resources into this structure. Thirdly, the utility depends on the transaction costs paid in case of connection break for its restoration. These transaction costs are the combination of amounts spent on seeking a new source of a resource, institutionalization of the connection, covering losses from possible effectiveness decrease due to flow break. Fourthly, the utility received from a stakeholder depends on the stakeholder's expectations toward the organization.

Having this in mind one could conclude that the level of utility received as a result of a connection with stakeholder depends on the amounts of resources received in terms of this connection and on such a connection parameters as resources involvement, transaction costs and expectation system. In order to simplify further consideration, the organization point of view is default. It means for example that the word "received" will be treated as "received by the organization" if not stated otherwise. Let us use the following notation:

U_i — utility, received from i-th stakeholder;

$U = \sum U_i$ — integral utility, received from all stakeholders;

$\widetilde{U}_0$ — utility, received by management from the organization.

The more correlation assured between $\widetilde{U}_0$ and U in the management compensation plan, the more management is motivated on the long-term effectiveness maximization problem solution. Consider one-period model, which means that resources are given to a stakeholder at the moment of time t_0. Reverse flow of resources from the stakeholder occurs at t_1. In this case the difference $t_1 - t_0$ defines the minimal time frame for given and received resources measurement.

It is reasonable in terms of problem solving to consider the utility as a function of the received resource flow and the connection parameters:

$$U_i = U_i(r_i(t_1), c_i(t_1), t_1),$$

Where $r_i(t_1)$ — norm of vector of resources received from i-th stakeholder at the moment of time t_1, calculated by translation of each resource's value to its monetary equivalent and further summing-up or applying of another metrics.;

$c_i(t_1)$ — vector of connection parameters with i-th stakeholder.

The utility function in this form does not depend on management decision directly. The decision affects directly the following value:

$\tilde{r}_i(t_0)$ — norm of vector of resources given to i -th stakeholder at the moment of time t_0. The following condition is then applicable:

$$\sum_i \tilde{r}(t_0)_i \leq \tilde{r}(t_0),$$

Where $\tilde{r}(t_0)$ — norm of vector of resources available for transfer to stakeholders at the moment of time t_0.

Now it is obvious that $r_i(t_1)$ depends on $\tilde{r}_i(t_0)$, therefore the utility function could be considered as the function of resources given:

$$U_i = U_i(\tilde{r}_i(t_0), c_i(t_1), t_1).$$

Consider the shape of the function with fixed t and c_i. The function should be non-decreasing:

$$U_i(\tilde{r}_i + \Delta\tilde{r}_i) \geq U_i(\tilde{r}_i).$$

The law of diminishing marginal utility should be followed:

$$U_i(\tilde{r}_i^1 + \Delta\tilde{r}_i) - U_i(\tilde{r}_i^1) > U_i(\tilde{r}_i^2 + \Delta\tilde{r}_i) - U_i(\tilde{r}_i^2) \text{ where } \tilde{r}_i^1 < \tilde{r}_i^2.$$

This kind of the behavior should be true for relatively big values of $\tilde{r}_i^1$. An increase of small value of given resources could lead to non-significant increase of received utility. Therefore $U_i(\tilde{r}_i)$ could be concave down at small level of $\tilde{r}_i$, but must be concave up for bigger values of the variable.

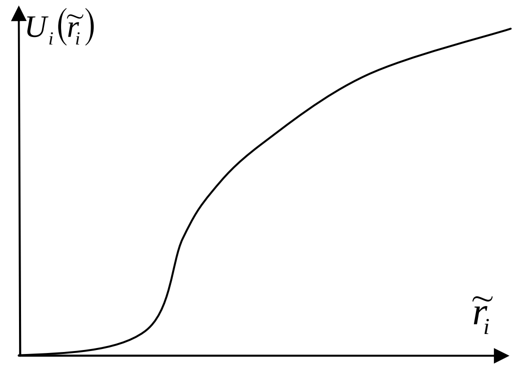

Figure 1. Common shape of the utility function

The level of utility received could be measured for an existing connection with a stakeholder. For planning and forecasting purposes it is reasonable to consider the utility as the random variable. The randomness is determined by the imperfect information about the stakeholder, nonhomogeneity of the stakeholder (which could involve several entities), uncertainty of environment.

It is reasonable then, to consider some maximal $U_{\max,i}(\tilde{r}_i)$ and minimal $U_{\min,i}(\tilde{r}_i)$ utility levels with given $\tilde{r}_i$, such as:

$$U_{\min,i}(\tilde{r}_i) < U_i(\tilde{r}_i) < U_{\max,i}(\tilde{r}_i)$$

with some pre-defined significance level α (Fig. 2). The degree of risk could be then measured as the difference:

$$R_i(\tilde{r}_i,\alpha) = U_{\max,i}(\tilde{r}_i,\alpha) - U_{\min,i}(\tilde{r}_i,\alpha).$$

The level of risk increases with increase of $\tilde{r}_i$.

The received utility level forecasting could be performed, for instance, when evaluating the reasonableness of making a new stakeholder connection and bargaining the parameters of this connection. Planning of the connection is focused on getting some desired level of utility and usually some average (market) level of resources $\tilde{r}_i^*$ which should be given in exchange for the utility level is known.

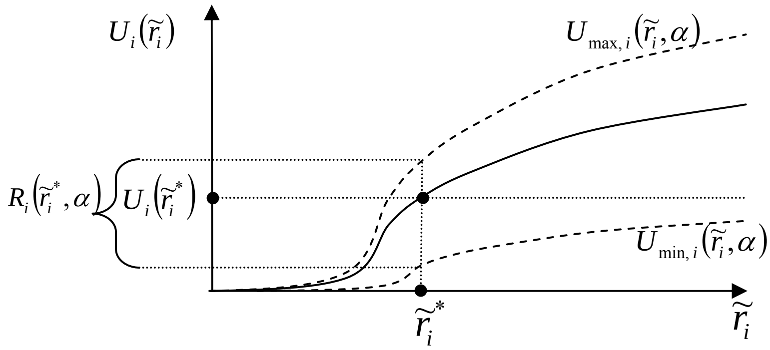

Figure 2. Risk measurement for the utility function

Now consider the utility function with change of time and fixed values of $\tilde{r}_i$, c_i. The utility could be stable, or could increase (for instance, when making uniform investments in a social project with increasing effectiveness) or decrease. We believe the last case to be the most common due to the environment change. The utility function could be considered as the function of time $U_i(t)$. $R_i(t,\alpha)$ in this case is obviously an increasing function due to the uncertainty increase with the passage of time.

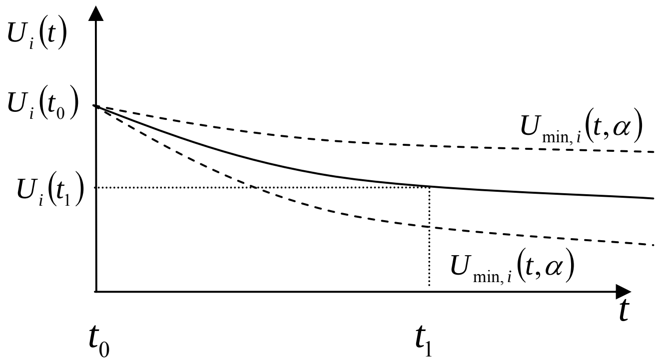

Figure 3. Utility as a function of time

The goal of optimal (from the long-term effectiveness and sustainability point of view) distribution of resources could be now stated as the utility of the next period maximization problem with resource and risk constraints, where R^* is the acceptable risk level:

$$\begin{cases} \sum_i U_i(\tilde{r}_i(t_0), c_i(t_1), t_1) \to \max \\ \sum_i R_i(\tilde{r}_i(t_0), \alpha(t_1), t_1) \le R^* \\ \sum_i \tilde{r}_i(t_0) \le \tilde{r}(t_0);\ \tilde{r}_i(t_0) \ge 0 \end{cases}$$

Also, the risk minimization problem with the acceptable utility level U^* constraint could be stated as follows:

$$\begin{cases} \sum_i R_i(\tilde{r}_i(t_0), \alpha(t_1), t_1) \to \min \\ \sum_i U_i(\tilde{r}_i(t_0), c_i(t_1), t_1) \geq U^* \\ \sum_i \tilde{r}_i(t_0) \leq \tilde{r}(t_0); \tilde{r}_i(t_0) \geq 0 \end{cases}$$

The amount of given resources $\tilde{r}_i$ could be represented as:

$$\tilde{r}_i = \tilde{r}_i^* + \tilde{\Delta}_i,$$

Where $\tilde{r}_i^*$ is some "standard" market average level of resources needed to be given to the stakeholder in order to receive the desired utility level and $\tilde{\Delta}_i$ — the stakeholder's rent. The positive value of the rent could be helpful when decreasing risks. The negative value could be relevant in case of high transaction costs for stakeholder or in case of good expectations about future levels of $\tilde{r}_i$.

Therefore, the task of distribution of resources could be re-stated as the task of distribution of rents. The volume of resources $\tilde{\Delta}$, available for distribution as rents at the moment of time t_0 is defined as follows:

$$\tilde{\Delta}(t_0) = \sum_i \left(\tilde{r}_i(t_0) - \tilde{r}_i^*(t_0)\right).$$

Rent, received by the stakeholder could be now expressed as:

$$\tilde{\Delta}_i(t_0) = d_i(t_0)\tilde{\Delta}(t_0),$$

Where $d_i(t_0)$ — the part of $\tilde{\Delta}$ given to the stakeholder at the t_0. This d_i is not necessarily positive, but the following constraints are applicable:

$$\sum_i d_i = 1, \; d_i(t_0) \geq -\frac{\tilde{r}_i^*(t_0)}{\tilde{\Delta}(t_0)}.$$

The last condition means that the connection with a stakeholder is impossible if no resources are given to it. The new level of resources given to i-th stakeholder could be now expressed as:

$$\tilde{r}_i'(t_0) = \tilde{r}_i^*(t_0) + d_i(t_0)\tilde{\Delta}(t_0).$$

Now the utility maximization and risk minimization problems could be re-stated as follows:

$$\begin{cases} \sum_i U_i(d_i(t_0), c_i(t_1), t_1) \to \max \\ \sum_i R_i(d_i(t_0), \alpha(t_1), t_1) \le R^* \\ \sum_i d_i(t_0) = 1;\ d_i(t_0) \ge -\dfrac{\tilde{r}_i^*(t_0)}{\tilde{\Delta}(t_0)} \end{cases}$$

and

$$\begin{cases} \sum_i R_i(d_i(t_0), \alpha(t_1), t_1) \to \min x \\ \sum_i U_i(d_i(t_0), c_i(t_1), t_1) \ge U^* \\ \sum_i d_i(t_0) = 1;\ d_i(t_0) \ge -\dfrac{\tilde{r}_i^*(t_0)}{\tilde{\Delta}(t_0)} \end{cases}$$

In some cases, particularly when the difference between $\tilde{r}_i^*$ and $\tilde{r}_i$ is non-significant, the volume of $\tilde{\Delta}$, available for re-distribution could not be determined with the above mentioned procedure. Nevertheless, the stated problem cold still be considered if the volume of $\tilde{\Delta}$ is determined by management in an arbitrary way, taking the sustainability of the organization inti account. Then $\tilde{r}_i'$ should be re-defined as follows:

$$\tilde{r}_i' = \tilde{r}_i + d_i\tilde{\Delta},$$

and constraints in the problem statements should look like:

$$\sum_i d_i = 0; d_i \geq -\frac{\tilde{r}_i}{\tilde{\Delta}}$$

CONCLUSION

The proposed formalization of the rent distribution problem is just a first small step. Further investigation should be performed in the following areas:

- the utility function analytic expression and utility calculation methods;
- the connection parameters structure specification and its employment in the utility function;
- the determination of an affective way of solution of the stated problems.

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