Developing a methodology for assessing the efficacy of managerial decisions in entrepreneurial establishments

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Abstract. This article examines the major approaches to assessing the efficacy of managerial decisions, worked out by Russian and foreign researchers. On the strength of an analysis, the authors propose a methodology for assessing the efficacy of managerial decisions based on stage-by-stage qualitative and quantitative assessment of the progress of working out and making them. The article also provides an example of testing the authors' methodology for assessing the efficacy of managerial decisions in the entrepreneurial establishment of OAO *Skat* based in the Republic of Tatarstan.

Introduction

The efficiency of the activity of entrepreneurial establishments (EE) that are striving to ensure an optimum path of development is a crucial and invariable criterion for their operation and a principle for the assessment of worked-out and made managerial decisions (MD).

Currently, there are lots of approaches to assessing the efficacy of MD's. Having conducted a systematic analysis of methodologies proposed by foreign and national authors, we managed to summarize the experience of various researchers and figure out that most methodologies for assessing MD efficacy are grounded in the following approaches:

- expert assessments – A. Charnes, W.W. Cooper, E. Rhodes [1], M. Demirbaga, E. Tatoglub, K.W. Glaistera, and S. Zaimc [2];

- comparing the outcome and costs – V.D. Kuliyev [3], S.R. Mouer [4], M.J. Schniederjans, J.L. Hamaker, and A.M. Schniederjans [5];

- identifying the outcome in the form of savings from MD's – E.K. Zavadskasa, and Z. Turskisa [7];

- identifying social and economic efficiency in the assessment of MD efficacy – V.S. Yukayeva [8] and V.D. Kuliyev;

- MD efficacy correlates with the efficacy of managing EE's on the whole – S.R. Mouer, J.B. Leslie, M. Dalton, C. Ernst, and J. Deal [9].

Let us dwell in more detail upon specific methodologies proposed by researchers.

The article by A. Charnes, W.W. Cooper, and E. Rhodes presents a method for assessing MD's based on expert assessments. The method employs a mathematical model that enables one to obtain in a novel way empirical data relating to the institution's external relations. Appraisals obtained from the analysis of the institution's external relations enable one to work out measures for boosting the efficacy of making MD's [1].

S.R. Mouer views MD efficacy assessment as only a set of certain stages in its implementation but also actually assesses the skills and aptitudes of the person making an MD, as well as that of everyone engaged in working out and making it. A decision is also evaluated in terms of investment, i.e. costs of developing it; one also assesses the accessibility and relevance of information in making MD's [4].

A similar opinion is shared by J.B. Leslie, M. Dalton, C. Ernst, and J. Deal, who in their investigation suggest assessing the efficacy of MD's through the evaluation of the psycho-emotional type of individuals engaged in working out and making them. They point out the impact of such factors as the individual's place of residence, peculiarities and personal traits on the efficacy of managing the institution as a whole – and on making MD's, in particular [9].

T.L. Saaty and G. Vargas Luis use for assessing the efficacy of MD's the hierarchy analysis method, which enables one to structurize the problem and present the process of working out and making MD's as a specific type of hierarchy [10]. In our view, the advantages of this approach are evident, but the method cannot be employed in respect of the entire process of MD efficacy assessment. The hierarchy analysis method will work in the analysis and assessment of the choice of alternatives, i.e. it can serve as just a separate stage in MD efficacy assessment.

Having conducted an analysis of various methodologies for assessing MD efficacy, we came to the conclusion that it is most expedient to streamline and develop the economic component of MD efficacy

specifically due to difficulties determining verifiable outcomes of MD efficacy and complexities of the search for adequate assessment indicators.

Methods

In our view, a methodology for assessing the efficacy of MD's ought to be built based on an algorithm for working out and making them, i.e. it should be implemented stage by stage – with a view to boosting MD efficacy at each stage. We believe that such a methodology should include quantitative assessment of MD's, i.e. assessment of the factual outcome obtained as result of its implementation.

Let us proceed to our methodology for assessing the efficacy of working out and making MD's. It is schematically presented in Figure 1.

We shall dwell in detail upon each of the stages.

Stage 1. Assessing the correctness of formulating issues faced or managerial objectives set by the EE.

In the first stage, one must assess the correctness of formulating an issue and a managerial objective. Note that in our study we draw a divide between these two terms. MD's can emerge in the EE both as a result of existing difficulties and problems and if the EE has set a managerial objective.
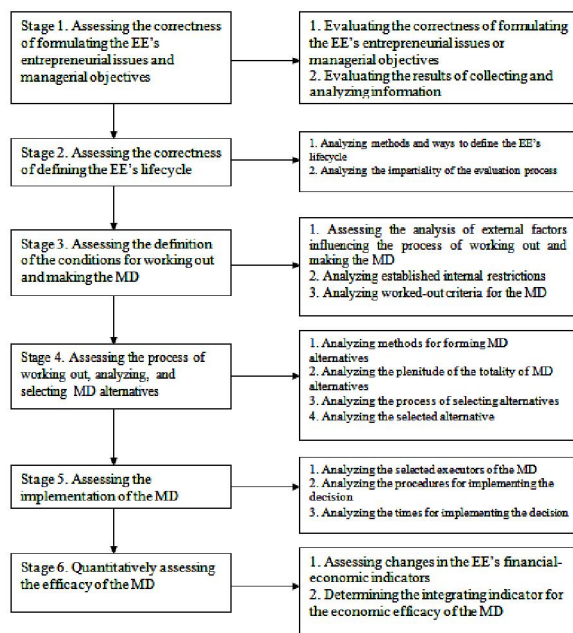

Figure 1. A methodology for assessing MD efficacy in EE's

Next, it makes sense to analyze how effectively the selection and analysis of relevant information for defining the EE's entrepreneurial problem and managerial objective were carried out[6].

Depending on this analysis, there may be a need for correcting them.

Stage 2. Assessing the correctness of defining the EE's lifecycle.

In this stage, one needs to conduct an analysis of methods and ways to define the EE's lifecycle stage. In defining the stage, quantitative methodologies or expert opinions can be employed.

Stage 3. Assessing the definition of the conditions for working out and making MD's.

In this stage, one needs to analyze already defined conditions for working out and making MD's and, more specifically, perform an evaluation of the conducted analysis of external factors influencing MD's. Then one needs to perform an assessment of established internal restrictions, i.e. analyze whether the EE's resources are defined rationally for the MD.

Besides, in this stage one needs to analyze and assess worked-out MD criteria, i.e. analyze whether the indicators and qualitative attributes by which decision alternatives will be compared were defined correctly.

Stage 4. Assessing the process of working out, analyzing, and selecting MD alternatives.

This stage requires an analysis of methods by means whereof the alternatives were formed and checks whether specialized methods and automated systems for the search of alternatives were used, as well as whether internal and external restrictions and the worked-out MD criteria were take account of in the alternatives.

After this, one needs to perform an analysis of the choice of the end MD alternative and analyze whether statistical methods were used in selecting it or the expert assessment method was employed.

Stage 5. Assessing the implementation of the MD.

First, an analysis of the choice of MD executors is performed, which establishes whether their qualifications meet the requirements of the set MD implementation objectives and whether they can get everything done within the time agreed upon.

Then one needs to conduct an assessment of the procedure for implementing the MD to check whether there were any deviations in the implementation process, whether the end MD was implemented as planned, and whether there were any deviations.

Stage 6. Quantitatively assessing the efficacy of the MD.

The methodology for assessing the efficacy of the MD consists of three rounds, each of which involves separate assessments which in totality provide an end result based on which one can tell whether the worked-out MD was effective.

Round I. Assessing changes in the EE's financial-economic state based on the integral indicator.

This round includes the following sub-rounds:

1. Selecting the system of end indicators for the efficacy of the MD. This aggregate should also be inclusive of the EE's current lifecycle stage and can include and manipulate the following indicators: profit, profitability, and turnover.

2. Forming the integral indicator F. For this, one calculates the criterial indicators by the aggregate (K_{ij}) at the beginning and end of the period, i.e. before and after making the MD.

If $K_{i0} < K_{i1} = n1$, trends observed in the EE's financial-economic activity are rated positive and, as a consequence, one draws a conclusion about the efficacy of MD's made. In this case, the element (n1) of the function F takes the value 1.

If $K_{i0} > K_{i1} = n1$, the EE's financial-economic state is rated negative and the element (n1) of the function F takes the value 0.

The comparison of the criterial indicator K_{ij} is performed across all the indicators for the end efficacy of the MD, which were selected earlier. Then one forms the standardized integral indicator F as a function of indicators examined:

F{n1; n2; n3; n4; n5; n6},

where n1 is the function F's element that is determined logically as 1 or 0, depending on the results of comparing the criterial indicator (K_{ij}) at the beginning and end of the period under study.

If the majority of elements included in the function F are equal to 1, we then can draw a conclusion about the efficacy of the MD made.

Round II. Determining the integrating indicator for the economic efficacy of the MD.

This indicator is based on the correlational-regressive analysis we conducted, which revealed that the greatest association with the results of MD's worked out was demonstrated by such indicators as the salaries of administrative staff, expenditures on EE's computer and programming support, expenditures on upgrading the skills of and training managerial personnel, expenditures on marketing research activities, and expenditures on adopting and engaging the quality system for the EE's business processes.

MD efficacy is determined via the following formula:

$$MDE = D / C_i,$$

where D is profit after making the MD,

C_i is the types of costs having the greatest correlational association with MD results, which are expressed in changes in the EE's financial-economic indicators – in our case, the profit indicator.

The integrating indicator for MD efficacy is calculated via the following formula:

$$MDE_i = D / [sigma] C_i,$$

Let us determine the boundaries of the integrating indicator for MD efficacy.

If MDE > 1, the MD can be considered effective.

At 0 < MDE < 1, the MD is considered less effective.

Next, we proceed to the final round of assessing MD efficacy.

Round III. Determining MD efficacy.

If in the first and second rounds of assessing MD efficacy conclusions were made about the positive efficacy of the MD, we can draw a conclusion about the overall efficacy of the MD worked out.

If conclusions were made about the positive efficacy of the MD only in the first or second round, we consider the MD only partially effective.

If in both rounds conclusions are drawn about the negative efficacy (inefficacy) of the MD, the MD worked out and made is to be considered ineffective.

Thus, we have worked out a methodology for assessing the efficacy of MD's at each stage of working out and implementing them, which makes it possible to determine the EE's MD efficacy not only qualitatively but quantitatively.

In order to prove the efficacy of the methodology we have worked out, we need to test it on a selected object of study – in our case, it is the EE of OAO *Skat*.

Main part

The testing of our methodology for MD efficacy at the EE of OAO *Skat* was conducted based on a decision already made. This MD deals with the opening of the OAO *Russkaya Mekhanika* in the capital of Udmurtia, the city of Izhevsk, in 2012. We analyzed how effective the decision was, what impact it had on the EE's operation as a whole, and, in particular, what impact it had on changes in financial-economic indicators.

The testing of the methodology for assessing MD efficacy produced the following results:

1. The first MD efficacy assessment stage revealed that:

- the EE of OAO *Skat* had an incorrectly set managerial objective: expanding activity through developing the market – more specifically, gaining access to new sales markets based on the geographical attribute;

- despite the fact that expenditures on marketing research activities are on quite a high level and information obtained through these studies is credible and timely, there is a number of issues in the

way of processing it and its results. More specifically, incoming information is not structured and gets lost amongst large volumes of newly incoming information.

2. The second MD efficacy assessment stage revealed that:

- the EE's lifecycle definition stage had not been taken account of in the process of working out the MD;

In respect of the organization under study, after defining the lifecycle of the EE of OAO *Skat* we came to the conclusion that the managerial objective had been formulated and substantiated correctly and did not need correction.

In a different situation, there would be a threat of incorrect definition of both the managerial objective and the problem situation, amidst which a patently ineffective MD would be implemented.

3. The definition of the conditions for working out and making the MD revealed that:

- not all criteria that ought to underlie the future choice of MD alternatives had been worked out.

No regard had been paid to such crucial criteria as:

- the level of infrastructural support for the EE's activity in the region;

- the barriers to its entrance into the regional market;

- the level of sports development and the population's attitude towards it in the region.

Overlooking these criteria was fraught with that not all possible alternatives would be worked out, while not the most effective and competitive would be selected among the existing ones.

4. The fourth stage established that:

- in forming alternatives, the EE of OAO *Skat* had employed the brainstorming method, as a result of which the enterprise's administrative staff had worked out the following MD alternatives: the opening of the *SKAT* store in Ufa; the opening of a dealership in Izhevsk; the opening of a dealership in Kazan; the opening of a store in Chuvashia; the opening of a store in Yoshkar-Ola.

- we came to the conclusion that the aggregate of MD alternatives had been formed incompletely, not all possible alternatives had been worked out, and a promising alternative might have been overlooked.

Thus, after we added a new MD criterion, an additional possible alternative was identified – the opening of a dealership in the city of Samara.

This alternative is inclusive of not only MD criteria worked out at OAO *Skat*, but criteria we added. This city surpasses the rest of the alternatives by the level of infrastructural support for

entrepreneurial activity; its barriers to entrance into the market are considerably lower; as the most crucial factor, demand for sporting goods and equipment is much higher here than in Udmurtia.

- in the process of selecting alternatives, no statistical or mathematical methods of selection had been employed - methods that could have made it possible to carry out a quantitative assessment of alternatives worked out.

5. The MD implementation assessment stage revealed that:

- based on the analysis of the times for implementing the MD, this criterion had been fulfilled correctly;

- despite the relative effectiveness of the stage of implementing the MD, it should be noted that the EE of OAO *Skat* had not effected control of its implementation. No analysis of the outcomes of opening the dealership had been conducted; the dynamics of financial-economic indicators had not been identified.

6. In the last stage, we performed a quantitative assessment of MD efficacy in three rounds, which led us to draw the following conclusions:

1. In the first round, we assessed changes in the EE's financial-economic state based on the integrating indicator.

The integrating indicator F was formed based on calculating criterial indicators (presented in Table 1) and during the analysis received the following value:

F {0; 0; 1; 0}.

Three elements out of four received the value 0, which indicates a low efficacy of the MD made at OAO Skat, as well as that the MD made did not have a positive impact in terms of changes in the EE's financial-economic indicators.

Table 1. Criterial indicators for the efficacy of the managerial decision

Indicator	K_0	K_1
Net profit	3196719.57 rub.	3079194.65 rub.
Net margin	0.19	0.11
Return on sales	0.32	0.46
Fixed asset turnover ratio	3.33	3.02

2. In the second round, we determined the integrating indicator for the economic efficacy of the MD.

We calculated specific indicators for MD efficacy for OAO *Skat*, which are presented in Table 2. Then we calculated the integrating indicator for MD efficacy.

Table 2. Specific indicators for MD efficacy for OAO *Skat*

Specific indicator for MD efficacy	Value
MDE based on expenditures on the EE's computer and programming support	100
MDE based on the salaries of administrative staff	3.52
MDE based on expenditures on adopting and engaging the quality system for the EE's business processes	450.8
MDE based on expenditures on marketing research activities	293.4
MDE based on expenditures on upgrading the skills of and training managerial personnel	304.6

The integrating indicator for MD efficacy equals:

MDE = 3.3.

Having determined the boundaries of the integrating indicator, we came to the conclusion that the MD made could be considered effective.

3. In the third round, wherein the end efficacy of the MD is to be determined, we combined the results of the first two rounds.

In the case of this worked-out decision, conclusions about positive MD efficacy were drawn only in the second round – the results of the first round point to insufficient MD efficacy. The results of our quantitative assessment of MD efficacy for the EE of OAO *Skat* led us to conclude that the decision made can be considered only partially effective.

Inferences

The results of our assessment of MD efficacy for the EE of OAO *Skat* led us to conclude that the decision worked out can be considered only partially effective – it did not lead to positive changes in the EE's financial-economic indicators.

This can be due to specific issues faced by OAO *Skat*, which were revealed in the course of assessing MD efficacy:

- the enterprise has no formalized methodological apparatus for the process of working out, making, and assessing MD's;

- the organization has no specialized computer programs for processing large amounts of data and separating data needed for working out and making MD's.

Testing identified the merits and attributes of the worked-out methodology for assessing MD efficacy:

- the methodology assesses the efficacy of MD's at each stage of working out and making them, which makes it possible to identify major problems and correct MD's;

- the methodology is inclusive of both the qualitative and quantitative components of MD's;

- the methodology is inclusive of MD assessment through changes in the financial-economic indicators of the EE's activity and determination of the integrating indicator for the economic efficacy of MD's.

Based on the issues identified in the organization of OAO *Skat*, we find evident the conclusion on the need for working out lines of streamlining the process of working out, making, and implementing MD's in the OAO *Skat* establishment with a view to clearing existing problems, as well as boosting the efficacy of MD's.

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5/9/2014