



# Fornulating a Goal as a Determining Faktor in Economic Development

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**Abstract:** According to Aristotle, "... as the most important and dominant science, which all other sciences, like slaves, do not dare to contradict, one should call wisdom the science of purpose and good". Modern Russian interprets goal as a place that needs to be reached ... or something that one strives for, something that needs to be achieved. Accordingly, the result is the final outcome, completing something (according to Aristotle: "...final goal is the limit"). The basic rule is to formulate the goal as a desired result, not as a process. The following mistakes are made when articulating a goal. When a goal is chosen it is seen not as a desired result but as a process. When the goal is set, there is an ambiguous description of the problem. Then when the goal is set an unfounded strategy is taken. It is very difficult to concentrate resources accurately and balance their consumption in the most critical areas of the problem under consideration. Ambiguous formulations disorient collectives. Vague understanding prevents the identification of the main direction of work, balance in the use of resources, justification and critical analysis of the problem solution. This affects the methods of activities' coordination, leads to a significant overspending of resources.

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## 1 INTRODUCTION

Goal is a desired outcome for an individual or an organization. Goal formulation or goal setting is the process of definition of a desired outcome. Goals serve as the basis for all organizational decisions and provide a single direction in which all managerial efforts are focused. Goals are critical to the success of an organization and give the organization a reason to exist. However, every organization should strive to ensure that goals are as precise, measurable, achievable, rational, and time-specific as possible.

The aim of the study is to model goal setting as a determining factor in development. As tasks, we will analyze individual examples of goal formulation in various organizational systems and suggest a model for goal setting based on the performed studies.

The most "obvious" example of goal setting is presented in the well-known paper of M.S. Gorbachev (Gorbachev, 1988). In particular, "We often have to face the question: what do we want to achieve as a result of perestroika, what do we want to come to? It is hardly possible to give a detailed, pedantic answer to this question. It is not in our tradition to engage in prophecies and try to predetermine all the architectural elements of the building that we will erect during the perestroika process.

But in principle I can say that the ultimate goal of perestroika is clear to us. It is a profound renewal of all aspects of the country's life, giving socialism the most modern forms of public organization, the most complete disclosure of the humanistic character of our system in all its decisive aspects, i.e. economic, socio-political and moral ones."

What renewal of "all aspects of life" are we talking about? "All aspects" implies, first of all, political renewal. Then the question arises: what is political renewal? It is known that the fundamental question of political activity is the issue of power. Then the question arises: who should have power after the "renewal"? Perhaps something is planned to be done to preserve and strengthen it? Judging from the citation given above about the "ultimate goal", it is very clear that the author either did not understand what kind of political renewal the society would lead to, or was sly.

At the same time, M. Gorbachev acknowledges the importance of goals and programs. He writes: "The matter is very difficult. But the goal is worth sparing no effort." Further, he reveals his thesis: "If you see this high goal, i.e. a shining Temple on a green hill, then the heaviest stones are light, the most exhausting work is a pleasure." It is difficult to

disagree with this. Moreover, it was necessary to set a clear, distinct and understandable goal.

And the author proposes: "... we have begun a serious, radical reform of planning, pricing, financial and credit mechanism, system of material and technical support for production, management of scientific and technical development, labor and social issues. The goal of this reform is to ensure, in the next two or three years, the transition from an excessively centralized command system of management to a democratic one based on the principles of a democratic combination of centralism and self-government."

Firstly, in this case, "transition" cannot be the goal and in particular "to ensure transition". How can the completion of "transition provision" be characterized? By means of which indicators can it be shown? It is unknown. Where can one find out what the "principles of democratic combination of centralism and self-government" are"? They was not explored.

Secondly, the "transition" was planned without defining the corresponding routes, i.e. models and forecast calculations of the consequences of the "radical reform". Any sufficiently businesslike person, starting a serious business, will first of all calculate carefully all possible options in order to find out what results this "business" may lead to. The more serious the business, the larger it is, the more carefully the forecast of the consequences must be carried out. Moreover, the "radical reform" affected the economic and social foundations of society. It should be noted that the known official sources did not reflect any models or calculations related to the forecast assessment of the consequences of this "radical reform". The conclusion suggests itself, it is either the analysis of the potential consequences of "perestroika" and "reforms" was not carried out, or it was carried out, but its results were deliberately hidden.

And finally, how was the excessive centralization of economic management determined and on the basis of what criteria? Is the level of centralization of management excessive in Japan? How much higher or lower was it than in the USSR? Who and where made such an assessment? Is the Land of the Rising Sun with a relatively high centralization of economic management developing less intensively than other countries with developed market relations? There are no answers to all these questions even at the present time. Consequently, the target settings are not only unclear, but also unfounded, which is absolutely unacceptable.

Another example of goal setting can be found in the minutes of the fourth (unification) congress of the Russian Social Democratic Labor Party (Cleland, King, 1975). The draft resolution of the congress proposed the following wording: "the struggle puts forward the immediate task of wresting power from the hands of the autocratic government." However, part of the editorial commission headed by G. Plekhanov made a change: instead of "wresting power," they proposed "wresting rights by force." The difference in wording is obvious. And it is not at all a matter of "stylistics," which G. Plekhanov tried to justify the changes with. Probably, he and his associates, with an unclear formulation, tried to negate the solution of the main task or formulate it in such a way that achieving the goal did not imply a radical solution. How successfully the goal clearly

set at the congress was realized can be judged by the subsequent events in October 1917.

## 2 METHODS

There is no doubt that it is necessary to solve the problem of goal articulation as a multifactorial one. For example, resources such as labor, material, energy, intelligence, etc. are accepted as factors of production (Yarmolinsky, Kondratenko, 2018; Malinetsky, Kurdyumov, 2001). It is advisable to present clearly the results of the analysis based on visualization in space, what facilitates a better understanding of the processes, as well as the assessment and search for an optimal solution (Kruglanski, Shah, Fischbach, Friedman, 2018; Darrin, 2013).

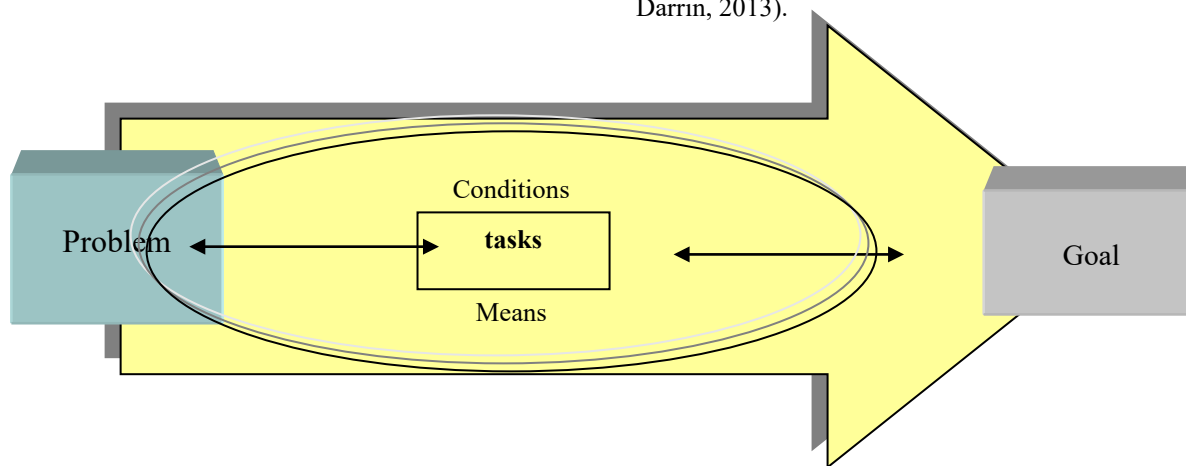


Figure 1: Goal setting based on strategy.

It is necessary to suggest a theoretical platform that allows for the analysis of spatial distribution, substantiation of probable situations and forecasting of results, for example, of the innovation and investment process (Locke, Latham, 2013; Kiyosaki, 2014). As the most universal form of analysis of the functioning of an economic system (ES) for example, it is suggested to use a digital model of the following type (1):

$$Y = C_0 \prod_{i=1}^n x_i^{\alpha_i}, \quad (1)$$

where  $Y$  – indicator (for example, profit, gross product (GP), volume of work, etc. in physical or monetary terms);  $x_i$ ,  $i = \overline{1, n}$  – factors (resources) influencing  $Y$  (in physical or monetary terms);

$\alpha_i$ ,  $i = \overline{1, n}$  – intensity of resource use, characterizing the contribution of  $x_i$  into  $Y$ ;  $C_0$  – coefficient characterizing the combined influence of factors not taken into account by the model. Let us analyze a three-dimensional graphical model (Fig. 2) of a function of the type (1). The function is most accessible for understanding due to the possibility of its visual representation in three-dimensional space. (Tikhanoff, Pattacini, Natale, Metta, 2013; Wolfe, Marthi, Russell, 2010). The curves  $-1Y$  and  $2Y$  connect points with the same numerical values, for example, gross production. Their projections are  $1Y_1, 2Y_1, 1Y_2, 2Y_2, 1Y_3, 2Y_3$  isoquants.

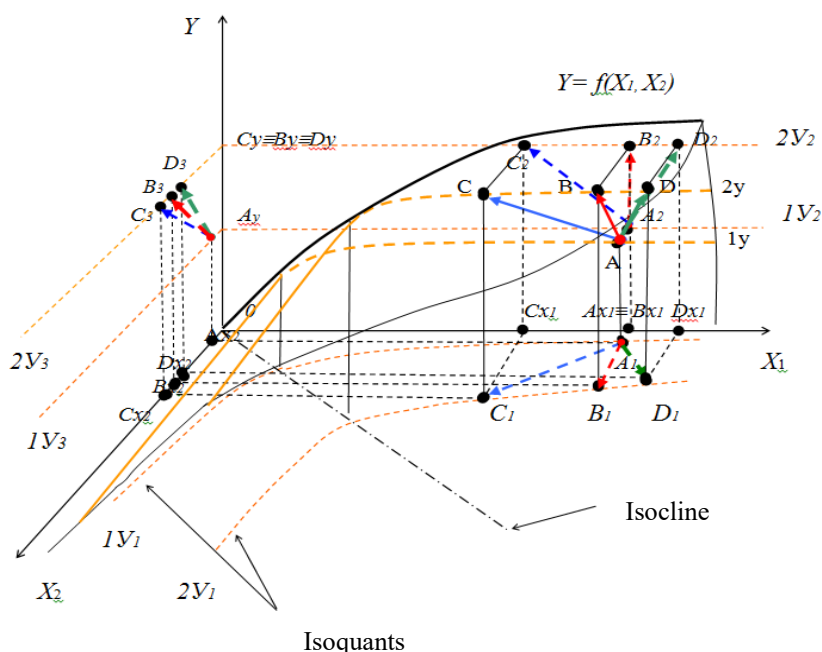


Figure 2: Spatial model of goal setting.

As it can be seen in Figure 2, from point A, characterized, for example, by gross production 1Y, the volume of gross production 2Y can be achieved in a specific economic system by implementing the innovation-investment process with an infinite number of combinations of labor and other resources (Goldman, 2009; Kaelbling, 2014). For example, points B, C and D show some options for reaching the volume of gross production, characterized by 2Y. Depending on the capabilities of the economic system, personnel qualification, management quality, social conditions, quality of resources, purpose of the economic system, tasks, etc., one or another option for resources' use is selected.

We will consider the optimal control of factors  $X_i$  in model (1) to be the one that leads to the maximum of the target parameter Y for each period of time under consideration (Lang, Toussaint, 2010; Tafakkori, Tavakkoli-Moghaddam, Siadat, 1976; Baker, 2016).

As it is known, the function (1) defines a scalar field Y. At each point of this field, one can indicate, using the gradient vector  $\nabla Y$ , the direction of the greatest increase of this field. This will be the direction that interests us. Let us show how to obtain the equation of the curve along which one should

“move” in phase space in order to reach the max value of Y. Let us denote Y by  $d\vec{r}\{dx_1 dx_2 dx_3\}$  as a vector tangent to the desired curve at an arbitrary point.

The gradient vector  $\nabla Y$  has the coordinates

$$\{Y'_{x_1}, Y'_{x_2}, Y'_{x_3}\} = \{C_0\alpha_1 X_1^{\alpha_1-1} X_2^{\alpha_2} X_3^{\alpha_3}; C_0\alpha_2 X_1^{\alpha_1} X_2^{\alpha_2-1} X_3^{\alpha_3}; C_0\alpha_3 X_1^{\alpha_1} X_2^{\alpha_2} X_3^{\alpha_3-1}\}$$

From the essence of the problem it follows that the vectors  $d\vec{r}$  and  $\nabla Y$  are collinear, and, consequently, their coordinates are proportional, i.e.

$$\frac{dx_1}{C_0\alpha_1 X_1^{\alpha_1-1} X_2^{\alpha_2} X_3^{\alpha_3}} = \frac{dx_2}{C_0\alpha_2 X_1^{\alpha_1} X_2^{\alpha_2-1} X_3^{\alpha_3}}$$

and

$$\frac{dx_1}{C_0 \alpha_1 X_1^{\alpha_1 - 1} X_2^{\alpha_2} X_3^{\alpha_3}} = \frac{dx_3}{C_0 \alpha_3 X_1^{\alpha_1} X_2^{\alpha_2} X_3^{\alpha_3 - 1}}$$

Or:

$$\frac{dx_1}{\alpha_1 X_2} = \frac{dx_2}{\alpha_2 X_1} \quad (a)$$

$$\frac{dx_1}{\alpha_1 X_2} = \frac{dx_2}{\alpha_2 X_1} \quad (b)$$

Let's divide the equation (a) by (b):

$$\frac{X_3}{X_2} = \frac{\alpha_3}{\alpha_2} \frac{dx_2}{dx_3} \Rightarrow X_3 dx_3 = \frac{\alpha_3}{\alpha_2} X_2 dx_2$$

Integrating we get:

$$\int X_3 dx_3 = \frac{\alpha_3}{\alpha_2} \int X_2 dx_2 \Rightarrow \frac{X_3^2}{2} = \frac{\alpha_3}{\alpha_2} \frac{X_2^2}{2} + C$$

Since the beginning of the process (and the beginning of the optimal control curve) corresponds to the origin of coordinates, i.e.  $X_2 = X_3 = 0$ , it follows from this:  $C = 0$  and, consequently, the Cauchy problem has the following solution:

$$X_3^2 = \frac{\alpha_3}{\alpha_2} X_2 \Rightarrow X_3 = \sqrt{\frac{\alpha_3}{\alpha_2} X_2} \quad (2)$$

- equation of the optimal relationship between factors  $X_3$  and  $X_2$ .

Factor  $X_1$  is connected with  $X_2$  and  $X_3$  with the help of equations (a) and (b). Thus from the equation (a) we get

$$X_1 = \sqrt{\frac{\alpha_1}{\alpha_2} X_2}, \quad (3)$$

and from the equation (b) we get :

$$X_1 = \sqrt{\frac{\alpha_1}{\alpha_3} X_3} \quad (4)$$

Substituting into relations (2), (3) and (4) the values of the exponents taken from the digital model of the process under analysis, we obtain one of the equations of the optimal trajectory for achieving the goal.

### 3 RESULTS

Any purposeful activity must be manageable. Therefore, it must include study of real conditions, formulating a goal, selection of the methods and means of achieving it, determination of the ways of creation and distribution of resources, their optimal use, monitoring the progress of the entire process (Ozhegov, 1992). Precise formulation of a goal to a decisive extent creates the prerequisites for its successful achievement.

Goal formulation can be considered one of the highest forms of manifestation of abstract human thinking. In the process of analyzing a large volume of quantitative and qualitative information, its assessment, comparison of various options for the goal and tasks, and linking with the real capabilities of the system are carried out.

Modern Russian interprets a goal as a place to get to or something to strive for, something to accomplish. Accordingly, a result is the final outcome, completing something (according to Aristotle: "...the final goal is the limit"). A process is a course, the development of some phenomenon (Kondakov, 1975).

The basic rule is to formulate a goal as a desired outcome, not as a process (Kruglanski, Shah, Fischbach, Friedman, 2018). (Unless starting a process is the goal.)

The following mistakes are made when formulating a goal:

- selection of a goal not as a desired result, but as a process;
- ambiguous description of the problem;
- an substantiated strategy.

### 4 CONCLUSION

The process of goal setting as a determining factor of development is simulated. Examples of goal formulation in various organizational systems are analyzed. It is shown that the goal is a determining factor of development. Based on the research performed, a model of goal formulation is suggested. It is established that the optimal control of factors

$X_i$  in the digital model  $Y = C_0 \prod_{i=1}^n x_i^{\alpha_i}$  will be considered such that it leads to the maximum of the target parameter  $Y$  for each time period under

analysis. The model  $Y = C_0 \prod_{i=1}^n x_i^{\alpha_i}$  specifies a scalar

field  $Y$ . At each point of this field, one can specify using a gradient vector  $\nabla Y$ , the direction of the greatest increase of this field is the direction which is interesting to us. It is shown how to obtain the equation of the curve along which one should "move" in the phase space in order to achieve the max value  $Y$  which is a vector tangent to the desired curve at an arbitrary point.

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