

STRATEGIC MANAGEMENT OF CITY DEVELOPMENT

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Summary: *The majority of Russian cities have a deficit in city budget. So the actual problem considered in the present paper is to manage a city budget in proper manner through raising its incomes and cutting its expenses. The decision to the first sub-task is the development and launching of an innovation program on reformation of industries. The second sub-task has to be solved by means of innovation program for public utilities. The coordination of the programs mentioned is governed by the system for innovation management, which is to set up at the city administration level.*

The primary goal of the reforming of each enterprise in 2000-2002 is improvement of its financial and economic status and transition to stable, loss-free and competitive development, which is described in this paper.

Ultimate goal is the growth of a standard of living of the city population.

Main tasks (priorities): **Task 1.** *To ensure growth of final financial and economic results at a maximum possible rate.*

Task 2. *Under the conditions of budget resources constraints, the basic gain in financial results should be obtained by improving the efficiency of use of available resources of enterprises and budgets at all levels, and first of all due to increase in efficiency of financial resources use (profitability of the capital).*

Task 3. *To ensure steady competitive development (including import substitution and exportability).*

Task 4. *To provide a high rate of implementation of planned results of the Programme for restructuring of enterprises.*

The paper discusses also mathematical models (a system optimization model and a parametrical model of cash flow network) and examples of pilot projects for practical realization of the tasks of comprehensive reformations.

1. Introduction

A set of problems for the design and management of implementation of development strategy for a Russian city is considered. Final social targets are formulated (upgrading of living standard, reduction of number of the inhabitants having income below the living-wage, meeting requirements for social standards). Requirements for the budget revenues and added value growth which is sufficient for the attainment of social targets are defined.

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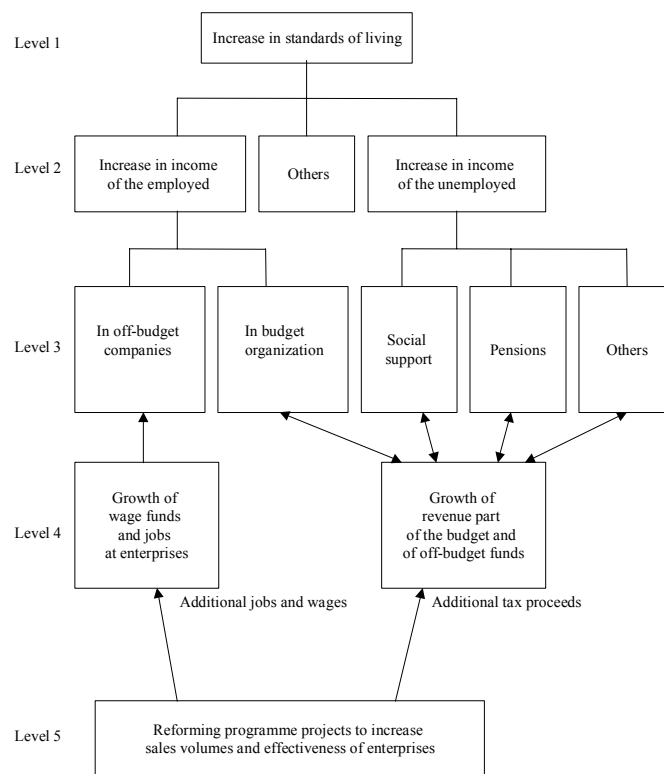


Fig. 1: "Goal-object-task-project" structure

Multi-criteria assessment of a city position and its potential for development. Setting up of goals and targets. Solution to the task of system optimization. Development of a procedure ruling a process implementation.

Projects for developing industry, city economy and social sphere are outlined and high-priority ones are selected, and a development programme is formulated which will ensure meeting the targets in the shortest time possible. Practical issues of managing the implementation of a city development strategy are discussed. The MCDM methods for solving the tasks of decision-making, as well as a model and a method of system optimization are used.

The paper discuss also examples of pilot projects on practical realization of the tasks of comprehensive reformation.

2. Problem Definition

A five-level "goal-object-task-project" structure (Figure 1) is being considered. The three upper levels of the tree correspond to the goal, objects and criteria which determine the attainment of the final social goal. The fourth level are the tasks to be solved in order to reach the goals. The fifth bottom level are means of attainment of goals and solving tasks: these are concrete projects. The main result (about 80%) is ensured by the innovation projects included into the reforming programme, which are aimed at increasing effectiveness as well as output and sales volumes of the enterprises.

The basic criteria and an example of requirements for desired changes in their values are given in Table 1 (for a model town with population amounting to 100,000).

Table 1

| Item | Criteria | Reference value (2000) | Desired value (ideal point) in 2002 |
|------|---|------------------------|-------------------------------------|
| 1. | Budget revenues | a | 1.3a |
| 2. | Own revenues | 0.6a | 1.1a |
| 3. | Subsidies | 0.4a | 0.2a |
| 4. | Budget expenses per head of population | b | 1.3b |
| 5. | Population standard of living (per capita expenses/subsistence minimum) | 0.6 | 1.1 |

Enterprise level

Model programme of reformation for enterprises

2.1. The primary goal of the reform of each enterprise in 2001-2002 is improvement of its financial and economic condition and transition to stable, loss-free and competitive development.

Criteria and objects* for two years from the beginning of reformation

| | | In one year | In 2 years |
|-----|--|-------------|------------|
| 1. | Increase of sales including money component | 40% | 80% |
| 2. | Growth of marginal profit (proceeds minus variable expenses) | 50% | 100% |
| 3. | Growth of marginal profitability | 20% | 40% |
| 4. | Decrease of expenditures per rouble of commercial output | 20% | 30% |
| 5. | Decrease of credit indebtedness ** | 10% | 60% |
| 6. | Increase of working capital turnover | 20% | 30% |
| 7. | Increase of financial strength factor | 20% | 40% |
| 8. | Increase of use of full capacity | 30% | 50% |
| 9. | Growth of labour efficiency (output per worker) | 30% | 50% |
| 10. | Growth of average income per worker | 50% | 100% |
| 11. | Increase of new jobs | 0 | 20% |
| 12. | Increase of high-quality products | 10% | 30% |

* not less than ...

** Provided the current taxes are fulfilled

2.2. Main tasks of reforming an enterprise, the achievement of which will ensure major contribution into improvement of the financial position and raising competitive capacity

Task 1. To ensure growth of final financial and economic results at a maximum possible rate.

Basic means:

- Focusing on final results of the overall complex of activities within the reforming programme, management mechanisms and resources available for the programme and enterprises.

Basic mechanisms:

- Mandatory use of methods and technologies of strategic management and results-based management technology for the enterprise and programme;
- Evaluation of all activities in terms of growth of financial results.

Task 2. Under the conditions of budget resources constraints, the basic gain in financial results should be obtained by improving the efficiency of use of available resources of enterprises and budgets at all levels, and first of all due to increase of efficiency of use of financial resources (profitability of the capital).

Basic means:

- Emphasis on effective implementation of innovations in order to increase financial and economic efficiency.

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Basic mechanisms:

- Adopting an approach to the activities of the enterprise as to business and not as to process of production; active development of technology of designing (engineering and re engineering) of optimum business processes and methods of taking of effective financial decisions;
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- Transition to innovation development, including establishment of a system for control of innovations, centres of innovation development at the enterprise, etc.
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Task 3. To ensure steady competitive development (including import substitution and exportability).

Basic means:

- Improvement of consumer qualities of products and efficiency of processes in all areas of economic activities.

Basic mechanisms:

- Process approach to the designing of all kinds of activities, to formulation of functions as well as of organizational structure of the enterprise;
- Establishment of effective systems of planning and quality control of products (customer orientation);
- Implementation of the patterns "innovation – its experimental realization - introduction of the quality standards " and creation of integrated quality systems in accordance with ISO 9000.

Task 4. To provide a high degree of a implementation of planned results of the Programme for restructuring of enterprises.

Basic means:

- Integrated provision of all means necessary for program implementation, while minimizing interface losses (between units of the enterprise), reducing technical and financial risks, etc.
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Basic mechanisms:

- Establishment of an integrated management system, end-to-end management by goal of sales, production, supply, finances and personnel;
- Development of a uniform complex of basic and auxiliary business processes and introduction of duty regulations and organizational structures for their realization;
- Target training of administrative teams for the implementation of business processes, from top to bottom management, and mastering of a set of technologies of effective teamwork by them, including modern technologies for project management and motivation of personnel.

3. Models and methods used

The methodology and practical experience of the reforming of 12 Russian enterprises (for example, experience of the consulting company "ROEL CONSULTING", (<http://www.roelconsult.ru/>)) are described in Refs. [2,3] and the set of the models and methods used - in Refs. [4,5,6].

The basic model of multicriteria optimization is the model of system optimization [Refs. 3,4] using a point of ideal and trajectory approach in the space of the criteria considered above (Table 1).

$$\{\Phi^{id}_l, \quad l = 1, 2, \dots, L\}$$

At the bottom level dynamic (period of time $t = \text{quarter}$) simulation models of financial flows (Cash Flow - CF) of a business unit ($Cf_i, i = 1, \dots, n$) and enterprises ($Cf_j, j = 1, \dots, n$) are considered [Ref. 6] and at the top level the budget Cf_0 of a city/town is dealt with. In the elementary case the model looks like (1-8).

$$CF_{0t} = \sum_{j=1}^n \beta_{j0} \Delta CF_{jt}, t = 1, 2, \dots, T \quad (1)$$

$$\Delta CF_{jt} = \sum_{i=1}^{nj} \alpha_{ij} \Delta F_{ijt}, \quad (2)$$

$$\Delta CF_{ijt} = S_{it} - C_{it}, \quad (3)$$

$$S_{it} = \min \{ S_{it}^0; (1 - \alpha_{ij})(1 + r)^{[T/\tau]} \cdot F_{0j} \} \quad (4)$$

$$\sum_{j=1}^{nj} F_{ij0} \leq F_{0j}, \quad (5)$$

$$CF_{it} = CF_{it-1} + \Delta F_{it}, \quad (6)$$

$$\Delta \Phi_{it} = \Phi_l(CF_{iT}) = \lambda \Phi_l^{id}, l = 1, 2, \dots, L \quad (7)$$

$$\lambda \rightarrow \max, \quad (8)$$

Here:

CF_{it} - cash flow,

S_{it} - receipts,

C_{it} - payments,

ΔCF_{it} - change (balance) in the period of t for a business unit i , $i = 1, 2, \dots, n_j$ for an enterprise j ;

α_{ij} - factor of deduction from a business unit i to the parent company j ,

β_{j0} - tax deductions from an enterprise j to the city/town budget.

In a case when C_i are variable expenses, ΔCF_j is close to marginal profit; if C_i are full expenses, the ΔCF_j corresponds to the profit before taxation. Criteria Φ_l are linear functions of CF_i and CF_j .

The basic management actions are:

- Distribution of the limited resources of enterprises F_{0j} , (and, probably, of the city/town reforming fund) among business units i ;
- Selection of factors of deductions (vertical movements of funds) α_{ij} and β_{j0} (characterizing the city/town tax credit).

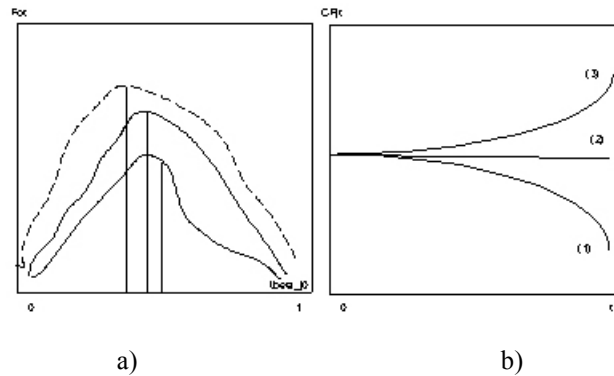


Figure 2

Research and parametrical calculations with various α_{ij} and β_{j0} show that there is an optimum set of values $\{\alpha_{ij}^*, \beta_{j0}^*\}$ with which the city/town, the enterprise and business units develop in a mutually advantageous manner at the maximum rate.

Figure 2a shows dependence of a profitable part of the budget at various β_{j0} .. (dependence of the profit of an enterprise on α_{ij} is of a similar character). We can see that there is an extremum β_{j0}^* which displaces with a change of profitability of the enterprise. Figure 2b gives various trajectories of CF_{jt} . in time at various values of "tax" factor β_{j0} . At high taxes (curve 1) the enterprise will be ruined, at boundary value it will keep its initial condition (2) and at optimum variant of the tax credit it will develop at a high rate (3).

The results of computation of the optimal values β_{j0} enable the tax policy to be determined for each enterprise j gainful both for the city and the enterprise.

Practical implementation of pilot programs started in 1999-2000.

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