

# The Model of Managing the Investment Attractiveness of Mobile Telecommunications Companies

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## Abstract

The article considers the approach to construction of hierarchies based on Saaty rating scale, the formation of the method of managing the investment attractiveness of mobile telecommunications companies. The model of managing the investment attractiveness of mobile telecommunications companies has been generated; The elements of the hierarchical model of managing the investment attractiveness of mobile telecommunications companies are distributed over the seven levels: the first level presents possible alternative factors of investment attractiveness of mobile telecommunications companies, the second level is represented by a set of evaluation criteria, the third level represents the interests of groups of individuals, the fourth level shows the levels of organizational maturity of companies, the fifth level shows the levels of profitability of mobile telecommunications companies, the sixth level represents directions of investment attractiveness of mobile telecommunications companies, the seventh level is the focus of hierarchy. Calculations have shown that the group of financial factors has the highest priority (0,553) in the model. Return on investments (ROI) has the highest priority (0,253) among the financial factors.

**Index Terms:** Analytic Hierarchy Process (AHP), Multicriteria optimization, Investment attractiveness, Balance of interests, Adaptivness.

## I. INTRODUCTION

The model of managing the investment attractiveness of mobile telecommunications companies is based on the challenges of calculating priority factors of the investment attractiveness by using analytic hierarchy process. The need to ensure competitive advantages of Russian telecommunications companies reinforced since recently, when that country has become a member of WTO. Managing the investment attractiveness of telecommunications companies could be considered as one of these advantages. Studying the managing of investment attractiveness of telecommunications companies is very important and topical task, which was carried out by different scientists like Krilov (2001), Blank (2005), Shmidt (1996) and others. The objective of this paper is to generate the model of managing the investment attractiveness of mobile telecommunications companies, which will take into account the balance of interests of individuals interested in enhancing the economic potential of the telecommunications companies.

## II. MAIN PART

There are many different multi-criteria decision making methods to evaluate a set of alternatives in terms of a number of criteria. Analytic hierarchy process (AHP) is the most demonstrative among them. The AHP - is a structured technique for organizing and analyzing complex decisions based on mathematics and psychology [1]. The Analytic

Hierarchy Process (AHP) is a theory of measurement through pairwise and relies on the judgments of experts to derive priority scales [2]. An AHP hierarchy is a structured means of modeling the decision at hand. It consists of overall goal, group of options or alternatives for reaching the goal, and group of factors or criteria that relate the alternatives to the goal. The criteria can be further broken down into sub-criteria, sub-sub-criteria, and so on. The number of levels is unlimited and depends just on requirements to resolve the challenge. The two most popular scales for pairwise comparisons matrix were proposed by Saaty and Lootsma. The Saaty scale is used in this paper, for a matrix of pairwise comparisons (Table I).

TABLE I  
THE SAATY RATING SCALE

Intensity of importance, rating	Definition and explanation
1	Equal importance: two factors contribute equally to the objective.
3	Somewhat more important: experience and judgment slightly favour one over another.
5	Much more important: experience and judgment strongly favour one over another.
7	Very much more important: experience and judgment very strongly favour one over another. Its importance has been demonstrated in practice.
9	Absolutely more important. the evidence of favoring one experience and judgment over another is of the highest possible validity.
2,4,6,8	Intermediate values: when compromise is needed .

The elements of the hierarchical model of investment attractiveness of telecommunications companies are distributed over the levels, which are described starting with low-level elements:

- The first level presents possible alternative factors of investment attractiveness of telecommunications companies.
- The second level is represented by a set of evaluation criteria.
- The third level represents the interests of groups of individuals.
- The fourth level shows the levels of organizational maturity of companies.
- The fifth level shows the levels of profitability of telecommunications companies.
- The sixth level represents directions of investment attractiveness of telecommunications companies.
- The seventh level is the focus of hierarchy i.e. priority-based distribution of the telecommunications companies' investment attractiveness factors.

The following aspects of PEST analysis have been selected as directions of the telecommunications companies' investment attractiveness: economic (E), social (S) and technological (T). The political aspect (P) of PEST-analysis was excluded from consideration in order to avoid its duplication on other levels of the hierarchy.

In the level of the balance of interests have been presented by the persons whose interests must be observed while distributing factors of telecommunications companies investment attractiveness by priorities. These include shareholders, owners, government, investors and society.

The following stages have been selected as the levels of organizational maturity: initial stage, repeatable stage, defined stage, managed stage, optimizing stage. An organizational model that describes five evolutionary stages (levels) in which an organization manages its processes is Capability Maturity Model (CMM) [3]. The definition for the stages of CMM are presented in Table II.

TABLE II  
CMM STAGES

Stage	Definition
Initial	processes are ad-hoc, chaotic, or actually few processes are defined
Repeatable	basic processes are established and there is a level of discipline to stick to these processes
Defined	all processes are defined, documented, standardized and integrated into each other
Managed	processes are measured by collecting detailed data on the processes and their quality
Optimizing	continuous process improvement is adopted and self-adaptation of the system

The return on investment (ROI), the payback period (PP), and the dividend yield (DY) were selected as financial factors: The number of highly qualified staff (NHS), the number of employees (NE) and the labor productivity (LP) were selected as HR factors. The numbers of implemented technologies (NIT), the frequency of staff development courses (FS), the quality of products or services (CS) were selected as innovative. The proximity to the necessary objects (P), the environmental conditions at the site (EC) were selected as location factors.

The hierarchical model of priorities-based distribution of telecommunications companies' investment attractiveness factors is presented on Fig. 1.

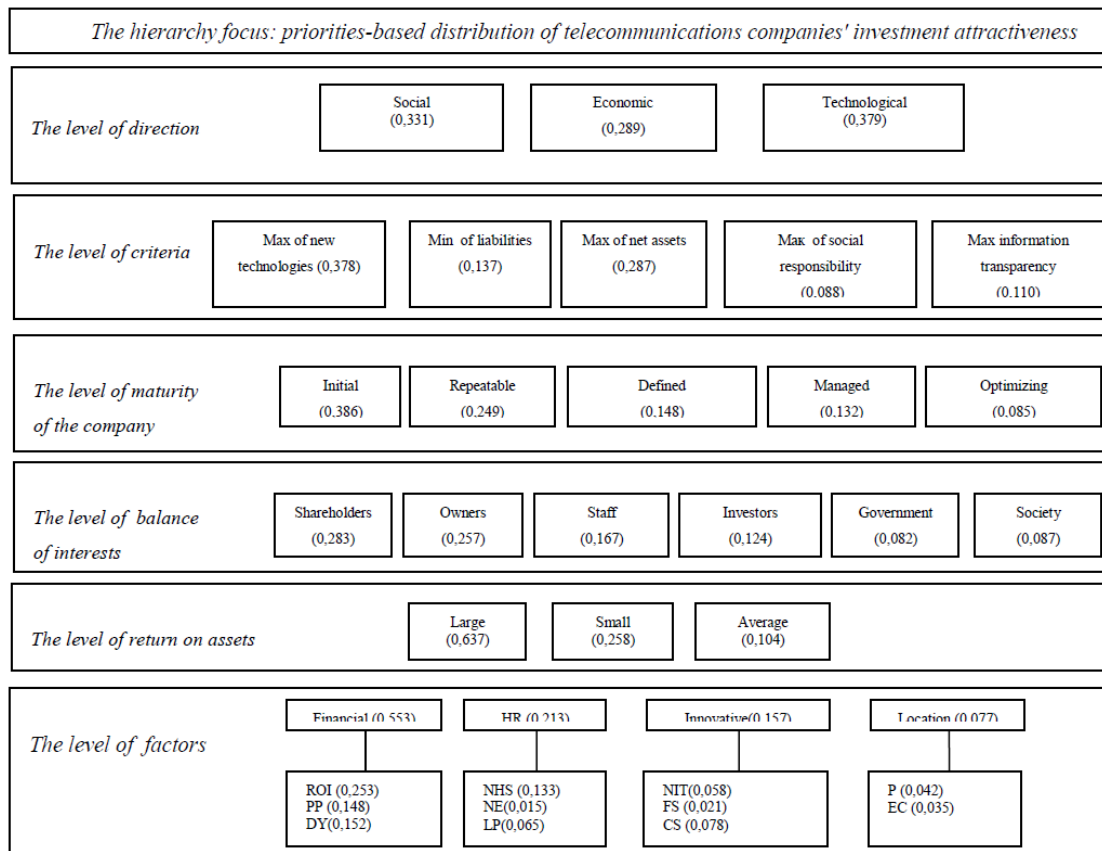


Fig. 1. Extended hierarchical model of managing telecommunications companies' investment attractiveness

### III. CONCLUSION

In this paper:

1. The model of the mobile telecommunications companies' investment attractiveness has been generated;

2. The factors of the telecommunications companies' investment attractiveness have been proposed;

3. Calculations have shown that the group of financial factors has the highest priority (0,553) in the model. Return on investments (ROI) has the highest priority (0,253) among the financial factors. So we could manage the investment attractiveness by increasing ROI;

4. The consistency ratio of the constructed hierarchy does not exceed 10%, which demonstrates possibility of using the results.

#### REFERENCES

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