Improvement of quality of housing-and-communal services management

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Abstract. The need of this research is determined by low quality of management at all the levels of the system of housing-and-communal services in Russia, insufficient study of specifics of management of this industry, and also by the need of the development of ways of the increase in management efficiency for the purpose of getting out of the crisis and providing further development. The author revealed some types of services, which are the most significant for consumers; defined their compliances to reference value; technical characteristics of the services quality on the basis of the use of the given model for the organizations rendering housing-and-communal services by the means of sociological poll. The matrix known as "House of Quality" is created for the assessment of the quality of the housing-and-communal services. The matrix and the carried-out analysis allowed the development of some recommendations on the improvement of management quality in the sphere. Results of the research can be used by the regional authorities in the Russian Federation and municipal authorities, when developing standard legal support, programmes of the development of housing, and also when choosing methods of assessing their management efficiency and developing measures to improve management quality.

1 Introduction

Nowadays, housing-and-communal services are one of the primary branches of the national economy of the Russian Federation; the need for its products and services is almost not limited. The need of research in this area is determined by poor quality of management at all the levels of the system of housing-and-communal services in Russia, insufficient study of specifics of management of the industry and also the need of the development of ways of the increase in management efficiency for the purpose of getting out of the crisis and providing further development of the industry. The development of the system of housing-and-communal services becomes impossible without the application of new forms, methods of management in the organizations. Therefore, the increase in management efficiency is a relevant and very significant matter, both for the theory, and for the practice of management in this sphere.

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Numerous works by Russian and foreign scientists are devoted to the issues of relationship of managing organizations and consumers in the sphere of housing-and-communal services, the set of statistical methods of the analysis of the results of the activity of the enterprises of the housing-and-communal complex is developed. The significant contribution to the research of quality and effective management of the enterprises and the organizations was made by foreign scientists D. Aaker, R. Akoff, I. Ansoff, P. Druker, H. Iosikhara, D. Mercer, T. Peters and R. Waterman, A.J. Strinklend and A. Thompson, F. Taylor, G. Mintsberg, G. Ford, G. Emerson, S. Young, and Russian: I.V. Bondarenko, V.A. Vinokurov, V.M. Kolpakov, V.I. Korolev, P.V. Magdanov, M.V. Melnik, A.G. Porshnev, B.A. Rayzberg, A. Svirina, etc. Works of Russian researchers V.V. Akimkin, S.I. Bazhenov, Sh.Z. Valiyev, I.V. Gentsler, S.N. Glazunov, P.G. Grabovy, L.V. Ivanenko, P.A. Kantor, S.I. Kruglik, A.A. Martynov, G.A. Nikolaev, V.P. Pilyavsky, O.V. Serdyuk, Yu.V. Slinyakova, V.N. Subbotina, M.A. Sycheva, V.Z. Chernyak, etc. are devoted to the problems of management in the sphere of housing-and-communal services [1, 2, 3, 4, 5].

Nevertheless, the matter of the assessment of quality of relationship with consumers and, in particular, measurement of the degree of their satisfaction with services demands carrying out an additional scientific research.

2 Methods

The following methods of the economic analysis were used in the work for obtaining the main results: system, structural and logical. Comparative, monographic, sociological poll, methods of expert estimates, economic-mathematical methods were also used.

The reaction of the consumer, which cannot have any direct quantitative assessment and which is shown as the set of objective and subjective parameters, becomes the main criteria for the evaluation of the quality of services. Thus, the assessment of services assumes the comparison by consumers of their personal expectations with the level of perception of its quality by them. Consumer expectations influence their satisfaction as they create the "standard" for further comparison and form one's opinion on the quality of services. The quality represents the suitability of a service for the achievement of its purposes from the point of view of the consumer [6]. The satisfaction with the quality of the rendered services will depend on the degree, in which they correspond to their value (according to the consumer). At the same time, the consumer imposes some specific requirements for each type of service (for housing-and-communal services they include uninterrupted operation, availability, acceptability of tariffs, safety).

The degree of compliance of this or that service to the subjective representations of consumers can be defined in several ways. Sociological poll can be one of the instruments of obtaining information on the compliance of services to the expectations and satisfaction of the consumers with the quality of services.

Therefore, the main objective of the management company is the definition of expectations of the consumers, connected with the quality of housing-and-communal services and the organization of works so that to reach satisfaction of these expectations [7].

One of the methods of the embodiment of expectations and requirements of consumers in concrete characteristics of quality is the QFD methodology (Quality Function Deployment, structuring function of quality) [8]. The technology of expansion of the functions of quality is an original Japanese methodology, which purpose is to guarantee quality from the very first stage of creation and development of a new product or service.

Fundamentals of QFD methodology is the creation of the figured matrix called "House of Quality" (according to the form) within which information on quality of a product or service and the decisions made is fixed (Fig.1).
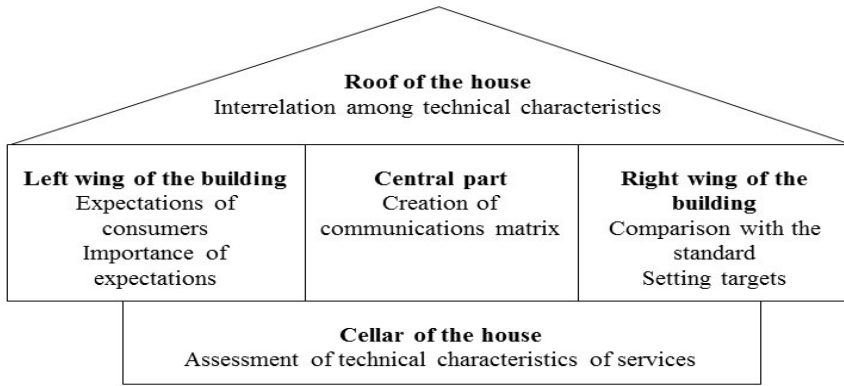
Fig. 1. Basic structure of "House of quality"

Expectations of consumers of services are formed in the left part of the matrix, quality of services is compared to the reference values in the right part. The central part of a matrix is the table which columns correspond to the technical characteristics of services, and lines correspond to consumers' requirements. In the top part of the matrix, the correlation among technical characteristics is noted, and in the lower part, the analysis of technical characteristics of competitors, and the assessment of absolute and relative importance are given.

The use of QFD methodology allows:
– establishing connection between the wishes of consumers and specifications containing requirements to the characteristics of services;
– defining interrelation between characteristics of services and their components;
– transforming characteristics of the process of rendering services to characteristics of the equipment and ways of control of technological operations of rendering services that will provide the high level of satisfaction of consumers.

3 Results

The research of the existing practice proved that QFD is widespread in such sectors as mechanical engineering, food and textile industry, trade, construction and also the industries connected with rendering different services. But examples of the use of QFD methodology in the housing sector is not found.

The author tried to apply QFD methodology for the housing sector. The purpose of the use of this methodology is the identification of the reserves of the improvement of quality of the rendered housing-and-communal services. The research was conducted using the example of managing company Vostochnaya Managing company in St. Petersburg (67 apartment houses).

The author suggests to carry out the expansion of functions of quality within QFD methodology according to the following stages:
– definition of the consumers' expectations;
– determination of comparative value of services;
– establishment of target values;
– description of technical characteristics of services;
– determination of interrelations among technical characteristics of services;
– creation of the matrix of communications;
– analysis of technical characteristics of services.

1. During the first stage, the definition of the consumers' expectations to the quality of housing-and-communal services was carried out by the means of questioning method. The questionnaire for the participant of the poll "Quality of the housing-and-communal services provided " contains the question "How Do You Estimate...":

1) condition of the adjoining territory (cleaning);
2) condition of the entrances (cleaning);
3) the maintenance of small architectural forms in the adjoining territory (benches, game shells, ballot boxes, etc.);
4) the carried-out maintenance of the common property of the apartment house (repair of the roof, facade, utilities, cellars, etc.);
5) quality of the provided service of cold water supply;
6) quality of the provided service of central heating;
7) condition of domestic lighting;
8) condition of lighting at entrances;
9) terms of response to applications and addresses of inhabitants;
10) terms of elimination of emergencies;
11) communication of employees of the housing-and-communal utilities with the inhabitants;
12) service of garbage removal;
13) utility tariffs on the compliance to the quality of the services rendered;
14) activity of the managing organization.

345 people were interviewed. As the result of the poll, main types of services, which are the most significant for consumers are revealed: they are good sanitary condition of the yard and entrances; well-arranged game and sports platforms; utilities; timely and high-quality repair of the common property; timely and high-quality garbage removal; quick response of the emergency service. These types of services were fixed in the left part of "House of quality".

2. During the stage of determination of comparative value of services, their quality is considered in the comparison of the managing organization and one or several competitors. It allows finding out if the rendered service is better or worse than analogs [9]. During this stage, the method of expert evaluations was used. The quality of services was estimated according to the five-point scale and compared to the reference services. Calculations are fixed in the right part of "House of quality". It is revealed that the sanitary state, improvement of game and sports platforms, repair and garbage removal concede to the reference value; that indicates potential opportunities of the improvement of these services.

3. During the stage of establishment of the project purposes, the values (in digital measurement) for each expectation of the consumers (characteristics) of services are defined. For those expectations (characteristics) of services which do not demand the improvement, the target values are established flush with the estimated values, which are available at the moment for these expectations [10, 11]. On the basis of certain target values, the relative sizes of the extent of the improvement of quality can be calculated (for each of the characteristics of services):

$$\text{Extent of improvement} = \text{target value} / \text{assessment of services} \qquad (1)$$

4. During the stage of the detailed description of technical characteristics of services, the author defined to what change of parameters (characteristics) of service various expectations of consumers can be executed (with the help of employees of the housing sector) [14].

5. 18 technical characteristics of the quality of the housing-and-communal services entered in the central table of the matrix "House of quality" were defined for the reviewed example (Table 1).

Table 1. Technical characteristics of the quality of housing-and-communal services

Characteristics	Characteristics
1 Frequency of cleaning of the domestic territory	10 Gas pressure in the apartment
2 Frequency of cleaning of common areas	11 Tension in the energy supply network in the apartment;
3 Time of the beginning of work of janitors	12 Number of annual general surveys
4 Share of serviceable small architectural forms (total)	13 Frequency of repair of the common property
5 Implementation of the schedule of survey and repair of small architectural forms	14 Implementation of the schedule of general meetings of inhabitants
6 Frequency of installation of new small architectural forms	15 Number of the scheduled preventive maintenance in a year
7 Pressure of cold water at the point of water separation	16 Frequency of garbage removal
8 Temperature of hot water at the point of water separation	17 Time from a call till the arrival of emergency service;
9 Air temperature in the apartments	18 Terms of elimination of an emergency

6. During the stage of filling of the matrix of communications, the force of influence of technical characteristics of services on the meeting the expectations of the consumers is studied (Table 2)

Table 2. The coefficients used for the description of the interrelation force

Interrelation force	strong	medium	weak
Weight coefficient	9	3	1

7. The last stage is the stage of determination of target values of technical characteristics of services. Target values are directly related with the improvement of technical characteristics of products, the which managers seek, therefore the teams of designers have continued to carry out these improvements.

4 Discussion

It is necessary to remind, that another approach to the assessment of the housing-and-communal services management quality is widely used in the domestic practice. Representatives of this approach (such authors as B. Rayzberg, V. Vinokurov, E. Luboshnikova, A. Svirina, N. Nelyubova, V. Kolpakov, etc.) define the management quality through the indicators of the enterprise activity efficiency. According to the classical scheme, the efficiency of the commercial enterprise activity is estimated as the ratio of profit and costs of production or services. The higher the profit per 1 ruble of expenses, the more effective the enterprise activity.

However, we consider that this indicator is inapplicable to the housing-and-communal services, as the main objective of housing-and-communal services management is providing the population with the greatest possible number of services of high quality at minimum prices. Therefore, the problem of the determination of housing-and-communal services management quality will consist in permission of the contradiction in understanding of the efficiency between producers and consumers of housing-and-communal services (Fig. 2).
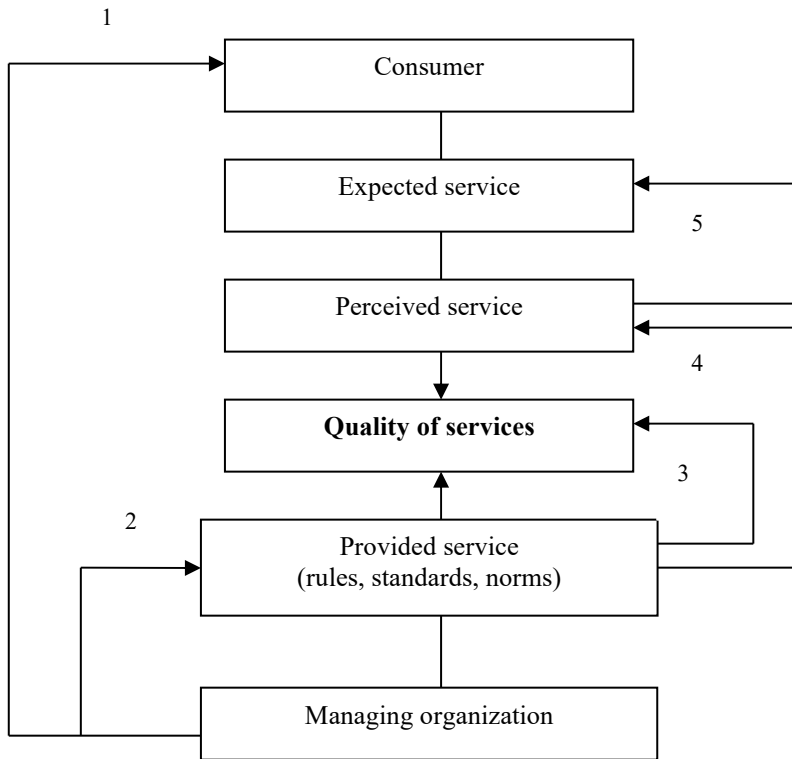
Fig. 2. Contradictions, arising in understanding of the efficiency between producers and consumers of housing-and-communal services

1 - managers of managing organizations do not know about the quality of service, inhabitants of apartment houses would like to obtain. Thus the contradiction arises between the expectations of residents and the idea of managers of these expectations. Superficially conducted market researches can be the reasons of such contradiction.

2 - the contradiction can arise because of establishment of the underestimated standards and standards of quality of services; managing organizations often underestimate the opportunities for quality achievement of services.

3 - the provided service upon is of poor quality. The reasons can be different: improper technology, discrepancy of the worker to the workplace taken by it, lack of control and motivation, poor organization of work, etc.

4 - the contradiction arises, when the provided service is perceived by the consumer as low-quality.

5 - the contradiction arises, when the perception of the provided service does not meet the expectations of the consumer. The approach, offered by the author, helps to resolve this contradiction.

5 Conclusion

Thus, as a result of the use of QFD methodology, the prior services provided by managing organization was revealed: frequency of repair of the common areas; sanitary condition of the yard; frequency of garbage removal.

The conducted researches allowed developing the following recommendations on the improvement of quality of services:

1. Because the expectation of the consumer of the service "sanitary condition of the yard and entrances" considerably concedes to the reference value, it is necessary to make efforts in this direction. Introduction of daily cleaning of the domestic territory and entrances, change of time of the beginning of work of janitors (at 2 o'clock earlier), obligatory signing of acts of the performed works by the seniors on the apartment house will allow to increase quality of this service. These measures will help to improve the quality of cleaning and will allow creating the positive relation to the work of housing-and-communal utilities;

2. The high-quality improvement of service "the arranged well game and sports platforms" requires to correct the schedule of repair of small architectural forms as available schedule does not allow containing all of them in the working and safe condition. It is necessary for the managing organization to introduce weekly control of the condition of small architectural forms and, if necessary, to correct the schedule of their repair;

3. Creation of the plan of maintenance not only for 1 year, but also for a long-term period, for 5 years will help to improve the service "timely and high-quality repair". Control of performance of works is to be imposed directly on the chief engineer of the managing organization and on the ultimate consumers of the service. This plan has to be agreed with the consumer, its performance or addition has to be considered at annual general meetings;

4. The improvement of "timely garbage removal" service is necessary to be regulated by the means of the change of "frequency of garbage removal" characteristic, which depends on the quantity of storeys of the apartment house, quantity of entrances, existence of outlets and the quantity of inhabitants in the apartment house; but anyway, there cannot be less than two times a day, i.e. 14 times a week. It is necessary to make the schedule of garbage removal (in coordination with the contract organization making export of large-size garbage and municipal solid waste), to conduct joint control of the schedule observance and to make recalculation in case of violation of the schedule.

Thus, some concrete recommendations for management companies can be offered for the improvement of quality of the provided housing-and-communal services with the use of QFD methodology. The QFD methodology is a flexible method of managerial decisions making that helps the organization to concentrate their attention on the most important characteristics of services from the point of view of consumers and thus to increase the quality of management.

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