Implementation of the Life Cycle Concept in Strategy Development of Oil Company

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Abstract: Paper indicates difficulties and methodological problems caused when using the traditional understanding of the organization’s life cycle with respect to the vertically integrated oil and gas companies. Authors propose the use of non-cybernetic typical presentation of complex oil and gas company structure. The importance of the system management level in the company is considered with respect to tracking the life cycles dynamics. The feasibility of accounting the "nesting" of life cycles on a basis of "life cycle of the deposit - the life cycle of enterprises - the life cycle of joint-stock companies" is determined. Emphasis is made on the need to take into account the fact that oil and gas company subsystems are interconnected within the process flow. The possibility of using a life cycle approach in the balance management of the oil and gas companies to construct the corporate portfolio strategies is stated. The results of testing the proposed methodical recommendations are shown on the example of JSC "Lukoil". Authors have developed a modified portfolio matrix "Status and development prospects - strategic importance". To assess the status and development prospects of each business unit, it is proposed to take into account a set of criteria: the assets growth rate, the rate of profits margin growth, capital expenditures dynamics and the growth rate in sales revenues. Field-specific appurtenance, role in the process flow, profits margin and share in the value of the company’s total assets are proposed as the criteria for the strategic importance of each business unit. The results of such interpretation are presented.

Key words: Life cycle %The corporate portfolio %Vertically-integrated oil companies

INTRODUCTION

Today the interest of Russian business towards the concept of organization’s life cycle is growing [1]. However, the practical implementation of the provisions of this concept is associated with a number of problems, most of which are caused by the fact that the basic laws governing the development of organizations at different stages of their existence within the framework of this concept, are identified on the basis of longitudinal studies of specific objects [2]. This implies the need for major adjustments in the methodological tools that take into account sectorial affiliation of the company, the features of its structure, etc.

The conventional understanding of the life cycle of organization is difficult to apply to a vertically integrated oil companies (VIOCs) having complicated structure and a pronounced sectorial specification. Strict adherence to the provisions of this concept can be observed only in specific geographical and sectorial divisions of the company. For example, when developing new oil and gas facility, the first phase will require significant investments into infrastructure and preparatory works. In the initial stages of hydrocarbons extraction, significant costs would be required to increase production capacity. The investments will be paid back when the facility is at full capacity and the production volume is stabilized. At the stage of declining production, decision is made either on smoothing the volume decline curve (use enhanced oil recovery methods) or the gradual decommissioning of activities (conservation of capacities and the reallocation of resources to other facilities) [3].

If the test object to consider is an oil company, then there is a serious methodological problem. On the one hand, in modern management theory, system-defined representation of the organization is an axiom. However,
when constructing the life cycle models, we cannot talk about the full implementation of the systematization principle. In life cycle theory the enterprise is considered as a conditional primary element of analysis, while the dynamics of its internal structure is not systematically studied.

The use of non-cybernetic typical representation of complex oil and gas structure, namely the aggregation-decomposition representation, allows us to talk about the complexity and heterogeneity of the internal environment of VIOCs (Fig. 1).

This requires taking into account the polydynamic principle which suggests that the different elements of the internal environment of an organization are characterized not only by its own specific activities, but also by its own evolution. The evolution rate varies and may not coincide with the terms of the organization performance in the market [5].

The level of system control at which is the test object or structural element of the company is of great importance to monitor the dynamics of the life cycles. Obviously, the upper (fundamental) level, which is usually not associated with a resource and market behavior and accumulates general conceptual framework bases and mental characteristics of a company in whole, has longer life cycle. In turn, functional (resource, technology, etc.) levels have a shorter life cycle, because the problems conditional to their existence are more specific and short-term. For example, the life cycle of hydrocarbon deposit is the determining factor for the life cycle duration of oil-producing company operating the deposit. However, their cycles will coincide if the project portfolio of the given company includes a single project. If there are other oil and gas facilities in the extraction or in the reserve, than the life cycle of the enterprise may be significantly adjusted by varying the order, the timing and implementation methods of these projects.

One feature of the VIOC is that the output signals of certain subsystems serve as input channels to the other systems [6]. If these subsystems are at different stages of the life cycle, there is a need to ensure a balance in their activities within a single process flow. Balance state, in turn, is achieved by the adoption of appropriate management solutions on transformation of company structure towards the increasing the production capacities up to the required level in the individual growing links or their reductions in the case of unused capacity in the stagnant parts of the system. The problem on providing the balance of the technological processes in VIOCs is at present quite acute [5, 7]. Studies show that the main bottleneck in their business is petroleum refining which is characterized by a high degree of obsolescence and
depreciation of fixed assets and requires significant financial investments into their modernization and reconstruction [8]. Against growing demand for petroleum products, the oil companies solve this problem in different ways. For example, in the accountings of JSC PC "LUKOIL" one may observe annual increase in rental costs of refining assets and the assets in the field of marketing of petroleum products abroad.

The multidimensionality of the proposed structural representation of vertically integrated companies suggests that the segmentation of the company activity can be carried out based on geographic principle as well. In this case, the various markets where the company is present, may also be at different stages of development. That is, there is a peculiar effect of "nesting of the life cycles" in the framework of the oil company: industry - market - economic entity. At that, within one business activity different markets may show different rate of evolution. In particular cases, specific geographic market outlets for the product may be at different stages of development. For example, the differences (development gap) in the requirements for the quality level of petroleum products at Russian markets, as compared with European markets, dictates to oil companies the need to take into account this factor when adjusting the implementation strategy of motor fuels [9].

A life cycle concept is used by oil companies to form portfolio strategies. At that, portfolio strategies of different companies vary quit strongly [10]. Some companies, adhering to the principle of social responsibility and being city-forming entities in certain regions keep in their structure "dying" elements for a long time, implementing a phase-based "harvesting" strategy (gradual conservation of capacities, outplacement, etc.). Others, however, with minor signs of recession in the development of a separate business unit or business segment, implement the withdrawing strategy from the structure (outsourcing) or liquidation [11]. Typically, in this way operate the companies with significant equity share of foreign participation. Segmental study of "LUKOIL", one of the major Russian vertically integrated oil companies, proved that the structure of the companies include elements that are at different stages of the life cycle, provided that a modified portfolio matrix [12] "Status and development perspectives - strategic importance" has been used in this study (Fig. 2).

The life cycle of each element in the structure of the oil company in the framework of given matrix is tracked by a complex criterion "Status and development prospects", which can be calculated based on performance indicators (growth rates of assets, implementation cost, capital costs, etc.). In this case, the factor of "Status and development prospects" is proposed instead of the factor "Level of company competency compared to the competitors", which is present in classical outsourcing BCG matrix. Such modification is conditioned by the goal of matrix construction. In this case, an internal analysis of business units is produced based on main operating and geographic segments in order to make appropriate solutions and to develop more effective business strategy. Factor of "Strategic importance" has remained unchanged and corresponds to the identical factor of the outsourcing matrix. This factor indicates how severe the consequences will result in case of exclusion of one or another business unit from the corporate portfolio.

To assess the status and prospects of each business unit development it is proposed to consider the following set of criteria: assets growth rate, the growth rate of return on assets, rate of profits margin growth, capital expenditures dynamics and the rate of revenue growth. These criteria are chosen not coincidently, as growth rate characterizes the change of some parameters in comparison with those in the reference period and this, in turn, allows one to determine the trend and development prospects of each business unit. At that, the boundary values of the criteria are justified individually for each research object (of the oil company).

C Exploration and production in Western Siberia
C Exploration and production in the European part of Russia
C Exploration and production abroad
C Refining, commercial business and distribution in Western Siberia
C Refining, commercial business and distribution in the European part of Russia
C Refining, commercial business and distribution abroad
C Petrochemicals in West Siberia
C Petrochemicals in the European part of Russia
C Petrochemicals abroad
C Other activities in Western Siberia
C Other activities abroad
C Other activities in the European part of Russia

The results of this analysis conducted in the context of the integrated business segments are rather conditional, since the evolutionary processes are constantly taking place in the segments [5]. Thus, in exploration and production segment in Western Siberia,
which is approaching the stage of the recession, lately there has been a structural transformation in the form of geographical diversification of production capacities in the West Siberian region (the shift of central resource production to Yamal) and centered diversification of the production (reorientation from oil extraction to gas output).

Thus, if we combine the concept of life-cycle of organization with aggregation-decomposition representation of complex oil and gas structure, than the implementation of the noted concept is represented as a complex transformation of multi-level polysegment pyramid of its internal environment as a whole, taking into account the fact that each level and the structural element has its own transformation rate. The concept of the life cycle, in turn, serves the basis for the formation of oil companies’ development strategies. Its use allows us to solve key issues such as ensuring balanced technology processes, portfolio management of strategic business units in terms of the geographic and product viewpoints, taking into account synergy effects when implementing the principle of "life cycles nesting".

REFERENCES


