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Development of Management System of Manufacturing Companies on the Basis of Management Accounting Elements

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Abstract: The present article examines the methods of the planning system improvement under the manufacturing companies management and suggests the strategic aspects of communicational network creation for further implementation of effective management. The suite of performance evaluations of quality and productivity of control over the processes of development in manufacturing company is given in the present work. The function which formalizes the dependence of effectivenes of special management functions of manufacturing companies implementation and their resulting developmental indexes are set in the Conclusion to the present article.

Key words: Management · Manufacturing company · Productivity · Effectiveness

INTRODUCTION

The improvement of processes of manufacturing organization management on the basis of management accounting on a modern stage allows us to solve the problem of economic entities positioning in the changing external environment more effectively which is especially actual for the Russian manufacturing companies operating in unbalanced economical system under the conditions of surplus economy development the impact of which will become stronger due to the entrance of the Russian Federation into the World Trade Organization.

The key direction of such improvement shall be the increase in flexibility and adaptivity of main, supporting and management processes implemented by the manufacturing company, which, in its turn, expects the necessity to use the diversified data base developed within the frames of management accounting system and used for readjustment of management mechanism of manufacturing economic entities as internal and external environments change. As consequence we can state that the increase of effectiveness of control over manufacturing companies is greatly defined by the quality of information support of management processes.

The implementation of approach to manufacturing company management on the basis of the balanced management accounting usage will ensure the creation of favourable conditions for the effective development of domestic industrial economic entities in the strategic outlook, which meets the requirements for the future development of progressive dynamics of the national socio-economy system.

RESULTS

The undertaken study of specifics of manufacturing companies' management shows that in the modern economic environment the rational management of such organizations and companies assumes the necessity to combine the current management approaches in the management system development. The performed analysis of the Russian manufacturing companies' activity has shown that nowadays the concept of operations' management under the management value chain is the most priority-oriented approach to the rational organization of tactical management in the examined sphere from the point of effectivization of the company's activity. This concept assumes the consistent implementation of coordination and cooperation stages, common investments into technologies, design and development of organizational processes, creation of resources' provision and structural management and the development of organizational culture and communicational relationships of the company. The second important priority-oriented approach is the concept of the network planning. These two approaches

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shall be combined under the algorithm of management for the purposes of effectivization and increase in quality of the manufacturing companies' management processes.

Thus, the construction of network diagram of the manufacturing company development project realization must be implemented in the form of the following actions:

- The development of comprehensive set of measures focused on achievement of the project goals formed in view of special functions of management (production, marketing, supply activity, logistics, distribution, finances, accounting, human resources management, etc.) with the measures classifying on the value chain elements of the manufacturing company products' development;
- The development of coordination and integration mechanisms which allow to adjust the rational consistency, as well as the opportunity of parallel realization of arrangements formed at the first stage at their implementation at different manufacturing companies in the frames of the value chain;
- The identification of demands for investment resource and structure in view of special management functions implementation under the performance of the comprehensive set of measures developed at the first stage which are focused on achievement of tactical goals of manufacturing company's development in the frames of the value chain. At this stage the re-projecting of separate measures set at the first stage can be performed in case of lack of sufficient investment resource required for their implementation;
- The development of organizational structure of management over the comprehensive set of measures implementation in view of special management functions which is formed with due regard to the current communicational networks of the value chain elements interaction. At this stage the re-projection of separate measures set at the first stage can also be performed in case of failure to formalize the organizational connections required for their performance;
- The identification of demands for resources' provision of separate measures focused on achievement of tactical goals of manufacturing company's development under the value chain in view of special management functions implementation. At this stage the re-projection of separate measures set at the first stage can be performed in case of lack of sufficient resources required for their implementation;
- The development of the network of organizational processes of management of comprehensive set of measures on manufacturing company development project realization formed and adjusted at the previous stages. At this stage the abovementioned set of measures can also be adjusted with due regard to possibility of assurance of reliability of the respective organizational connections;
- The construction of network graphic of manufacturing company's development realization based on the PERT technologies' usage as the most corresponding to the current level of dynamics and environmental uncertainty; and the development of time-response characteristics system which further will be used by the manufacturing company management within the frames of the concept of management account implementation.

The implementation of the proposed algorithm allows us to consider the peculiar properties of functioning and development of manufacturing companies, as well as to design the management system that corresponds to the requirements of external and internal environment, including the management account block.

The qualitative analysis of state and dynamics of communicational system development made in frames of the present research on the base of data on 28 manufacturing companies of the Republic of Tatarstan (including 12 small, 11 medium-sized and 5 large companies) allows us to indentify the higher-priority types of manufacturing communicational networks. If during the process of production field (its units) organization the prevailing type of motivation does not exceed the limits, the higher-priority communicational network then will be the network of "home" type which assumes the equal value of horizontal and vertical communications and does not create the conditions for any leader appearing. In situation when the prevailing motivation is the professional motivation, the higher-priority type of communicational networks in this case will be the "A-type circle" as the closest one to the adhocracy form of management organization. However, in case the companies with professional or instrumental core also have the considerable number of people with the "avoid-type" of motivation, the higher-priority type of communicational networks then will be the "star" where the employee with the prevailing professional/ instrumental motivation stands in the very center of such communicational network.

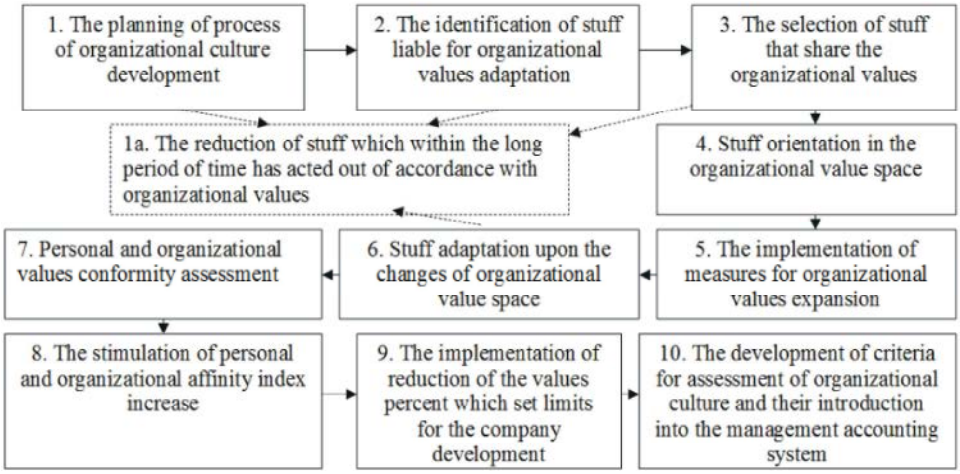

Fig. 1: The scheme of control over the process of formation of the company corporate culture

In case the prevailing type of motivation in manufacturing organization is the motivation of instrumental, professional or patriotic type, but along with this it has the employees with proprietary type of motivation, the higher-priority communicational structure then will be the "B type circle" system of communication where the core of the structure is the person with the proprietary type of motivation. As the empirical analysis shows, such systems have the minimal number of people with the "avoid-type" of motivation. Subsequently, the prevailing of people with patriotic motivation necessitates the development of the "tent" type communicational network which assumes the horizontal communications at upper levels of communications where the employees with the higher-priority professional or instrumental motivation (or proprietary, if such employees exist) shall be united by such horizontal communicational relationships [5]. And finally, in case of prevailing of people with the "avoid-type" of motivation, the singular effective communicational network will be the network of "canvas" type which does not assume any horizontal communication upon condition of its development as a part of effective feedback system.

The implementation of the introduced approach to development of communicational network allows us to minimize the informational losses during realization of key, secondary and management processes of manufacturing companies' development, as well as to provide the rational operation of management account system on the base of adequacy of information providing.

The development of organizational culture of manufacturing company management that corresponds to the target purposes of economic entities development, the management of which is based on information usage aggregated under the frames of the management account is one of the key conditions for its development ensuring. It is possible to solve this problem only upon a condition of implementation of exact and consecutive actions on development and further correction of the company's culture which was formed under the present researches on the base of analysis of empirical data on operation and development of manufacturing companies in the Republic of Tatarstan, as well as on the basis of the content-analysis of existing researches concerning this issue (Fig. 1).

As we can see from the Figure given above, in case when it's impossible to provide the disjunction of the company's values by the stuff (such problem can be diagnosed at the 1st, 2nd, 3rd and 6th stages), the rational method of impact onto the development of organizational culture in this case will be the reduction of the respective number of stuff which is a desired measure in event of failure to implement the effective impact onto the employees. In case the need in reduction of the stuff does not arise, the comprehensive set of measures of impact onto the development and modification of organizational culture according to the target goals of the manufacturing company shall be implemented. At the final stage of the single cycle of the organizational culture development the indicators of its state (the affinity index of personal and organizational values and the share of the company's development limiting values) shall be included into the management account system and in case of any significant declensions of these indicators from the planned ones the organizational culture of the manufacturing company shall be corrected.

Table 1: Suite of performance evaluations of quality and productivity of control over the processes of development in manufacturing company

Function	Index	Correlation ratio	Recommendation for including into the management accounting system
1	2	3	4
Manufacture	The period of business inventories turnover, days	-0.8214	To use unrestrictedly
	The period of incomplete production turnover, days	-0.7861	To use unrestrictedly
	Level of defect, %	-0.6422	To use in undefined environment
	Operational cycle time rate of growth, %	-0.6808	To use in dynamic environment
Marketing	Index of consumers' loyalty, %	+0.7111	To use in dynamic environment
	The ratio of reclamation of non-effective advertising, %	-0.5624	To use in undefined environment
	The company market share, %	+0.8749	To use unrestrictedly
Supply activity	The share of defect of delivered materials, raw material and constitutive elements, %	-0.8637	To use unrestrictedly
	Index of suppliers' stability, %	+0.6280	To use in undefined environment
	The period of loan payable turnover, days	-0.5412	To use in undefined environment
Logistics	Share of financial resources irreparable losses in logistics processes, %	-0.6391	To use in undefined environment
	Share of timing budgets loss in logistics processes, %	-0.7184	To use in dynamic environment
	The manufacture downtime due to logistics reasons, days	-0.8302	To use unrestrictedly
Distribution	Share of long-link chains supply, %	+0.5415	To use in undefined environment
	The period of final goods turnover, days	-0.9108	To use unrestrictedly
	The period of account receivables turnover, days	-0.7631	To use unrestrictedly
Finances	The financial cycle length rate of growth, %	-0.9362	To use unrestrictedly
	Current liquidity ratio, share	+0.5147	To use in undefined environment
	Total Debt to Equity, share	+0.6932	To use in dynamic environment
Human resources management	The key manufacturing stuff working productivity, RUB/person	+0.9612	To use unrestrictedly
	Turnover rate of personnel of the company, %	-0.8904	To use unrestrictedly
	Index of personnel satisfaction, %	+0.7427	To use in dynamic environment
	Share of working time loss of manufacturing stuff, %	-0.6525	To use in undefined environment
	Share of working time loss of non-manufacturing stuff, %	-0.7029	To use in dynamic environment

The analysis of estimation of the manufacturing company's management effectiveness made in the thesis work allowed us to indentify that in the current conditions it is more reasonable to make the estimation of the management system with the use of criteria of productivity, effectiveness and management quality in view of special management functions. The selection of estimated figures which characterize the performance of exact functions was made basing on results of the paired correlation analysis with the use of the Peterson pair correlation coefficient under which the level of estimated figure dependence and effectiveness value of the company's activity in the respective sphere were given and moreover the total list of figures has included all criteria with the correlation coefficient above 55% (*i.e*. the medium level of the figures' dependence). The complex of indicators of effectiveness and quality of the manufacturing companies' development management are given below in Table 1.

The level of correlation presented above in Table 1 determines not only the reasonability of respective indicator inclusion into the management account system of indicators, but also the level of relevancy of their changes. Correspondently, the higher the correlation coefficient is, the lower change in the respective indicator will bt considered as considerable and will signalize about the necessity to change the key, secondary and management processes of the manufacturing company development.

CONCLUSIONS

The analysis of dependence of effectiveness of the special management functions of manufacturing companies implementation and resulting figures of their development made according to the method of multiply regression has shown us that such dependence also exists in case of formalization of impact of effectiveness indicators and quality of special management functions implementation onto the resulting figure of profitability according to the EBITDA which can be represented as follows:

$$P_{EBITDA} = -9{,}0135 + 0{,}7988 P_{pp} - 0{,}1067\, I_{cl} - 12{,}7978\, I_{ss} + 0{,}1071\, D_{llch} - 0{,}4337\, P_{cs} + 0{,}0391\, K_{cl} + 0{,}0223 SLP,$$

where,

- P_{pp} – Production profitability, %;
- I_{cl} – Index of manufacturing company consumer loyalty, share;
- I_{ss} – Index of stability of manufacturing company's suppliers, share;
- D_{llch} – Average share of joint resource losses in logistics chains, %;
- P_{cs} – Profitability of manufacturing company's sales, %;
- K_{cl} – Current liquidity ratio of manufacturing company, share;
- SLP – Manufacturing company's stuff labour productiveness, RUB/person.

The use of such model the certainty of which is approved by the high determination coefficient (0.8458) allows us to make a forecast concerning the level of earning power of the manufacturing company before the taxes, interest and accumulated amortization payment.

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