

BSC methodology for determining strategy of manufacturing enterprises of SME sector

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ABSTRACT

Purpose: The main issue of this paper is to present a modern way of determining business strategy with a use of Balanced Scorecard methodology (BSC) integrated with ERP/MRP rank systems for managing manufacturing companies.

Design/methodology/approach: The paper presents assumptions, aims and ways of implementation of Balanced Scorecard on a background of classic manufacturing company management.

Findings: A present state of software development produced for strategic company management as well as proposals of ways and directions of its development for SME sector was introduced in this paper.

Research limitations/implications: Further researches should be concentrated on particularising of so-called scorecard of manufacturing company.

Practical implications: The paper presents an example of a needs analyse which is necessary to be performed during a process of choosing one of ERP/MRP rank computer system for manufacturing company service.

Originality/value: The paper might be useful for person dealing with modern techniques of manufacturing company management.

Keywords: Production and operations management; Balanced Scorecard; ERP/MRP

1. Introduction

Present economic situation requires from companies an activity in an environment of very high competition and rivalry. It becomes harder and harder to win new clients and to keep those already gained for a longer period. Clients needs should be followed continuously and a company has to be ready to solve in a short time period any problems which can appear in a sale process.

It is also necessary to forecast situations that might appear in future and to be prepared for them. To be up to this requirements it is necessary to make use of up-to-date business tools and modern methods of manufacturing company management as well as continuously analyse economic and market situation.

Since most of companies has already been using less or more advanced computing systems to run their services it is not possible to build one's advantage on a fact of possessing such system. These systems allow for organizing in a very good way current, basic operational processes. They also make possible to store and process big amounts of data.

Thanks to this, on a base of accumulated data it is possible to run analysis of existing events. Unfortunately basic level analysis it is definitely insufficient for a company to develop and strengthen its market position. At present times it is necessary to own a specialized ERP/MRP systems which are using modern methods of strategic management [1-8].

Together with BI solutions they make possible in-depth analysis, forecasting of events that may happen in future and earlier planning of actions and processes. Only such activities will allow company for maximum usage of economic boom and on the other hand it will minimize negative factors that appear in the least expected situations.

It concerns especially manufacturing companies within which conditions of sharp competition are existing. That's why it is indispensable to practically use modern methods of strategic management thanks to which it is available to perform analysis of current situation, company resources and surrounding environment as well as to determine development directions.

2. Traditional methods of strategic management

There are existing many classic methods within a strategic management. Some of the most known examples are [9-13]: (i) ADL Matrix; (ii) Hofer-Schendl Matrix; (iii) McKinsey Matrix; (iv) BCG Method; (v) CCF Method; (vi) SPACE Method; (vii) EVA; (viii) EFQM; (ix) Six Sigma; (x) TQM.

They are contained not only within computer systems but also in procedures of company internal affair circulation. In this way they allow for implementing modern management model. They also help to make employees on all levels aware about their importance in a casual work of whole company. They also assist the leading personnel and central management in outlining proper aims and long-term company strategy as well as they help decision-makers to take decisions on a base of reliable circumstances.

Unfortunately practical use of those methods requires applying of strategic management analytical applications. This systems use series of information stored during an operational activities and next on its base they enable forecasting, defining of business strategies, activities planning and studying of its effects.

At present only complex computing systems possesses tools and modules which in a low or high degree enable strategic management. Because of high licence costs such systems are only available for big manufacturing companies.

Unfortunately smaller systems dedicated for small and medium enterprises (SME) usually do not possess tools for strategic management. It means in practice, that such enterprises do not have a possibility of using modern strategic management methods. That is why it is necessary to develop IT systems within ERP/MRP systems which will head towards introducing and integrating tools for defining business strategies and studying effects of its usage.

3. Modern Balanced Scorecard method

A concept of Balanced Scorecard (BSC) is one of the newest methods of strategic management. First book edited by Robert S. Kaplan and David P. Norton, authors of this method, was published quite recently in year 1996 [14]. In spite of this within a short time period the method gained a world wide publicity and currently it experiences extremely intensive development.

Properly used, for example in ERP/MRP rank systems, it benefits companies with measurable effects. The BSC idea

assumes that an abstract vision of company development can be changed into multilevel action strategy and into measurement of its application effectiveness with a various measures.

A combination of current and forecasting ratios set on a base of four perspectives (customers, financial, processes and development) will enable to a leading personnel not only information about current company situation but also instantly evaluate whether the company development heads into a designed direction. The customer perspective seeks for a source of actual market position and investigates customers satisfaction level. The finances perspective examines present, complex financial status of a company. The processes perspective determine the activities with the highest effectiveness. And finally the development perspective investigates company readiness for applying an innovative changes. As distinct from traditional methods which base on analysis of current and historical data, BSC first of all concentrates on achieving assumed aims in future and enables measurements of "intangible" events in company in order to effectively plan the company growth. In that case from the BSC point of view it is very important to correctly draw up a set of ratios gathered in so-called scorecard that will be adjusted to individual company situation.

4. Management supporting computer systems

Current state analyze of company management systems from the strategic management point of view was carried out for currently the largest system producers in Poland.

On the faith of IDG Poland report [15] it can be stated that out of all the companies which source their revenues in selling licenses of management supporting systems, 90% of the market share belongs to only 10 companies. Based on authors' own research it can be concluded that only four of them (SAP, Oracle, IFS, Microsoft) offer in their systems the integrated solutions from the domain of modern strategic management. SAP Poland offers a dedicated solution SAP SEM which is a group of strategic management modules based on BSC. Oracle Poland offers OBSC (Oracle Balanced Scorecard). IFS Poland offers IFS Scorecard system. Microsoft Poland, since 2005, offers Microsoft Office Business Scorecard Manager 2005.

Small number of offered solutions isn't anything special when noticed that run by BSC authors Balanced Scorecard Collaborative enterprise which determine BSC standards and gives certificates of appropriateness to a companies producing suitable software granted it to only 23 companies on a whole world. It is worth to notice that a licence cost of each system offered in Poland amounts few dozens of thousands of US dollars.

For the cheapest ones, offered by Microsoft, an amount of 5 up to 30 thousand US dollars has to be paid for a single licence. It turns out that only big manufacturing companies are able to implement new solutions. An additional problem with its spreading might be a fact that, as it was mentioned earlier, companies has already invested in basic analytical tools and ERP/MRP systems and now they reluctantly agree for new investment in spite of its undoubted advantages.

5. Necessity of cooperation between manufacturing and IT companies

Taking into consideration the above presented high costs of implementation of prepared solutions, it seems that the only possibility for manufacturing companies from the SME sector that want to own a system supporting strategic management is to cooperate with an experienced software producer in order to create an additional module for the already existing ERP/MRP system.

Therefore the authors suggested a model of behaviour for such companies, which can be helpful in performing an analysis as well as making a detailed specification of requirements for the future BSC module. At the very beginning the requirements of the future module must be specified. Most importantly, it must be remembered that such integration is indispensable as such, because strategic management module must be feed with real data from ERP/MRP systems. This is the only way of access to complex information, automation of controlling and improvement of financial reporting. Apart from chain of classical software producing process on beginning of which there is always place for needs analyze both sides (manufacture and IT producer) must be aware of ordered software specification and of necessity of taking into consideration:

- additional criteria considered within four BSC perspectives because of not typical issues occurring in manufacturing companies or because of individual company situation;
- connections between strategic simulation and operational planning;
- possibilities of acquiring and using by module business information also from atypical sources (e.g. internet portals);
- accessible form of display of strategic management results desirable in a graphic form;
- possibilities of building within a module a graphic of causes and results connections in a form of a tree;
- possibilities to define aims (for realization), indicators and measurements of effects (quantitative and qualitative);
- possibilities of automatic generation of plans which are supposed to be realized;
- possibilities of determining strategy with a BSC method as well as other methods (mentioned above);
- possibilities of generalizing data delivered from many strategic management methods in a form of general grouped measures (it will be so-called global ratios).

Estimations prove that disregarding last two point, costs of production of individual software by a polish producer will be several times lower than costs of a prepared system offered by western producers. One of the most important element in a work on a new model is to draw up essential ratios which are necessary for a proper implementation of strategic management methods and a way of its interpretation with help of so-called "Control Centre". "Control Centre" it is a tool which will present in a synthetic graphic or table form analysis results and values of critical measures enabling quick evaluation and interpretation (Fig. 1). As it was already mentioned, arduous but crucial element, lying on a BSC foundations, of work on a strategic management model is to determine quantity and quality indications of four often "intangible" perspectives. Illustrative indicators are suggested below.

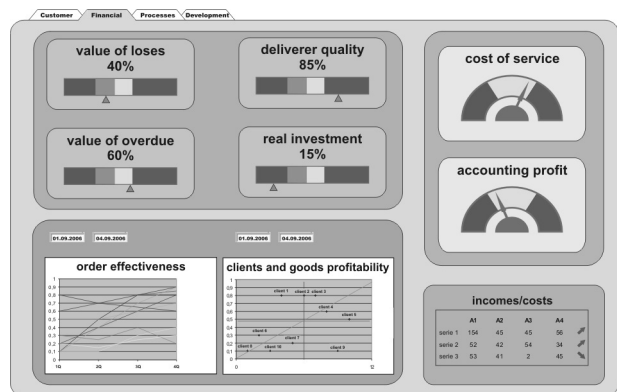


Fig. 1. Project of the BSC "Control Centre": financial perspective

6. BSC perspectives for companies

Each company should determine its own aims and measures connected within an area of its activity. Some examples of such preliminary analysis for SME company are presented below.

Customer Perspective. The customer perspective should help to keep the clients that are already serviced by the company. Additionally, it should support a process of acquiring new customers. These both activities have to take place within an acceptable and monitored cost levels. Therefore the main aims of customer perspective are:

- acquiring new customers;
- improvement of current customer service;
- reducing customer service costs.

In order to check whether activities undertaken in this directions are effective some ratios that will allow for quick and reliable evaluation should be determined. Here are some examples of such indicators:

- amount of customers that was win over in a time periods;
- total and detailed orders value of individual customers in defined report periods;
- number and value of lost orders analysed in a time periods and customer groups;
- factor of customer satisfaction from provision of services;
- factor of customer value (necessary to apply a customer segmentation which prepares client service process to their specification and needs).

Financial Perspective. This perspective concentrates on researches and analysis of economical company aspects. Of course it should take place within a several levels which will penetrate one another. They should concern on accountant issues, production processes, cash flows or operational activities that give direct profits. Here are some examples of such aims:

- order-effectiveness study;
- designation of goods and customers that bring the highest profits and losses;
- extension of company capital;
- extension of company profitability.

According to mentioned aims investigation of example indicators can be performed:

- cost of medium order service;
- value of losses on a ground of lost orders;
- clients and goods profitability factor;
- deliverer quality ratio and comparison of incomes and costs;
- ratios of planned/real investment income in a time periods;
- cash flow and company accounting profit.

Internal Business Processes Perspective. Within the processes perspective attention should be concentrated on data flow ergonomics improvements, information, documentation and extension of work efficiency with decreased cost level. It may concern a direct costs of operating activities service as well as labour costs and costs of organizing human resources work. In this context aims may be introduced as follows:

- improvement of customer orders data flow;
- optimization of internal processes connected with client;
- optimization of warehouse resources.

Following ratios might be use to measure the achievement level of appointed aims:

- time of order realization counted from the moment of ordering to the moment of commodity collection by customer;
- awaiting time for realization of particular production stages;
- number of employees participating in production stages;
- mean time of awaiting for delivery;
- indicators allowing for draw up of logistic limits;
- indicators of goods circulation in warehouse in correlation with needs for goods generated by customers.

Learning and Growth Perspective. Company development perspective is usually the most individualized area in all enterprises. Also here several levels can be distinguished. The most basic one is connected with understanding the company as an economical unit functioning on a market and heading for achieving the best financial results. The others, check possibilities of putting the company on a place of a leader in his branch which will enable to dictate directions of development and to determine standards (in a sense of valid quality norms). There should be also considered a level which will include employees development, their qualification rise and growth of satisfaction from work. Example of aims to achieve:

- extension of service territory range;
 - increase of labour efficiency through investment into new technologies and devices;
 - rise of company market superiority;
 - gaining new and keeping present high-qualified workers.
- Assessment of presented aims can be performed on a base of examination of such ratios:
- factors of costs/profits from performed marketing campaigns;
 - volume of new foreign customers in a defined time periods;
 - differences of department's work consumption, processes, operations of new technologies and devices implementation;
 - costs of goods import;
- standardized company position with reference to competition.

7. Summary

The development of existing systems for the management of manufacturing companies presently heads into a close integration

of modern strategic management solutions with a ERP/MRP software. Currently offered, expensive systems contain solutions suited for large enterprises. At the same time SME sector is deprived of offers designated for this segment. Therefore this article presents the necessity to create a module based on the BSC method which would support management of companies from the SME sector. The article presented a method for acting when a company from the SME sector commissions the production of a suitable BSC module which is integrated with an ERP/MRP system. The article also suggests an illustrative set of BSC strategic indicators as a result of which the company's owners can gain an instant picture of the company's condition as well as the direction of it's development.

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