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STRATEGIC MANAGEMENT ACCOUNTING FOR PROJECTS – FROM COST TO VALUE

Summary: The main aim of this paper is to present the development of strategic management accounting for projects and project-oriented organizations. Such issues as the evolution from operational towards strategic project management accounting and from cost calculation and budgeting towards measuring project value for key stakeholders is discussed. As the results of the literature review show, value measurement is applied in the most popular methods of project strategic management accounting.

Keywords: project, management accounting, value measurement.

1. Introduction

Changes in business environment, such as globalization, high competition, speed of new technological developments, increasing social expectations, etc., have given rise to the simultaneous changes in projects and project-oriented organizations. Nowadays projects are more complex ventures; more often their goals are unclear; the alterations in scope or schedule are continuous; and their risk is increasing. In contemporary project management, project success is considered not only from the perspective of the well-known time-scope-budget triangle, but rather from the perspective of the ability of value creation for project stakeholders [Shenhar et al. 2001; Kerzner, Saladis 2009]. Value creation seems to be the crucial element of defining project success.¹ Thus, the measurement of the value created for various stakeholders, owners, customers, team members, suppliers, business partners, etc., is in the centre of interests of contemporary management accounting for projects. Moreover, this measurement process has to be extended towards measuring relations among projects in the company portfolio, comprising the multitude of stakeholders' expectations, and including potential value to be created in the future.

The purpose of this paper is to demonstrate how the complex and multidimensional value generated by a project for various stakeholders can be translated into

¹ A definition of project value can be found in Łada, Kozarkiewicz [2010, Chapter 1].

numbers through the application of selected methods of strategic management accounting. The paper is based on the results of a literature review. The discussion presented in the paper is focused on new approaches to project value measurement in the most popular strategic management accounting methods.

2. Strategic project management accounting

Monetary measurement, predominant in accounting, is oriented on the correct assessment of the value created for owners, and this is also reflected in the traditional management accounting approaches used by the managers of project organizations. Project budgeting, project cost calculations, project profitability assessments are based on computing a selected financial measures that constitutes a key criterion for taking project-related decisions. However, a new look at measuring the successes of an organization has forced an evolution of this approach. New methods of management accounting for projects are increasingly more often based on integrated measurement performed from the perspective of various stakeholders. Single-criterion analysis based on financial indicators is being replaced by multi-criteria assessments that combine financial and non-financial measures of business. The inclusion of stakeholders' expectations requires an extension of measurement beyond the activities of a project organization, the usage of new forms of describing existing relationships as well as the introduction of clear rules for conflict resolution aiming at meeting the expectations of individual stakeholders.

Indisputably, the expansion of the scope of measurement in management accounting is associated with the development of methods grouped under the so-called "strategic management accounting". At first, it was associated with the need to measure, in addition to the current financial situation of an organization, factors creating its permanent competitive advantage. Over subsequent years, however, the way how it is perceived has been evolving together with the development of new concepts of strategic management [Dixon 1998]. In addition to the so-called "competition accounting", many new methods have appeared and have been denominated as customer accounting, environmental accounting or open-book accounting [Roslender, Hart 2003]. Nowadays, strategic management accounting is defined generally as a group of accounting methods that provide financial and non-financial information to support the strategic management of organizations. Such information is used in the process of strategy definition, but also in the stage of implementation and strategic control [Shank, Govindarajan 1993; Nowak 2008]. As strategic management accounting and operational management accounting become strictly interlinked at this second stage, it makes it difficult to draw their clear boundaries.

The range of methods classified as strategic management accounting is very extended [Nita 2008]. At present, the most popular methods include strategy maps and the Balanced Scorecard, target costing, lifecycle costing, value chain or network profitability analysis and open-book accounting. All these methods share a single

common feature: they convey a suggested visualization of the close relationship between seeking to meet the financial requirements of owners and the need to take into account the expectations and objectives of key partners: direct and indirect customers or suppliers.

The methods of strategic management accounting mentioned earlier are used successfully in project activities [Łada, Kozarkiewicz 2007; Łada, Kozarkiewicz 2010]. The approach to organization's activities which they propose is so universal that you can use these methods to present repeatable activities and projects in a consistent way. The usefulness of strategic project management accounting methods should also be associated with the very strong position of customers and trading partners in the process of project implementation.

Strategic project management accounting system is created in a project-oriented organization by using methods that allow creating an image of multi-dimensional relations with key stakeholders. Moreover, strategic project management accounting has to be focused on the peculiarity, uniqueness and individuality of projects. To depict the methods of strategic management accounting for projects, the following characteristics have to be underlined:

1. orientation towards organization's survival and long-term success;
2. long-term analysis horizon;
3. creating a picture of organization's relations with stakeholders;
4. total project value measurement;
5. focus on key aspects of operations;
6. striving for the correct definition of performance criteria;
7. analysis based on unclear cause-and-effect relationships;
8. ad hoc use of correctly selected methods.

The scope of management accounting methods which are or can be used to support strategic project management is constantly expanding. In the following chapter, there are six, most popular methods chosen and presented. The proposed methods are the examples of how the new approach towards success perception can be translated into the quantification process to be realized in the practise of project-oriented organizations.

3. Selected methods of strategic management accounting for projects

3.1. The Balanced Scorecard and strategy maps

The group of instruments of strategic management accounting in which the measurement of the value created and provided to many stakeholders was observed and discussed at the earliest is the systems of performance measurement. Nowadays, the most popular instrument of performance measuring is the Balanced Scorecard. It is a modern system built on the basis of a set of measures constructed according

to company's vision and strategy, and as a rule it combines different perspectives of company evaluation, ensures balance between short- and long-term goals, financial and non-financial measures, rates describing past and future, and between objective (easy to quantify) and subjective measures [Kaplan, Norton 1996]. With some simplification, it can be concluded that the Balanced Scorecard is a list of measures connected with the realization of company's strategic targets expressed in four perspectives: financial, customer, internal business processes, and learning and grow. In each of these perspectives the strategic goals are decomposed into detailed targets and monitored with the use of measures, which allows determining if a strategy is realized according to adopted assumptions.

In the first years of popularizing the BSC, its authors mainly concentrated on presenting its role in the process of strategy implementation. The usefulness of the BSC was indicated as the basic instrument ensuring a better adjustment of an operational activity to a strategy, but the role of the BSC in the process of establishing a strategy was not so much emphasized. This problem was dealt in a few years later by means of the concept of strategy maps [Kaplan, Norton 2004]. Strategy maps are diagrams showing the links between key assumptions of organization's strategy. The key, strategic factors are analogically grouped as in the case of the Balanced Scorecard. Each perspective represents a different aspect of the established strategy – the financial perspective defines the success of an organization connected with aiming at fulfilling owners satisfaction by a long-term value increase. The customer perspective determines the proposition of the value which an organization would like to provide to the chosen target group of customers. The internal perspective indicates processes of providing the assumed value for customers. Finally, the perspective of learning and grow focuses on the way that allows people, technologies and organizational culture to support strategy realization in the long term.

In the case of project performance measurement, we can notice similar – to the ones described earlier – tendencies towards the creation of systems connecting different perspectives. The financial measures still play the primary role, as it is hard to ignore the significance of recording and measuring project costs, revenue, margin and determining the profitability of project activities. Currently, it is also necessary to use non-financial measures for project evaluation, which inform about relations with a customer, novelty of created products as well as about the development of employee skills and knowledge. The project evaluation includes measures enabling comparison with competition, the assessment of project influence on the environment or the creation of a competitive position.

The BSC and strategy maps are regarded as important methods of strategic project management accounting clearly focused on various stakeholders [Milis, Mercken 2004; Norrie, Walter 2004]. The purpose of the financial perspective of the BSC is to ensure and measure the value creation for owners. The introduction of the customer perspective provides this group of stakeholders with a significant role – this perspective aims at measuring the value provided to a customer, and the value which

a customer provides to an organization. In the next perspectives, the role of other stakeholders is taken into consideration, e.g., satisfaction and engagement of project teams appear as necessary factors for further development, and cooperation with business partners and suppliers is a condition of operational performance efficiency.

The BSC expands the measurement of a value as it allows not only for the analysis of synergy and compromises in value creation, but also for the analysis of cause and effect relations between individual components of the value provided for stakeholders. Moreover, the BCS and strategy maps constitute instruments which not only expand the measurement outside the organization and allow including the relations between creation of the value for different stakeholders, but they also offer a measurement of a potential generated by an organization. The learning and growing perspective is the answer to the challenges relating to the necessity of measuring knowledge and relations, conditioning the further development of a company.

3.2. Life cycle costing

Life cycle costing (LCC) is one of the modern concepts of management accounting, mainly relating to products, but easily applicable in the case of projects, technologies, companies and whole sectors. The costs in life cycle costing are the overall costs of all undertaken activities, i.e., the analysis is not completed at the moment of sales when the revenue is generated, but it also includes warranties, supply of spare parts, customer service, and disposal of packaging, etc.

Life cycle costing can be clearly referred to projects – the life cycle of a project includes all related activities: from identification of a need for implementing a project and establishing its concept to the project completion in the form of disassembly or disposal [Woodward 1997]. In the case of the projects realized for external customers, the end of the life cycle of a project is the beginning of a life cycle of the product of the project, which is realized at the customer's facility. In the case of internal projects, the life cycle of a project product relates to the project executor. Consequently, life cycle costing can be conducted in three perspectives:

1. in the perspective of the product of a project just as it is, without including the place of cost generation, by analyzing and adding the costs incurred from the initial phases connected, e.g., with acquiring raw material to the disassembly and disposal of all product remains and its packaging;

2. in the perspective of the project executor, i.e., including the costs incurred by the company realizing a project, starting from costs of concept creation phases, research studies, preparing resources, through the costs of usage and sales to the costs of in-warranty repairs and post-sales service;

3. in the perspective of the customer-user, i.e., analysing costs of installation, exploitation, repairs and maintenance, liquidation and disposal of waste.

The project life cycle costing allows for the cost analysis with reference to individual phases of a project life cycle or with reference to individual activities undertaken within the frames of a project.

The life cycle costing of a project allows for the measurement of the values generated for various stakeholders, including owners (sponsors) and customers. It develops the measurement outside the frames of a project itself and outside the organization realizing a project. It allows searching for a balance between stakeholders expectations, i.e., for a compromise in value creation. Life cycle costing is an exemplary tool of strategic project management accounting, which develops the scope of analysis and cost measurement outside the frames of the organization realizing a project: depending on the adopted perspective of making such costing it includes the costs incurred by manufacturers of materials or subassemblies, or the costs incurred by customers due to the purchase, usage and disposal of a project product. Life cycle costing also takes advantage of value co-creation. Including the costs of external entities which are closer (e.g., suppliers of subassemblies) or further in the value chain (e.g., agents) it allows determining the level of their influence on the final value for a customer.

3.3. Target costing

Target costing is a type of decision calculus supporting the process of product design, and its essence is the reduction of product cost in such a way that it enables a company to fulfil the requirements of its owners as well as the expectations of its customers. The target costing supports the process of product design with information on the planned cost of its production and supply to customers – it is a method focused on the determination of costs, which when incurred ensure the manufacturing of the planned product having adequate quality and functionality and which sale for the assumed price shall ensure the desired level of profitability [Cooper, Slagmulder 1997].

In general, the proposed procedure of such costing assumes that the starting point of product design is the determination of a target price which consumers are willing to pay for a product. The second starting point of target costs analysis is the determination of a profit margin which an organization would like to acquire from the sales of a product. The target cost of a product is calculated as follows: target selling price minus target margin equals to target cost of a product. This simple formula providing the target cost of a product constitutes only an introduction to numerous simulations aiming at a reliable determination of anticipated costs of a product and its value for customers with different, considered design preferences.

Indisputably, target costing is an important method of strategic project management accounting. Due to the role which the target costing plays in the shaping of the value for a customer at the stage of product design, and owing to the transparent procedure of searching for a compromise between the value of a product and its cost, this solution can be applied successfully in the case of the products acquired as a result of certain projects. In project management, the basic project characteristics are described as scope, time and quality, which in a broader sense can be described

as the product value for a consumer. The strict connection between the scope, time and quality of a project and its cost constitutes the basis for project analysis in the target costing.

Target costing is an important method of strategic management accounting of projects which assumes simultaneous application of analyses relating to different financial and non-financial aspects of project products and of expectations of different stakeholders: owners, customers, and often suppliers of materials or subassemblies. This costing method develops the measurement of the value outside a project and outside an organization. The idea of searching for a compromise in creating a value results from the essence of target costing. In this method, the calculated, target level of the project product price is determined as a result of the expectations of customers and owners, and is not a result of internal assumptions adopted by designers.

3.4. Value chain costing and profitability analysis

The value chain reflects the determined economic path and can be analyzed in various perspectives: an individual sector as a link in the value chain of economy, each company in an individual sector as a link of a chain made of suppliers, a company itself and its recipients, internal activities within a company as links that create values for a customer.

There are two major types of analysis in strategic management accounting: the analysis of external and internal value chain. The external value chain is perceived as a group of companies engaged in all the stages of the product life cycle – from acquiring the raw material till recycling – and an individual company constitutes a link of such a chain and is connected with suppliers, suppliers of the suppliers, recipients, recipients of the recipients, etc. The internal value chain means a set of primary and support activities realized in a company, and, as a result of those activities, the value for a customer is created [Porter 1985].

In modern strategic management accounting, the analyses made within the frames of the system of the value chain include various alternatives: the basis of the analysis can be the external or the internal value chain, and the specific subject can be the analysis of costs, revenue or profitability.

The value chain analysis can be applied effectively in the project activity. In the strategic management accounting of projects, we can use both the analysis of costs and profitability, and the subject of analysis can be the set of linked entities (suppliers, recipients of project products), as well as the set of primary and support activities of a project.

The profitability analysis conducted within the frames of the external value chain is an instrument for value decomposition, which constitutes another example of the extension of application of traditional management accounting from one entity to many cooperating organizations. The extension of measurement is also strictly connected with the concept of value co-creation by related companies. The decom-

position of revenue, acquired from target customers, into individual organizations allows evaluating in detail how a value is created.

The analysis of the internal value chain is also an instrument for value decomposition, in which case the object that is a subject to decomposition is individual activities connected with the realization of a project. The analysis of costs and values includes both the value for owners, as well as the value for customers, but the starting point is the value created for customers, and there are places (activities) indicated in which the value is generated or is subject to destruction. The analysis of costs and profitability within the frames of the value chain allows understanding and improving internal process of creating project values.

3.5. Open-book accounting

The term “open-book accounting” does not reflect any specific instrument or procedure of management accounting, but it rather describes a certain approach towards the usage of accounting data for the purposes of management of relations between independent but related (in terms of cooperation) organizations [Łada 2009]. Open-book accounting is defined as a strategy that leads towards co-operation between firms situated in a supply chain, and this information is used to influence the flow of products and services between the firms in question [Mouritsen, Hansen, Hansen 2001, p. 225]. It should not be assumed that the partners are provided with all accounting data, however. The scope of submitted information should be clearly defined and adequate to the planned purposes of cooperation. Moreover, the scope of exchanged information is often broader than the accounting data and relates also to such issues as, e.g., production capacity, technologies used or opinions on customer expectations.

Open-book accounting can be applied in the project activity – the unique and individual character of project products makes it prepared and realized with reference to specific needs of a customer, and this requires strict cooperation of a project executor and customer at the stage of developing a project concept. The assumption is as follows: the recipient (project sponsor) should cover all the costs of a project through product price, thus the determination of project value for a customer should be connected with cost analysis.

Indisputably, open-book accounting is based on the concept of value co-creation and synergy of value. The demand for management information exchange and joint activities in order to improve the efficiency of the whole network constitutes a natural consequence of the assumption that the value for a target customer is not only shaped by an individual organization. The joint effort leading to the acquisition of the determined effects requires adequate management tools at the level of business networks. Regardless of whether management at this level is a centralized system with a network integrator or a dispersed system of individual, direct partners, it is necessary to acquire a reliable accounting data collected from many business entities.

Table 1. Measuring value for stakeholders in selected methods of strategic project management accounting

Methods	Value creation and its measurement
The Balanced Scorecard and strategy maps	<p>The BSC and strategy maps are focused on various stakeholders. The purpose of the financial perspective is to measure the value creation for owners. The customer perspective aims at measuring the value provided to a customer, and the value which a customer provides to an organization. In the next perspectives, the role of other stakeholders, such as project team members or suppliers, could be taken into consideration.</p> <p>The BSC expands the measurement of value: it allows for the analysis of synergy and compromises in value creation as well as the analysis of cause and effect relations between individual components of the value provided for stakeholders.</p> <p>The BCS and strategy maps are instruments which expand the measurement outside an organization and offer a measurement of the potential generated by an organization. The learning and grow perspective allows measuring knowledge and relations conditioning the further development of a company</p>
Life cycle costing	<p>The life cycle costing of a project allows for the measurement of the values generated for various stakeholders, including owners (sponsors) and customers. It allows searching for a balance between stakeholders expectations, i.e., for a compromise in value creation.</p> <p>It develops the measurement outside the frames of a project itself and outside the organization realizing a project; depending on the perspective adopted, it includes the costs incurred by manufacturers of materials or subassemblies, or the costs incurred by customers due to the purchase, usage and disposal of project products.</p> <p>Life cycle costing also takes advantage of value co-creation. Including the costs of external entities which are closer (e.g., suppliers) or further in the value chain (e.g., agents) allows determining the level of their influence on the final value for a customer</p>
Target costing	<p>Target costing assumes simultaneous application of analyses relating to different financial and non-financial aspects of project products and of the expectations of different stakeholders: owners, customers, and often suppliers of materials or subassemblies.</p> <p>It develops the measurement of the value outside a project and outside an organization.</p> <p>The idea of searching for a compromise in creating value results from the essence of target costing: target level of project product price is determined as a result of expectations of customers and owners, and is not a result of assumptions adopted by designers</p>
Value chain costing and profitability analysis	<p>The profitability analysis conducted within the frames of the external value chain is an instrument for value decomposition and constitutes an example of the extension of application of traditional management accounting from one entity to many cooperating organizations. The extension of measurement is strictly connected with the concept of value co-creation by related companies. The decomposition of revenue, acquired from target customers, into individual organizations allows evaluating in detail how value is created.</p> <p>The analysis of internal value chain is an instrument for value decomposition; in this case the objects are individual activities connected with the realization of a project. The analysis of costs and values includes both the value for owners as well as the value for customers, but the starting point is the value created for customers, and there are places (activities) indicated in which the value is generated or is subject to destruction.</p> <p>The analysis of costs and profitability within the frames of value chain allows understanding and improving internal process of creating project values</p>
Open-book accounting	<p>The open-book accounting is based on the concept of value co-creation and synergy of value. The demand for management information exchange and joint activities in order to improve the efficiency of the whole network is a natural consequence of the assumption that the value for a target customer is not only shaped by an individual organization. The joint effort leading to the acquisition of the determined effects requires adequate management tools at the level of business networks</p>

Source: authors' own study.

The instruments of project management accounting described in Table 1 are the selected examples illustrating the new approach towards value measurement. The strategy maps and the Balanced Scorecard are the examples of the customized and ordered formulation of a set of success evaluation criteria and a new graphical method of visualizing their relations. Life cycle and target costing illustrate the possibility of the application of different models used for visualization of the striving for meeting customer expectations. The profitability analysis in value chains or networks as well as the open-book accounting represent methods enabling the creation of one image of a situation of many organizations and their common analysis. The comparison of these instruments from the point of the most important characteristics of measuring value for stakeholders is demonstrated in Table 1. Although these methods do not exhaust the whole potential for strategic management accounting, they clearly present the common rule of their construction – the translation of strategic values into accounting numbers.

4. Implementation of strategic project management accounting methods

The practical application of the methods of strategic project management accounting provides project managers with new collections of information. The qualitative and quantitative data are internally generated by application of certain calculation methods, as well as they are acquired externally from the organization's environment. Apart from the traditionally processed financial data relating to the planned and actual project results, the strategic management of projects also includes the analysis of information connected with the activity of the most important stakeholders, long-term goals and organization's plans, key barriers and threats to development, etc.

It is not easy to determine a recommended scope of strategic management accounting. The most popular methods are based on certain value measurement models, which not always have to fully reflect the expectations of individual project stakeholders. The proper selection of a method depends on its adjustment to the specific character of the expectations of external partners co-participating in the analyzed projects or being influenced by their effects.

The potential scope of used accounting information is very broad: from forecasts relating to market situation, through financial models of activity of chosen stakeholders, to strategic performance measurement system for individual projects. However, practical barriers connected with their application are significant here. The most important include the problem of reliability and costs of acquiring information. The data used for strategic purposes mainly relate to the distant future, which makes them difficult to be determined and results in a limited trust in the analyses prepared on their basis. This is also a result of information asymmetry occurring between a project organization and its stakeholders and its reduction through acquiring external information requires the engagement of additional resources and generates

costs. The barriers of effective way to provide information are also connected with managers. Their qualifications, ability to perceive a certain form and amount of data, preferences towards certain strategic analysis and frequency of their conducting constitute a significant limitation of the scope of information usage.

Owing to the indicated limitations, in practice the methods of strategic management accounting are used in a very diverse scope, not always by management accounting specialists, and with the application of many non-formal calculation methods named in a way different from the terms used in reference books. However, the described organizational issues do not influence the potential which the application of the presented methods has for the practical implementation in project-oriented organizations.

5. Final remarks

Contemporary management accounting offers a wide range of methods that can be used for the purpose of strategic project management. The main characteristics of these methods is the focus on the measurement of the complex and multidimensional value that projects deliver to their stakeholders. Practical application of these methods extends the scope of information available to managers from traditional data on project cost to numbers depicting project value.

The process of adjusting and implementing these methods as well as combining them into a consistent information system is complicated; however, the advantages of looking at a project from stakeholders' perspective, beyond one project and far into the future, provide an incentive to learn opportunities offered by strategic project management accounting.

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STRATEGICZNA RACHUNKOWOŚĆ ZARZĄDCZA PROJEKTÓW – OD KOSZTÓW DO WARTOŚCI

Streszczenie: Celem artykułu jest przedstawienie rozwoju strategicznej rachunkowości zarządczej projektów. W artykule przedyskutowano problemy ewolucji od operacyjnej do strategicznej rachunkowości zarządczej projektów, czyli od kalkulacji kosztów i budżetowania do pomiaru wartości projektu dla jego kluczowych interesariuszy. Jak wykazał przegląd literatury przedmiotu, pomiar wartości jest stosowany w najpopularniejszych metodach strategicznej rachunkowości zarządczej projektów.

Słowa kluczowe: projekt, rachunkowość zarządcza, pomiar wartości.