

MODEL OF CROSS-ENTITY MANAGEMENT ACCOUNTING SYSTEM IN AGRIBUSINESS ENTITIES

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Abstract

This paper reveals a model of cross-entity management accounting, which is new to the Russian economy. It discusses the peculiarities of cross-entity accounting implementation by the agribusiness sector entities. It proposes a mechanism and document tools of analytical information exchange among entities using a variety of calculation systems. Launching a model of a cross-entity management accounting system in agribusiness practices takes entities to a state-of-the-art level of cooperation and interaction, thus allowing competitive positions in the agricultural product market to be consolidated.

Keywords: management accounting, open-book accounting, target profit, analytical maps, cross-entity relationship.

JEL code: M41, Q01

Introduction

In the current economic environment, almost every business implements new accounting and analysis systems to improve the efficiency of its managerial efforts. Agribusiness has a special role to play in Russia's economy and covers all branches of national economy. Since agribusiness is a complicated system built around several backbone enterprises, its management accounting system should give due regard to the strategic peculiarities of the entire sector in general and every single entity. Therefore, partnering entities increasingly often leverage cross-entity relationship in a variety of forms to gain strategic advantages. Cross-entity relationships manifest themselves in various forms of cooperation between/among independent entities. When companies cooperate and hence, to a certain extent, tailor their activities and resources to each other's needs and requirements, they become closely interconnected. In general, the development of cross-company connections may be described as growth in awareness of partners' activity and understanding of how companies interact with each of their most critical partners (Voronova, 2011).

Cross-entity management accounting is a promising method of coordinating the efforts of manufacturers, suppliers, and buyers aimed at optimising and reducing all types of costs resulting from their interactions.

Main part

The existing management accounting practices in Russian agribusiness do not fully conform to the rapidly changing economic environment in today's world and tightening competition. With this in mind, we have developed a model of a cross-entity management accounting system, which is adjusted for the current realities of economic relationships and

agribusiness-specific functioning and production aspects of entities. The authors' model of the cross-entity management accounting system is shown in Figure 1.

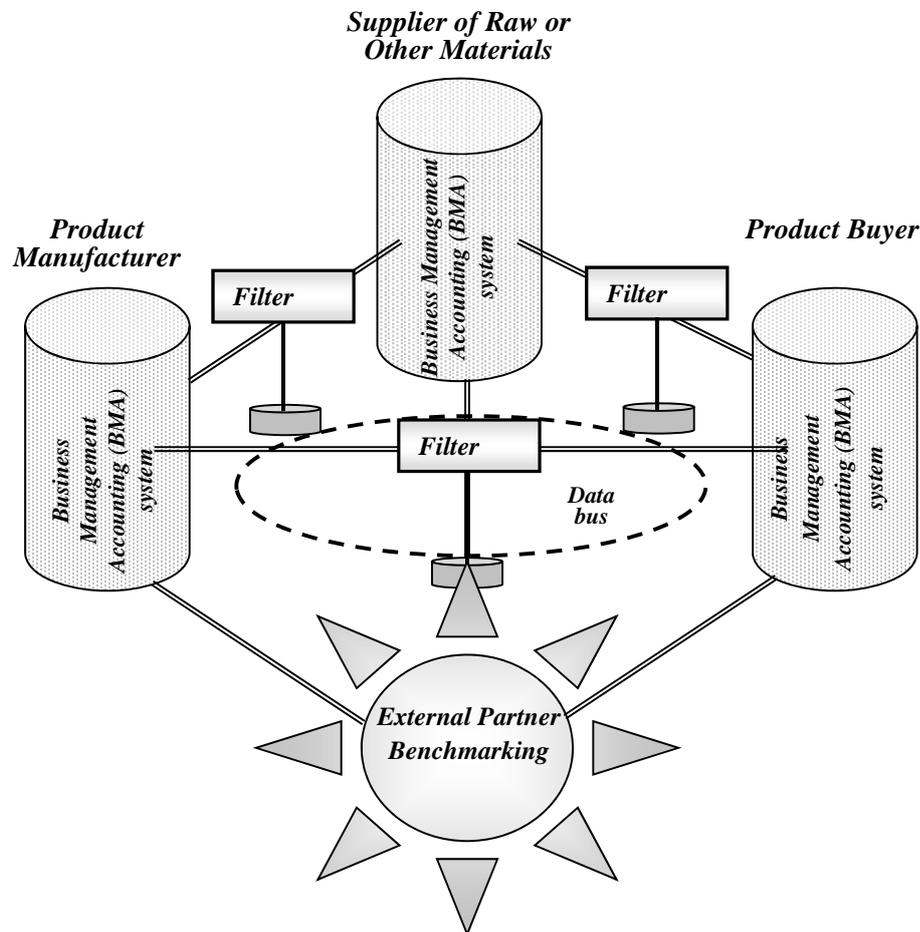


Figure 1. Model of cross-entity management accounting system (authors' development)

This system involves three entities (more or less entities may be involved in cross-entity relationship) in a business relationship. The entity categorised as Supplier of Raw or Other Materials is in the business of manufacturing agricultural products, which are subsequently processed by the entity classified as Product Manufacturer; the latter, accordingly, transforms them into finished products and semi-finished products.

The manufacturing entity sells its wholesale products to the entity classified as Product Buyer, which, in turn, sells them through a retail chain. Overall, this is a typical model of business relationship. However, the management accounting system is a non-typical element, which goes beyond the ordinary perception of the model.

As mentioned above, such cooperation requires new approaches to the accounting and analysis systems supporting these entities. Currently, management accounting data constitutes trade secrets and may not be disclosed to either business partners or competitors. Yet this rule is partly breached in the cross-entity management accounting system. Entities in a business relationship also join their efforts as part of mutual cooperation aimed at building a cross-entity management accounting system. In this type of union, each entity retains its own local management accounting, although sharing analytical data retrieved therefrom with two more participants in a

cross-entity relationship. Naturally, each entity installs a data filter in an attempt to protect itself. The three entities agree on the terms and goals of interaction, decide on the analytical data to be shared, enter into non-disclosure agreements, and determine penalties (Katkov, 2012).

The homogeneity and similarity of management accounting systems used by each of the three entities is critical to this relationship model. Possible options include building structurally identical (in certain aspects) accounting policies for management accounting purposes and using identical control accounts. This is necessitated by both cross-system integration of information and the feasibility of implementing development strategies with respect to management processes and entities in general. The key goals of such interaction are to optimise activity within cooperation, cut down all types of costs, ensure long-term cooperation, and sustainable development of entities amid ever-changing internal and external factors.

Each entity, from its own perspectives, assesses both its own activities and those of its partners, devises and adjusts the strategy of local and general development. Overall, it is important for entities to determine the level of their mutual transparency and be willing to have an open dialogue on pricing policy and business optimisation. Such interaction among suppliers, manufacturers, and wholesalers will result in the analysis of the end buyer market segments, as well as external and internal environment (the results of analysis will be shared by all players), thus ultimately ensuring the survival of these entities amid ever-changing market environment.

The model of cross-entity management accounting in question contains one more analytical element called "External Partner Benchmarking."

The concept of benchmarking is fairly new to the Russian economy and may be defined as continuous measurement and comparison of any given business process with the benchmark process of the leading entity for information gathering purposes, which information will help the enterprise in question to set the goal of its improvement and implement performance improvement activities (Andersen, 2003). In Japan and the United States, benchmarking programmes are open in nature. Their development is supported by the government. It is believed that national economy in general benefits from such interchange of experience.

External Partner Benchmarking is carried out by several companies or businesses that enter into an agreement for the joint comparative studies of each participant's activities with the aim of rendering mutual assistance for the sake of further successful development. Such agreements may be entered into by enterprises either in different fields or in the same field, in other words, the competitors. In our example, the three entities in a cross-entity relationship jointly study the business around them. This allows entities to collect the information, which may be necessary to optimise their internal activity.

The international practices of partner benchmarking show that even occasional comparative studies bring absolute benefits to all those involved. That said, regular comparative studies allow entities to develop steadily. Consequently, partner benchmarking supplements the cross-entity management accounting system, making it more analytical, reasonable, and effective.

In cross-entity management accounting, comprehensive analysis may involve a variety of entities' key performance indicators (e.g., the Balanced Scorecard by R. Kaplan and D. Norton (1996)). Cross-entity management accounting will also contribute to reducing price disparity between agribusiness products and the production sector. Yet the main advantage of such cooperation is synergistic effect: the combined production and financial performance of entities is higher than would have been achieved by each working separately.

Cross-entity management accounting gives rise to new accounting practices in this field (Khoruzhy, 2004):

- cross-entity cost management;

- open-book accounting;
- value chain accounting;
- use of integrated information systems;
- total cost of ownership.

As we see it, cross-entity cost management and open-book accounting are the easiest approaches to implement accounting and analysis methods in the context of agribusiness entities.

So, let us look at an example of implementation of cross-entity management accounting based on the direct costing system, which is fairly well-known and common in Russia; the principal ideas of direct costing were formulated as early as 1936 by American economist D.Ch. Harrison (Harrison, 1933). Instead of open-book accounting (Kulmala, 2002) we will build "analytical maps", which use a similar principle. The direct costing system allows promptly solving a number of management problems and pursuing an effective pricing policy.

Example. We will implement cross-entity management accounting by building analytical maps as applicable to poultry farm X. Entity X makes two types of products: hen's eggs and poultry meat. Consequently, in our model of the cross-entity management accounting system (Fig. 1) entity X will act as the entity categorised as Supplier of Raw or Other Materials. The products manufactured by this enterprise are sold to entity Y that manufactures poultry meat and egg powder semi-products. Entity Y subsequently sells end products to the wholesale buyer (entity Z), which distributes them through the retail chain.

We will build an analytical map for entity X using indicators from the direct costing and full production cost system (Table 1). However, the most important indicators are those derived from direct costing system as they allow promptly studying connections between output, costs, and revenues and hence forecasting the behaviour of production costs or certain types of expenses when business activity changes. All the three parties in a cross-entity relationship using the analytical map derived with respect to entity X compare production cost indicators for the current period with historical data.

Table 1 – Analytical map of cross-entity management accounting used by entity X, RUB '000 (authors' development)

Indicators	Direct costing (1)	Full cost of production (2)	Historical data		Data of entity W
			(1)	(2)	
Analytical part					
Production cost per unit:					
1,000 eggs	0.664	0.812	0.659	0.801	0.937
100 kg of poultry meat	2.01	2.46	1.88	2.33	2.82
Inventory valuation	79,383.5	97,204	73,527	89,887	103,545
Product sales revenue	147,000	147,000	129,000	129,000	138,700
Full cost of goods sold	×	97,204	×	89,887	103,545
Variable part of cost of goods sold	79,383.5	×	73,527	×	×
Marginal income	67,616.5	×	55,473	×	×
Fixed expenses	35,641	×	32,720	×	×
Operating profit	31,975.5	49,796	22,753	39,113	35,155
Descriptive part					
Current strategy of the entity	<i>Gaining competitive advantages plus ongoing profit growth.</i>				
Recommendations	<i>New market entry. Optimisation of business processes. Pricing policy revision.</i>				
Adjusted strategy of the entity	<i>Strengthening of market positions accompanied by cost reduction and production improvement.</i>				

Since the model of cross-entity management accounting system includes benchmarking, the indicators of entity X are also compared with the indicators of a competitor (entity W). The key data from the analytical map are further visualised using graphic tools for indicator evolution analysis purposes (Fig. 2).

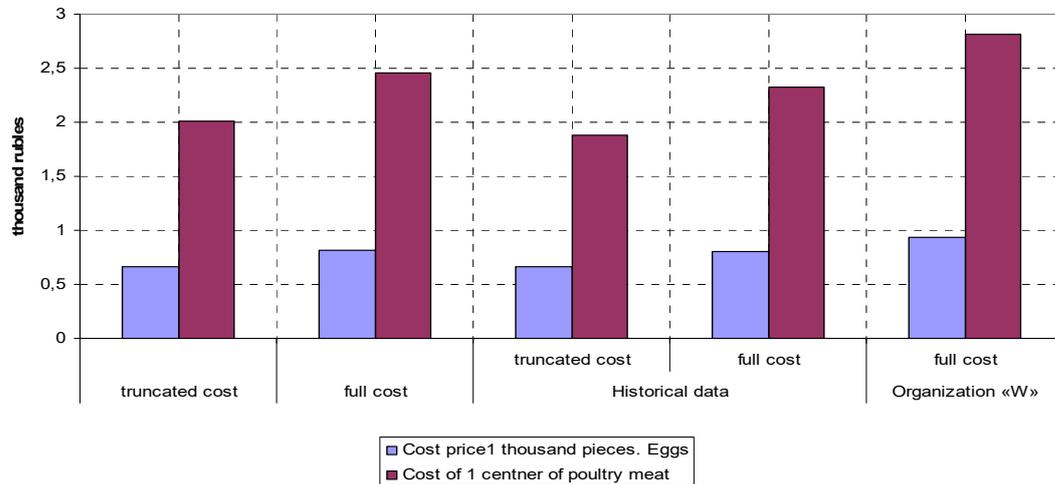


Figure 2. Evolution of poultry farming production categories cost with respect to entity X using different comparison categories

Analytical maps should not necessarily be built on the direct costing system. There is an option to use other calculation management accounting systems. Assuming that entity Y, which is in the business of processing poultry farming products and then making semi-products, uses target costing and kaizen costing calculation systems (Katkov and Nikitina, 2011), the analytical map will be as follows (Table 2).

Table 2 – Analytical map of cross-entity management accounting used by entity Y (authors' development)

Indicators	Estimated cost of production (1)	Target cost of production (2)	Historical data		Data of entity V
			(1)	(2)	
Analytical part					
Production cost per unit:					
Chilled thighs (pack, 0.7 kg), RUB	90	86	94	90	100
Chilled shank (pack, 0.7 kg), RUB	110	104	114	110	112
Chilled breast (pack, 0.7 kg), RUB	107	101.6	110	107	130
Product sales revenue, RUB '000	32,000	32,000	29,000	29,000	37,000
Full cost of production, RUB '000	×	×	×	×	28,000
Variable part of production cost, RUB '000	15,350	14,580	16,541	15,350	×
Marginal income, RUB '000	16,650	17,420	12,459	13,650	×
Fixed expenses, RUB '000	9,352	9,352	8,000	8,000	×

Operating profit, RUB '000	7,325	8,095*	4,459	5,650*	9,000
Descriptive part					
Current strategy of the entity	<i>Gaining competitive advantages. Achieving the target cost of production and earning target profit.</i>				
Recommendations	<i>New market entry. Process optimisation. Pricing policy revision.</i>				
Adjusted strategy of the entity	<i>Increasing sales accompanied and simultaneously achieving target costs and improving the production technology.</i>				

* The target profit which entity Y plans to earn after achieving the target cost of production.

In this case, the target and estimated cost of production will be the key indicators of the analytical map. Although the target costing and kaizen costing systems do not imply calculating marginal income or operating profit, the analytical map of entity Y does contain these indicators, which are necessary for the comparability of maps with different calculation systems. This is required to ensure free exchange and interpretation of the accounting and analytical information of entities, as well as the possibility of objective analysis of outputs. The analytical map also contains the data of the competitor (entity V) for comparison purposes.

In this situation, cross-entity management accounting will manifest itself as follows. A wholesale buyer, entity Z, based on benchmarking and analytical map may develop the target costs of production and offer them to entity Y with the aim of setting purchasing prices, which it deems to be optimal.

If the target costs established by entity Z bring no benefits to entity Y or are non-achievable, the latter may either withdraw from cooperation or agree on a higher selling price or conduct cross-entity studies aimed at reducing costs.

Likewise, this analytical map is also built by entity Z and serves as the basis for comprehensive studies conducted by all those involved in the cross-entity relationship.

Analytical maps are not the only type of shared documents generated in cross-entity relationships. Entities also need to exchange information about the cost of production by cost items and elements for its detailed assessment purposes. Other possible options include shared analysis of organisational structures, production processes, accounting policies, etc. In our example, an overview of analytical information exchange and interaction among entities is shown in Figure 3. Each entity singles out the key processes to be optimised and overlapping sectors containing the areas to be co-studied.

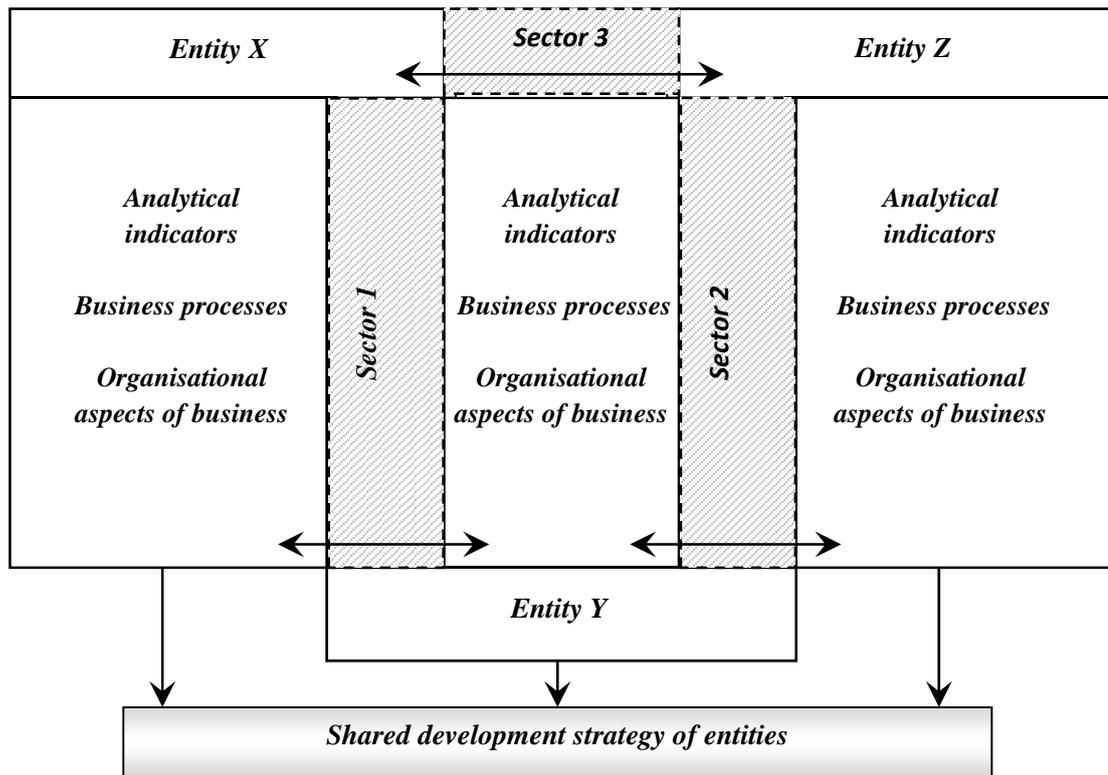


Figure 3. Analytical information exchange and interaction among entities in cross-entity management accounting (authors' development)

Sector 1 (Interaction between entity X and entity Y):

1. Raw materials market study.
2. Cost analysis.
3. Assessment of workforce market.
4. Pricing policy.

Sector 2 (Interaction between entity Y and entity Z):

1. Product research (quality, application, packaging, practical uses).
2. Cost analysis.
3. Production analysis.
4. A study of customer preferences.

Sector 3 (Interaction between entity X and entity Z):

1. A study of market development trends.
2. Cost analysis.
3. A study of market segments.
4. Analysis of agricultural production.

Maps containing analytical indicators and research outputs with respect to specific sectors are gathered from each entity involved in a cross-entity relationship. The analysis of map indicators, production processes, and external benchmarking serves as the basis for making recommendations concerning the operating activities of each entity and the adjustment of the future development strategy. Consequently, all the three entities participate in devising both local and

general existence strategies, simultaneously gaining competitive advantages and more sustainable conditions for their future development.

Concluding remarks

Summing it up, we can conclude that practical implementation of the model of cross-entity management accounting system takes agribusiness entities to the state-of-the-art level of cooperation. It opens new prospects for development, the functionality of accounting and analysis systems. Entities could benefit from long-term strategic relationships and consolidate their competitive positions.

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