



# Development of the balanced scorecard for the state's strategy of food security

## Desarrollo del cuadro de mando integral para la estrategia estatal de seguridad alimentaria

MOSTOVA, Anastasiia D [1](#). & KLIUCHNYK, Ruslan M. [2](#)

Received: 09/07/2019 • Approved: 03/12/2019 • Published 28/12/19

### Contents

- [1. Introduction](#)
- [2. Methodology](#)
- [3. Results](#)
- [4. Conclusions](#)

[Bibliographic references](#)

#### ABSTRACT:

This paper has proposed a balanced scorecard (hereinafter, BSC) for the implementation of a state's strategy of food security. The application of the strategy cards based on scientific developments by R. Kaplan and D. Norton has been substantiated for implementing the state's strategy of food security. Components of a strategy card for food security have been devised that are represented through financial support to agricultural policy; social benefits for people; governance and infrastructure support for the domestic market; state management and resources for providing food security.

**Keywords:** food security, state's food security strategy, balanced scorecard, strategy card

#### RESUMEN:

Este documento propone un cuadro de mando integral (en adelante, BSC) para la implementación de la estrategia de seguridad alimentaria de un estado. La aplicación de las tarjetas de estrategia basadas en los desarrollos científicos de R. Kaplan y D. Norton ha sido justificada para implementar la estrategia de seguridad alimentaria del estado. Se han ideado componentes de una tarjeta de estrategia para la seguridad alimentaria que están representados a través del apoyo financiero a la política agrícola, los beneficios sociales para las personas, el gobierno y apoyo de infraestructura para el mercado interno, la gestión estatal y recursos para proporcionar seguridad alimentaria.

**Palabras clave:** seguridad alimentaria, estrategia de la seguridad alimentaria estatal, cuadro de mando integral, tarjeta estratégica

## 1. Introduction

Detection and analysis of causation among separate strategic objectives are an effective and efficient tool for strategic management. Research by foreign scientists, confirmed by practical activities at enterprises, has demonstrated the effectiveness of using a balanced scorecard methodology, which would make it possible to align and adjust the individual, fragmented strategic goals for the implementation of food security, partially described in major government program-targeted documents, to establish causation among separate objectives and to harmonize different concepts related to implementing a strategy in the form of a system.

The concept of the balanced scorecard system (BSC) is one of the most effective tools of strategic management initiated by the American scientists R. Kaplan and D. Norton in the early 1990's, further advanced in their scientific papers, as well as by other economists (Kaplan & Norton, 1996; Fink, et al., 2006). The success of a given concept has been repeatedly confirmed by practical

results in the economic activities at enterprises in the developed countries in Europe and the world (Creamer & Freund, 2010; Butler, Letza & Neale, 1997; Norreklit, 2003). At present, the scientific approaches to strategic management that employ a balanced scorecard (hereinafter, BSC) have been internationally recognized.

Therefore, the concept of a balanced scorecard system is an effective analytical tool in order to strategically manage a commercial organization (enterprise, firm, company, business unit) under conditions of today's market economy (Journeault, 2016). In this case, the effectiveness of BSC for strategic planning was proven by practical activities of the public sector and non-profit organizations considering their attributes (Pakhomova & Khramtsova, 2009; Hnat, Potkans'kyj & Poltavets', 2007). Tactical aspects of BSC concept are based on building a relationship between budget planning and control, as well as analysis of strategic components in the economic activity of commercial organizations based on BSC. Thus, the application of BSC concept in order to devise theoretical and methodological approaches to the formulation and implementation of the strategy of food security at the national level is a promising task that could produce excellent results.

---

## 2. Methodology

Let us represent the process of creating a food security BSC in the form of a matrix:

$$\text{BSC}_{\text{food.security}} = [A_{ij}],$$

where  $A_{ij}$  is the element of the matrix;  $j$  is the serial number of the stage in the

development of a strategy card,  $j = \overline{1, m}$ ,  $i$  is serial number of a BSC component,

$i = \overline{1, n}$ .

Components of a *food security BSC* should be developed so that they match the tools for implementing the strategy in terms of the components (production, market, resources, consumption). Therefore, define the components of the strategy card as follows: 1. Financing of agricultural policy; 2. Social welfare of people; 3. Infrastructure support to domestic market; 4. Public administration and resources for food security.

*A food security BSC development stages* are defined as follows:

1. Define strategic goals; 2. Construct a strategy card; 3. Substantiate the values for targets and define the criteria for achieving them; 4. Develop strategic measures for each component of BSC.

Let us consider the processes for developing the BSC components in more detail.

Compilation of the components on a balanced scorecard of food security begins by identifying a key strategic goal based on the detected problems, and by dividing it into the refined strategic goals for each component. A key strategic objective is related to the adopted strategy and reveals the targets that must be set for each component of food security in order to ensure a sufficient level it and to create preconditions for maintaining it at the sufficient level (Harvey & Sotardi, 2018). The specified strategic objectives correspond to further strategic areas in the implementation of the strategy of food security for each component. Building a strategy card is based on the detected specific strategic goals for each component within a balanced scorecard. The card shows the list of goals, and the relationships among them, as well as the resulting effect on a BSC component.

Let us consider the compilation of specific strategic goals that underlie a would-be strategy card. The research on estimating the state of food security in Ukraine (Mostova, 2017) makes it possible to establish the following strategic priorities: overcome crises; maintain a sustainable state; develop areas on strengthening the state.

Overcoming crises is a priority strategic direction, which implies that the main task is to transform the negative indicators of food security into positive ones. Along this direction, it is necessary to focus on the narrowest areas of food security, which demonstrate critical values for indices and indicators.

Maintaining a sustainable state is a priority strategic direction whose main task is to strengthen the existing capacity of the country's food security. It is necessary to pay attention to the construction of an effective system for monitoring food safety and managing food security at the state's level.

Development of directions for strengthening the state of food security is a priority strategic area where successful implementation of strategic measures for each component on a balanced scorecard could produce maximum long-term effect. It manifests itself, in particular, by a stable growth in the values for indicators of food security and those factors that affect it.

The development of predictive values of indicators can be done by extrapolation, for example, using the least squares method (Burmistrov, 1975).

### 3. Results

Proceed to building a balanced scorecard for a country's food security.

The first component in the balanced scorecard system is agricultural policy in the context of ensuring food security, whose formation implies defining a key strategic goal of the agricultural policy and its separate specific lower-level goals. A key strategic goal of *financial support to the formation of agricultural policy* for food security is linked to resolving a major strategic task and includes the following: what are the goals that must be set for agrarian production to ensure a sufficient level of food security and to create preconditions for maintaining it at a sufficient level?

In this case, it is necessary to consider two aspects of strategic financial goals for supporting agricultural policy: first, they must aim to enhance the investment attractiveness and to improve basic indicators for the efficiency of enterprises in the agricultural sector, which would make it possible to implement the strategic potential and form a solid base for ensuring a sufficient level of food security in the long term; second, they define the goals, indicators and results expected from the implementation of other components on the strategy card of food safety.

Strategic financial goals are interdependent and closely interconnected (Payne & Talbott, 2007). Causal relationships among individual strategic financial goals are represented on the strategic card for financial support of agricultural policy, which is a component of the entire strategy card.

Based on the devised strategy card for *financial support of agricultural policy*, let us build a balanced scorecard that substantiates the target values as it follows from the study (Table 1).

**Table 1**  
Strategic financial goals and targets for agrarian policy in order to ensure food security

	Strategic financial goals for agricultural policy to ensure food security - elements of the strategy card				
Strategic priorities	Develop directions for the optimal use of assets and investments by agricultural enterprises	State support and funding for agricultural producers	Fund modernization of fixed assets at agricultural enterprises	Reduce costs and increase profitability of agricultural enterprises	Development of areas to manage financial risks of agricultural enterprises
Overcome crises	Volumes and growth rate of foreign direct investment	Amounts of targeted financing. Amounts of compensation for interest rates on loans	Amounts of targeted financing	Proceeds from the sale of products. Cost of produce	Indicators for the number of insured enterprises and insurance reimbursement
Maintain a sustainable state	Net cash flow for investment projects	Indices of tax burden	Indicators of production load on technical fleet	Net profit	Amount of the insurance premiums received for repayment of losses
Develop directions for strengthening the state	Indicators for financial stability of enterprises. Level of return on investment	Performance indicators the use of trust funds	Indicators for economic efficiency of technical fleet	Level of profitability	Indicators for liquidity and solvency of

Source: compiled by Author considering (Hmyria, 2016; Chytas, Glykas & Valiris, 2011)

Let's illustrate some targets for agrarian policy in order to ensure food security in accordance with the developed strategic goals and strategic priorities (Table 2).

**Table 2**  
Actual and forecast targets for agrarian  
policy in order to ensure food security

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Capital investment in agriculture, bln.UAH	18	29	50	63	72	84	96	108	120	133
ROI in agriculture, %	116	348	181	124	215	230	246	261	276	291
Basic assets in agriculture, fact prices, at end of year; bln.UAH	156	171	210	270	290	325	360	394	429	464
Output in agriculture, fact prices, bln.UAH	371	544	638	708	834	941	1048	1154	1261	1368
Net profit (loss), bln.UAH	21	102	90	78	120	139	159	179	198	218
Profitability level of agriculture, %	9	30	26	19	30	33	37	41	44	48

Source: compiled by Author considering (State Statistics Committee of Ukraine, 2019)

An important aspect in the substantiation of strategic goals for financial support of agricultural policy is the choice of *strategic priorities* based on a preliminary strategic analysis. If the priority is to overcome crises related to food security, the key task should be the maximal attraction of funds to the agricultural sector for each strategic financial goal, that is, focus on generating a maximal financial flow at agricultural enterprises.

For the case of the strategic priority being maintaining a sustainable state of food security, cash flow would not suffice, which is why it is necessary to pay attention to the ratio of cash receipts to expenses.

In developing the strategic directions regarding the strengthening of the state of food security, in addition to the above mentioned, it is necessary to analyze the relative indicators for utilizing fixed assets, own and attracted funds of agricultural enterprises, at the same time with the indicators for food security.

In this case, the areas for the optimal use of assets and investments by agricultural enterprises depend on foreign direct investment; efficiency indicators of investment projects, financial stability of enterprises, return on investment.

The strategic goal of the state support and funding for agricultural producers in a balanced scorecard system is demonstrated by volumes of targeted financing, low-interest loans, tax burden, the effectiveness of using targeted funds.

The strategic goal to modernize fixed assets includes indicators such as volumes of targeted funding, workload, utilization efficiency, in accordance with the set strategic priorities for food security.

Reducing the costs and increasing the profitability of agricultural enterprises depend on the financial results of their operations (revenue, cost, profit). Directions for managing the financial risks of agricultural enterprises take into consideration the insurance indicators of agrarian enterprises, as well as received insurance premiums on repayment of losses, liquidity and solvency of agricultural enterprises.

Based on the developed system of strategic financial goals for agricultural policy aimed at ensuring food security and achieving the targets, it is appropriate to establish the criteria for accomplishing them. Next, it is possible to address the development of strategic measures of financial support to agricultural policy in the context of food security, which must be aimed at the implementation of investment projects, government projects and programs, and other activities that need large-scale financing at the expense of investors and the state.

The component of *social security for the population* should be aimed at maintaining economic affordability of food for people, which in turn depends on the price of foodstuffs and the real incomes of consumers. This is the dependence of the strategic goals for food security on the social welfare of the population.

The causal relationships among individual strategic social goals are shown on the strategy card of the social welfare of the population, which is a component of the entire strategy card.

Substantiation of the strategic priorities of social welfare of the population in the context of development of a food security strategy is based on overcoming crises; maintaining a sustainable state, and developing areas to strengthen the state. Based on the constructed strategy card for *social welfare of the population*, it is advisable to represent a system of targets and to substantiate the criteria to achieve them (Table 3).

**Table 3**  
Strategic goals and targets to socially ensure food security

	Strategic goals to socially ensure food security- elements of the strategy card - elements of the strategy card				
Strategic priorities	<i>State regulation of pricing in the market of agricultural produce and food</i>	<i>Develop directions to implement social policy and targeted assistance to individual layers of population</i>	<i>Design a system to monitor economic affordability of food and other indicators that characterize food consumption by people</i>	<i>At the state level, create a system to ensure quality and safety of the agricultural raw materials and food products, so that they comply with requirements for their production</i>	<i>Create strategic food reserves of the state to regulate pricing in the market</i>
<i>Overcome crises</i>	Food prices	Amounts of government support to certain layers of population	Social guarantees in the field of income and consumption	Control over manufacturers and sellers compliance with requirements to quality of raw materials and products	Volume of reserves of agricultural produce and food in accordance with requirements of legislation
<i>Maintain a sustainable state</i>	Prices for agricultural produce	Social standards	Indicators of standard of living of population		
<i>Develop directions to strengthen a state</i>	Prices for resources for agricultural production	Indicators of employment of population	Income and expenses by population, their structure and ratio		

Source: developed by Author considering (Hmyria, 2016; Chytas, Glykas & Valiris, 2011)

Let's illustrate some targets for the socially ensure food security in accordance with the developed strategic goals and strategic priorities (Table 4).

**Table 4**  
Actual and forecast targets for the socially ensure food security

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Indices of agricultural production to the previous year, per cent	124	155	109	112	123	125	126	127	129	130
Unemployment rate (according to the ILO methodology), per cent	9	9	9	10	10	11	11	12	12	13
Average monthly wages in agriculture, UAH	2476	3140	3916	5761	6039	6881	7724	8566	9408	10250
Average cost per month per household, UAH	4049	4952	4718	5710	5984	6429	6874	7319	7764	8209
Average food costs per month per household, UAH	2101	2630	2326	2909	3040	3262	3483	3705	3926	4148

Source: compiled by Author considering (State Statistics Committee of Ukraine, 2019)

Based on the data from the represented system of strategic goals to socially ensure food security, one can conclude that in order to overcome crises, the subsequent strategic goals of the state regulation of pricing policy should take into consideration prices for food products; maintaining a sustainable state of food security is possible under condition of regulating prices for agricultural products; further strengthening requires the regulation of prices for resources for agricultural production because they are the starting point in the formation of product cost by agricultural producers and food prices for consumer.

The strategic objectives of social policy and targeted assistance should be paid attention to when it is necessary to overcome crises, where the main tool at the national level is to provide financial assistance to the least protected groups of the population. For the case of maintaining a sustainable state of food security, the considered strategic goal has to rely on a system of social standards that maintains them. Social standards are a system of of social norms (duties of state), officially established by the state, concerning the satisfaction of social needs of citizens. The basic elements of social standards include the mandatory and full access to education, prevention of forced labor, guaranteeing proper working conditions, their duration, payment, a minimum wage, a living wage. Strengthening the status of food security requires, therefore, stable employment of people.

The strategic goal to monitor and maintain economic affordability when overcoming crises must rely on key strategic priorities, which focus on social guarantees for needy people in the area of income and consumption, namely: a living minimum; the limit of poverty; a minimum consumer budget; the cost of food basket; the level of minimum wage; a minimum pension, a minimum scholarship, the amount of social welfare, and others. Maintaining a sustainable state of food security is impossible without taking into consideration such indicators for quality of life of the population as the real income of people and the consumer price and cost of living indices

dependent on them; the distribution of population in terms of total income per person, and others. Directions of the state policy concerning the strengthening of the status of food security should be based on indicators of the volume and structure of income and expenses by population on the consumption of material goods, such as: cash incomes of the population, including per capita; monthly average wages; the average size of pensions, scholarships, assistance; natural revenues; expenses of the population, including per capita; the structure of the income and expenses by people. The specified parameters are part of BSC for the respective strategy card.

When creating, at the state level, a system to ensure the quality and safety of agricultural raw materials and food products, compliance with requirements to their production as a strategic goal for providing social food security, BSC should include indicators in the field of control over compliance of manufacturers and sellers with requirements to the quality of raw materials and products at the state level.

The strategic goal to form strategic food reserves of the state in order to regulate pricing in the market has such key indicators as the volumes of reserves of agricultural produce and food in accordance with the requirements of the legislation for each of the represented strategic priorities.

The component of *regulating domestic market and infrastructural support* in the food security BSC is focused on minimizing costs in the logistics chain in order to provide a market-based pricing regulation for food in the country.

Based on the constructed strategy card for the regulation and infrastructural support to domestic market, it is advisable to introduce a system of targets and to substantiate the criteria to achieve them (Table 5).

**Table 5**  
Strategic goals and targets for the regulation of domestic market and to support its infrastructure

Strategic priorities	Strategic goals for the regulation of domestic market and to support infrastructure - elements of the strategy card			
	<i>Develop and implement a system to manage market risks</i>	<i>Create a system of logistics and market infrastructure for agricultural enterprises</i>	<i>Develop measures to reduce costs within the logistics system of food sales in domestic market</i>	<i>Develop and implement a system to monitor and forecast the market of agricultural produce and food</i>
<i>Overcome crises</i>	Performance indicators of the state's financial and credit policy	Number of harvesting-selling enterprises and wholesale food markets	Number of transportation enterprises, agricultural service cooperatives, trade houses, exhibitions, fairs, retail businesses	Presence of government think tanks, research institutions, etc.
<i>Maintain a sustainable state</i>	Prices for agricultural produce and food. Volume of domestic and foreign trade in agricultural produce and food	Number of logistics terminals, wholesale and wholesale and retail markets for agricultural produce, exchanges	Number of agricultural enterprises in a region and their distribution by size and volume of production	
<i>Develop directions to strengthen the state</i>	Indicators of trade at harvesting-selling enterprises and wholesale food markets	Number of warehouses, collection points and other infrastructure facilities to store agricultural products in regions	Indicators of stock exchange activity (number of signed agreements, turnover, and others)	Availability of special departments to ensure that all market participants, state management bodies receive relevant and reliable information about the state of the

Source: compiled by Author considering  
(Hurov & Hrechkosij, 2013; Somyk, 2014)

Let's illustrate some targets for the regulation of domestic market and to support its infrastructure in accordance with the developed strategic goals and strategic priorities (Table 6).

**Table 6**  
Actual and forecast targets for the regulation of  
domestic market and to support its infrastructure

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Gross value added (basic prices) fact prices; bln.UAH	161	240	280	305	363	409	456	502	549	595
Total index of expenditures for production of agricultural products to the previous year, per cent	142	139	114	121	129	132	134	136	138	141
Export of agricultural and provisions production, mln. USD	16669	14563	15282	17757	16277	16281	16286	16291	16296	16301
Export of food products, mln. USD	3096	2468	2450	2827	2242	2028	1815	1601	1387	1174

Source: compiled by Author considering  
(State Statistics Committee of Ukraine, 2019)

Based on the developed system of strategic goals for the regulation of domestic market and its infrastructural support for a food security strategy, it can be argued that a market risk management system, aimed to overcome crises, must focus on the performance indicators of the state's financial and credit policy (inflation rate, currency exchange rates). By introducing price regulation for agricultural produce and foodstuffs, as well as sales volumes, it is possible to maintain a sustainable state of food security. The further strengthening of this status requires the creation of a system, and its effective operation, that would include harvesting-selling enterprises, wholesale food markets, that is, those market subjects that are responsible for the storage and sale of large batches of food and raw materials.

To create a system of logistics and market infrastructure when implementing strategic priorities to overcome crises, it is necessary to plan and monitor the number of harvesting-selling enterprises and wholesale food markets. Maintaining a sustainable state of food security is not possible without a sufficient number of terminals, wholesale and wholesale-retail markets for agricultural produce, exchanges (commodity, commodity-commodity agricultural, universal, etc.). The directions for strengthening food security are based on a sufficient quantity of warehouses, collecting points and other infrastructure facilities for the storage of agricultural produce in regions.

Maintaining a sustainable status must take account of the number of infrastructure facilities to support the functioning of the market for agricultural produce and food, specifically wholesale markets, commodity exchanges, etc. It is appropriate to build a single, or several, logistics terminals – modern logistics platforms to equipped taking into consideration the best world experience. A logistics platform is a facility with low-temperature warehouses and an area for pre-



sale preparation of products, it is one of the promising directions in the development of market infrastructure, which makes it possible to receive, store, wash, calibrate, pack, form unified batches, and prepare products for further transportation. A logistic terminal is intended to store goods from different groups; in terms of its structure, it is divided into zones.

Development of directions for strengthening the status of food security requires the creation of modern facilities to store food (warehouses, storages, etc.), which must neutralize the cycle of productive and lean years, ensure price stability for agricultural produce and food, reduce the level of price fluctuations. Building capacities to store agricultural produce is promising because it is one of the elements in logistics. The implementation of relevant projects will increase opportunities to store produce and improve the capacity of legal entities to create additional value and enhance their competitiveness, thereby maintaining the sustainable state of food security at the strategic level.

Implementation of the strategic objective to develop measures to reduce costs within the logistics system of food sales in domestic market for overcoming the crises requires a sufficient number of transportation enterprises, agricultural service cooperatives, trading houses, retail businesses, and other subjects in the market infrastructure whose functioning is directed to support retailers and to deliver products to a retail consumer.

The main task for regional trade houses is the organization of a local agricultural market and interaction with wholesale markets for exchange commodities. By employing agri-trade houses, local agricultural producers perform activities to sell their produce and to provide the necessary material resources to production. Forming the infrastructure of agrarian market is impossible without the development of exhibitions and fairs whose basic goals are to promote new products, services, and experience, to develop business contacts, create demand and grow sales, etc.

Maintaining at a sufficient level and strengthening the status of food security is possible on condition of effective work of agricultural producers in regions. The main indicators for the functioning of commodity exchanges, for example, the number of deals, the volume of deals, the value of deals, the average amount of one agreement, etc., should also be taken into consideration when implementing a strategy.

A system to monitor and forecast the market of agricultural produce and food at the strategic level requires state-owned think-tanks, research institutions, etc., as well as special departments that would ensure that all market participants, state management bodies, receive relevant and reliable information about the state of the market and trends in its development.

A component of the *state management and resource support to market* in a food security BSC is aimed at forming strategic food reserves of food and ensuring the volume of production of agricultural produce and food according to the requirements to food security and for implementation of export potential.

Based on the developed strategy card for *resource support*, it is advisable to introduce a system of targets and to substantiate criteria to achieve them (Table 7).

**Table 7**  
Strategic objectives and targets for  
state management and resource support

	Strategic goals for state management and resource support to the market - elements of the strategy card		
Strategic priorities	<i>State regulation of food agricultural market</i>	<i>Form strategic food reserves of the state</i>	<i>Ensure production volumes of agricultural produce and food in accordance with requirements to food security and the possibility to implement export potential</i>
<i>Overcome crises</i>	Volumes of state commodity and financial interventions	Volumes of reserves of agricultural produce and food in accordance with	Number of agricultural producers, processing enterprises, trading enterprises

<i>Maintain a sustainable state</i>		requirements of the legislation	Indicators of efficiency for agricultural producers, processing enterprises, trading enterprises
<i>Develop directions to strengthen the status</i>	Effectiveness of tools of state regulation of the market of agricultural produce and food		

Source: compiled by Author considering (Hurov & Hrechkosij, 2013)

Let's illustrate some targets for state management and resource support of food security in accordance with the developed strategic goals and strategic priorities (Table 8).

**Table 8**  
Actual and forecast targets for state management and resource support of food security

	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Number of enterprises engaged in agricultural activity, thousand units	46	45	48	46	45	45	44	43	43	42
Stocks at the end of the year, mln. tons	20	15	20	21	21	22	23	24	25	26
Total funding of the Ministry of Agrarian Policy and Food, mln. UAH	3359	1613	1691	5201	3322	3361	3399	3437	3475	3514
Financial support of the agro-industrial complex by reducing the cost of loans, mln.UAH	0	291	280	295	434	521	608	695	782	869

Source: compiled by Author considering (State Statistics Committee of Ukraine, 2019)

The strategic goals of state management and resource support to national food security imply, above all, the formation of strategic food reserves of the state.

A food security strategy needs an effective mechanism for state regulation of food agricultural market, which defines strategic tools of state regulation of the market of agricultural produce and food: establish a marginal trade surcharge, introduce an export duty, change the size of the value added tax on certain products, cancel VAT refunds, introduce export quotas, declare prices on food products when raising, etc.

The strategic goal to ensure production volumes of agricultural produce and food in accordance with requirements to food security and the possibility to implement export potential requires a sufficient number of agricultural enterprises in the production of agricultural products, processing enterprises, as well as trading companies in a given sector. Maintaining a sustainable state of food security and its strengthening at the strategic level depend on the efficient operation of subjects in the market specified above.

Thus, a constructed food security BSC would make it possible to execute, at strategic level, effective planning, to implement and monitor those indicators that affect the status of food security. A system of BSC components, key strategic goals, and strategic priorities is aimed at identifying areas for the state's food security strategy and effective policy.

---

## 4. Conclusions

A balanced scorecard for the state's food security has been proposed, which takes into consideration

A key strategic goal of financial support to the formation of agricultural policy to ensure food security for each of the considered groups of *strategic priorities* – overcome crises; maintain a sustainable status and develop directions on strengthening the status – must be divided into *strategic financial goals*, which in general cover: to develop the areas for optimal use of assets and investments by agricultural enterprises; state support and funding for agricultural producers; to fund the modernization of technical fleet of agricultural enterprises; to reduce costs and increase profitability of agricultural enterprises; to develop directions to manage financial risks of agricultural enterprises.

A key strategic goal of social welfare of the population in the context of development of a food security strategy includes the following strategic social goals: state regulation of pricing in the market of agricultural produce and food; to develop directions for the implementation of social policy and targeted assistance to particular groups of people; to design a system to monitor economic affordability of food and other indicators that characterize food consumption by the population; at the state level, build a system to ensure quality and safety of agricultural raw materials and food products, compliance with the requirements to their production; to form strategic food reserves of the state in order to regulate pricing in the market.

A key strategic goal of regulation of domestic market and support to infrastructure covers the strategic objectives: to develop and implement a system to manage market risks; to form a system of logistics and market infrastructure for agricultural enterprises; to develop measures to reduce costs within the logistics system of food sales in the domestic market; to construct a system to monitor and forecast the market of agricultural produce and food.

A key strategic goal of the state management and resource support to the market is represented by such strategic objectives as the state regulation of food agricultural market; to form strategic food reserves of the state; to ensure production volumes of agricultural produce and food in accordance with requirement to food security and the possibility to implement export potential.

Taking into consideration, the results from the current study based on the devised food security BSC, the further research should address the substantiation of a system to monitor and manage risks as the most important and insufficiently investigated field in the food security strategy.

---

## Bibliographic references

- Burmistrov, G. A. (1975). *Osnovy sposoba naimen'shih kvadratov* [Basics of the least square method]. Moscow: Gosudarstvennoe nauchno-tehnicheskoe izdatel'stvo literatury po geologii i ohrane nedr.
- Butler, A., Letza, S. R. & Neale B. (1997). Linking the balanced scorecard to strategy. *Long Range Planning*, 30(2), 242-153. doi: [https://doi.org/10.1016/S0024-6301\(96\)00116-1](https://doi.org/10.1016/S0024-6301(96)00116-1)
- Chytas, P., Glykas, M. & Valiris, G. (2011). A proactive balanced scorecard. *International Journal of Information Management*, 31(5), 460-468. <https://doi.org/10.1016/j.ijinfomgt.2010.12.007>
- Creamer, G. & Freund, Y. (2010). Learning a board Balanced Scorecard to improve corporate performance. *Decision Support Systems*, 49(4), 365-385. doi: <https://doi.org/10.1016/j.dss.2010.04.004>
- Harvey, B. H. & Sotardi, S. T. (2018). Key Performance Indicators and the Balanced Scorecard. *Journal of the American College of Radiology*, 15(7), 1000-1001. doi: <https://doi.org/10.1016/j.jacr.2018.04.006>
- Hmyria, V. P. (2016). Derzhavna pidtrymka finansuvannia ahrarynoho vyrobnytstva ukrainy [state support of financing of agrarian production of ukraine]. *Financial space*, 3 (23), 101-106.
- Hnat, V., Potkans'kyj, T. & Poltavets', V. (2007). Upravlinnia za rezul'tatamy diial'nosti v mistsevykh orhanakh vlady [Office of Local Government Activity]. Kyiv: «Kozaky». (in Ukrainian)
- Fink, C. A., Gaiser B., Greiner O., Brenner M., Currle M., Graef J., ... Wunder Th. (2006). Vnedrenie sbalansirovannoj sistemy pokazatelej [Introduction of a balanced scorecard]. Moscow: Al'pina Biznes Buks.
- Hurov, I. H. & Hrechkosij, V. V. (2013). Formuvannia ta funktsionuvannia infrastruktury ahrarynoho rynku [Formation and functioning of the infrastructure of the agrarian market]. *Bulletin of the*

*agrarian science of the Black Sea region*, 1. 54-59.

Journeault, M. (2016). The Integrated Scorecard in support of corporate sustainability strategies. *Journal of Environmental Management*, 182(1), 214-229. doi:

<https://doi.org/10.1016/j.jenvman.2016.07.074>

Kaplan, R. S. & Norton, D. P. (1996). Using the Balanced Scorecard as a Strategic Management System. *Harvard Business Review*. January/February, 82.

Mostova, A. (2017). A methodological approach to the strategic analysis of food security. *Baltic Journal of Economic Studies*, 3 (5), Riga: Publishing House "Baltija Publishing", 319-328. doi:

<http://dx.doi.org/10.30525/2256-0742/2017-3-5-319-328>

Norreklit, H. (2003). The Balanced Scorecard: what is the score? A rhetorical analysis of the Balanced Scorecard. *Accounting, Organizations and Society*, 28(6), 591-619. doi:

[https://doi.org/10.1016/S0361-3682\(02\)00097-1](https://doi.org/10.1016/S0361-3682(02)00097-1)

Pakhomova, T. I. & Khramtsova, I. V. (2009). Zbalansovana systema pokaznykiv iak instrument kontrolinhu v systemi rehional'noho upravlinnia [Balanced Scorecard as a Controlling Tool in the Regional Management System]. *Theoretical and Applied Issues of state Creation*, 5. Retrieved from: <[http://www.nbu.gov.ua/e-journals/tppd/2009-1/zmist/R\\_2/Pahomova.pdf](http://www.nbu.gov.ua/e-journals/tppd/2009-1/zmist/R_2/Pahomova.pdf)>.

Payne, C. A. & Talbott, P. (2007). Financial Perspective of the Balanced Scorecard: Strategies for Profitability. *Rangelands*, 29(2), 33-36. [https://doi.org/10.2111/1551-501X\(2007\)29\[33:FPOTBS\]2.0.CO;2](https://doi.org/10.2111/1551-501X(2007)29[33:FPOTBS]2.0.CO;2)

Somyk, A. V. (2014). Pidkhody ta problemy otsinky efektyvnosti hroshovo-kredytnoi polityky natsional'noho banku Ukrainy [Approaches and problems of assessing the effectiveness of the monetary policy of the National Bank of Ukraine]. *Effective economy*. 12. Retrieved from:

<<http://www.economy.nayka.com.ua/?op=1&z=3697>>

State Statistics Committee of Ukraine (2019). Retrieved from: <[www.ukrstat.gov.ua](http://www.ukrstat.gov.ua)>

---

1. Department of International Marketing, Alfred Nobel University, Dnipro, Ukraine. E-mail: [a.mostovaya@duan.edu.ua](mailto:a.mostovaya@duan.edu.ua)

2. Department of Political Science and International Relations, Alfred Nobel University, Dnipro, Ukraine. E-mail: [nobelpolis@duan.edu.ua](mailto:nobelpolis@duan.edu.ua)

---

Revista ESPACIOS. ISSN 0798 1015  
Vol. 40 (Nº 44) Year 2019

[Index]

[In case you find any errors on this site, please send e-mail to [webmaster](mailto:webmaster)]

©2019. revistaESPACIOS.com • ®Rights Reserved



This work is under a [Creative Commons Attribution-NonCommercial-NoDerivative 4.0 International License](https://creativecommons.org/licenses/by-nc-nd/4.0/)