RESEARCH ARTICLE

International comparative analysis of competition and industrial policy implementation features during the production of dairy products

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Abstract

Aim and Scope: The studies were conducted using the example of the leading countries for the production of dairy products - the European Union, India, the United States of America, China, Pakistan, Brazil, the Russian Federation, New Zealand, and Turkey. **Materials and Methods:** For the purpose of our research, the indicators of output and labor productivity levels were chosen as the system of synchronous indicators. As a specific indicator of competition policy evaluation, the rank in the global competitiveness index calculated by the WEF was chosen, the specific index of the industrial policy assessment - total support estimate was selected. The adopted system of indicators allows to diagnose major problems, to describe the features and the advantages of the method application, and to prepare the most reasonable proposals for harmonization, agreement, and increase the effectiveness of competitive and industrial policies in this area. **Result and Discussion:** The article presents the results of research on the implementation of competition policy and industrial policy tools in the dairy production sector based on the comparative analysis of specific indicator system behavior that characterizes the efficiency and provides the monitoring of only one of the policies and synchronous indicators that allow to monitor the effective conduct of both policies simultaneously.[1,2] **Conclusion:** Based on the results of the studies carried out, the proposals have been developed to improve the effectiveness of government support measures and state regulation in Russian Federation within the industry under consideration.

Key words: Comparative macroanalysis, competition policy, dairy production, global competitiveness index, harmonization, industrial policy, labor productivity, state support, synchronous indicators

INTRODUCTION

In modern challenging global economic environment and the foreign policy situation, the high volatility of exchange rate, the fall of prices for major export commodities and raw materials that form a revenue base and investment processes, and the issues of sustainability increase concerning the development of basic industries become significantly relevant. One of the main components of sustainability is the competitiveness of the national agro-industrial complex, which determines the stability in key food markets. In its turn, dairy products are one of the most important components of the food basket, ensuring the maintenance of the quality of life, population health, and simultaneously affecting industrial and social issues.

This branch, on the one hand, is very competitive. It is enough to look at the assortment of dairy products at supermarkets, and on the other hand, it implies the combination of agriculture and production and is engaged in the production of socially significant products, the pricing of which directly affects the level of expenditure and therefore is regulated by state.

This thing is very important because there are the elements ofboth policies, both competitive and industrial in the sector,which allows us to study the problems of their organicsynchronization comprehensively.

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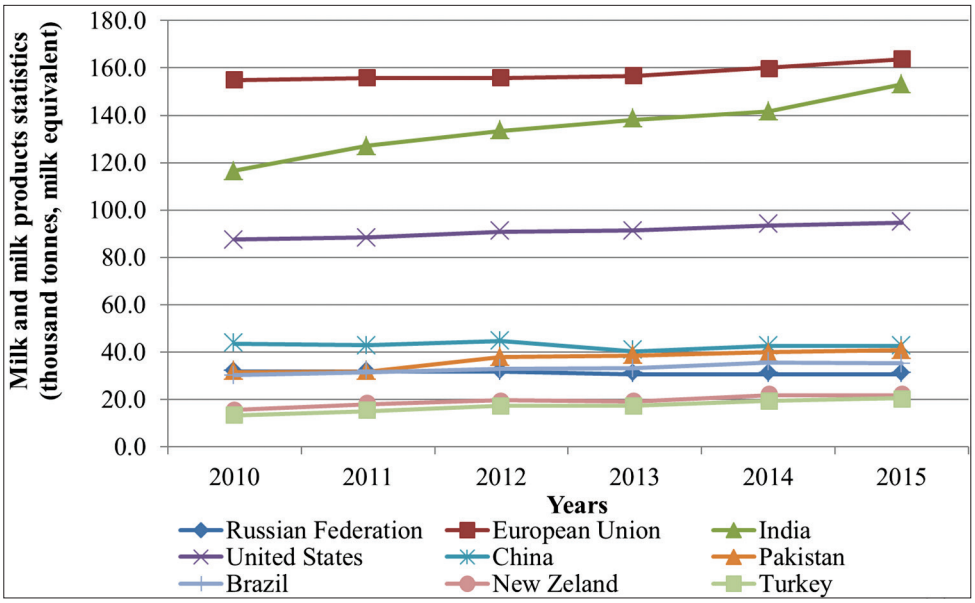

Figure 1: The dynamics of changes in the volume of milk and milk products production (milk equivalent) within the leading countries during 2010–2015

MATERIALS AND METHODS

In modern theory and practice for the macroanalysis of economic activity, several main groups of methods are used: The methods based on statistical indicators, the methods based on peer reviews, and the methods based on qualitative and quantitative indicators. The study of these groups of techniques[3-5] showed that the methods based on statistical indicators are the closest ones to the purposes of research. We used the comparative analysis technique based on statistical data for the purposes of our research. Its main provisions are described in detail by previous papers.[6-8]

The general scientific methods of the theoretical level (generalization, analysis, synthesis, induction, deduction, etc.), the private methods of economic sciences (economic analogy, economic interpretation, economic formalization, etc.), and specially developed specific methods were also applied during the research.

To study the macro-country characteristics and the contribution of countries to gross indicators, the ranking of countries was performed in terms of milk and milk production volumetric indicators and their share in the total world production of milk and dairy products during 2010–2015, and a top nine[1] rating of leading countries was developed. After the ranking of the research objects (countries), according to the indicator under study, they were awarded with scores, the number of which is equal to an occupied place in the ranked series. Then, the points are summed up for all considered years. The object of the survey, which received the lowest number of points, takes the first line of the rating. Then, according to the number of points increase, the rating of other objects is determined. The final rating of the countries is compiled according to the developed methodology.

During the analysis, we used the official public data of the report on the global food markets "Food Outlook,"[9] Agriculture and Horticulture Development Board Dairy (AHDB),[10] "Global Competitiveness Report" of The World Economic Forum,[11] and OECD for Economic Co-operation and Development).[12]

RESULTS

During the world analysis, we ranked the countries by the volume of dairy production, which showed that the European Union, India, USA, China, Pakistan, Brazil, Russia, New Zealand, and Turkey are the leaders which produce 75% of the world total dairy products on the average.

According to the compiled rating, the analysis of milk and dairy products production from the top-nine countries of the world [Figure 1] and the change of their share in the global volume of milk and milk products production (in terms of milk) are performed [Figure 2].

The analysis of the ranking results shows a strong superiority in the production of dairy products in the European Union and India over other countries, the share of which makes 20.23% and 18.92% of the global, respectively, according to the latest data.

The dominant position of the European Union is conditioned by its composition from 28 countries, as well as by the leading

1 Nine leading countries were selected, as there is a strong separation from other countries, the gap of the countries after the "nine" exceeds the gap between the previous countries, and there are already several countries at the level of the tenth place, there is no stable leader.

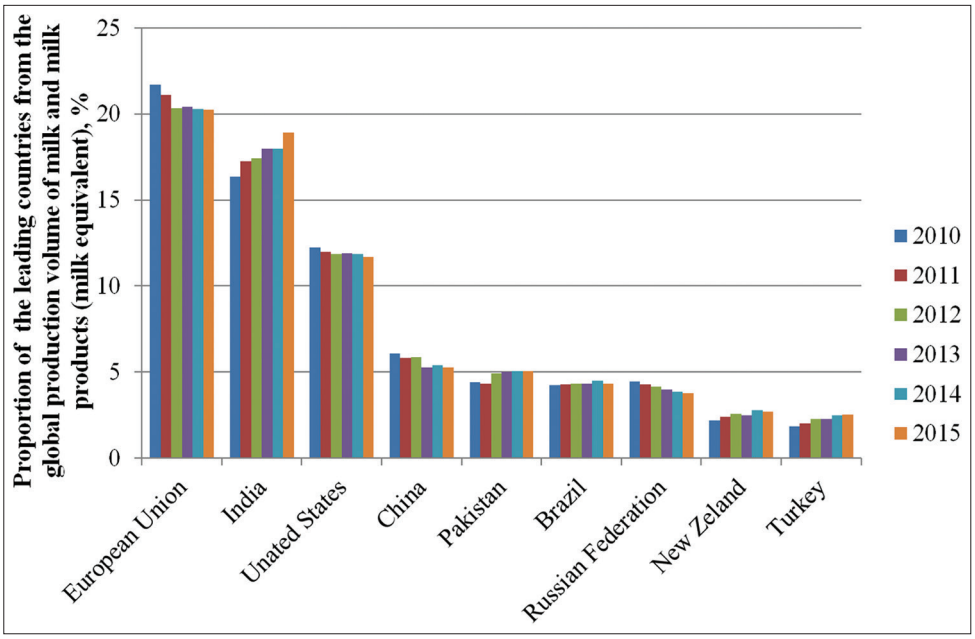

Figure 2: Changing in the proportion of leading countries from the global production volume of milk and milk products (milk equivalent) during 2010–2015

positions concerning the production of cow milk from some countries (France, Germany, Great Britain), according to AHDB Dairy statistics.[10] The average annual growth rate increased every year during 2010–2015 (except for 2011, where the indicator of 2010 was preserved) from 0.45% to 2.25% with the decrease of the European Union share from 21.71% to 20.23% as compared to the global average.

The high volumes and positive dynamics of milk and dairy products production in India are explained, first of all, by internal consumption. Second, in recent years, there has been a rapid growth of the economy and population income in India. At that, the state pursues an economic policy, ensuring the development of market economy, free competition, including the production of milk and dairy products.

The third place for the production of milk and dairy products is occupied by the US also with a significant lead over other countries. The US occupies 11.68% of the world's dairy production and has a positive trend.

In our opinion, the high volumes of milk and dairy products production in the United States are conditioned by several reasons. First, high industrialization of agriculture. Second, traditional US market economy and legislation provide high dynamic competition in the industry. Third, there is a systematic work on the promotion of the products for export, to new markets.

The fourth place is occupied by the People's Republic of China with the volume of 5.27% of the world's milk production and dairy products (in terms of milk). In terms of dairy products production, according to 2015, China is behind India 3.6 times and behind the US 2.2 times. The trend of changes in the production volume of dairy products in China is characterized by opposite processes.

In our view, the large volumes of dairy production in China are caused, first, by the scale of domestic needs, and second, by the increase of citizen well-being and the changes in their consumption patterns.

The fifth place in the production of milk and dairy products in the world is occupied by Pakistan, the production of milk and dairy products increased every year there at a range of growth rates during the years under study from 0.63% (2011) to 19.18% (2012), whose share during the past 2 years of research makes 5.07% of the world one. Large volumes of milk and dairy product production in the country are conditioned by high internal consumption.

The sixth and the seventh places are occupied by Brazil and Russian Federation taking into account the changes in the production of milk and dairy products during 2010–2015. The volume of dairy product production in this group during 2010–2015 is in the range of 30.4–35.5 million tons. The analysis shows that there is an increase in production every year in Brazil, except for 2015 (where there is a slight decrease by 0.85%). In Russian Federation, the output rates of dairy products demonstrate an unstable dynamic.

The remaining two places in the ranking list of the leading countries for the production of milk and dairy products are occupied by New Zealand and Turkey. The volume of milk and dairy products production in New Zealand increased in 2011 and 2012 relative to the previous years by 14.74%

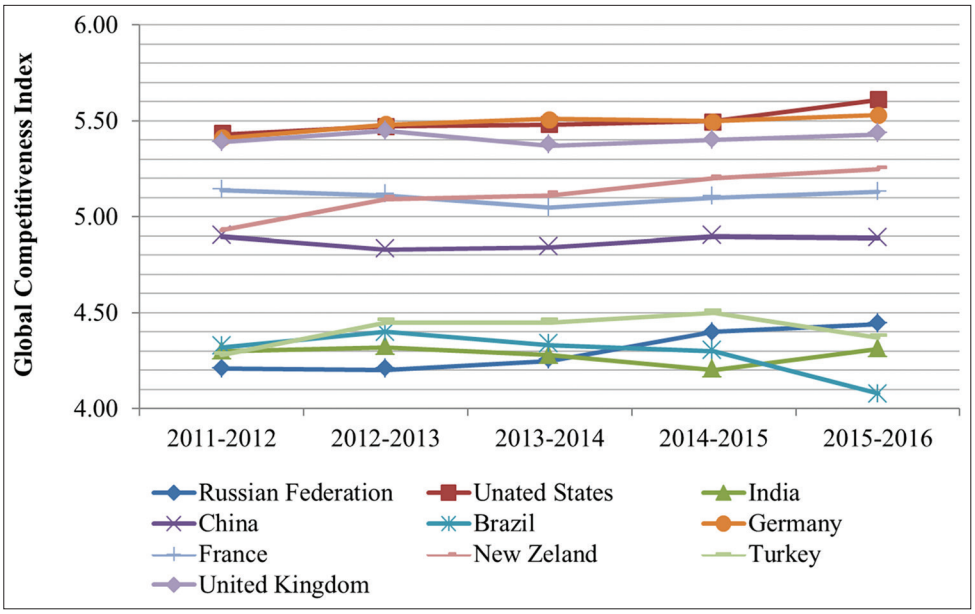

Figure 3: Dynamics of the global competitiveness index of the leading countries on the production of milk and dairy products

and 10.06%, respectively, in 2013, it is reduced by 2.54%, in 2014, it is increased again by 14.06 %, and in 2015, it retained the position of the previous year. The trend of the indicator change in Turkey has a positive trend.

The performed analysis on the production of dairy products on a global level shows that the leading countries produce 75% of the world's total dairy products on the average. Along with the richest countries in the world (European Union and USA), the top nine include four BRICS[2] countries, including Russia, which account for an average of 32% of the world's total dairy production.

Then, let's consider the Global Competitiveness Index (GCI) of the leading countries for the production of milk and milk products (milk equivalent)[3].

According to the report of the World Economic Forum GCI of Russia in 2015–2016, it made 4.44, which allowed to rise to 8 positions and take the 45th place in the global competitiveness ranking.[11] The report notes that, in comparison with the previous year, Russia position has improved largely due to macroeconomic factors. In terms of agricultural product production, in particular dairy products, which ensures the maintenance of the quality of life and at the same time influences industrial and social issues, Russia is included in top ten countries. To monitor the dynamics of Russia competitiveness, the analysis was made concerning GCI change of the top 10 leading countries in the production of dairy products for the period of 2011–2016 [Figure 3].

The performed analysis shows that, despite the relatively low values of GCI, Russia as a whole shows a positive trend, which indicates some improvement in the situation with regard to the implementation of competitive and industrial policy measures. Three groups of countries have been formed to assess competitiveness among the analyzed countries. The group taking the highest GCI values includes the United States, Germany, and the United Kingdom. The lowest values are taken by Turkey and three BRICS countries (Brazil, Russia, and India). The average level of competitiveness falls on New Zealand, France. and China.

Furthermore, for a full analysis of the leading countries competitiveness concerning the production of dairy products, the Labor productivity levels of these countries[4] were examined. The developer of Russia Competitiveness Report in 2011 is the most important and practically the only element explaining the medium-term indicators of the country economic growth. Although economic growth can be conditioned by many reasons it is sustainable only if productivity is increased."[13]

One of the most important results of the study is the conclusion about the relationship between productivity, competitiveness, living standards, and as a result, the well-being of citizens: "The World Economic Forum defines competitiveness as a set of institutions, policies, and factors that determine the level of the country productivity. The level of productivity, in its turn, determines the stable level of welfare that the economy can achieve. In other words, more competitive economies are usually able to provide a higher level of income for their citizens."[14] Thus, productivity can be one of the resulting indicators of competitiveness.

2 This is a group of dynamically developing countries, which was formed in 2006 by Brazil, Russia, India and China, and in 2011 it included the Republic of South Africa.

3 At the place of the European Union, Germany, Britain and France were considered as the countries that are the leading ones on the production of cow milk in the world.

4 The total labor productivity of countries is taken into account in the absence of statistical information on labor productivity of individual economic sectors.

Our studies [Figure 4] confirmed these theses. The maximum values of labor productivity fall on the United States of America, which has stable positive dynamics. The European Union is the next one in terms of productivity.

New Zealand and Turkey have a uniform difference in labor productivity decline, only in 2015, there is a significant increase of productivity in Turkey by 15.4%. The lowest values of labor productivity are taken by Russian Federation, which has a stable positive growth during all the years studied, except for 2015, where the value of the indicator decreased by 3.1%.

However, for the sake of macroanalysis completeness, it is necessary to study the influence of the industrial policy conducted on the competitiveness of countries. One of the main instruments of industrial policy is financial state support. It makes it possible to reduce significantly the strength of the inequalities in commodity exchange concerning the agricultural-industrial complex with other branches of the economy and ensure the effective operation of agricultural production as a whole.

The analysis of official government documents and statistical information shows that there is insufficient information on state support in the context of specific sectors of the economy at present. In this regard, for the analysis of state support concerning the production of dairy products in the world, it is possible to operate with official OECD statistical information on state support for agriculture as a whole.[10]

The total support estimate is divided into three main areas: Producer support estimate, general services support estimate, and consumer support estimate. Their ratio characterizes the priority directions concerning the spending of agrarian budgets of different countries.

If we consider the level of state support for countries [Figure 5], it can be noted that the highest values of state support for agriculture is in the developed countries - China, the European Union, and the US, where the budget allocates significant financial resources to support agriculture, and stimulate the modernization of technology and the technologies of agro-industrial production. At the same time, despite the strong excess of this indicator in China (the growth from 2010 to 2015 makes 115.5%), it is at an average level in terms of volume and competitiveness. The European Union and the USA have achieved high results in the production of dairy products, especially in recent years, despite the decline in state support from 2010 to 2015 by 14.19% and 5.99%, respectively.

The Russian Federation has unstable dynamics, it is far behind the developed countries and shares the fourth place with Turkey in terms of state support for agriculture, with the predominance of the level of the latter in 2010–2012. The lowest value of state support is demonstrated by New Zealand.

CONCLUSIONS

Thus, as the result of ranking, three main groups of countries can be singled out.

The first group is represented by model countries (benchmark countries) - the European Union and the United States of America (the leaders in terms of volume indicators and labor productivity, they have high competitiveness with relatively moderate amounts of state support).

The second group of countries are the countries with an average level of efficiency on the implementation of competitive and industrial policies, including New Zealand (which, with

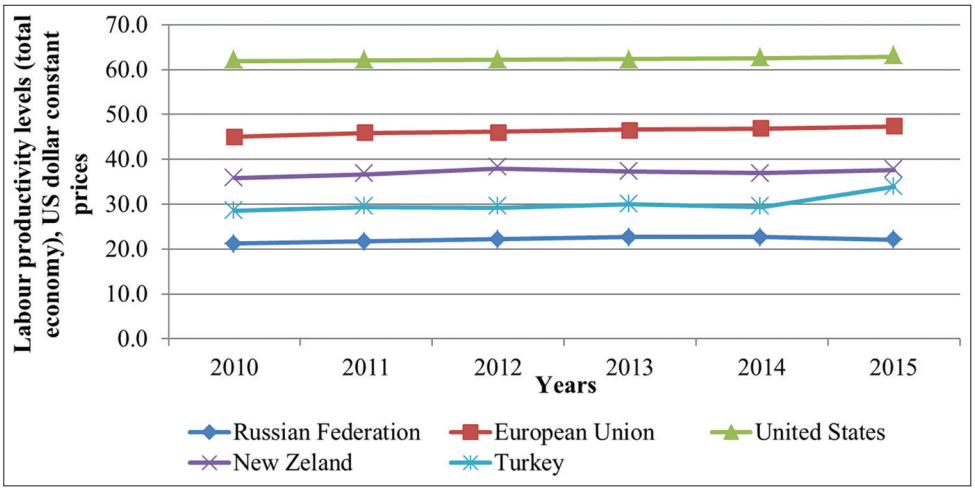

Figure 4: Labor productivity levels and total economy (gross domestic product per hour worked) of the leading countries in the production of milk and dairy products[5] [10]

5 Brazil, India, China and Pakistan are not considered due to the lack of available statistical data.

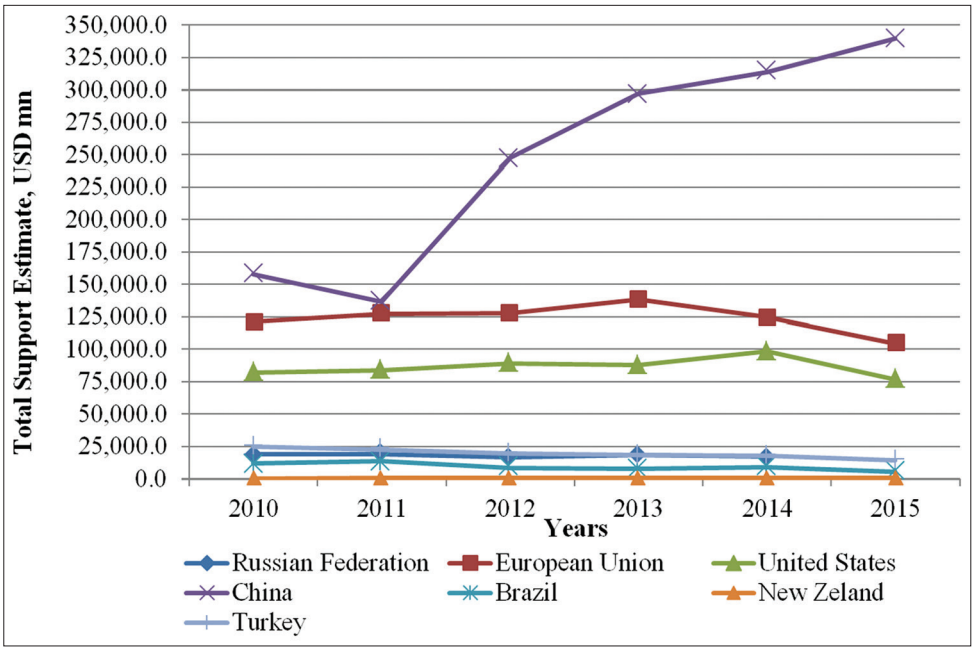

Figure 5: The volume of state support for agriculture among the leading countries on the production of milk and dairy products[10]

the lowest state support, is the third one in terms of labor productivity and shows an average level of competitiveness) and China (which is the fourth dairy producer in the world, it has the average level of competitiveness under the highest state support).

The third group - problem countries - is presented by Brazil, Turkey, and Russia, which have low volume indicators and productivity with low state support and a low level of competitiveness.

SUMMARY

The Russian Federation has low positions in the developed classification (the average level of volume indicators of production with relatively low levels of competitiveness and state support). The most important problem is that, in terms of labor productivity, it is in last place among the surveyed countries. All these allow us to conclude that the main vector for further development should be directed, first of all, to competition policy increase, namely, to the stimulation of competition and antimonopoly regulation, to the control of natural monopolies, to the development of small and medium-sized enterprises, to the control of transactions of economic concentration, and to the maintenance of competitive environment.

During the analysis of agriculture competitiveness, the author noted the fact that "the size of the trade mark-up makes 40%, while it varies from 8% to 12% all over the world."[15] In fact, among the producers of milk (private households), most of the profits are withdrawn, making its activities ineffective.

The control of intermediaries, procurement companies acts as the proposal through price regulation and the simplification of product chain achievement from producer to consumer, with the reduction in the number of intermediaries, which experience the delay concerning a significant part of the revenue that affects the final price of production.

Furthermore, studying the experience of developed countries - the European Union and the United States of America - concerning the support of the agribusiness sector, since they already have a long practice in WTO, we would like to focus on the instrument called three baskets method. The blue basket is the support measures to limit agricultural production. The green basket is the measures of state support that do not directly affect production growth and trade restrictions. Yellow basket is the measures of state support, stimulating agricultural production and directly affecting the trade in agricultural products.

If the yellow and green baskets are more used in Russia, then the model countries of the European Union also use the blue one, which is not fully acceptable for the Russian Federation due to the incomplete market saturation with goods. If the country is aimed at the volumetric indicators of dairy production and productivity increase, the blue basket may be proposed as one of the measures in the future. Along with this, it is recommended to increase the share of the green basket and change the form of state support for the agricultural-industrial complex using the example of model countries, aimed primarily at the introduction of innovative and resource-saving technologies, technical modernization, the manufacturing of high-quality products, state insurance, the maintaining of price parity, the improvement of skills, and the diversification of labor resources and wage increase.

To achieve these objectives, the main proposals are the amendments to the relevant legal and regulatory acts of the country and the development of organizational and economic mechanisms aimed at the provision of an even distribution of profits with the reduction of production cost in all segments of dairy product production chain.

Thus, on the basis of international comparative analysis concerning the specifics of competitive and industrial policy implementation in the sphere of dairy production, possible prospective directions were identified in the Russian Federation to improve the efficiency of state policy implementation in the sphere of this sector development.

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