

**SERGII ILLIASHENKO**  
**KONSTANTYN ILLYSHENKO**  
**TETYANA ILLYASHENKO**

## **FISCAL DECENTRALIZATION: THE POLAND EXPERIENCE AND UKRAINIAN PROSPECTS OF IMPLEMENTATION**

Summary: The article has devoted to the critical reviewing of the fiscal decentralization implementation process in Poland and the possibility of this positive experience usage in Ukraine. The authors studied the key advantages, disadvantages and other results of a Poland public finance reforming process including rebuilding the new system of an intergovernmental fiscal relations; systematized main directions of a possible fiscal system improvement in Poland. The authors identified potential risks and possible theoretical issues of a fiscal decentralization process that required additional studying and improving in conditions of Ukraine.

Keywords: fiscal decentralization, fiscal equalization, fiscal capacity of a territory, local budget revenues

### 1. INTRODUCTION

In the context of a global political and economical challenges faced by Ukraine in recent years, especially important to the country is ability of a quickly respond to a situation which is constantly changing and being able to mobilize all necessary resources.

A significant part of both political and economical problems of modern Ukraine today, in our opinion, is related to the spatial distortions and imperfections of the existing mechanism of its alignment.

The presence of even preheated from outside local hearths of citizens discontent of Ukraine government policy and economic living standards at the respective territories contributed to the spread of separatist moods, which constitute today a key threat for Ukraine.

### 2. FORMULATION OF THE PROBLEM IN GENERAL TERMS

Historically, the Ukraine government system that was formed in the Ukraine many years ago, are not able to solve a number of important issues of the spatial development of individual territories.

These problems manifest themselves, in particular: the uneven spatial distribution of the activity of economic entities in the country, which only heightens the polarization trends and deepen inter-regional imbalances; contraction of economic space in the region due to increased concentration processes and preservation of local depression areas; exacerbation of inter-territorial competition relations, including the allocation of financial resources of state support; enhancing the economic potential of the major cities in terms of its reduction for small towns; enhancing the effects of social polarization in rural areas and so on. [1, 17]

Overcoming these problems could facilitate the implementation of administrative and fiscal decentralization policy. Taking into account the positive experience of our neighboring countries and, in particular, Poland, Ukraine could expect for the same quick and positive changes in its economy: the strong and financially independent regions of the country would be able to create a proper stage for the prosperity of the whole country.

Successful implementation of the basic principles of the concept of fiscal decentralization in Ukraine requires substantial preparatory work. Ukraine has no chance to make mistakes and that is why it is necessary to study in detail the existing experience of similar reforms, especially in those countries where positive results have been achieved; to prepare the necessary regulatory and methodological framework, which will enable to carry out reforms systematically and consistently taking into account the country's national identity.

This article is devoted to the study of the problems and prospects of the possible application of the best practices of Poland into the implementation process of similar reforms in Ukraine.

### 3. THEORETICAL EVIDENCE OF A FISCAL DECENTRALIZATION BENEFITS

Famous economists, theorists Musgrave [Musgrave, 1959] and Oates [Gates, 1972], whose works are fundamental to the theory of fiscal decentralization, noted that decentralization helps promote allocative efficiency, helping to improve the level of public goods and services provision with higher transparency of government spendings. Decentralization in their opinion, increases the efficiency of public spending despite the fact that local authorities, firstly, are closer geographically directly to the place of provision of services and, secondly, are more prepared in organizational and informational sense to do so. In addition, local authorities are well controlled by the recipients of such services [A. Aristovnik, 2012: 7].

In addition to the above, decentralization of public spending can contribute to augmentation of efficiency of consumers, despite the fact that the demand for public services may vary for specific areas and limited government resources can thus be directed selectively to the specific needs of a given territory [Martínez-Vázquez and McNab, 2003]. Moreover, decentralization of public sector spending clearly facilitate augmentation of competition as the horizontal and vertical [Tiebout, 1956], forcing local authorities to seek the most effective ways to meet the urgent needs of society.

Some scholars [Dabla-Norris, 2006], [Ebel and Yilmaz, 2002] also noted the special positive role of a public spending decentralization policy in promoting the democratization process of decision-making at the local level. But it should not forget about the existence of significant risks accompanying administrative and financial decentralization in the country, especially in

conditions when a country is actually at war. One of the most significant risk is the risk of losses the financial control over part of the territory of the country.

Finishing examining the general theoretical arguments in favor of expediency implementation of the public expenditure decentralization policy we will try to analyze the successes and shortcomings of Ukraine on the way of development of autonomous and at the same time powerful systems of local governments.

#### 4. THE FISCAL DECENTRALIZATION PROCESS OF POLAND AND UKRAINE COMPARATIVE ANALYSIS: PROBLEMS AND PROSPECTS

Fiscal decentralization in Ukraine, as a tool of improving the efficiency of provision and at the same time quality of public goods and services gained real impetus for implementation only with the adoption of the “Concept of local government and territorial organization reforming in Ukraine” by the Government of Ukraine [1].

The need for state finance decentralization in the country confirmed by the dynamics of the relevant statistical indicators: the share of local budgets revenue in the total revenue of the consolidated budget of the Ukraine in 2014 was only 22.2%, that was 1.6% less than the same period of the previous 2013 [10].

A new stage of local budgets in Ukraine begins simultaneously with the launch of the reform of intergovernmental relations in Ukraine since 2015. In December 2014 it was made relevant amendments to the Budget Code of Ukraine. Government introduced a qualitatively new model of financial security of local budgets and new approaches in relations between the state budget to local budgets. Under the changes that were made to the Budget Code, was expected increasing in local revenues in 2015 due to the transfer of 100% of fees for administrative services; 100% of the state fee, 10% corporate income tax from the private sector.

Additional revenues of local budgets in 2015 were formed by the excise tax on the retail sale of excisable goods (at 5%); tax on cars with big engine capacity and expanding the tax base of property tax through the additional inclusion of commercial real estate.

In addition, the reform provided that starting from 2015 the community will receive a basic grant to improve their fiscal budgets capacity, as well as new transfers: education subvention, grants for training workers and medical subvention.

By 2015, the Ministry of Finance of Ukraine carried out the calculations of the expenditures of local budgets in accordance with the number of users of public services in the relevant areas and budget expenditures standards. The resulting sum was compared with the value of expected revenues of local budgets, and in the case of excess of expenditure over income the government provided a subsidy.

Since the 2015 amendments to the budget law eliminated the concept of income and expenses that are counted or not counted when determining intergovernmental transfers. Transfers from the state budget provided only to equalize fiscal areas capacity depending on the level of revenues per capita.

Basic grant provides horizontal equalization of fiscal areas capacity depending on the level of revenues per capita. Alignment are two taxes: enterprise profit tax for the regional budgets and tax on personal income for the budgets of cities, districts and regional budgets. Therefore, local budgets with the level of revenues below the 0.9 average for Ukraine receive a basic grant (80% of the amount needed to reach the figure 0.9) to improve their security. For local budgets to the level of revenues in the range of 0.9 to 1.1 equalization is not made. So the basic subsidy will be given for a budgets with the level of revenues per capita below UAH 724.3 for cities and UAH 480.2 for districts area. For budget with revenues in excess of 1.1 times the average for the country will apply Reversible grant, which will include removal to the state budget 50% of such excess. [11]

The above analysis of regulatory changes relating mainly financial relationships with the authorities of the central government at the local level did not fully disclose the whole essence of reforms that Ukraine expected. An integral part of the initiated reforms is also "silent" administrative reform in Ukraine.

The reform of local government in Ukraine is modeled on the Polish, which is considered as one of the most successful in Europe. One of the most significant results of the reforms that took place in Poland, was the formation of a new management system, based on decentralization. According to the three-tiered system of local government was elected gminu as basic self-governing unit, powiat (Ukrainian analog - the district) and wojewodztwo (region) - as independent from one another autonomous level of governance which are subject to supervision by the state in the framework defined by law. Model of power has changed in favor of communities and their rights to self-government. Financially self-sufficient local government exactly at a basic level could take over most functions of the viability of communities. Effective government was the impetus for socio-economic development of rural communities and villages.

In Poland, the reform caused the reduction of a communes number from the 9.5 thousand in 1955 to 2.5 thousand in 1990. The scale of the expected reforms in Ukraine even more impressive - from 11.5 thousand of city, town and village councils are expected to form 1.5 thousand communities. The number of rural communities during voluntary unification into a new community will be 9 thousand people, the average number of settlements in this community will be 16 units, the expected area - about 400 km<sup>2</sup>, the maximum distance to the administrative center 20 km [9].

Thus, in Ukraine for one unit of local government of a basic level at average should treat rural population - almost 5 times less than in Poland; villages - less than 8 times; territory - almost 3 times less. Will reform under such conditions in Ukraine be the same successful as in Poland? It is not known, because of the obvious difference between fiscal capacity of a basic self-governing units in countries compared.

Obviously it is clear by the fact that the success of reforms initiated in Ukraine is largely dependent on the nuances of reform that was launched and the reasonableness of project qualitative and quantitative parameters of basic self-governing units. For a meaningful analysis of the prospects for Ukrainian reforms would be advisable to examine positive experiences of other countries that have successfully carried out similar reforms.

Reform of local government in Germany in the mid-1960s began with the work of the expert committee, which had to solve such problems - justify the functions of local government in modern society and sizes of communities for their effective implementation (by area and population). The Commission has developed two models of community, one - in rural communities (population 8 thousand persons, minimum - 5 thousand), The second - for areas with high population density where the optimal number of residents of the community amounted to 30 thousand. The implementation of reforms in Denmark and Norway also preceded by the work of commissions that determined the size of economically viable communities. For Norway it was 2,5-3 thousand of residents for Denmark – 5,6 thousand. [12].

The analysis shows that in terms of average population of a basic self-governing unit future Ukrainian community – 9 thousand people – is closer to optimal parameters defined by German experts.

Subsequent success factors Ukrainian budget and administrative reforms should be:

- statutory (legal) division of powers between the state and local governments;
- a mechanism to ensure adequate financial resources of local governments, sufficient for implementation powers assigned to them and
- fair mechanisms of horizontal fiscal equalization.

In the scientific finance literature one can find three main classic functions that play public finances: the allocative, redistribution and stabilizing function. Musgrave considering the objectives of local governments in the implementation of the concept of fiscal decentralization assigned them a key role in the implementation of the first - allocative function. The remaining two functions theoretical scientist assigned to the central government [Musgrave, 1959].

The key point of the theory of fiscal decentralization is the issue of the independence of local governments. Independence is seen both in terms of ensuring independence of income, sufficient for fulfillment of their duties, and independence of expenses. Financial independence of local

government concerns two main aspects: the independence of income and expenses. The autonomy of income is understood as a situation where local authorities sufficient financial resources for the independent exercise of their own and delegated powers. This is considered to be an ideal option when financing basic expenses of local government bodies is due to their own sources of income.

Local taxes and fees are undoubtedly a key source of this category of revenues, but nevertheless other sources can be identified, e.g. revenues received from property owned by the local government entity. [13]

According to Polish budgetary system, own revenues of local government includes as their own tax sources of income, as local government shares in state income taxes. In Ukraine, we have a similar situation: Table 1 contains relevant data.

Table 1. General state taxes in the formation of revenues of local budgets

	Local government shares in state taxes	
	Ukraine	Poland
1. State personal income tax	<b>75%</b>	<b>51,25%</b>
– municipalities	60 %	39,4%
– poviats/district	-	10,25%
– voivodeship/region	15%	1,6 %
2. Corporate income tax	<b>10%</b>	<b>22,86%</b>
– municipalities	-	6,71%
– poviats/district	-	1,4%
– voivodeship/region	10%	14,75%

The assignment of fixed fate of national tax on personal income into the own-source revenue base of local budgets in Ukraine is not even correct simply because it is a national tax. Local governments can not directly influence on process of its administration. The problem of the autonomy and independence of local government in Ukraine becomes obvious when the fate of such partly redistributed national taxes in the structure of local budgets become essential.

For Poland, for example, in 2012 the revenues of local budgets by 35% formed through the redistribution of national income tax. In Ukraine the situation is even more critical. Analysis of the Sumy city budget for 2016 year (Sumy is the regional center and a typical representative cities of Ukraine) showed the following: tax revenues make up nearly 40% of total local budget

revenues. With 85% of them is the income tax, which is redistributed part of a national income [14].

Analyzing the shortcomings of the existing Polish system of financial autonomy of local governments and M. Poniatowicz R. Dziemianowicz noted that the first, the local government has no influence on key structural elements of local government taxes, i.e. their rates. This approach significantly reduces local taxing power. Secondly, it seems necessary to make complex changes in the Polish tax system in the context of the distribution of tax revenues between the different levels of local government. In the current legal status, neither poviats nor voivodeships have local taxes and these entities have been completely deprived of the opportunity to use the instrument of local taxing power. Thirdly, the scope of local tax autonomy in Poland may also be extended as a result of certain institutional changes relating to the strengthening of the capacities of local tax authorities. [M. Poniatowicz , R. Dziemianowicz, 2016].

We propose to analyze the current problems and prospects of the existing fiscal autonomy resource support system of local governments in Ukraine. Horizontal fiscal adjustment is intended to eliminate differences in the level of budgetary provision. In other words, the essence of horizontal fiscal equalization is financially balance the budget on the territorial criterion. And the horizontal equalization must implement another classic feature state - stimulating the development of the local communities.

Let's try to analyze firstly whether, the system of tax sharing between the various levels of local government in Ukraine meet the modern principles of this consolidation and, secondly, how reasonable, effective and stimulative is the existing mechanism of the public spending horizontal equalization.

Thus, the theory of fiscal decentralization assumes [Bukowska, 2008] that own revenue sources of local governments should be formed by taxes and fees on which such bodies have direct effect. In addition, the total revenues from taxes has to some extent depend on the efficiency of the local government activity. It is under these conditions there is the motivational component of state regulation of the economy, when every local authority at their level is interested in increasing the tax base for those taxes to which it has influence.

According to the Budget Code of Ukraine list of a key local taxes and fees, which form the resource base of local budgets in Ukraine includes: land tax, property tax and a Single tax on small and medium businesses. Regarding the first two tax of a list, the logic of the State body is absolutely clear: firstly, local governments in Ukraine through the granted to them power may affect the amount of tax charged to the budget through the establishment of a certain tax rate within the limit provided by national law and by using the mechanism of tax exemption and

rebate. Secondly, the efficiency of local government activities is one of the most significant factor that affect the value of the local tax bases: land and real estate value. Realizing its own and delegated powers local government exactly by its actions should create appropriate conditions for the existence of all the members of relevant territorial community. As the amenities are freely given by nature (specific features of the landscape, the presence of mineral springs, special climatic conditions, etc.), as artificial conditions (engineering, transport and social infrastructure and so on.) within a certain territory guarantee more advantages or benefits for both business and people, who lives here in comparison to other areas. Additional spatial amenities for the households lead to cost savings on healthcare, transport and travel or in the form of additional earnings opportunities. Additional spatial amenities for business lead to opportunities to save on production costs or expanding the range of goods or services that may be provided by businesses in certain territory.

In any case, the factors of the first group and the second group are formed directly or indirectly attractiveness of a territory for life. The appeal in turn is reflected in the value of residential and commercial real estate. Therefore we can confirm the relationship between the efficiency of the operation of the local authorities and the amount of revenue from taxes on land and property. It should be noted that the existence of such a relationship can only be provided when the tax base for land tax and real estate will act as their market value, not the square or any other artificially calculated value.

At the next stage of our analyzing of the prospects for fiscal decentralization in Ukraine we propose look into the issue, what are the aims of using an existing horizontal equalization financial mechanism in Ukraine; whether this mechanism provides positive motivation pulses locally.

As was noted earlier, budget equalization in Ukraine is carried only with two taxes: enterprise profit tax at the level of regional councils and the tax on personal income to the extent that assigned to the municipalities and other actors of the budget process. This mechanism discussed above and it seems helps equalize fiscal capacity of the territory, but what actually happens?

Let us try to deal with the key issue of our research, whether maximizing the local fiscal capacity on a personal income tax is the main objective function of a local government? Does the equalization of a local budgets tax revenue per capita from personal income tax indicate a true purpose of a budget management?

Theoretical literature and the results of several empirical researches suggest that wage differentials as a rule means interarea differences in cost of living and site-specific amenities valuation. There is a relationship between cost of living, and wage differentials. Differences in cost of living in part reflect the valuation placed on land and other goods and services owing to



site-specific amenities valued by consumers or businesses [Roback, 1982; Roback, 1988; Beeson, 1991; Ebert, 1992].

High wages do not usually mean a better quality of life and development of the territory. Some local surcharge to the national average value of remuneration can only be treated as a compensation to the employee his extra costs associated with living within a certain territory. As such, we believe that local fiscal capacity equalization mechanism exactly in terms of the tax rate on personal income is absolutely unfounded. This mechanism does not encourage local sustainable development. More logical for us would be mechanism of horizontal fiscal equalization, in which the object of regulation, for example, could be the gross regional product, taking into account the degree of rationality and progressiveness of its structure.

According to our findings more logical, although to some extent, much more complicated in terms of possible implementation would be horizontal fiscal equalization mechanism in which the subject of this equalization would be gross regional product.

## 5. CONCLUSIONS

Comparative analysis of the current state and prospects of the concept of fiscal decentralization in budget management practices of the two neighboring countries Poland and Ukraine allows us to draw the following conclusions:

1. Despite the obvious successes of Poland in the development of autonomous systems of powerful local authorities a number of questions are still remains unresolved. These issues are directly related to the need to reform the tax and the distribution system and division of powers regarding tax administration between different levels of government. These issues are directly related to the need to reform the tax system and the distribution of power system regarding tax administration between different levels of government.

2. The system of horizontal equalization of local budgets in Poland does not bear a stimulating function, eliminating any incentives for increasing fiscal capacity for weak regions.

3. Sources of local budget expenditure covering should be periodically reviewed. Increasingly, there are proposals from local governments to fix as the revenues of local budgets, for example, a certain part of the national value-added tax.

Regarding problems and prospects of implementation of the modern concept of fiscal decentralization in Ukraine, we can draw the following conclusions:

4. The fiscal decentralization brings the risk of federalization and weakening of state control over the implementation powers to be transferred to the executive bodies of local councils, in terms of the weakness of civil society.

5. Voluntary nature of administrative reform that takes place in Ukraine threatens a significant slowdown of financial reform. Despite the voluntary nature of administrative reform, proving the feasibility and effectiveness of the integration of communities will require a lot of time; also there is a possibility of a political resistance of local elites.

6. The current tax system of Ukraine needs to be changed at least in the sphere of property taxation. As shown above, the land and real estate taxation should be carried out on the basis of their real market values instead of any artificial substitutes.

7. Ukraine's existing mechanism of horizontal fiscal equalization require updating and revision. The State disparities equalization of an local area development should be more prudent and selective. Local authorities should have sufficient incentives for increasing their own financial potential. It is appropriate here may be to study the experience of Germany in terms of balancing the financial interests of certain territories across the country.

Balanced regional and local development regulation that based on the mechanism of fiscal decentralization does not guarantee by itself sustainable economic growth of Ukraine, but at least allows to activate all the internal resources and incentives for locally efficiency. The country becomes stronger because of strong and financially autonomous regions. This was confirmed by the experience of Poland and this gives us a hope for a similar positive result in Ukraine.

## References

1. Територіальний розвиток та регіональна політика в Україні / НАН України. ДУ «Інститут регіональних досліджень імені М. І. Долішнього НАН України»; наук. редактор В.С. Кравців. – Львів, 2015. – 246 с.
2. Musgrave, R.A., 1959. The Theory of Public Finance. A Study in Public Economy. New York: McGraw-Hill.
3. Oates, W.E., 1972. Fiscal Federalism. New York: Harcourt Brace Jovanovich.
4. A. Aristovnik Fiscal Decentralization in Eastern Europe: Trends and Selected Issues, Transylvanian Review of Administrative Sciences, No. 37 E/2012, pp. 5-22.
5. J. Martínez, R. McNab, 2006. Fiscal Decentralization, Macrostability, and Growth, [http://scholarworks.gsu.edu/econ\\_facpub/36](http://scholarworks.gsu.edu/econ_facpub/36) [access 10.03.2016].
6. Tiebout, Ch. M., 1956. A Pure Theory of Local Expenditure. Journal of Political Economy, 64 (5), 416-424. [https://www.unc.edu/~fbaum/teaching/PLSC541\\_Fall08/tiebout\\_1956.pdf](https://www.unc.edu/~fbaum/teaching/PLSC541_Fall08/tiebout_1956.pdf) [access 10.03.2016].
7. Dabla-Norris E. The challenge of fiscal decentralization in transition countries // comparative Econ. Studies. - N. Y. , 2006. - Vol. 48, n 1. - P. 100-131.
8. R. Ebel, S. Yilmaz, On the Measurement and Impact of Fiscal Decentralization, 2002. <http://www1.worldbank.org/publicsector/decentralization/decentralizationcorecourse2006/otherr eadings/ebelyilmaz.pdf> [access 12.02.2016]
9. Про схвалення Концепції реформування місцевого самоврядування та територіальної організації влади в Україні. Розпорядження КМУ від 1 квітня 2014 р. №333-р. <http://zakon4.rada.gov.ua/laws/show/333-2014-p> [access 20.02.2016].
10. БЮДЖЕТНИЙ МОНІТОРИНГ: Аналіз виконання бюджету за 2014 рік [http://www.ibser.org.ua/UserFiles/File/Monitoring%20Quarter%202014/ukr/KV\\_IV\\_2014\\_Mon itoring\\_ukr.pdf](http://www.ibser.org.ua/UserFiles/File/Monitoring%20Quarter%202014/ukr/KV_IV_2014_Mon itoring_ukr.pdf) [access 25.02.2016]

11. The Verkhovna Rada of Ukraine (2010), The Budget Code of Ukraine, available at: <http://zakon2/rada/gov/ua/laes/show/2456-17> [accessed 15.02.2016].
12. І.Луїна Декларації та реалії бюджетної децентралізації <http://gazeta.dt.ua/finances/deklaraciyi-ta-realiyi-byudzhetnoyi-decentralizaciyi-abo-yakimi-naspravdi-ye-finansovi-povnovazhennya-miscevoyi-vladi-.html> [accessed 05.03.2016].
13. M. Poniatowicz , R. Dziemianowicz Limited taxing power of local government entities in Poland as a determinant of tax competition at the local level, march 2016. [https://editorialexpress.com/cgi-bin/conference/download.cgi?db\\_name=PET15&paper\\_id=174](https://editorialexpress.com/cgi-bin/conference/download.cgi?db_name=PET15&paper_id=174) [accessed 05.03.2016]
14. Рішення Сумської міської ради року № 143 - МР від 24 грудня 2015 «Про міський бюджет на 2016 рік» <http://www.meria.sumy.ua/index.php?do=cat&category=mский-byudzhnet> [accessed 01.03.2016].
15. Bukowska, G. (2008). Teoretyczne podstawy podziału kompetencji pomiędzy władzami centralnymi a lokalnymi, in: Kleer, J. (ed.). Samorząd lokalny – dobro publiczne. Warszawa: CeDeWu.
16. Roback, Jennifer. "Wages, Rents, and the Quality of Life." Journal of Political Economy, December 1982, 1257-78.
17. Roback, Jennifer. "Wages, Rents, and Amenities: Differences Among Workers and Regions." Economic Inquiry, January 1988, 23-41.
17. Beeson, Patricia and Erica Groshen. "Components of City-Size Wage Differentials, 1973-1988." Economic Review, Federal Reserve Bank of Cleveland, 1991:4, 10-24
18. Eberts, Randall W. and Joe A. Stone. Wage and Employment Adjustment in Local Labor Markets. Kalamazoo, MI: Upjohn Institute for Employment Research, 1992.

Dr. Sc., professor, **Sergii Illiashenko**

head of Department of Marketing and MIA, Sumy State University (Sumy, Ukraine.);

Dr. habilitowany, Professor, University of Economics and Humanities (Bielsko-Biala, Poland);

40007, st. R.-Korsakov, 2, Sumy, Ukraine

illiashenko.s@gmail.com

Ph.D., assoc. prof. **Konstantyn Ilyashenko**

Sumy State University (Sumy, Ukraine.)

Educational and Research Institute of Finance, Economy and Management behalf of Oleg Balatskiy, Department of Finance and Credit

40007, st. R.-Korsakov, 2, m. Sumy

k.illyashenko@finance.sumdu.edu.ua

Ph.D., assoc. prof. **Tetyana Ilyashenko**

Sumy State University (Sumy, Ukraine.). Educational and Research Institute of Finance, Economy and Management behalf of Oleg Balatskiy, Department of Finance and Credit

40007, st. R.-Korsakov, 2, m. Sumy

t.illyashenko@finance.sumdu.edu.ua

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