

Natalia Shura*
Anatolij Turilo**

The use of clusters to assess the business potential of an enterprise

Introduction

Many scholars research the issue of developing methods to assess the economic potential of enterprises. Assessing the capabilities of enterprises to survive in market conditions, to increase their production capacity, to develop and implement effective strategies is particularly important in conditions of economic crisis. In accordance with this, quite often enterprises resort to assessing their existing economic potential. In doing so, they have the opportunity to formulate development strategies for the future.

There are a lot of methods for assessing the economic potential of enterprises. In general they are presented as ad-vive, multiplicative and rating integral models. Each model has its advantages and disadvantages. This article will not be focused on analysing each model's shortcomings.

In our opinion, the existing disadvantages in estimating the economic potential of an enterprise can be overcome by:

- taking into account industry specific features of enterprises,
- acknowledging intra-industry economic clustering of enterprises.

Accounting for the industry-specific features of an enterprise allows us to adapt the estimation methodology to a specific industry and to a certain range of economic indi-

* Docent Natalia Shura, candidate of economic sciences associate professor of accountancy, taxation, public management and administration department SHEE, Kriviy Rig National University, Kriviy Rig, Ukraine.

** Docent Anatolij Turilo, candidate of economic sciences associate professor of accountancy, taxation, public management and administration department SHEE, Kriviy Rig National University, Kriviy Rig, Ukraine.

cators. This is necessary because the same index can have different values for enterprises in different industries and be considered effective at the same time. For example, the turnover period of current assets for a machine engineering enterprise is a few months; for a supermarket it is a few days. And in both cases this is a normal value.

We consider that intra-sectoral clustering provides a basis for estimating the economic potential of a particular enterprise. Clusters group enterprises with homogeneous characteristics. The level of economic potential of these enterprises can be identical. Consequently, the problem of using clusters to assess the economic potential of an enterprise and developing an appropriate methodology for assessing economic potential appears.

Analysis of scientific works

Western economists initiated the use of a cluster approach in economic research and have accumulated considerable experience in this field. In particular, well-known experts in the theory and practice of clustering are: M. Aldenderfer, T. Altenburg, A. Amin, C. Antonelli, R. Baptista, E. Bergman, R. Blashfield, S. Brian, R. Brown, G. Cook, D. Ellerman, M. Enright, I. Ffowcs-Williams, I. Gordon, C. Hartmann, N. Henry, D. Jacobs, M. DeJong, Ch. Ketels, G. Lindqvist, B. Loasby, P. McCann, J. Meyer-Stamer, K. Nadvi, E. Paisley, N. Pandit, M. Perry, S. Pinch, M. Porter, M. Prevezer, C. Romesburg, J. Sallet, H. Schmitz, O. Solvell, M. Steiner, D. Stout, P. Swann, and others.

In recent years the method of clustering has been used quite effectively in many Ukrainian and Russian economic studies, in particular, in the works of the following scholars: L. Baryshnikova, V. Gejec', R. Gorbljuk, G. Ivanchenko, Ju. Koval'ova, N. Alysheva, N. Mikula, V. Bazyljuk, I. Pistunov, O. Antonjuk, I. Turchaninova, O. Tyshhenko, S. Rozenfel'd, S. Sokolenko, V. Tret'jak, V. Chernyh, M. Vojnarenko, M. Kyzym, V. Kulishov, I. Lysenko, L. Lukan', G. Cegelyk, O. Nikoljuk, N. Panchenko, V. Rodchenko, V. Reutov, G. Semenov, O. Bogma, O. Farat, V. Zaluc'kyj, A. Alimova, N. Biljak, M. Bezpartochnyj, A. Bezus, K. Shafranova, K. Bogomolova, M. Bojko, I. Bryzhan', T. Vitryak, A. Volosov, N. Gapak, S. Slava, O. Dlugopol's'kyj, L. Zaburanna, I. Klimova, I. Mel'man, I. Mjagkyh, O. Polinkevych, L. Popova, T. Mitjajeva, T. Pulina, A. Tyrinov, I. Homenko, A. V. Bazyljuk, N. Bojko, O. Jermakova, R. Tos'ko.

However, capacity assessment is currently only used in industry sector and regional analysis. Nobody uses clusters to estimate the economic potential of a particular enterprise.

Developing scientific methods to use clusters to assess economic potential

The concept of the cluster was reimagined Alfred Marshall's (1890) arguments and introduced its into academic discourse by the founder of the clustering phenomenon – M.E., Porter (Porter, 1998). It means geographically concentrated groups of firms, organizations, industries with certain boundaries within which there are strong horizontal, vertical or structural links that conduct/can conduct/work together, and also compete among themselves (Vojtovych, 2013: 256).

Scholarship on clustering in Ukraine and Russia includes some work on different types of economic potentials (basically this is the potential of the industry or region, the potential for competitiveness or clustering). In addition, clustered associations of enterprises are examined from two positions:

- natural – are formed in a natural way on the basis of the economic environment of functioning, the level of economic development, etc;
- artificial – are formed on the basis of business association of enterprises for the purpose of effective collaboration.

Proceeding from this, we have generalized the methods on the use of clusters to estimate economic potential (Table 1).

Table 1. Scientific methods about the clusters use for the economic potential estimation

Seq. №	Scientific methods	Author	Author's thoughts
1	2	3	4
1.	Use of enterprises' natural clustering to estimate the potential of a region	M.P. Vojnarenko, L. Bogatchyk, 2014: 173	A regional cluster is formed to strengthen the estimated economic potential of a certain territory / market. It, in turn, enhances a region's competitiveness.
		M.P. Vojnarenko, L. Rybchyns'ka, 2011: 47–52	The development of a cluster in a region can be a factor that contributes to an increase in a regions' economic potential. Industry sector clusters are examined as having a positive influence the region's economic potential.
		S. Zabedjuk, M. Balako, 2014: 73	For the effective use of resources in a region, the forming of clusters on the basis of the region's endogenous potential can be effective.
		I.V. Levyc'ka, 2016: 95	The forming of a regional tourist cluster may enhance tourist potential.
		V.V. Pechatkin, 2010: 42	Regional clusters which have potential are distinguished, and infrastructural and innovative constituents of regional development identified

Seq. №	Scientific methods	Author	Author's thoughts
1	2	3	4
2.	Use of enterprises' natural clustering to estimate the potential of industry	T. Vitřjak, 2016: 64	Clusters of labour-markets are investigated and possible strategies of regional labour-markets development are advanced.
3.	Use of enterprises' artificial clustering to estimate the potential of the region	N. V. Vojtovych, 2013: 94	Integrate agrarian clusters to enhance the development of regional resources. Support public welfare and social integration.
		G. Ivanchenko, 2012: 66	Clusters show that interconnected enterprises can have potential that exceeds the sum of their separate potentials. The synergies of clusters allow enterprises to be competitive and reduce their cost base.
		T. Pepa, 2014: 10	A cluster approach can be used to develop and increase the resource potential of a region. This, in turn, is one of the main steps to optimise the economic structure and to enhance competitiveness.
4.	Use of enterprises' artificial clustering to estimate the potential of industry	V. Goncharov and L. Martynova, 2012: 115	Enterprises develop closer connections to firms in their own cluster compared with firms in other clusters. This is a pre-condition of developing an industry's adaptation potential.
		N. Stanasjuk, 2016: 117	The conception of the cluster development of industrial potential has different stages: the creation of industry-sector clusters; identification of the leading industry-sector; creation of innovative clusters and the forming of a corresponding innovative environment in the economy of country.
5.	Use of enterprises' artificial clustering to estimate the potential of clustering	M. Makarenko, 2012: 218–222	Work out methods of estimating a cluster's potential. This is followed by estimating a region economic potential.
		V. Ovcharuk, O. Maslak, K. Doroshkevych, 2014: 74–79	The importance of possessing knowledge is related to the potential of clustering in a region. Mechanisms to enhance a country's innovative development level are put in place.
		T. Pulina, 2013: 40–42	Methods for enterprises in the food industry to cluster are developed.
		D. Stechenko, I. Voronkova, 2015: 443–445	The synergies of clustering are assessed.
		K. Haviernikova, P. Srovnalikova and B. Jansky, 2015: 239	The methods of determining regional clusters' development potential are offered. This is important to further their effective functioning in specific regions.

Seq. №	Scientific methods	Author	Author's thoughts
1	2	3	4
6.	Use of enterprises' artificial clustering to estimate the potential of clustering competitiveness	N. Balabanova, 2012: 27–28	The forming of clusters is the primary factor increasing a region's competitiveness.
		Yu. Bachinina, 2007	The methods of estimating enterprises' clustering efficiency are perfected. This leads to additional possibilities (potential) to enhance regional competitiveness so long as there is effective management of cluster associations.
		I. Bryzhan, 2011: 79	Examining the economic potential of a region: The appearance of a cluster enables innovative activity in a region to take place due to the more effective introduction of innovations and a rise in labour productivity in agricultural over the medium-term and long-term.
		V. Semenov, O. Bilega, 2012: 365	An estimate of a particular industry's competitiveness is offered on the basis on an integral index. This index may indicate that development of a regional cluster has advantages.
		A. Taranych, 2015: 102	An estimate of the integral index of a cluster's competitiveness allows clusters to be compared. It enables the creation of a matrix of "market potential and competition".
7.	Use of natural (artificial) clustering to estimate the potential of clustering efficiency	V. Fedorova, 2013: 33–35	Estimates of clusters' economic efficiency are examined as an innovative way of doing business.
		S. Shkarlet, V. Il'chuk, I. Lysenko, 2014: 28–32	The methods of determining a clusters's economic efficiency and the impact of cluster synergies are offered.
8.	Use of natural (artificial) clustering to estimate the potential of region's (industries') development.	I. Mjagkyh: 2011: 105	It is suggested to develop the cluster business form to increase production / efficiency.
		Ju. Papizh, 2015: 130	Enhancing the effectiveness of regional development through the use of clusters.
		M. Porvin, 2010: 60	The priorities of Ukraine's regional industrially-innovative policy are grounded on the basis of forming clusters.
		O. Sobkevych, A. Shevchenko, 2011: 33–35	Cluster policy is practiced in Ukraine.
		L. Fedulova, 2011: 28–32	Clusters are examined as contributing to the growth of Ukraine's economy.
		A. Yatsenko, 2011: 95–99	Consideration of the regional economy through the prism of clusters allows a more precise way to define the factors influencing and supporting the economy.

Seq. №	Scientific methods	Author	Author's thoughts
1	2	3	4
9.	Use of region (industries) economic potential or its constituent methods to estimate potential for the construction of clusters	M. Bojko, G. Myhajlichenko, 2013: 19	A preliminary estimate of a region's (industries') cluster potential is offered.
		N. Gladchak, 2012: 98	It is suggested to estimate enterprises' labour potential and then to form clusters.
		I. Kulynjak, O. Gljanceva, 2014: 102–103	An estimation of enterprises' economic potential by examining their constituent parts (productive, financial, innovative, labour, marketing) is carried out. Corresponding potential clusters of every type are suggested.
		S. Plotnyc'ka, 2015: 242	The grouping of enterprises in clusters on the basis of their estimated productive potential is suggested.

Source: the author's research.

Coming from the analysis given above, the main scientific approaches and directions for estimating the economic potential or its components using clusters can be grouped as follows (Figure 1).

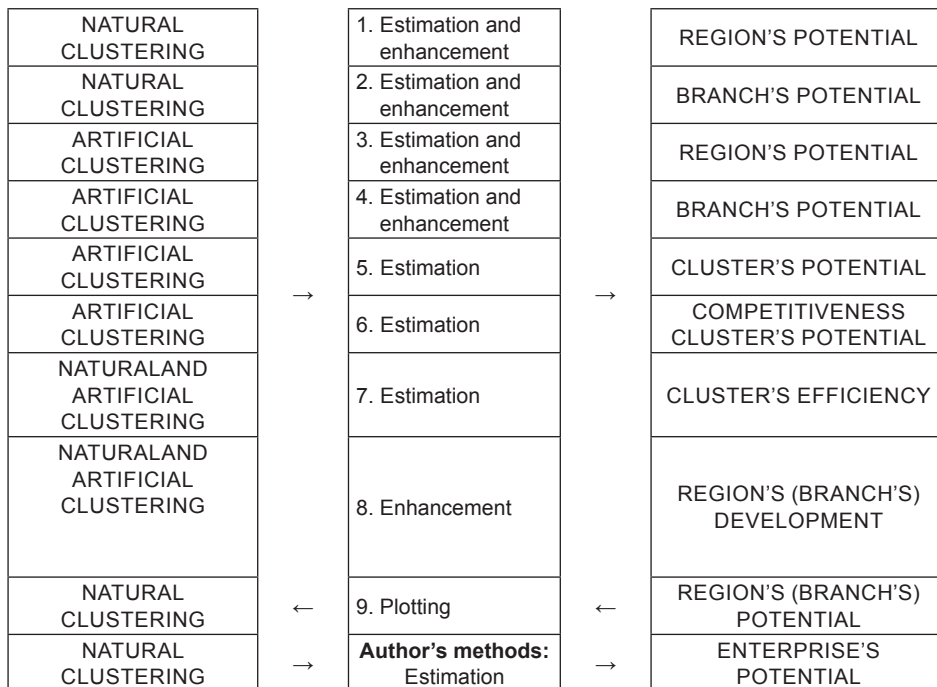


Fig. 1. Approaches to estimating and increasing economic potential with the use of clusters

Source: the author's research.

Thus, current research on the use of clusters relates mainly to regional and branch (industry-sector) potential, and sometimes – the potential of the cluster or the potential of cluster competitiveness. At the same time, the use of the clustering method in research that deals with estimating economic potential, as well as the use of clusters as a basis for assessing the economic potential of an enterprise, is absent in general.

Use of clusters to estimate an enterprise's economic potential

In our opinion, the use of the natural clustering of enterprises to estimate a particular enterprise's economic potential is possible. It should be noted that a precondition of natural cluster formation is their grouping on the real values of any index (sign) or group of such indexes. The clustering of enterprises can be examined on the basis of a concrete index. The values of indexes can characterize a certain level (high, medium, subzero, etc). In accordance with its level on the index, an enterprise is put into one cluster or another. Clusters with a high or subzero level of efficiency are formed.

The analysis of the disadvantages of existing methods of assessing the economic potential of enterprises shows that industry specific features of enterprises are often overlooked. Accordingly, the values of the same index for different industries or types of economic activity of enterprises may not be informative.

Proceeding from this, when developing a methodology for assessing the economic potential of enterprises, we consider it expedient to take into account industry specific features of enterprise activity. Base clusters should be built taking into account the economic activity (industry) of the enterprise.

We believe that a potential cluster is a natural territorial and sectoral group of enterprises based on a given economic performance indicator, the grouping boundaries of which are used as a basis for estimating the economic potential of a particular enterprise.

Proceeding from the fact that a number of economic indicators are used to assess the economic potential of the enterprise, grouped into separate components, and for the more obvious formation of a basis for estimating the economic potential of an enterprise, it seems expedient to form cluster networks. Such networks can be a basis for assessing the economic potential of the enterprise.

Conclusion

The analysis of the current approaches of estimating the economic potential of an enterprise has shown that they relate mainly to regional and industry sector potential, as well as the cluster's potential and the cluster's competitiveness potential. The use of the clustering method to assess the economic potential or its components for a single enterprise, and as a basis for assessing the economic potential of an enterprise – is generally

absent. Based on the results of the research, the expediency of using potential clusters as a basis for estimating the economic potential of a particular enterprise was shown.

References

- Bachinina Yu.P. (2007), *Klasterizatsiya kak vozmozhnost' obespecheniya konkurento-sposobnosti neftegazovogo regiona*, Neftegazovoe delo, No. 1, available at: http://ogbus.ru/authors/Bachinina/Bachinina_1.pdf [access: 27.11.2017].
- Balabanova N.V. (2012), *Vykorystannja klasterlyh struktur v pidvyshhenni konkurentospromozhnosti regionu*, Visnyk Mariupol's'kogo derzhavnogo universytetu. Ser. : Ekonomika, Vol. 4, pp. 26–32.
- Bojko M. G., Myhajlichenko G. I. (2013), *Turystychni klastery jak innovacijna komponenta ekonomichnogo rozvytku regioniv*, Visnyk DITB, No. 17, pp. 16–25.
- Bryzhan' I.A. (2011), *Klasterna model' rozvytku sil's'kogo gospodarstva Poltav's'koi oblasti*, „Ekonomika i region”, No. 2(29), pp. 75–81.
- Fedorova V. (2013), *Klasterij pidhid v organizacii' upravlinnja gospodarstvom suchasnogo regionu ta mozhlyvosti ocinjuvannja efektyvnosti funkcionuvannja klasteriv*, „Galyc'kyj ekonomichnyj visnyk”, No. 3(42), pp. 32–37.
- Fedulova L.I. (2011), *Organizacijno-instytucijni peredumovy formuvannja tehnologichnyh klasteriv jak tochok rostu ekonomiky Ukrainy*, Nauka ta innovacii', Tom 7, No. 2, pp. 25–34.
- Gladchak N.V. (2012), *Zastosuvannja klasterного analizu trudovogo potencialu pidpryjemstvamy z vyrobnyctva hliba ta hlibobulochnyh vyrobiv*, „Ekonomichni nauky”. Ser.: „Ekonomika ta menedzhment”, Vol. 9(2), pp. 94–99.
- Goncharov V.M., Martynova L.V. (2012), *Adaptacijnyj potencial klasteriv APK*, Vidpovidal'na ekonomika, Vol. 4, pp. 113–115.
- Haviernikova K., Srovnalikova P., Jansky B. (2015), *Identification of clusters' potential in regions*, K. Haviernikova, „Aktual'ni problemy ekonomiky”, No. 7(169), pp. 236–244.
- Ivanchenko G.V. (2012), *Synergetychnyj efekt klasterlyh utvoren' u regioni*, „Naukovyj visnyk Poltav's'kogo universytetu ekonomiky i torgivli”. Ser.: „Ekonomichni nauky”, No. 2, pp. 66–70.
- Kulynjak I.A., Gljanceva O.I. (2014), *Klasterij pidhid do ocinjuvannja potencialu pidpryjemstv legkoi' promyslovosti L'vivshhyny*, „Ekonomichnyj forum”, No. 3/204, pp. 96–104.
- Levyč'ka I.V. (2016), *Rozvytok turysty's'ko-rekreacijnogo potencialu regionu jak osnova formuvannja turystychnogo klastera*, „Naukovyj visnyk Uzhgorods'kogo nacional'nogo universytetu”, Vol. 9, pp. 92–96.
- Makarenko M.V. (2012), *Upravlinnja ekonomichnym potencialom regionu jak osnovuju formuvannja konkurentnyh perevag regionu*, „Aktual'ni problemy ekonomiky”, No. 4(130), pp. 217–224.

- Mjagkyh I.M. (2011), *Klasterna forma organizacii' – dijevyj zasib pidvyshhennja efektyvnosti vyrobnyctva*, „Aktual'ni problemy ekonomiky”, No. 10(124), pp. 104–107.
- Ovcharuk V.V., Maslak O.O., Doroshkevych K.O. (2014), *Konkurentospromozhnist' regionu v umovah klasteryzacii' nacional'noi' ekonomiky: sutnist' ta perspektyvy rozvytku*, „Ekonomichnyj prostir”, No. 85, pp. 72–81.
- Papizh Ju.S. (2015), *Osoblyvosti stvorennja klasternyh terytorial'no-vyrobnychych form optymizacii' gospodarstva regioniv Ukrainy*, „Ekonomichnyj forum”, No. 2, pp. 127–132.
- Pechatkin V.V. (2010), *Metodika otsenki i analiza potentsiala klasterizatsii ekonomiki regionov*, „Ekonomicheskij analiz: teoriya i praktika”, No. 28(193), pp. 42–48.
- Pepa T. (2014), *Napryamy realizacii' klasterного pidhodu v programuvanni vykorystannja resursnoi' bazy regioniv*, „Zbirnyk naukovyh prac' ChDTU”. Ser.: „Ekonomichni nauky”, Vol. 37, part 2, pp. 5–11.
- Plotnyč'ka S. (2015), *Zastosuvannja instrumentariju strategichного upravlinnja dlja diagnostyky ekonomichного potencialu agrarnyh pidpryjemstv*, „Visnyk Sums'kogo nacional'ного agrarnого universytetu”, Ser.: “Ekonomika ta menedzhment”, Vol. 5(64), pp. 239–244.
- Porter M.E. (1998), *On Competition*, Harvard Business School, Boston.
- Porvin M. Ju. (2010), *Kopmleksne vykorystannja teorij klasterного mehanizmu ta suchasni koncepcii' innovacijного rozvytku promyslovosti*, „Investycii': praktyka ta dosvid”, No. 21, pp. 59–61.
- Pulina T. V. (2013), *Vyznachennja potencialu klasteryzacii' harchovoi' promyslovosti Zaporiz'kogo regionu*, „Derzhava ta regiona”. Ser.: „Ekonomika ta pidpryjemnyctvo”, No. 5(74), pp. 38–44.
- Semenov V., Bilega O. (2012), *Ocinjuvannja metodychnych pidhodiv do identyfikacii' potencialu konkurentospromozhnyh pidpryjemnyč'kyh merezh*, „Ekonomichnyj anali”, Vol. 11, Part 3, pp. 363–366.
- Shkarlet S.M., Il'chuk V.P., Lysenko I.V. (2014), *Metodychni pidhody do vyznachennja ekonomichnoi' efektyvnosti funkcionuvannja klasteriv*, „Visnyk Chernigivs'kogo derzhavnого tehnologichного universytetu”, Ser.: „Ekonomichni nauky”, No. 2, pp. 25–34.
- Sobkevych O.V., Shevchenko A.V. (2011), *Rozvytok klasteriv jak chynnyk investycijno-innovacijного zrostannja ekonomiky Ukrainy*, „Strategija rozvytku Ukrainy. Ekonomika, sociologija, pravo”, No 3, pp. 30–37.
- Stanasjuk N.S. (2016), *Formuvannja promyslovyh klasteriv jak perspektyvnyj napryam rozvytku promyslovого potencialu*, „Visnyk Nacional'ного universytetu «L'viv's'ka politehnika». Menedzhment ta pidpryjemnyctvo v Ukraini: etapy stanovlennja i problemy rozvytku”, No. 851, pp. 110–117.
- Stechenko D.M., Voronkova I.Ju. (2015), *Pryncypy ocinjuvannja potencialu klasteroutvorennja v ekonomici*, „Ekonomichnyj visnyk Nacional'ного tehnichного universytetu Ukrainy”, Kyi'vs'kyj politehnichnyj instytut, No. 12, pp. 441–447.

- Taranych A.V. (2015), *Osoblyvosti formuvannja promyslovyh klasteriv i modeljuvannja procesiv efektyvnogo vykorystannja i 'h konkurentnogo potencialu*, [in:] *Teoretychni i praktychni aspekty ekonomiky ta intelektual'noi' vlasnosti*, Tom 2(2), pp. 96–103.
- Vitryak T.B. (2016), *Osoblyvosti klasterного modeljuvannja regional'nyh rynkiv praci Ukrai'ny*, „Rynek praci ta zajnjatist' naselennja”, No. 1, pp. 60–65.
- Vojnarenko M.P., Bogatchyk L.A. (2014), *Vykorystannja klasterного instrumentariju pry rozrobci subregional'nyh strategij pidvyshhennja konkurentospromozhnosti ekonomiky regioniv*, „Aktual'ni problemy ekonomiky”, No. 8(158), pp. 171–182.
- Vojnarenko M.P., Rybchyns'ka L.A. (2011), *Rol' klasternoi' polityky u formuvannja innovacijnogo potencialu regionu*, „Visnyk Hmel'nyc'kogo nacional'nogo universytetu. Ekonomichni nauky”, No. 3, Vol. 2, pp. 46–53.
- Vojtovych N.V. (2013), *Formuvannja integracijnogo klastera v agrarnomu sektori*, „Zbirnyk naukovyh prac' Tavrijs'kogo derzhavnogo agrotehnologichnogo universytetu”, Ser.: „Ekonomichni nauky”, No. 2(6), pp. 93–99.
- Yatsenko A.A. (2011), *Teoreticheskie aspekty klasterного analiza v gosudarstvennom upravlenii regional'nogo razvitiya*, „Ekonomika Kryma”, No. 1, pp. 93–101.
- Zabedjuk M.S., Balako O.V. (2014), *Ocinka pryrodno-resursnogo potencialu regioniv ukrai'ny ta umovy jogo efektyvnogo vykorystannja*, „Ekonomichnyj forum”, No. 3, pp. 68–73.

Summary

The use of clusters to assess the business potential of an enterprise

Intra-sectoral clustering provides a basis to estimate the economic potential of a particular enterprise. Clusters group enterprises with homogeneous characteristics. The level of economic potential of these enterprises can be identical. This article shows the possibility of using natural clustering to assess the business potential of an enterprise. A definition of a potential cluster is given. To assess the business potential of an enterprise it is suggested that different economic indicators are used and the presence of different businesses within the cluster network assessed.

Keywords: potential of enterprise, economic potential, estimation of potential, cluster, clusterisation method, forming of clusters, potential cluster.