International Journal of Management (IJM)
Volume 11, Issue 3, March 2020, pp. 565–581, Article ID: IJM_11_03_059
Available online at http://iaeme.com/Home/issue/IJM?Volume=11&Issue=3
Journal Impact Factor (2020): 10.1471 (Calculated by GISI) www.jifactor.com
ISSN Print: 0976-6502 and ISSN Online: 0976-6510

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MODELLING NEURAL NETWORK SEGMENTATION OF THE MEDIA MARKET

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ABSTRACT

Today, most Ukrainian media offices are not ready to face the realities of the market in the era of the modern information society and global digitalization: they don't know how to create high-quality content, how to promote it and where to find funding for its publication.

The following organizational problems are relevant for Ukrainian media: a shortage of qualified specialists; combination of the post of chief editor, who is responsible for filling and subject materials with the position of CEO, whose tasks include the strategic development of the resource, the search for financing and other

global tasks; lack of development strategy; KPI indicators are not used; the lack of a commercial department that would be engaged in the implementation of content.

Modeling the regional television market based on intelligent data analysis methods is an urgent task. A large amount of data, their inaccuracy, incompleteness and uncertainty determine the use of ingenious methods, primarily neural networks and fuzzy logic.

The article discusses the features of the development of regional media and television broadcasting, problems in the activities of local television channels. Also considered are the approaches associated with the development of the mathematical apparatus of economic research for modeling the regional television market, based on modern methods of data mining.

The neural network information model of regional media market segmentation using Kohonen self-organizing maps allows revealing the hierarchy and complex structure of intra-system interactions of the participants of the territorial information space and substantiating the choice of the behavior strategy of its participants. The proposed model serves as the basis for a quantitative assessment of the structure of the regional media market and the characteristics of the formation of the target audience.

Keywords: Audience, CEO, Kohonen Maps, Media Market, Modelling, Neural Network, Segmentation

Cite this Article: Natalia Zykun, Svetlana Khaminich, Tatyana Oklander, Olena Laburtseva, Tetiana Podashevska and Olexandr Vilchynskyi, Modelling Neural Network Segmentation of the Media Market, *International Journal of Management*, 11 (3), 2020, pp. 565–581.
http://iaeme.com/Home/issue/IJM?Volume=11&Issue=3

1. INTRODUCTION

The modern stage of systemic transformations in the world is inextricably linked with the development of the processes of informatization of society. Information and communication technologies are increasingly influencing social progress, the methods of informatization affect all social practices of a person, all the spaces of his existence in modern society. Under their influence, changes are taking place in the economy, politics, culture, education; an information infrastructure is being formed that ensures the functioning and development of the country's information space and means of information interaction.

The development of regional information systems and their integration with global information infrastructures and digital television and radio broadcasting systems, satellite systems and mobile communications has led to the creation of a global information telecommunication infrastructure, which is a platform for solving tasks of a higher level - modernization of the economy and public relations, ensuring constitutional rights citizens and the release of resources for personal development.

In total, in Ukraine, there are about 700 state-owned publications, more than 100 television channels and no more than 10,000 media outlets, of which up to 6,000 can be considered "live". According to the State Committee for Television and Radio Broadcasting, 425 print media and editorial offices were reformed in 2019, namely: 402 - communal (which makes up more than 60% of the total number of publications that come out), 23 - state ones (which makes up more than 25% of the total number of publications that come out) [1-7].

Those media that intend to stay on the media market and produce a quality product are forced to look for ways to improve their skills, as well as additional sources of funding.

The relevance of the research topic is associated with the development of the Ukrainian media market in the context of the transition to market relations and the information community.

If national channels have successfully adapted to market conditions, constantly increasing their target audience, revenue and profits, then regional television is in conditions of survival: a decrease in the share of the target audience and high risks of economic activity lead media companies to receive zero profit, and in most cases, losses, which subsequently leads them to bankruptcy. In the process of transition to digital broadcasting, regional channels can altogether leave the market. At the same time, local television broadcasting has a significant impact on the development of the region's business structures and is the primary source of promoting information about the region's goods and services. The results of opinion polls also demonstrate the relevance of regional television; 45 % of the population choose it as one of the primary sources of information. Studies have been conducted that show a direct relationship between remoteness from the capital and the demand for regional media [8-11].

Despite the development of the theoretical and methodological foundations of the domestic media economy, there are currently no intellectual models and methods for improving the economic activity of regional television through segmentation of the regional media market, quantitative assessment of the content and broadcast time, programming of the broadcast network in competition with national channels.

The study of the economic features of the functioning of the media market does not have sufficient theoretical and applied justification. At present, the problem of insufficient knowledge of this issue can be solved by using the mathematical apparatus and information technologies that allow a detailed analysis of the state of the regional television market and, based on this, make informed management decisions of an economic nature.

Accounting for companies purchasing goods from foreign manufacturers often does not accurately reflect the relevant transactions. In some cases, accounting does not apply to assessing the situation and analyzing import transactions. In this case, management accounting to reflect the procurement operations must be built in parallel with the accounting. However, there is another mechanism that can contribute to the modification of the management accounting system for import operations at enterprises - logistical convergence, namely the convergence and combination in practice of two organizational forms of enterprise activity management [12-13].

2 INFORMATION BASE FOR THE USE OF DATA MINING TOOLS AND THE APPLICATION OF OPTIMIZATION METHODS IN THE MANAGEMENT OF REGIONAL TELEVISION

The study analyzed local media and 640 of the most new inquiries from journalists. Local publications pay more attention to the issues of public utilities, transport, and health care. In contrast, journalists from national publications looked for experts in the fields of politics, law, and economics (Fig. 1).

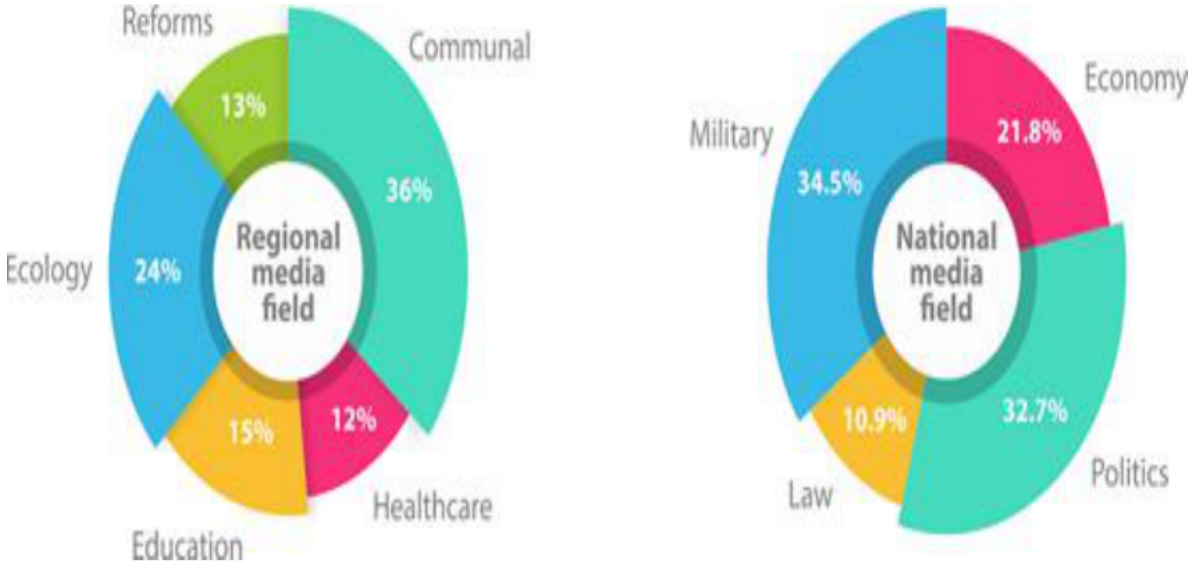


Figure 1 Media field of National and Regional media

The reform process has shown that most Ukrainian editorial offices are not ready to face the realities of the market: they don't know how to create high-quality content, how to promote it and where to find funding for its publication.

You can also highlight the following organizational problems of Ukrainian media:

- shortage of qualified specialists;
- combination of the post of chief editor, who is responsible for filling and subject materials with the position of CEO, whose tasks include the strategic development of the resource, the search for financing and other global tasks;
- lack of development strategy, KPI indicators are not used;
- The absence of a commercial department that would be engaged in the implementation of content.

A large amount of data, their inaccuracy, incompleteness and uncertainty determine the use of intelligent methods, primarily neural networks and fuzzy logic. In this regard, an urgent scientific task is the modelling of the regional television market based on intelligent data analysis methods.

A single system of a regional media market, in the centre of which is a local centre with an adjacent area, involves the dissemination of information about goods and services in a one-to-many fashion. This characteristic suggests that the signal can be simultaneously delivered to a mass audience. However, such ideas for a long time were based on one television technology - analogue terrestrial TV. To date, the palette of technical capabilities for the distribution of television signals has expanded, which has contributed to the increase of television channels in the media market and the competition of the television product. And this led to a situation in which the threat of crowding out forces TV companies to continuously engage in a system of improving quality, finding opportunities for profitable marketing of content and advertising time. The lower the TV channel is, according to the rating relative to competitors, the more difficult it is to prove their competitiveness and attractiveness to advertisers.

The Umbrella Concept, proposed by the American media economist G. Ross in 1975, remains relevant to this day. She builds a multi-level system where objects of a higher level are covered, like an umbrella, lower (Fig 2.).

This is manifested both in the content and in the advertising activity since it is associated with the audience's demand for a variety of media products and the need for advertisers to access different sub-categories of the audience. The concept allows us to reflect the main feature, namely, that the teleservices market is hierarchically structured. The agents of a multi-level system throughout the country are television channels of a national, regional, and local scale.

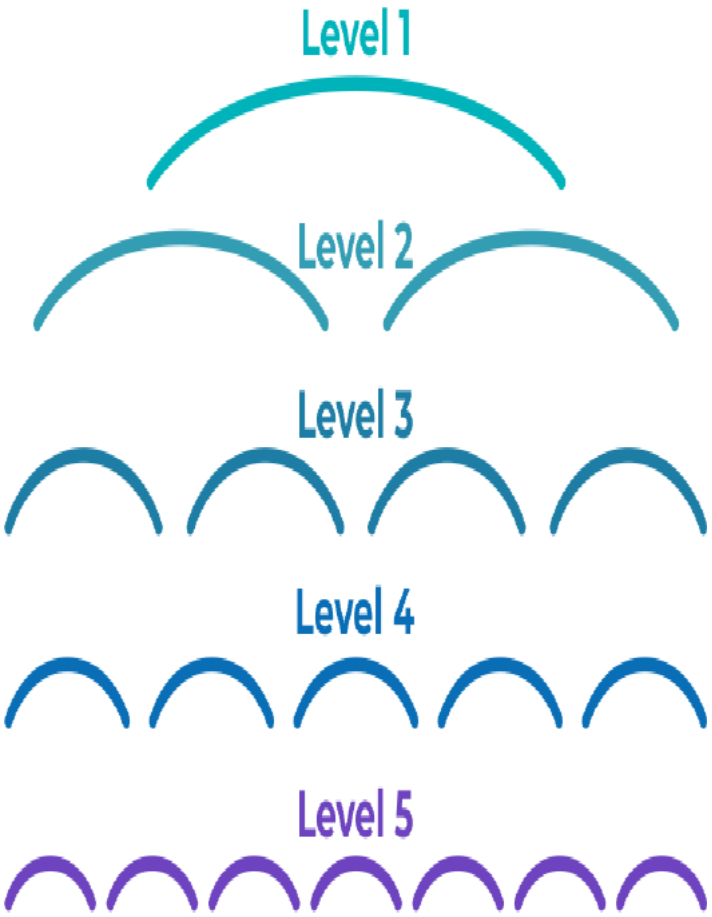


Figure 2 The concept of "umbrella competition" by J. Ross

Controlling free time by the viewer by improving the quality of content remains one of the priority areas of the competitive television channel. The very concept of "content" means any informationally valuable or informative content (texts, multimedia, graphics) of an information resource. It is widely used in all areas of the economy; it implies a new, sought-after information product. Television content today is an audiovisual material transmitted using a television signal, which has signs of integrity and completeness (broadcasts, films, series, i.e., products of third-party and own production of television channels). However, the real market product of television is not the broadcast content, but the possibility of contact with the audience gathered to watch it (listen). The most exciting content during viewing forms the audience's share, justifies the invested funds and increases the attractiveness for advertisers, as he is willing to pay for high ratings, thereby covering the costs of the channel. Such a task is set before all the television channels of our country at various levels: national, regional, municipal and others.

The broadcast structure, formed from the totality of content, comes to the fore in the activities of media enterprises. A reflection of the implementation of the provisions of the

License and the concept of the development of the channel on the air is the broadcasting network - a program for every day, its framework is made up of television programs that enable the viewer to take a picture of the world. The following definition is most preferable in the scientific literature: "A broadcasting grid is a document containing a list, sequence, name, time of broadcasting of television programs, showing the main directions of the programming concept of broadcasting a TV channel for a specific period." In other words, the broadcasting grid is the channel's broadcasting policy specified in television works, laid out in a specific time frame.

The process of constructing a broadcasting grid is very important for TV channels since it reflects the policy of the channel when building it, it is necessary to bring together individual TV shows, taking into account the political, aesthetic, cognitive, educational, age characteristics of the audience and the time interval. In the most favourable location in the broadcasting network, the programs attract the most significant number of viewers, this phenomenon in the scientific literature is described by the term "prime-time". Primetime ("prime-time" - the main thing, the best time) is the period of the day when the maximum number of viewers is collected on TVs. Today, the role of regional television is a critical factor in the development of the country's media market.

The development of a regional media market is an important issue, the solution of which will provide residents of certain territories with qualitatively relevant information regarding both the country as a whole and its regions.

Many problems of assessing the competitiveness of television in the media market remain underdeveloped, in particular, problems of assessing the competitiveness of regional television and improving the efficiency of territorial media enterprises. There is no holistic concept of the theory of rating ratings as market tools for regulating the media market.

The broadcasting environment is formed by the state, regional government, and the municipal level of media enterprise management. The consumer receives content, the viewing of which creates the target audience, and this, in turn, affects the rating of the channel and the advertising market. In the environment of the interaction of agents, there are factors and components that affect the development and competitiveness of the channel - these are economic, social, political, legal, technological.

From the point of view of the channel, the most important indicator is the share of the audience, it shows the position of the channel among others, the demand for the service and is expressed through the affinity coefficient. Affinity - the ratio of the channel rating in the target audience to the channel rating calculated among all viewers from 4 years and older. If the index value is greater than 100 - this means that the channel is typical for viewing by the target group in question, if less than 100 - it is not typical, if the index value is 100, then this means that the target audience watches the TV channel in the same way as the entire population in whole. It is calculated by the formula:

$$Affinity = TRP / GRP * 100\% \quad (1)$$

where *TRP* is the rating for the target audience, *GRP* is the rating for the entire audience.

According to a panel study of the ITK television audience, the TOP-10 of the most rated television channels in Q1 2019 included Ukraine, 1 + 1, STB, Inter, ICTV, New Channel, 2 + 2 ",“ TET ",“ NTN ",“ Pixel TV ”(Fig. 3).

3. MODELS OF NEURAL NETWORK SEGMENTATION OF THE MEDIA MARKET AND RANKING OF THE CONTENT OF THE BROADCAST NETWORK OF REGIONAL TELEVISION CHANNELS.

To develop a neural network information model for regional media market segmentation, we use Kohonen self-organizing maps [14]. Such a model takes into account the hierarchy and complex structure of intra-systemic interactions of participants in the territorial information space, and also provides a mechanism for developing and evaluating the effectiveness of managerial decisions, based on a clear structured market allows you to determine the behaviour strategy of its participants.

Regional media markets today have a specific configuration. They are characterized by the heterogeneity of their participants. First of all, these are national channels, regional branches of national media, local companies working with state-owned network broadcasters as partners, and companies that independently program the broadcast network. There is also a division into regional and municipal media.

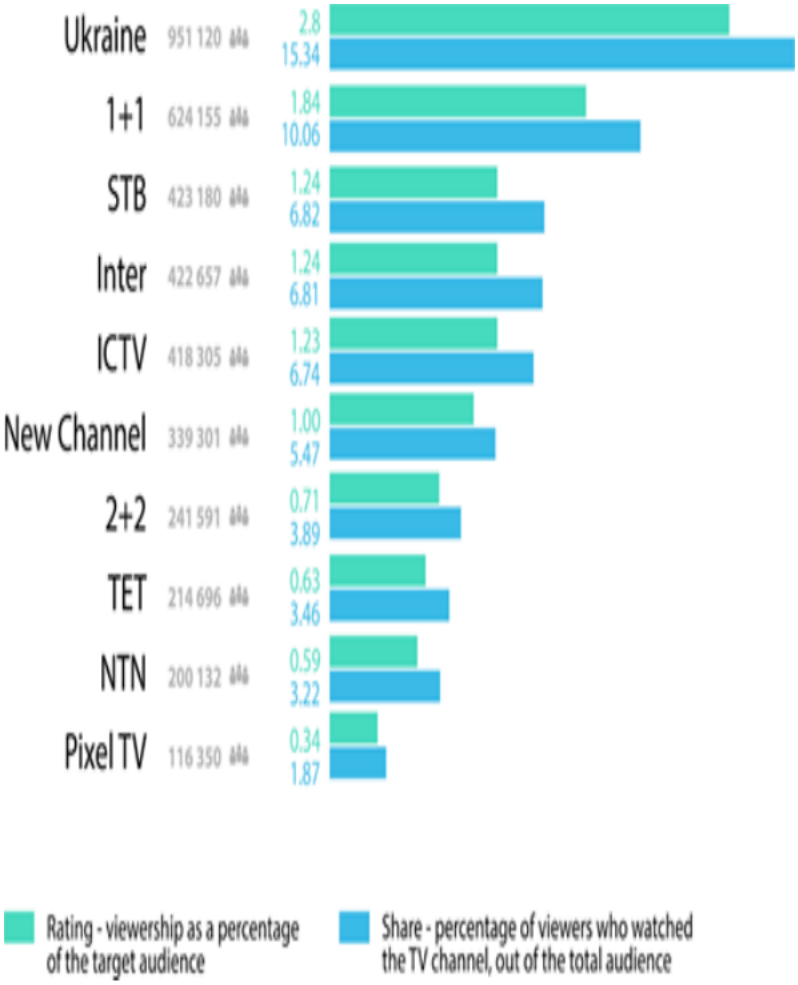


Figure 3 Rating of national TV channels of Ukraine in the I quarter of 2019

Regional media markets today have a specific configuration. They are characterized by the heterogeneity of their participants. First of all, these are national channels, regional branches of national media, local companies working with state-owned network broadcasters as partners, and companies that independently program the broadcast network. There is also a division into regional and municipal media.

The following 25 most requested TV channels in Odesa and the region were selected for the study: Ukraine, 1 + 1, STB, Inter, ICTV, New Channel, 2 + 2, TET, NTN, Pixel TV, Reporter, First City Channel, A1, 7 channel, Grad, Glas, Dumskaya, GTV, Zdorovje, Krug, South Wave, Plus, Odesa, My Odesa, Gnews.

Figure 4 shows the average rating indicators of TV channels in Odessa. The abscissa axis represents time intervals with an interval of half an hour; the ordinate axis represents the average rating values calculated by the formula (1).

Figure 4 shows the leadership of the three-state channels. In the prime time interval, the picture is most distinct - Ukraine, 1 + 1, Inter demonstrate superiority compared to other channels. The calculations showed that in the morning, the position of the regional channels Reporter and First City Channel in the media market is significant, and it is quite stable for months.

The analysis showed the advisability of clustering according to the rating indicators averaged over the working days of the month and year, since it is in this context that the stable dynamics of the market are manifested. To test this hypothesis, the media market was segmented for all months of 2019. Average ratings are calculated in the time interval from 07:00 to 24:00 hours. Nighttime from 01:00 to 07:00 is not counted as insignificant.

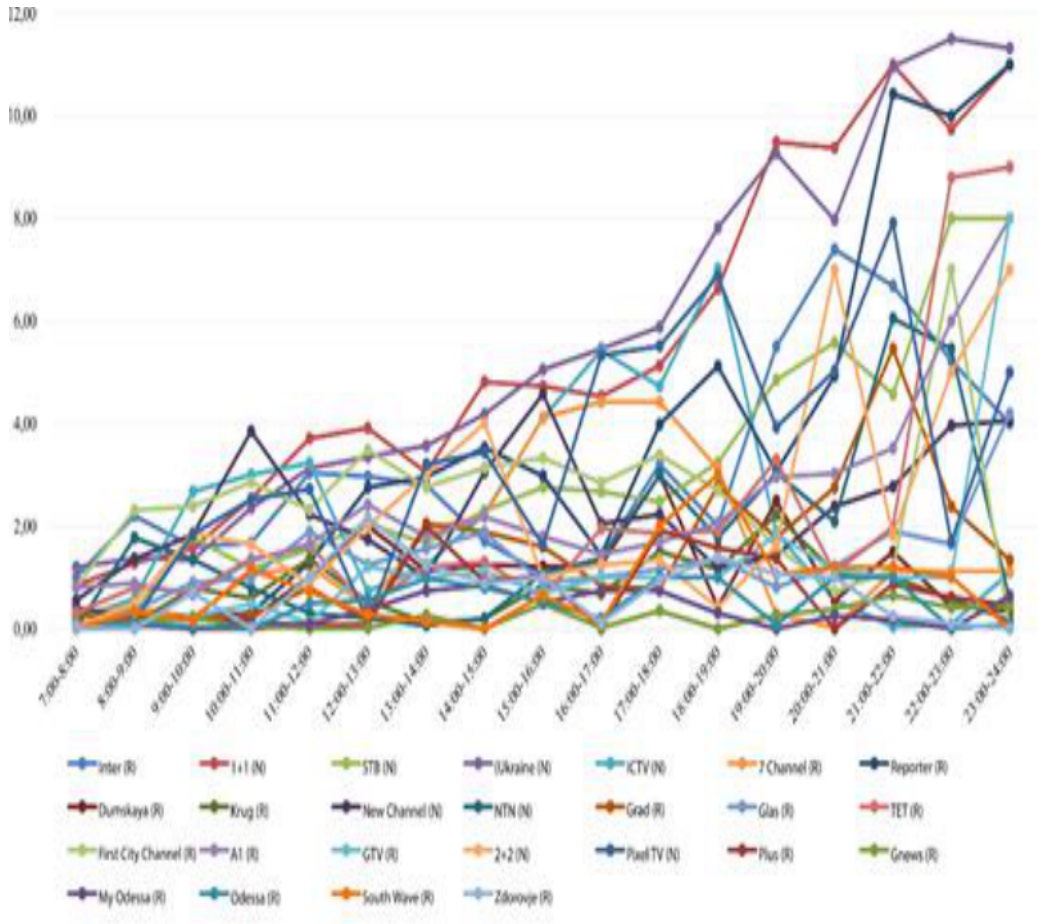


Figure 4 Average annual rates of viewers preferences

To develop differentiated management decisions, determine the channel's position in the media market and identify its competitiveness factors, it is necessary to structure the regional media market system. The information base is made up of rating indicators of television channels broadcasting in Odessa.

The methods of correlation analysis proved the structuredness of audience preferences in the media market. Table 1 shows the correlation coefficients of the average annual channel ratings for 2019. Deviations by months are insignificant, significant differences are explained by social "shocks" caused by unusual events in the society and the media.

To analyze the tightness of the relationship between the resulting factor and the key rating criterion, a correlation analysis was carried out (Table 1). The sequence of correlation matrices of dimension 25 * 25 is calculated for monthly intervals in increments of 60 minutes. Analysis of the dynamics of ether for 25 channels was carried out based on the introduced norm of correlation matrices:

$$\|K(t_n)\| = \max_{i,j} k_i^j \quad (2)$$

Table 1 The average annual indicator of the correlation coefficients of the rating indicators of the main television channels

Channel	1+1	STB	Ukraine	Inter	ICTV	7 channel	Reporter	Dumskaya	Krug	New Channel	NTN	Grad
1+1	1.00	0.91	0.93	0.95	0.58	0.50	0.83	0.77	0.68	1.00	0.91	0.93
STB	0.91	1.00	0.87	0.89	0.52	0.44	0.71	0.75	0.71	0.91	1.00	0.87
Ukraine	0.93	0.87	1.00	0.93	0.52	0.61	0.69	0.85	0.58	0.93	0.87	1.00
Inter	0.95	0.89	0.93	1.00	0.54	0.64	0.78	0.82	0.58	0.95	0.89	0.93
ICTV	0.58	0.52	0.52	0.54	1.00	0.48	0.42	0.19	0.81	0.58	0.52	0.52
7 channel	0.50	0.44	0.61	0.64	0.48	1.00	0.51	0.45	0.35	0.50	0.44	0.61
Reporter	0.83	0.71	0.69	0.78	0.42	0.51	1.00	0.56	0.57	0.83	0.71	0.69

Dumskaya	0.77	0.75	0.85	0.82	0.19	0.45	0.56	1.00	0.32	0.77	0.75	0.85
Krug	0.68	0.71	0.58	0.58	0.81	0.35	0.57	0.32	1.00	0.68	0.71	0.58
New Channel	1.00	0.91	0.93	0.95	0.58	0.50	0.83	0.77	0.68	1.00	0.91	0.93
NTN	0.91	1.00	0.87	0.89	0.52	0.44	0.71	0.75	0.71	0.91	1.00	0.87
Grad	0.93	0.87	1.00	0.93	0.52	0.61	0.69	0.85	0.58	0.93	0.87	1.00

Using the concept of "umbrella competition", we will build a model that is designed to identify the territorial segmentation of the media market under the influence of state, regional and municipal channels, as well as assess the position and the closest competitors of the media enterprise.

In conditions of incompleteness, uncertainty and inaccuracy of data, one of the promising approaches to solving clustering problems is the use of a neural network paradigm - Kohonen's Self Organizing Maps (SOM). SOM-based cluster analysis practically does not impose any restrictions on the type of objects under consideration and allows one to consider a variety of source data of an arbitrary nature, which compares favourably with probabilistic-statistical methods.

The essence of this toolkit is as follows. SOM is presented with a data sample consisting of a set of n-dimensional vectors {(X_i) ⃗}, i = ¯ (1, N). The number of clusters and the “economic” patterns in the data is not known. After training, the neural network breaks the data into m disjoint groups (clusters) and maps the elements of the clusters onto the so-called topographic map, usually a two-dimensional lattice.

We formalize SOM training:

$$w_{ij}(t+1) = w_{ij}(t) + \eta(t) \cdot h_{k*i} \cdot \left(x_i - w_{ij}(t)\right), i = \overline{1,N}, j = \overline{1,m} \quad (3)$$

$$h_{k*i} = exp\left(-\frac{d_{k*i}^2}{2\sigma^2}\right), \ \sigma(t) = \sigma_0 exp\left(-\frac{t}{\tau_1}\right), t = 0,1,2 \quad (4)$$

$$n(t) = n_0 exp\left(-\frac{t}{\tau_1}\right) \quad (5)$$

In formulas (2) - (4) wij (t) are the synaptic weights of the NS, which are adjusted according to rule (1); hk * i is the neighbourhood function, which determines the neighbourhood of the interaction of the k-th neuron-winner with the i-th vector of the training sample; d is the interaction distance in the Euclidean measure, σ is the parameter of the

Gaussian distribution, σ0 is the initial value of σ in the SOM algorithm; η (t) is the learning speed. τ1, τ2 - variable parameters that affect the quality of SOM training. The possible dependence of the clustering results on the SOM settings is eliminated through Bayesian regularization, the essence of which is to build an ensemble of neural networks that differ in tuning parameters. In our case, this is the neighbourhood function (3) and the learning rate (4). The parameters τ1 vary, forming the width of the neighbourhood function in the iterative learning process and τ2, forming the learning speed, which should decrease in the iterative process of modifying synaptic weights. Each of them varies discretely at five levels τ1 = 140; 280; 420; 560; 700 τ2 = 125; 250; 375; 500; 625. In total, 25 SOMs are formed. The remaining learning parameters were fixed: the number of learning iterations T = 500, the initial value of the learning speed (4) η0 = 0.3, the initial value of the parameter of the Gaussian distribution (3) σ0 = 4. Bayesian clustering quality criterion:

$$\Theta_q = \frac{\sqrt{\sum_{m=1}^{M}\sum_{i=1}^{Nm} d^2(X_{im},X_{cm})}}{\sqrt{\sum_{i=1}^{M}\sum_{l=i+1}^{M} d^2(X_{cl},X_{cm})}} \quad (6)$$

where $q = \overline{1,Q}$ and Q are, respectively, the number of the neural network hypothesis in the Bayesian ensemble and their total number; Nm is the number of elements falling into the mth cluster; xcm is the centre of the mth cluster in the n-dimensional Euclidean space of signs; d(xim,xcm) is the Euclidean distance from the studied object xim to the centre of its mth cluster; d(xcl,xcm) is the distance between the lth and mth clusters; M is the number of clusters. The smaller (5), the more qualitatively the clustering is realized. In the case of $\Theta_q \geq \theta$, where θ is the critical value of the clustering quality, SOM is excluded from the Bayesian ensemble. All that remains is Q* ≤ Q SOM.

The database for building SOM was formed as follows. For each month, they individually have taken data on the ratings of channels broadcast in Odessa daily, with time intervals of 30 minutes. A fragment of the initial rating data in time intervals of 30 minutes from 7:00 to 24:00 for the model is presented in Table 2.

Table 2 Fragment rating indices channels

Channel	Rating				
	7:00-7:30	7:30-8:00	8:00-8:30	...	23:30-24:00
1+1	0.33	0.57	2.04	...	2.28
STB	0	0.68	0.39	...	0.8
Ukraine	1.52	2.02	1.43	...	5.37
Inter	0.22	0.86	1.52	...	0.09
ICTV	0	0.66	0	...	1.08
...	...	...	...	...	...
Dumskaya	0.08	0.16	0.12	...	0.53

Preliminary calculations showed that it is enough to limit ourselves to five clusters.

The frequency of the object (TV channel) getting into each of the clusters by SOM with q number is determined as

$$P^{\alpha,q} = \frac{\nu^{\alpha,q}}{\nu}, \tag{7}$$

where α is the cluster number, α = 1,2,3,4,5, ν ^ (α, q) is the number of times an object falls into α cluster by SOM with q number, ν is the total number of repetition of the object in the sample (ν = 25).

The frequency of an object entering a cluster in a Bayesian ensemble is respectively defined as:

$$P^{\alpha} = \frac{\sum_{q=1}^{Q*} P^{\alpha,q}}{Q^*}, \tag{8}$$

Accordingly, an object is defined in a specific cluster when the frequency of its entry into this cluster is maximum (Table 3):

$$P = max_{\alpha}\{P^{\alpha}\} \quad (9)$$

Table 3 Frequency of tv channels entering clusters

TV channels	Number of hits					Cluster #
	Cluster 1	Cluster 2	Cluster 3	Cluster 4	Cluster 5	
1+1	100%	0	0	0	0	1
Ukraine	100%	0	0	0	0	1
Reporter	100%	0	0	0	0	1
STB	20%	72%	8%	0	0	2
A1	0	70%	30%	0	0	2
Inter	0	65%	35%	0	0	2
ICTV	0	70%	30%	0	0	2
Dumskaya	0	70%	30%	0	0	2
Pixel TV	0	60%	40%	0	0	2
7 channel	0	24%	76%	0	0	3
First City Channel	0	20%	70%	10%	0	3
New Channel	0	5%	75%	20%	0	3
NTN	0	0	25%	75%	0	4
Grad	0	0	20%	80%	0	4
Glas	0	0	30%	70%	0	4
TET	0	0	20%	80%	0	4
2+2	0	0	20%	80%	0	4
South Wave	0	0	10%	60%	30%	4
GTV	0	0	0	40%	60%	5

Plus	0	0	0	30%	70%	5
Krug	0	0	0	30%	70%	5
Gnews	0	0	0	25%	75%	5
My Odessa	0	0	0	20%	80%	5
Odessa	0	0	0	10%	90%	5
Zdorovje	0	0	0	0	100%	5

The numerical implementation of the regional media market model showed the structuredness of the Odesa regional media market, where oligopolistic companies (Ukraine, 1 + 1) cover the entire broadcasting space. The second cluster includes popular all-Ukrainian and local channels, which have a significant influence on the preference of viewers. The third cluster includes specialized and municipal television channels. In the fourth - highly skilled, and in the fifth - regional television channels of neighboring entities with a low share of the target audience. As a result of calculations, the largest share of the partition was in five clusters (Fig. 5).



Figure 5 Hierarchical "umbrella competition" of the regional media market

Clustering the regional television broadcasting market makes it possible to identify the structure of the regional media market, on the basis of which it is possible to develop a set of effective management decisions within the framework of implementing a strategy for its further economic development in order to maximize profits, increase the sustainability and competitiveness of regional television companies.

Based on the hierarchical umbrella competition model, a SWOT analysis is built, the main problems and threats of the regional market are identified, as a result of which the priority directions of the local market development are identified:

- the development of new broadcasting territories and the coverage of a large number of viewers;

- expanding the range of services offered and attracting new customers (sponsors and advertisers);

- attracting financial resources to develop the list of proposed television programs and promote them on the country's media market.

The study found that the first cluster for 2015-2019 has a maximum profit of $ 1,000 million, the second cluster - $ 866 million, the third cluster - $ 49 million, the fourth and fifth - losses of $ 21 million and $ 82 million respectively.

In this regard, the TV channels that fall into the fifth cluster need to adhere to the cost reduction strategy, the fourth cluster TV channels - cost optimization, the third cluster - diversification, the second cluster - the strategy for maintaining and expanding the market niche, and the first TV channels - holding strategies.

4. CONCLUSION

Today we rightly refer to the time of the information age. Information is the primary value, and the search for the necessary data and its dissemination is the most crucial task that the media perform. Their role in public life cannot be overestimated. It is difficult to imagine humanity without informational relations, just as it is impossible to cancel the significant role of the media in shaping the opinions of people. We can confidently declare that a separate rich world, which we call the information society, is especially valuable for a person since it satisfies his need for new information and knowledge as in the highest form of intelligence.

This article has developed approaches related to the development of the mathematical apparatus of economic research for modelling the regional television market, based on modern methods of data mining.

The neural network information model of regional media market segmentation using Kohonen self-organizing maps allows revealing the hierarchy and complex structure of intra-system interactions of the participants of the territorial information space and substantiating the choice of the behaviour strategy of its participants. The proposed model serves as the basis for a quantitative assessment of the structure of the regional media market and the characteristics of the formation of the target audience.

An essential aspect of the activities of regional television is the consideration of its significance in the sphere of influence on public opinion. There are some features that are expressed in the political impact on the social environment. Among these features that form the methodology for working with information, there is a high level of direct proximity of the regional editorial office to its audience, the authority of the editorial office, and trust in individual journalists. The above proximity gives rise to a credit of faith from the viewer, establishes a particular personal distance. All this leads us to the conclusion that there are ample opportunities in forming the opinions of the public masses that the local media possess. Regional television is developing in parallel with digital broadcasting technologies, designed

to segment the audience, to unite the viewer around a specific product. In this regard, an assumption is born about a further change in the market of the marketing market, which is obliged to respond to existing trends.

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