

Promotion of Technologies in the Russian Rehabilitation Equipment Market (by the example of the NEUROCHAT hardware and software complex)

Olga VASILYEVA

State University of Management
oa_vasilyeva@guu.ru

Olga KURASOVA

State University of Management
ov_kurasova@guu.ru

Vlada MAMONTOVA

State University of Management
voa76@list.ru

Abstract

This article is devoted to the study of the Russian inclusive environment state, as well as the analysis of the market for rehabilitation equipment for people with disabilities. The emphasis is placed on the possibility of using a Russian technological product in the field of disabled people rehabilitation. The purpose of the study is to analyze expert opinions on the Russian market of goods for rehabilitation, to identify the level of potential demand for a technological novelty of the NEUROCHAT hardware and software complex, as well as to develop recommendations for promoting Russian-made rehabilitation equipment on the market. The research methods were the secondary analysis of metadata on the rehabilitation goods market and the state of the inclusive environment of the Russian Federation from open Russian and foreign sources, the use of the snowball-technic method to obtain statistical data, as well as conducting primary research in the form of in-depth interviews and an Internet survey of representatives of target groups. The relevance lies in the reflection of the trends emerging in the Russian inclusive environment and in the rehabilitation equipment market. The development of innovative products aimed at integrating people with disabilities into the social environment makes it possible to implement government programs, which will improve the life of this category of Russians. The practical significance lies in the potential of using the new rehabilitation equipment - the NEUROCHAT hardware and software complex, which has a wide potential in the areas of rehabilitation, socialization, employment and education of disabled people. The novelty lies in the use of modern marketing tools to promote the product on the market of rehabilitation equipment in the Russian Federation. As a result, recommendations were developed for promoting Russian-made rehabilitation equipment on the market using the example of the NEUROCHAT hardware and software complex technological novelty.

Keywords: Rehabilitation equipment market, people with disabilities, inclusive environment, Russian technologies, hardware and software complex, promotion tools.

JEL classification: M31, I14.

1. INTRODUCTION

Today, increased attention is paid to the issues of the disabled people life in the Russian Federation. Within the framework of legislative acts adopted at the state level, measures are being taken to create and develop an inclusive environment. These include the reconstruction of buildings for the capabilities of people with mobility disabilities, the adaptation of the transport system, the allocation of quotas for employers when hiring people with disabilities, the provision of specialized equipment to educational organizations that implement training

programs for people with disabilities, subtitling of films to ensure access for full viewing to hearing-impaired people, employment programs and much more. However, the measures taken are not enough for the full integration of people with disabilities into the social environment [15]. So, the effectiveness of the state program "Accessible Environment", implemented in 2011-2020. in order to improve the standard of living of people with disabilities, is estimated by experts at a low level (87.5% of the planned 98%) [5].

The state of the rehabilitation equipment market in the Russian Federation should be especially noted. 20-25 million people are in need of medical rehabilitation. The most active rehabilitation is developing in large cities such as Moscow and St. Petersburg, however, in the country as a whole, the rehabilitation sphere is poorly developed. Today the share of Russian-made rehabilitation equipment is 37% of the total market volume. At the same time, the Strategy for the development of industrial production of rehabilitation products developed by the Government of the Russian Federation until 2025 determines the target guidelines for the expansion of this market [16]. This article examines the capabilities of the NEUROCHAT hardware and software complex, the functionality of which allows us to qualitatively improve the social life of people with disabilities.

2. BACKGROUND AND METHODOLOGY

The state of the rehabilitation equipment market

Nowadays, the total volume of the rehabilitation and habilitation goods world market is estimated by experts at \$ 126.5 billion. Most (about 80%) of the rehabilitation and habilitation goods world market are medical products. Among them are goods for people with voice and speech impairments - \$ 1.2 billion (1.1%); goods for people with hearing impairment - \$ 13.4 billion (12.3%); goods for people with visual impairments - \$ 29.0 billion (26.8%); goods for people with mobility impairments - \$ 40.87 billion (37.7%); architectural and planning devices and tools for creating a barrier-free environment - \$ 24 billion (22.1%) [9]. In the structure of the assistive devices world market for people with mobility impairments, prostheses of the upper and lower extremities occupy a large part, while in the Russian market the largest segment is occupied by equipment and aids to facilitate movement. The main share of the rehabilitation products global market is taken by goods for people with visual impairments, followed by means to create a barrier-free environment, then goods for people with mobility impairments [10]. Forecasted, taking into account the factors of influence and stimulating trends, the growth of the world market of rehabilitation and habilitation goods on average by segments is 3.12% per year.

The volume of the Russian rehabilitation and habilitation market is about 0.5% of the global one, which once again confirms the low level of domestic production and draws attention to the high importance of the development of this direction. The share of imported products in the Russian Federation rehabilitation goods market is about 60% [4]. At the same time, 74.6% of the total market volume in kind falls on the segment of rehabilitation in state polyclinic medical institutions, 11.8% - on the segment of rehabilitation in multidisciplinary commercial clinics, 7.8% is occupied by the segment of medical rehabilitation in specialized state rehabilitation centers, 5, 9% - segment of rehabilitation in commercial rehabilitation centers [7]. Over the past decade, the market has shown mixed dynamics: growth since the beginning of 2010-2012. (17.7-35.2 billion rubles) was replaced by stagnation due to a reduction in budget funding and the crisis in the Russian economy in 2013-2015. Today the situation has stabilized. According to BusinessStat forecasts, by 2023 the volume of the medical rehabilitation services market in the Russian Federation will grow by 2.1% -2.9% per year [12].

Experts refer to the main directions of rehabilitation products innovative development as the spread of systems for the intellectualization of technical products, including the "Internet

of Things"; expanding the possibilities of 3D printing; proliferation of sensory systems; development of artificial intelligence; advances in robotics; research in the field of neurotechnology and human-machine interfaces; advances in new materials; achievements in the field of bionic research (biomechanics, bioengineering, etc.) [6]. At the same time, Russian innovative developments in the field of rehabilitation may be of interest both to the professional community and to the world community as a whole [14].

Characteristics of the hardware and software complex "Neurochat"

NEUROCHAT – is a communication system that creates the possibility of network communication for people who are unable to speak and move. The hardware and software complex developed by Russian specialists is able to qualitatively improve the life of people with such diagnoses as infantile cerebral palsy, amyotrophic lateral sclerosis, stroke, multiple sclerosis and various types of neurotraumas [2]. The NEUROCHAT system consists of a headset capable of recording brain signals, as well as software installed on the user's computer.



Figure 1. Hardware and software complex NEUROCHAT

Source: NeuroChat presented modern possibilities of neuro-rehabilitation // inva.tv URL:

<http://inva.tv/obzory-i-stati/16464-nejrochat-prezentoval-sovremennye-vozmozhnosti-nejro-reabilitatsii>

The convenience of the headset allows people to use NEUROCHAT not only in a hospital or outpatient setting, but also at home. Moreover, even untrained users (for example, relatives) can easily install it on the patient's head. The design of the neuro headset assumes comfortable continuous wearing throughout the day. The software designed to work with the system is also convenient to use, since the configuration takes place once on the user's computer and in the future does not require any complex actions: just a simple connection of the headset and launching the program.

The NEUROCHAT hardware and software complex has the following capabilities:

Typing with the power of thought. NEUROCHAT allows you to type on your computer screen without using speech or movement. The user, concentrating on the desired letter or symbol on the virtual keyboard, makes a mental choice of the object. So, letter by letter or by choosing ready-made words on the screen, a person can type both short messages and whole sentences.

Communication on social networks. NEUROCHAT was created not only for communication with the immediate environment, the purpose of the system is to enable wide

communication on the Internet. Therefore, NEUROCHAT is connected to VKontakte social network, it is possible to correspond via SMS, and work is in process to add other social networks and instant messengers.

Internet services. In addition to online communication, NEUROCHAT allows you to use other services on the Internet that have been integrated into the system. Already, users can read thematic news blocks (sports, politics, culture, etc.), watch videos, keep notes and a diary.

Device management. The manufacturer of the system - the company "NeuroChat" - is working on connecting the capabilities of controlling external devices "by the power of thought", for example, "Smart House" [12].

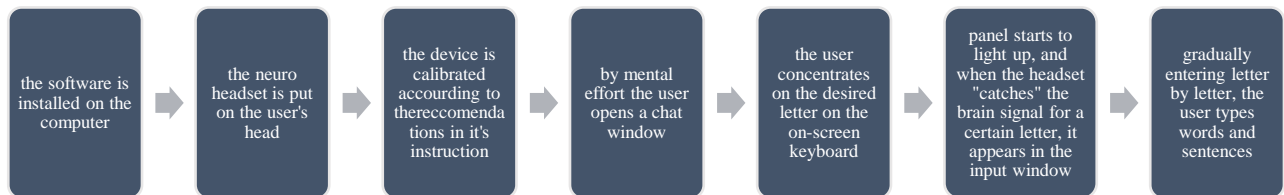


Figure 2. Sequence of steps when working with NEUROCHAT

Source: About NeuroChat // neurochat.pro URL: <http://neurochat.pro/>

It is important to note that the NEUROCHAT system not only solves communication problems, but also has a rehabilitation effect. Patients who regularly use the device note a significant improvement in cognitive functions, since the user needs to maintain concentration for a long time while working with NEUROCHAT [3]. Work on one cognitive function stimulates the work of conjugate functions. The described hardware-software complex can be used in the process of patients' rehabilitation with craniocerebral trauma, cerebrovascular accident, cerebral palsy, various neurotraumas and diseases that cause cognitive impairment, can be used to prevent dementia, Alzheimer's disease, multiple sclerosis, Parkinson's disease, when working with children with ADHD, as well as to train the cognitive sphere of people without severe diseases.

The cost of the NEUROCHAT device on the Russian market of rehabilitation products ranges from 120 to 150 thousand rubles. The manufacturing company also offers the possibility of renting, the price of which is 10 thousand rubles per month. Today there is a question of the demand for this technological product among target groups. If there is partial knowledge among the professional community (B2B sector) about the innovative NEUROCHAT technology, then the general public (B2C), potentially interested in this rehabilitation product, has a scant idea of its existence and its capabilities. The manufacturer's task is to position the NEUROCHAT hardware and software complex in the B2C segment.

Target audience

The target audience of the company are consumers of the B2B and B2C market, where in the first case these are medical clinics and private rehabilitation centers, and in the second - people with speech and movement disorders (with diagnoses: TBI, cerebral palsy, ADHD, MS, ALS, spinal injuries, various neurotrauma, stroke, cerebrovascular accident and diseases that cause cognitive impairment) and their relatives. Most potential users of the NEUROCHAT hardware and software complex are not able to make their own purchasing decisions. For them, it is done by medical workers (if we are talking about rehabilitation in the center) or close relatives who care and support them at home. Therefore, in the B2C sector, relatives of the patient act as buyers, and patients themselves act as consumers. However, patients have a significant influence on purchasing decisions and are therefore the target audience. The NEUROCHAT system can help them to fulfill the need to communicate with their loved ones, increase life motivation through interaction with a large number of people, as well as the

effectiveness of the rehabilitation process [13].

In the case of the B2C market, the core audience will be the relatives of people with disabilities. They take care of them every day, take them to the doctor and monitor their health. They buy medicines, find clinics and specialists, search the Internet for methods that can help cope with the disease. They live in Moscow; the average income is about 60 thousand rubles per person per month. The average age is 35-40 years. They sit in groups on social networks that bring together people facing similar illnesses. They read comments, share their experiences, give advice and ask for it. They trust people who have similar problems, as well as a doctor who is involved in the rehabilitation of their relative with disabilities. They are open to new things, ready to spend financial resources and try different methods to make the life of their relative with disabilities easier and better. The main difficulties they face are: finding good clinics and qualified doctors who can help their relative and offer an effective rehabilitation program; difficulties with the individual selection of effective methods for recovery; as well as high prices for rehabilitation services [3].

Research methodology

This article is devoted to the study of the Russian inclusive environment state, as well as the analysis of the market for rehabilitation equipment for people with disabilities. The emphasis is placed on the possibility of using a Russian technological product in the field of disabled people rehabilitation.

The purpose of the study is to analyze expert opinions on the Russian market of goods for rehabilitation, to identify the level of potential demand for a technological novelty of the NEUROCHAT hardware and software complex, as well as to develop recommendations for promoting Russian-made rehabilitation equipment on the market.

The research methods were the secondary analysis of metadata on the rehabilitation goods market and the state of the inclusive environment of the Russian Federation from open Russian and foreign sources, the use of the snowball-technic method to obtain statistical data, as well as conducting primary research in the form of in-depth interviews and an Internet survey of representatives of target groups.

The relevance lies in the reflection of the trends emerging in the Russian inclusive environment and in the rehabilitation equipment market. The development of innovative products aimed at integrating people with disabilities into the social environment makes it possible to implement government programs, which will improve the life of this category of Russians.

The practical significance lies in the potential of using the new rehabilitation equipment - the NEUROCHAT hardware and software complex, which has a wide potential in the areas of rehabilitation, socialization, employment and education of disabled people.

The novelty lies in the use of modern marketing tools to promote the product on the market of rehabilitation equipment in the Russian Federation.

As a result, recommendations were developed for promoting Russian-made rehabilitation equipment on the market using the example of the NEUROCHAT hardware and software complex technological novelty.

To clarify the needs of the target audience and awareness of the NEUROCHAT hardware and software complex, a study was conducted among representatives of B2B and B2C segments. The research methods were the secondary analysis of metadata on the market of rehabilitation goods and the state of the inclusive environment of the Russian Federation from open Russian and foreign sources, the use of the snowball-technic method to obtain statistical data, as well as conducting primary research in the form of in-depth interviews and an Internet survey of representatives of target groups.

As part of an in-depth interview aimed at identifying the level of awareness and expert position in relation to the NEUROCHAT rehabilitation product, specialists were questioned from such medical institutions as the ICR Rehabilitation Center, the ICR-Children Children's Rehabilitation Center, and N. G.E. Sukhareva, GBUZ MO "Moscow City Clinical Hospital", "Galileo Center", "Nevromed" and "Alegre".

The study of the needs for the NEUROCHAT hardware and software complex among the potential audience of the B2C segment was to conduct an online survey among people with disabilities, as well as among their relatives and friends. 56 people took part in the online survey, including 28 people diagnosed with cerebral palsy, 13 people with traumatic brain injury, 7 with the consequences of a stroke, 7 people with a spinal injury and 1 person with multiple sclerosis. The sample indicators are acceptable for this target audience, taking into consideration its social closedness and macro-factors of the Russian environment.

3. DISCUSSION AND RESULTS

The results of in-depth interviews showed that none of the interviewed specialists of medical institutions knows about the NEUROCHAT hardware and software complex. However, when informing them about the functionality of the device and the effect of its use, most of them positively assessed its capabilities and expressed an interest. Some of the specialists who indicated the high potential of the device did not feel the need for it due to the specifics of the work, which concerned, for example, interaction with young children who cannot read and are unable to concentrate attention. As for older patients - adolescents and older people, who have preserved intelligence and know the alphabet, then, according to experts, the device can help them in the recovery process in conjunction with other methods. The respondents also mentioned the motivation for buying: the ratio of affordable price and high quality, the fixed efficiency of the device and the ability to take the device for testing. Among the main problems in the work, experts pointed out the lack of unified modern methods for working with patients: basically, each center develops its own methodology, and there is no single accepted model, as well as problems with relatives who shift all responsibility for the patient onto a specialist and are not ready to deal with him yourself. Key findings from in-depth interviews with rehabilitation professionals:

the awareness of the NEUROCHAT hardware and software complex among specialists is very low;

respondents positively assess the capabilities of the device and admit its high potential for working with patients;

all specialists noted the need to test the NEUROCHAT hardware and software complex on themselves before using it when working with patients;

the respondents named the following as the main motivation for buying: the ratio of affordable price and high quality, scientifically proven efficiency of the device and the possibility to take it for testing;

As the main sources of obtaining new and relevant information from the professional field, experts named various specialized events: exhibitions, conferences, round tables, etc.

The results of a representatives' opinions study (B2C segment with developmental disabilities at the age from 8 to 18 years) confirmed that the main difficulties that respondents most often face in life and that significantly complicate their socialization are movement and speech disorders. At the same time, 85% of respondents do not know about the existence and capabilities of the NEUROCHAT hardware and software complex, 9% of respondents have a superficial idea, and only 6% have heard of this device.

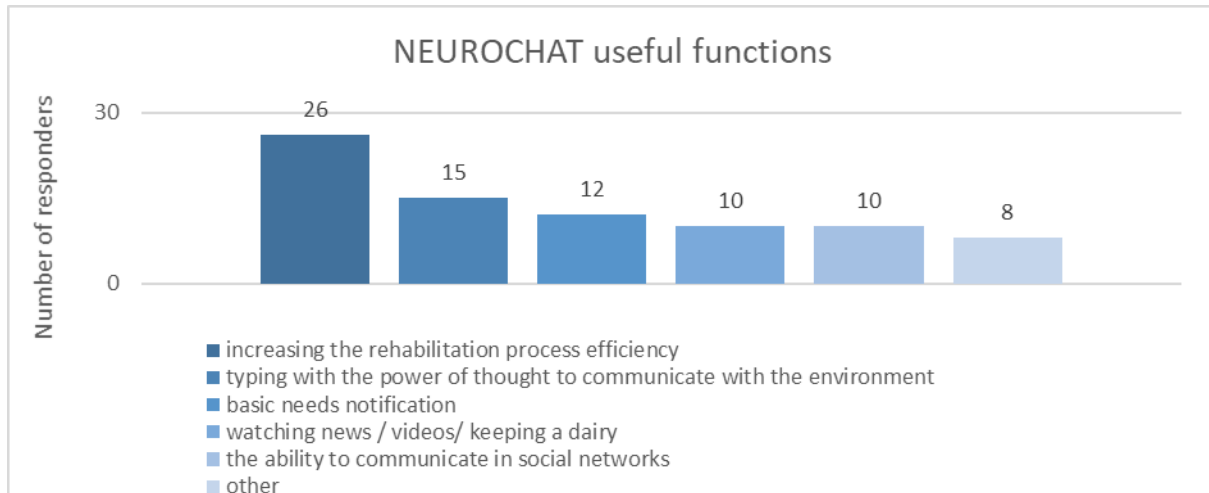


Figure 3. NEUROCHAT functions of interest to the B2B segment target audience

Source: compiled by the authors.

When asked about the functionality of a technological product, most of the respondents answered that they are interested in NEUROCHAT's ability to improve the efficiency of the rehabilitation process (46%). This is followed by interest in the possibility of typing text with the power of thought to communicate with the environment (27% of respondents) and notification of the user's basic needs (21%). For half of the respondents, it would be more convenient to test the NEUROCHAT hardware and software complex at home (50% of responses). 27% of the study participants spoke in favor of the possibility to test this innovative product in medical institutions, for 11% of the respondents it is enough to view advertising messages. The key factors motivating respondents to buy a device almost equally became several options: a person with disabilities own desire to improve the quality of life (34% of responses), a recommendation from a doctor or other specialist (32% of responses), free access to NEUROCHAT testing before purchase (32% of responses). Advice from friends who have experience using the NEUROCHAT system, as well as information from open sources, will affect the purchase of a rehabilitation product in 18% and 14% of cases, respectively. For the majority of respondents (83%), the comfortable price of the device on the market is up to 20,000 rubles. 17% of respondents are ready to pay from 20 to 50 thousand rubles per unit of product.

The results of the study correspond to the perceptions of the target audience consumer capabilities in relation to the NEUROCHAT communication system as a new product on the rehabilitation market.

4. RECOMMENDATIONS AND CONCLUSIONS

Based on the research results confirming the low awareness of the product in the B2B segment, a solution is proposed for holding a series of round tables within the framework of ongoing industry events (professional exhibitions, specialized conferences, etc.) on the topic of medicine and rehabilitation. Thanks to the holding of round tables, the manufacturing company will be able to increase not only the economic, but also, together with participation in exhibitions, the communicative efficiency of its interaction with the audience within the framework of specialized events. According to preliminary calculations, the return on marketing investments in the B2B market will be 631%, while the company's profit will amount to 7,553,435 rubles. Which is a high performance indicator for a startup company.

The main channels recommended for the NEUROCHAT hardware and software complex promotion in the B2C segment can be: targeting in social networks and contextual advertising, advertisements on sites: Avito, Yula, Yandex.Services, YouDo, needspec.ru, profi.ru, and also

leaflets and posters for placement in the twenty best Moscow rehabilitation centers. Targeting and contextual advertising will be the best solution for parents who use the Internet (including in order to find information related to the education of a child with disabilities, habilitation, rehabilitation, etc., which will help to select the audience when setting up contextual advertising) and spend significant time on social media. Placing posters and leaflets in rehabilitation centers should attract parents who visit health facilities with their child.

Today bloggers have a great influence on the opinions and behavior of people. The audience trusts them, follows their lives, is involved in communication with them, and we can say that the audience takes bloggers for their acquaintances, and sometimes even for friends. At the same time, in addition to popular beauty or fitness bloggers, people with disabilities also conduct their pages on the Instagram social network. They are much smaller in number, and the number of their subscribers is not so large due to the specifics of the audience, however, among their subscribers you can find people with disabilities or their relatives. It is important to note that people who are faced with various serious diagnoses, or their relatives, tend to look everywhere for information on how to cope with the problem. Most communicate in thematic groups or on the pages of bloggers, exchange experiences and give advice on which methods have helped and which ones are better not to try. In the communication of people united by such a serious problem, trusting warm relations prevail, including with bloggers. Based on this, close interaction with bloggers based on barter can be used to promote the NEUROCHAT hardware and software complex: the company provides them with the NEUROCHAT product for personal use for cognitive training at home, and the blogger regularly studies and writes about his results, as well as posts in the profile link to the company's website. At the same time, in order for the blogger to have a motivation to publish posts about the device, and it would be beneficial for him to interest subscribers in the purchase, he will receive 10% of annual sales. For the company, such interaction is an opportunity not only to tell the target audience about the device and cognitive training, but also to build audience trust and increase sales. For a blogger, this is an opportunity to improve the rehabilitation process and develop the cognitive sphere using unique technology, increase the number of subscribers and increase an income.

Taken together, the proposed directions for promoting the NEUROCHAT rehabilitation product are designed to increase both communicative and economic efficiency. The return on marketing investments will be 146%, and the profit will be 2,016,000 rubles.

In conclusion, it is worth noting that creating an inclusive environment is a time-consuming and ambitious task that countries around the world are working to solve. People with severe disabilities have special needs, and states are trying to create for them such living conditions that will allow them to live comfortably in society. The volume of the Russian market for rehabilitation and habilitation means is only about 0.5% of the global market. The share of domestic rehabilitation equipment goods in Russia is small, only 37% of the total market, while the share of imports is more than 60%. The total volume of rehabilitation goods imports in Russia, taking into account the segment of architectural and planning devices, is estimated at 17.7 billion rubles. The state Strategy for the development of industrial production of rehabilitation products until 2025 is trying to resolve the shortage of domestic manufacturers' products. One of the most promising directions for the development of industrial production is research in the field of neurotechnology and human-machine interfaces. The Russian company "NEUROCHAT" carries out its activities in this direction and offers the market a device for communication of people with speech and movement impairments using the "power of thought", which is also a simulator for the development of the cognitive sphere. the NEUROCHAT hardware and software complex contributes not only to improving the quality of patient rehabilitation and their return to the social environment, but also to the development of an inclusive sphere in Russia as a whole.

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