SUSTAINABLE DEVELOPMENT OF THE URBAN ECOSYSTEM BASED ON THE METHODOLOGY OF STRATEGIC MANAGEMENT ZONES IN THE DATA PLATFORM ECONOMY: DEVELOPMENT OF THE PROJECT IDEA

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Abstract. The paper focuses on increasing the energy intensity of the current technological order through issues related to the utilization of human performance in Russian cities (individuals, organizations). Of particular importance are environmental issues, the possibility of developing waste–free industries, and closed–cycle industries, which, in general, form a closed-cycle economy in the region. The characteristic of this economy is the renewable resources. The search for technical, technological, organizational and managerial answers to this question (how to organize the renewable resources in each specific region, production site) contributes to the development of the region's economy using new management technologies and new factors of production.

Keywords: platform economy, methodology of strategic management zones, data economy, digitalization; risks for society and business

1.INTRODUCTION

In this study, the objectives of the work are: to clarify the production chain of "collection and disposal" of batteries using the example of enterprises in Russian cities; to develop the idea of a battery collection project based on the methodology of strategic economic zones (hereinafter referred to as NWF); risks to society and business. This part analyzes the topic of the "data economy", which requires "... qualitatively new principles of operation using a management system based on big data ..." [7].

2.MATERIALS AND METHODS

To achieve the objectives of this study, the work analyzes the work of researchers on the collection of used batteries in the Russian economic space, the application of the NWF methodology in various fields of human activity. The work of Keimetinova V.P., Gerasimova L.V. notes the current situation with the collection of batteries in Yakutsk from the point of view of managing this process [4]. The work of Goncharov V.N., Shalevskaya E.Yu. reveals the essence of the methodology of strategic economic zones (NWZ) [2]. According to the authors, "... each of the NWCS is focused on its own markets, its own customers, and has its own competitors. They can transfer their goods to each other, they can compete with each other, they can give preference to an external supplier rather than their own..." [2]. The researchers identify the types of SPH, which is important for the present work. According to Goncharov V.N., Shalevskaya E.Yu. NWH can be represented as: a new product (tangible, intangible); a (new) market; a (new) resource; a (new) technology; a (new need) with corresponding new consumers; (new) demand; a production line at the enterprise; a group of enterprises [2]. The researchers identify the following "... classification factors for the Product segmentation method considered: (1) the nature of the product's use, (2) product parameters, (3) technology, (4) the scope of the product, (5) the product range..." [2]. It should be noted that the authors disclose the types of "technology" for creating a product as follows: "... old, new, improved, licensed, etc..." [2].

In the modern world, along with product production technologies, product segment, and SPX management technologies are important. N.N. Krupina's work examines "... the possibilities of saving water use by expanding the market for non-drinking water for use in general economic and washing processes, assessing the strategic market positions of the product ..." [5]. The author verifies the hypothesis that "... the insurmountable ... losses [of drinking water] ... during storage and transportation, the need for preventive conservation and sustainable

reproduction of water resources orient society to maximize the replacement of drinking-quality fresh water in municipal and washing processes for non-drinking water ..." [5]. The author considers non-drinking water as an object of sales, while exploring some technologies for managing (promoting) non-drinking water, the features of these technologies in such segments of the water market as: product and consumer, market boundaries, subject relations.

In the work of A.V. Shilykovsky, the definition of the NWH is presented, which is understood as a unit of strategic analysis "... as a separate segment of the environment to which the company has (or wants to gain) access. A strategic management zone is a set of segments of the market of goods or services chosen to implement the company's strategy ..." [15]. The author notes that this methodology was originally developed by General Electric in the 60-70s of the last century to manage its diversified business. According to I.Ansoff, who summarized the management practice of this company in his works on strategic management, the General Electric Company grouped its 190 areas into 43 agricultural sectors and then aggregated them into 6 sectors [16]. If in the work of Shamar Yu.A. the NWH methodology finds application in automobile dealership, then in the study of Shilykovsky A.V. the NWH methodology is used in construction [15]. According to A.V. Shilykovsky. There are two approaches for developing a company's diversification strategy in construction: based on available resources or "resource-based strategy", based on existing market niches or "market-based strategy". According to these strategies, two NWCS are distinguished, respectively, in relation to the construction sector, each of which has its own management and production technologies (since we are talking about the production process) [15].

3.RESULTS

In this part of the study, the production chain of "collection and disposal" of batteries is clarified using the example of a specific Russian enterprise. To apply the NWF methodology for battery collection management, we conducted an analysis of ongoing campaigns and programs for their collection in the Russian economic space (Table 1).

Table 1. Promotions, programs, projects for collecting used batteries: Russian practice

Special offer (program)	The name of the action (program)	Website for the program (promotion)
All-Russian program	"COLLECTING BATTERY STORAGE"	COLLECTING BATTERIES. THE OFFICIAL WEBSITE. (https://xn--80aabawa9a0asder.xn--p1ai/)
	"Garbage.More.No"	Garbage.More. There is no Russia. Official website (https://mbnrus.ru/about/)
All-Russian Retail Program	X5Group's Sustainable Development Strategy	Pyaterochka installed boxes for collecting batteries. The official website. X-5 Corporate Center LLC (https://esg.x5.ru/ru/news/051120/)
	Battery collection points in Vkusville stores	Battery collection points — look in all VkusVill stores. Vkusville official website (https://kzn.vkusvill.ru/media/journal/god-ekologii.html https://clck.ru/39JrK4)
The project is the winner of the Presidential Foundation for Cultural Initiatives (PFCI)	Battery, give up! Prevention of harmful effects of used batteries on human health and the environment in the Irkutsk region	The Presidential Grants Fund. Official website (https://clck.ru/39JrMf)

Source: authors' development

At the time of the study, the following enterprises for the collection and disposal of batteries were operating in the Russian economic space: Megapolis Resource Group of Companies, Chelyabinsk (since 2013) (Megapolis Resource Group, official website [8]; Mercury Ecological Enterprise LLC, St. Petersburg (since 2017, official website [9]; NEK LLC (National Environmental Company), Yaroslavl (approximately since 2008) (NEK. National Environmental Company, official website [10]. It should be noted that Megapolisresurs Group of Companies has a battery collection network in Russian cities (257 locations as of 2019). At the time of the study, the efficiency of battery collection was 3% of the total volume of imported batteries, given the authors' insufficient information on the required data in official statistics. There are about 22,000 thousand tons of batteries in the Russian Federation as of 2022 [1]. The production chain of an enterprise for the collection and disposal of batteries (using the example of Megapolisresurs Group of Companies) is presented as follows (Table

2). It should be noted that the SPCs formed by the authors in the field of battery collection and disposal are not dependent on each other (based on any technology, etc.) (Table 2).

It seems possible to conclude that the SPC in the field of battery disposal prevails over the number of SPCs in the field of collection (Table 2). The next part of this study reflects the development of the idea of a battery collection project based on the SZH methodology. The disclosure of the essence of SPH in the field of battery recycling is formed in Tab. 3. The essence of the project developed by the authors in the field of agricultural sector for the collection of batteries is as follows:

1.In the development of the NWH, considering the research and identification of new segments-users of battery-based products. When developing SPC in the field of collection, it is necessary to rely on SPC in the field of recycling as an example of using various technologies in the production part, developing SPC based on management technologies in the field of battery collection (Table 3).

2. Focusing on young people, including university students, as an energy-intensive segment, that is, consuming a significant number of battery-based devices. To this end, it is necessary: to study and compile a list of platforms and messengers popular with young people; to analyze the types of activity on these digital resources; to study the issues of motivation among young people in social programs and promotions.

3.In the study of youth activity in the field of battery collection as a diagnosis of the condition at the beginning of the study.

4. Using "influencers", that is, individuals who have influence on specific audiences, segments in the virtual space promote the idea of collecting batteries on digital resources popular with young people [6].

5. In the formation of a set of measures, including social advertising, to activate activities to collect batteries from young people [7, 13, 14].

6. Using tools of lean management, design thinking, and customer-centricity in the development of activities within the framework of specific agricultural enterprises designed to involve young people in social projects [13, 14].

7. In forming a list of data capable of tracking: the actual number of imported batteries, batteries intended for disposal; identify areas (segments, regions) where minimal collection of used batteries takes place, which will require the development of management technologies in existing agricultural sectors or the creation of new agricultural sectors [7].

Table 2. The production chain of an enterprise for the collection and disposal of batteries (using the example of Megapolisresurs Group of Companies, Chelyabinsk)

COLLECTING BATTERIES		**BATTERY DISPOSAL**
S-SZH-1 "SOBBATAREEKRF"		U-NWH -1
S-SZX-2 "Garbage.More.No"		U-NWH - 2
S-NWX-3 X5Group Sustainable Development Strategy		U-NWH - 3
S-SZH-4 Battery collection points in VkusVill stores		U-NWH - 4
C-NWX5 GC "Megalopolysresurs"		U-NWH -5
		U-NWH -6
		U-NWH -7
		U-NWH -8
		U-NWH -9
		U-NWH -10

C-NWX – strategic management areas in the field of battery collection; U-NWX- strategic management areas in the field of battery disposal.

Source: authors' development based on (GC "Megalopolysresurs". Official website [8]

Table 3 Strategic management zones in the field of utilization of GC "Megalopolysresurs", Chelyabinsk

U-NWH	The essence of technology implementation	Disposal
U-NWH -1	Receiving batteries for recycling with official partners, 7 types of batteries and accumulators are recycled, iron, non-ferrous metals and their salts are extracted from them.	Disposal of batteries and accumulators
U-NWH- 2	Purchase of lithium-ion batteries from smartphones and laptops weighing 100 kg	Disposal of lithium batteries
U-NWH- 3	Collection and processing of all types of liquid and solid silver-containing materials	Disposal of X-ray waste
U-NWH- 4	Safe transportation of new and damaged lithium batteries of any capacity, including batteries for electric vehicles. Specially designed containers meet all Russian and foreign requirements for the transportation of dangerous goods.	Transportation of lithium batteries
U-NWH -5	Technology uses methods of hydrometallurgy and electrolysis	Recycling of electronics
U-NWH -6	Extraction of the maximum number of precious metals and, in accordance with the legislation, the final processing of precious metals at refineries	Disposal of precious materials
U-NWH -7	Collection and processing of used jewelry materials: solutions, pastes, ash, alloys, galtovannye waste, defective items, jewelry scrap	Recycling of jewelry scrap
U-NWH -8	Disposal of non-ferrous metals in a mixture and with a coating. Specialization in hydrometallurgy technologies. Provision of engineering services in the field of mixed scrap processing	Recycling of non-ferrous metal scrap
U-NWH -9	Purchase and processing of catalysts from domestic and foreign cars	Recycling of automotive catalysts
U-NWH-10	Sale of products obtained after processing: precious metals, ferrous scrap, polymers, zinc powder, manganese dioxide, copper powder	As a result of deep multi-stage processing, a wide range of precious and rare earth metals is obtained: gold, silver, platinum, palladium, and rhodium. Offer for sale of processed products: salts and semi-finished products

NWH – strategic management zones; U- utilization
Source: authors' development based on (GC "Megalopolysresurs" [8]

4. DISCUSSION

Using the SZH methodology for battery collection will allow us to identify new segments of consumers who may be involved in this process. In particular, the successful project - winner of the PFCI "Battery, give up!" - specified the target groups, namely: "children and adolescents, youth and students, all categories of citizens who care about environmental problems" [10]. However, in our study, according to the development of the project's ideas, the focus of the study is on the concept of "youth" as an energy-intensive consumer, considered primarily as: "students of higher education". Other types of youngsters will be involved in the project based on the results of the involvement of university students. The development of the NWF based on management technologies in the field of battery collection will allow using new tools of the circular economy, understood as a "closed-loop economy", that is, "... a model of production and consumption that involves the reuse, restoration and recycling of existing materials and products for as long as possible ..." [10].

5. CONCLUSION

As a result of the research, the following conclusions can be drawn: based on the analysis of the work on the collection of used batteries in the Russian economic space, the possibility of applying the NWH methodology to the battery collection process is justified, which will form new centers for the formation of relevant data. In terms of the applied research results: it is proposed to consider the production chain of an enterprise for the collection and disposal of batteries based on the NWH methodology (using the example of a specific enterprise); Seven (7) areas have been formed for the development of a battery collection project based on the SZH methodology in data economics as a development of the ideas of the author's project.

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