SSOAR

Open Access Repository
www.ssoar.info

The methodological features of managing the value of companies introducing "green" innovations

Kharin, Alexander G.

Veröffentlichungsversion / Published Version
Zeitschriftenartikel / journal article

Empfohlene Zitierung / Suggested Citation:
Kharin, A. G. (2012). The methodological features of managing the value of companies introducing "green" innovations. *Baltic Region*, 3, 35-43. https://doi.org/10.5922/2079-8555-2012-3-3

Nutzungsbedingungen:
Dieser Text wird unter einer CC BY-NC-ND Lizenz (Namensnennung-Nicht-kommerziell-Keine Bearbeitung) zur Verfügung gestellt. Nähere Auskünfte zu den CC-Lizenzen finden Sie hier:
https://creativecommons.org/licenses/by-nc-nd/4.0/deed.de

Terms of use:
This document is made available under a CC BY-NC-ND Licence (Attribution-Non Comercial-NoDerivatives). For more Information see:
https://creativecommons.org/licenses/by-nc-nd/4.0

gesis Leibniz-Institut für Sozialwissenschaften

Mitglied der Leibniz-Gemeinschaft

Diese Version ist zitierbar unter / This version is citable under:
https://nbn-resolving.org/urn:nbn:de:0168-ssoar-326549

THE METHODOLOGICAL FEATURES OF MANAGING THE VALUE OF COMPANIES INTRODUCING "GREEN" INNOVATIONS

A. G. Kharin[*]

Although it is a common assumption that innovations are one of the most important factors of economic development, there is a need to review some provisions of innovation methodology so that new fundamental values are taken into account more fully. Most recent business models are based on the depletion of natural environment, whose potential has been almost exhausted. It is necessary to introduce new ideas that are of use for society and create values for companies. One way of achieving this goal is "green" (environmental) innovations.

The next decade is expected to see a rapid growth in environmental innovations. Their organization and management will require modern — and adequate to the objectives set — technologies. One of those is the quest for value methodology.

To date, the quest for value methodology has given rise to several conceptual approaches, which can be used to evaluate the effectiveness of environmental innovations. This article discusses the advantages and disadvantages of major approaches. The author comes to a conclusion that that the modern theory and practice of corporate finance still lacks a generally accepted approach to assessing the value of companies that explicitly takes into account the impact of environmental factors on the cost. The article outlines the basic theoretical frameworks for the formation of such approach.

***Key words*:** environmental innovation, sustainable development, natural capital, ecosystem services, quest for value, valuation methods

In morden economies, innovation promoting the technical and commercial implementation of new ideas is a key factor of the company's competitive advantages. Moreover, innovation forms the very core of business philosophy, whose influence on contemporary society is hard to overestimate. However, in the context of post-

[*] Immanuel Kant Baltic Federal University
14, A. Nevski St.,
Kaliningrad, 236041, Russia

Received on June 5, 2012.

doi: 10.5922/2079-8555-2012-3-3

industrial economy and an emerging new paradigm of economic development, there is a need to revise certain provisions of the theory and methodology of innovation, in order to fully take into account the new fundamental values. These changes are taking place primarily due to transition from resource-based to an innovation-driven economy; mastering of energy-efficient, energy- and resource-saving technologies; recomprehension of the role of human capital and the need for additional efforts to protect the environment, whose resources are close to exhaustion.

Although the fundamentals and basic approaches to the formation of innovation-driven economy are well known, most business models currently operating in Russia (as well as in many other countries) still rest on the principles of cost-based economy. Those principles are poorly responsive to resource-saving innovation; they are based on energy- and material-intensive technologies, badly affecting the environment, and are inefficient in terms of new economic demands. Ineffectiveness of the existing business organization forms especially pronounced itself during the global economic crisis, when many companies using traditional energy resources technologies showed no ability to respond to changing markets and, as a result, suffered the greatest losses in its value.

The need for the development and implementation of new ideas in the business processes is becoming ever more obvious. The new ideas, on the one hand, create value for the company and its owners; on the other, they are beneficial to society. One way to achieve this is to invest in "green" innovation.

In OECD terminology, the "green" (eco-) innovation includes "any innovation, that results in a reduction of environmental impact" [11]. In a more specific interpretation eco-innovation is "the creation of new competitively priced goods, processes and systems... that can satisfy human needs... with minimal use of natural resource... and minimal release of harmful substances" [8].

Apart from decreasing the environmental impact, which is the key feature of eco-innovations, they enjoy a wide application area which, in addition to technological innovation in products, processes, organizational and marketing methods, includes innovations in social and institutional structures.

Industries, or areas of economic activity in which eco-innovation is widely used, are referred to as "clean technologies" (cleantech). Currently, the sector of clean technologies includes the following areas:

- Renewable energy and energy efficient technologies;
- Management of resources and waste recycling;
- Environmentally friendly construction methods and building materials;
- Alternative transportation, logistics, etc.

Eco-innovation constitutes an integral part of the sustainable development concept. The available information on experience in sustainable development practices suggests that this type of development can be considered the "key driver of innovation in the 21st century" [6].

In this connection it is interesting to follow the evolution of views on sustainable development in terms of benefits to companies (and, consequently, the impact on their cost).

Originally, the use of the concept of sustainable development in business practices was associated only with the organizational and technological innovation chiefly aimed at reputational results. However, over the time it became clear that companies' benefits from eco-innovation, and the transition to responsible eco-friendlier environmental policies lie not only in social, but also in quite tangible commercial areas. This has led to the modern concept of corporate social responsibility, which links the issues of economic, environmental and social impact of business. Studies show that organizational and technological innovation driven by sustainable development policies, among other matters, is capable of yielding tangible financial benefits. A company's changeover to "green" production leads to lower costs, as in this case less raw materials, energy and other resources (the prices for which have been steadily growing) are used. Moreover, the company can generate additional income by producing higher quality, or new goods [7].

Optimizing the use of both renewable and non-renewable resources eventually results in the increase of efficiency, which becomes not only the "green" company's objective, but also that of its partners — resource providers and consumers. Together with its suppliers, the company identifies soft spots in supply chains and solves problems related to environmental purity of raw materials and components; meanwhile, together with its customers, it develops measures to reduce waste and loss.

Thus, around each corporation value-adding chains are formed, satisfying the principles of the sustainable development concept and bringing both social and commercial benefits.

Business representatives confirm the pertinence of transition to the principles of sustainable development. Thus, the McKinsey Global Survey 2011 *The business of sustainability* based on the poll of more than three thousand executives from different industries and regions of the world, gives an assessment of the impact of the principles of sustainable development (the combination of social, economic and ecological purposes, or CSR-Corporate Social Responsibility) on their businesses. According to the Survey, more and more companies are using this concept to improve their operation, achieve growth and add greater value, as compared to previously prevailing exclusively reputation-focused practice [13]. Among the main motifs for the implementation of corporate responsibility policies in 2011 were:

— Increasing operational efficiency and reducing costs (33%);

— Corporate reputation (32%);

— Compliance with the vision, mission and values of the business (31%);

— New opportunities for growth (27%).

The study had found that more effective sustainability-oriented companies twice more often than others attribute added value to the chosen strategy of sustainable development. The McKinsey review highlighted the trend, which indicates that more and more companies are expected to be compelled to consider the long-term sustainability as a universal goal, and take it into account in various aspects of value creation, such as addressing development challenges in investments and risk management.

The concept of sustainable development implies that the classic business model based on cheap energy and raw materials can and must be replaced by the new cost-effective, "green" business model. According to George Soros, the famous American financier, investor and philanthropist, only "green" business will become "the new motor for the new economy" [9]. This means that in the near future eco-innovation is to become one of the main trends of modern economy.

Experts predict that the next decade will see rapid growth in global production of technologies related to environment and alternative energy. It is expected that by 2020 the global market for "green" products will have more than doubled (from 1.4 to 3.1 trillion euros). Meanwhile, even now environmentally friendly technologies and products occupy a prominent place in the economies of many countries. According to the Clean Edge Company, the aggregate of "clean" energy industries (biofuels, wind and solar energy production) amounted to 246.1 billion U.S. dollars in 201; by 2021 a rise to 385,8 billion is expected. Clean technology in general is currently the fastest growing sector of venture capital investments in the U.S. In 2011, their volume increased by 30% to 6.6 billion dollars (almost a quarter of all venture capital investments in the U.S.) [12]. Though lagging far behind the world's leading economies, Russia's market of ecological services and products is quite large. According to the Russia's Ministry for Economic Development, its share varies from 600 billion to 2 trillion roubles, or 3 to 4% of GDP in the medium term [10].

Obviously, the effective use of such a promising growth potential requires due organization and management, including the use of modern models and methods matching the complexity of problems. Quest for value — a fairly recent form of financial management — can become one of the most effective approaches to the management of eco-innovation. Using this methodology permits business to concentrate efforts on achieving the main goal that is, maximizing the value of the company — the criteria that most completely reflects the strategic goals of owners or investors.

As for any other type of innovation, for eco-innovation it is crucial to answer the question about the impact it has on the business costs. Obviously, the higher the business value, the more attractive it is to investors, and hence, the company will have ample financial opportunities for further development. However, in the case of eco-innovative companies investors with their financial choices do not contribute to meeting private commercial interests alone. They also support the solution of one of the most important social problems — that of preservation of the comfortable environment for present and future generations. In their turn, socially responsible companies whose activity is based on the principles of sustainable development are able to provide an increase in the value of their shares in a long-term perspective. They are also characterized by greater transparency of commercial risks, which are often hard to determine with the help of conventional financial economic categories. This adds to the increase of investment attractiveness of such companies.

To date, in the framework of the quest for value management methodology, several conceptual approaches have formed, which, with varying degrees of success, can also be used for assessing eco-innovation effectiveness.

The simplest and quickest way to obtain information on the market value of the company and managing its cost is to use a special series of stock indices developed by leading stock exchanges and rating agencies. These stock indices explicitly reflect the main indicator of current value of the environmentally responsible companies — their capitalization. This figure can be compared to the overall dynamics of the market, or used to create derivative instruments and funds specializing in socially significant investments (the so-called socially responsible funds).

Created in 1999, the group of Dow Jones Sustainability Indexes (DJSI) became a pioneer among such instruments. At present, the group includes six different indexes, which, due to their method of complex evaluation of corporate responsibility (practice of sustainable development) and the use of various calculation methodologies ensure [14]:

— Authoritative, independent assessment of investment effectiveness in "green" companies;

— Quantitative assessment of corporate financial strategies for sustainable development and measures for cost management and risk management related to sustainable development practices.

Today, many leading stock markets and rating agencies have their own line of environmental or 'low-carbon' indices reflecting trends in global demand and supply in the field of 'green' products and services such as: NASDAQ OMX CRD Global Sustainability Index (U. S.), FTSE4GOOD (UK), HKQ AA HSBC (Hong Kong), BOVESPA (Brazil), etc. These indices do not only greatly simplify investment-related decision making, but also motivate companies to increase long-term shareholder value by integrating the principles of sustainable development into their business strategy.

On the Russian market capitalization of more environmentally effective companies is tracked down by NERAX-Eco (developed by Independent Environmental Rating Agency ANO). These indices are based on the assessment of the company according to two groups of measurable criteria that characterize ecological efficiency of the industry and its progress in reducing the impact on the environment [15].

The boosting popularity of "green" ideas among institutional investors has resulted in attempts to develop a tool for domestic stock market that could be more informative than NERAX-Eco indices, and more in line with international standards (e. g., such as: ISO 26000, the methodology of Standard & Poor's Index Agency, etc.) — a tool to measure indicators of Russian companies' value adhering to the principles of sustainable development. In 2010—2011 a group called RTS Sustainability was established to develop such an index. The developers proposed to identify nineteen social, twenty-six ecological, and twenty tree corporate environmental indicators as the basic criteria according to which RTS Sustainability would select stocks of Russian companies [16]. It is assumed that the index should become the objective benchmark for all financial products catering to socially responsible investments. It will play the role of a tool for assessing the performance of Russian companies, therefore helping to attract investments. According to Alexei Germanovich, head of the working group, Professor of the Moscow

School of Management *Skolkovo*, "the project gives the debate on corporate social responsibility in Russia a definitive pragmatic turn: the forthcoming stock index provides a framework for corporations to profit from being socially responsible" [17].

Perhaps, with the creation of the index, Russian financial market will get another tool for evaluating environmentally oriented business that will make it possible to determine, and more objectively assess the value of the companies committed to sustainable development practices, applying nature-conserving and environmentally sound technologies as well as other elements of social responsibility. However, it should be kept in mind that along with the benefits of the stock indices as financial instruments of performance evaluation such tools are not devoid of serious flaws. First, all the specialized indices have a tendency to follow the overall trend of the stock market, often barely reflecting objective economic conditions; they are also exposed to a variety of factors, unrelated to environmental issues and innovations. Second, they are characterized by a relatively low evaluation reliability because of averaging of data that, in addition, can be obtained only for a narrow range of companies included in the index pool[1], or their nearest counterparts. The last — but not least — feature of the index approach is most critical because it limits the possibility of its application for small companies (especially for start-ups), which are most of all in need of an effective system of quest for value, and which is indispensable to their external financing.

The solution may be found in applying, along with the index, other approaches that fully take into account all the features of the evaluated company in order to purposefully control its cost in the course of "green" innovation implementation.

It should be noted that the theory of assessment and cost management exploits a large number of methods that are capable of successfully addressing the problem, given their appropriate application. However, the direct use of such methods does not always yield the desired result. The main reason for this, in our view, is rooted in history, for as all management and cost estimates were originally developed for "standard" companies in the era of "industrial economy", operating in the context of undervalued natural capital, more often than not its value totally ignored. Namely, it is typical of one of the most popular approaches of our time — value based management (VBM), under which the key role is given to the model of calculation of economic value added — EVA.

The basis for EVA calculation — a financial indicator, showing actual economic profit of the company — is the profit and the amount of capital invested in the business. Although the EVA indicator makes it possible to avoid evaluating the company as a simple sum of its assets' value, or as its current market capitalization, in the case of eco-innovative company EVA's disadvantage lies in the complexity of the objective determination of the value of natural resource rents.

[1] The index pool includes only the shares of public companies, selected on the basis of the analysis of regularly published corporate social responsibility reports.

The theory and practice of corporate finance is still lacking in a recognized methodological approach to assessing the company's value that explicitly takes into account the influence of environmental factors. Using the existing toolkit of management of natural resources[2] to that end does not solve the problem, because the methodology of the science, sociometric by nature, cannot ensure any satisfactory result in terms of finance. Moreover, even theoretically the mechanism and some features of the influence of natural capital on firm value remain unclear. What is clear is that the account of natural factors can have a significant impact on both the cost of the company, and on the management of this indicator, especially in the case of the companies offering "green" innovations.

There is one more feature that cannot be ignored when determining innovation contribution to the company capital. As this kind of innovation will usually lead to positive externalities (spillovers), the benefits resulting from the efforts to environmentalize their activities without any clear economic evaluation can lead to the situation of the so called "market failure." It is especially pronounced in the case of ecosystem services (a typical form of natural public good), improving the quality of which gives a positive extrinsic effect. The results of innovations directed at rational consumption of such goods tend to be underestimated by the market, which in its turn disillusions the involved companies, sceptical about the usefulness of costs for this purpose [5]. Accordingly, to reflect the impact of environmentally friendly innovation on the company value, non-standard assessment methods are required.

It is worth emphasizing again, that this feature is a consequence of persistent non-ecological nature of modern economy, still largely based on the ideology of "free" natural capital. Therefore, a genuinely fair assessment of the eco-innovations' contribution to the value of the company will only become possible if true value of natural resources in the company's capital is duly identified and accounted for.

The solution is attainable under a new economic paradigm actively formed in recent years by many scientists[3]. It is designed primarily to overcome the current predominant approach justifying the inevitability of unlimited consumption of natural resources. In return, it offers an alternative (the so-called "environmental" [2]) model, which, in fact, is neither individualistic or collectivist. Ideologically, this model is based on the right of each person as an individual and a community member to possess natural resources; it results in the recognition of equal availability of shared resources, combined with mandatory benefit remuneration. While the old philosophy com-

[2] A survey of the basic eco-economic methodology can be found in : Mendelsohn и Olmstead (2009) [4].

[3] The most significant work in this area is by: Costanza, R.R. et al. 1997, The Value of the World's Ecosystem Services and Natural Capital, Nature, no. 387, p. 253—260; Daily, G.C. (ed.). 1997, Nature's Services: Societal Dependence on Natural Ecosystems. Washington, DC; Daily, G.C. et al. 1999, The Value of Nature and the Nature of Value, *Beijer Discussion Paper Series*, no. 126, Stockholm; and others.

pletely ignored the social behaviour, the new model is based on people's capability to develop a consensus in the formulation of rules and regulations on the use of shared resources [3].

The economic basis of the new paradigm consists in the idea that ecosystem services are part of the production of socially important goods. Thus, the rationale is found for embracing all (including intangible) factors of the environment, measured at fair prices in the production cycle [1] (in the economic theory, this process is known as "internationalization of externalities", the latter usually referring to the cost of restoration and protection of the environment, the flow of income from natural resource rents, non-commercial benefits from existence of natural objects, and so on).

However, the economic component of the new "environmental model" still remains unshaped. This is largely attributed to the current lack of well-established financial and economic methods, which could operate as an alternative to currently used very rough ones exploiting opinion polls and expert assessments. The financial and economic methodologies could make it possible to directly convert the value of quality indicators used in the business of natural resources into cost indicators.

Obviously, the existing — rather imperfect — methods of cost analysis seriously hamper the process of administrative and investment decision making regarding "green" innovative companies. Meanwhile, environmentally oriented innovation business is gaining ground in the global economy. Therefore, the adaptation of existing models or development of new ones, with the aim to fully and effectively address the impact of various environmental factors on the cost of a company, is one of the most urgent challenges of modern economic theory and practice.

References

1. Arrow, K. and al. 1999, Managing Ecosystem Resources, *Beijer Discussion Paper Series*, no. 122, Stockholm, The Royal Swedish Academy of Sciences, p. 1—22.

2. Daly, H. E., Cobb, J. B. 1990, *For the Common Good*, London, Green Print Publishing, 95 p.

3. Hanna, S. S., Jentoft, S. 1996, Human Use of the Natural Environment: An Overview of Social and Economic Dimensions, *Rights to Nature: Cultural, Economic, Political and Ecological Principles of Institutions for the Environment*, Washington, D. C., Island Press, p. 35—36.

4. Mendelsohn, R., Olmstead, S. 2009, The Economic Valuation of Environmental Amenities and Disamenities: Methods and Applications, *Annual Review of Environment and Resources*, p. 325—347.

5. Mnatsakanyan, A. G., Harin, A. G. 2012, O nekotoryh osobennostjah primenenija koncepcii upravlenija stoimost'ju dlja kompanij, dejatel'nost' kotoryh osnovana na ispol'zovanii prirodnyh resursov [Some features of the concept of cost management for companies whose activities are based on the use of natural resources], *Finansy i kredit [Finance and credit],* no. 1(481), p. 12—20.

6. Nidumolu, R., Prahalad, C. K., Rangaswami, M. R. 2009, Why Sustainability Is Now the Key Driver of Innovation, *Harvard Business Revue. Reprint*, available at: http://sustainabledi.com/wp-content/uploads/2010/04/harvardstudy1.pdf (accessed 10 April 2012).

7. Nidumolu, R., Prahalad, S. K., Rangaswamy, M. R. 2011, Jekologija — zolotaja zhila dlja biznesa [Ecology — a gold mine for business], *Harvard Business Review (Russia),* available at: http://hbr-russia.ru/article/2587 (accessed 15 May 2012).

8. Reid, A., Miedzinski, M. 2008, Sectoral Innovation Watch in Europe: Eco-Innovation (Final report), *SYSTEMATIC Innovation Panel on ecoinnovation for sectoral innovation watch*, available at: http://www.technopolis-group.com/resources/downloads/661_report_final.pdf/ (accessed 7 May 2012).

9. George Soros on the Clean-Energy Economy, 2008, *The New York Times*, 14 October 2008, available at: http://green. blogs. nytimes. com/2008/10/14/george-soros-on-the-green-energy-economy/ (accessed 5 May 2011).

10. Sterlingov, I. 2011, «Zeljonaja» tehplatforma nagotove [«Green» ready tehplatforma], *Nauka i tehnologija Rossii: jelektronnoe izdanie* [Science and technology in Russia: electronic edition], 07.07.2011, available at: http://strf.ru/material.aspx?CatalogId=34910&d_no=40934 (accessed 12 May 2011).

11. Green Growth & Eco-Innovation, *OECD: Green innovation*, available at: http://www.oecd.org/document/37/0,3746,en_2649_34499_40695077_1_1_1_1,00.html (accessed 15 September 2011).

12. Clean Energy Trends 2012 (Report), 2012, *The Clean Tech Market Authority*, available at: http://www.cleanedge.com/reports/clean-energy-trends-2012 (accessed 15 May 2012).

13. The business of sustainability: McKinsey Global Survey results, 2011, *McKinsly Quarterly*, available at: http://www.mckinseyquarterly.com/The_business_of_sustainability_McKinsey_Global_Survey_results_2867 (accessed 17 May 2012).

14. *Dow Jones Sustainability Indexes in Collaboration with SAM*, available at: http://www.sustainability-index.com/07_htmle/indexes/overview.html (accessed 17 May 2012).

15. NERAX Eco — semejstvo jekologicheskih fondovyh indeksov [NERAX Eco — a family of stock indexes of environmental], *Nezavisimoe Jekologicheskoe Rejtingovoe Agentstvo* [Independent Ecological Rating Agency], available at: http://nera.biodat.ru/ecoind/ (accessed 17 May 2012).

16. Sostojalsja kruglyj stol «Indeks ustojchivogo razvitija — Buduwee social'no otvetstvennogo investirovanija v Rossii» [Round table «Index of Sustainable Development — The Future of socially responsible investing in Russia»], 2011, *Rossijskij sojuz promyshlennikov i predprinimatelej* [The Russian Union of Industrialists and Entrepreneurs], 21.07.2011, available at: http://рспп.рф/news/view/987 (accessed 16 May 2012).

17. *Moskovskaja shkola upravlenija «Skolkovo»* [Moscow School of Management «Skolkovo»], 2011, 27 June, available at: http://www.skolkovo.ru/public/ru/news/item/1807-2011-06-27-789/ (accessed 17 May 2012).

About the author

Dr Alexander G. Kharin, Associate Professor, Department of Finances, Currency Circulation, and Credit, Immanuel Kant Baltic Federal University.

E-mail: agkharin@yandex.ru