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## OPEN INNOVATION AND SUSTAINABLE DEVELOPMENT AS MAJOR TRENDS IN GLOBAL ECONOMY

### Abstract

The contemporary world has developed significantly in a short time. The evolution of it has become faster, involved a lot of resources and has required the attention of researchers all over the world. There is a great need not only to follow and describe trends, but also to analyze their structure, notice some general truths and construct models which may be helpful for further analysis. The main goal of this article is to analyze the relation between open innovation and sustainable development – the major trends in global economy, and to build a model of interrelations between them in various functional fields.

### Key words:

sustainable development, open innovation, social development, global economy, global trends

### Introduction

The idea of open innovation assumes that the common work of people or organizations who share the same vision and field of work is more fruitful than competition between them, while they operate in the same or similar area. Since there is a strong relationship between the potential for development of regions and companies, and their consciousness of contemporary mechanisms of competitive environment, it is also useful to analyze the attitude towards open innovations as a growing trend. For the reasons presented above, the aim of the article is to conduct in-depth research of contemporary theoretical analysis of the field and to present the potential of open innovations in sustainable development of companies and regions.

The article is subdivided in four basic parts. The first part describes the open innovation trend. In subsequent parts, sustainable development as a trend will be analyzed, followed by a presentation of important relations between them based on the field of potential for their implementation in companies and regions. The last part of the article is devoted to the creation of a model of relations between sustainable development and open innovation, with presentation of its basic fields.

### Open innovation – the concept and its justification

The idea of open innovation is based on the assumption that the common work of people or organizations who share the same vision and field of work is more fruitful than competition between them, while they operate in the same or similar area. [1, pp. 34-41]. The reason for this was an idea that the contemporary world will develop faster if the inventions are shared and developed together by the most significant minds. On the other hand, the basis was also ethical, because it is positive if those who were educated by society give back the potential that was developed in them. [2] So the in-born trend for sharing potential and knowledge was natural in societies since long ago [3], and for that reason it is still highly justified. Nevertheless, those in-born tendencies for high responsibility related to the innovative ideas of great people was influenced by collective philosophy and culture, which developed the attitude of collective feeling and development related to it. [4]

Nevertheless, the whole concept of open innovation was created not just for social or ethical reasons, but primarily for economic ones. As Chesborough and Appleyard notice, strategies of development have changed and the crisis or problems make them develop in a new direction. They explain that the open innovation model may be treated as a form of business strategy sourced in economic theories of intellectual efficiency [5, pp. 57-61]. The direction in which business strategies have evolved is also crucial here, because from the entry level of close inventions and company's secret organizations have discovered the advantage of openness as a part of a philosophy of development. For the present purposes this is an important point because regions and countries had started their development from the idyll of autarchy and they went through alliances, finally creating unions, which is the nearest stage to the open innovation idea.

While there are many reasons listed as those which make open innovation extremely useful, Chesborough and Appleyard state that there are a few basic reasons [5]. They should be discussed with attention and be an entry to the main part of the article. The first reason is the ability to share and develop unique knowledge. The possibility to develop and share data and information collected by one person with another, and creating a new added value streaming from that contact is priceless. The Internet, as a global socio-technical structure, is known to be born as an initial form of cooperation of hackers who made the system easier and stable, open for people who had no competences in programming [6]. This proves that such openness makes innovations spread faster.

The other reason is the outstanding ability of open innovation, understood as the flow of information, stimulating creative/innovative process, to stimulate the creation of new environment and culture. The main reason for supporting the trend is an influence of the environment created this way to maintain and develop skills and attitudes. Not only does open innovation itself influence a company's or region's culture, but also it becomes a pattern to be followed by the others as a set of good practices [7].

As far as open innovation is concerned, the problematic case, especially at the very beginning of implementation, remains a question of the source of financial benefits' sources. Chesborough and Appleyard try to answer it with presenting the example of business models of open source software [5], but this may be simply applicable to the reality of regions too. They describe four dimensions: deployment, hybridization, complements and self-service. The first one is built around an assumption that improvement of the user (client) experience makes them more eager to pay for services, even if they were initially free of charge [5]. This may be understood that common care for innovations, especially in the environmental field, developed based on common work and makes it profitable for the region, because customers are ready to pay more for usage of ecologically friendly reality than for a harmful one. This may be one of the reasons why it is beneficial to work in clusters which concentrate around ecological balance [8].

Another aspect is hybridization, defined as the possibility to prepare various versions of the same program, which may be varied in terms of payment in that one is free and the other is paid. They differ with stability, scope of possible activities, and guarantee of quality. Usually those unpaid versions are used as beta programs left open to be tested and fixed [5, p. 65]. This may be simply transferred to the reality of regions and other companies. Situating a free service next to a paid one makes them cooperate and influence one another. This is used in the example of Wolinski National Park, which is available for tourists free of charge. To visit a bison farm, however, it is necessary to buy a ticket, which is presented in the picture below.



Fig. 1: The entrance to the bison farm

Source: [http://pl.wikipedia.org/wiki/Plik:Zagroda\\_Mi%C4%99dzyzdroje1.JPG](http://pl.wikipedia.org/wiki/Plik:Zagroda_Mi%C4%99dzyzdroje1.JPG)

Similar activity can be prepared by a company. Preparing demo versions of games, which are free of charge at the initial level, is nothing else but promotion of sales [9]. The other more interesting model is the development

of the same product but in two parallel versions, which is closer to the idea of open innovation than to marketing, especially if the free version was open to be modified by the users [10].

The third category is complements, described by Chesborough and Appleyard as a method of adding free products, created in an open innovation model as an addition to the paid product, such as Linux software (free of charges) that is added to an HP personal computer (paid one) [5]. As for the potential of implementation to regions, it is the whole spectrum of products added to a basic offer. While visiting a place you can receive a free regional beverage or while working in a certain place recreation space may be offered. On the other hand, the things which are perceived to be standard in a contemporary region's development become an added value in the company's activities, even though territorial marketing is one of the youngest sub-disciplines in marketing itself [11].

The last element of open innovation potential is the self-service model. This is the most amazing one because it assumes activity on the part of the customer who can freely edit and change the product to adjust it to their needs [5]. The regions, as territorially restricted areas which are functionally independent, may use this type in an especially intense way. The potential of usage of that rule stretches from self-made dishes, through self-delivered services and even to the self-built environment. The only limits that appear there are the boundaries of creativity of the region's governors.

Nevertheless, even if there is a huge potential for applying open innovation to the development and competitive position of a region or company, there still stands the question of the relation between the open innovation trend and sustainable development.

#### **Sustainable development as a strategic trend**

Some researchers trace back sustainable development as a concept to XVIII century, when the first shortages of energy appeared, and it is related to Malthus and William Stanley Jevons [12]. Nevertheless, the most common opinion on its development, defined as that which assumes parallel modifications and expansions in all potential fields in which a person, organization or region may rise, appeared mainly thanks to the initiatives of non-governmental organizations. They supported strongly searching for balance between the development of technology and ecology, and between work and personal life. They were those that insisted on employees and organizations to make them aware of the mechanisms of efficiency and long-term benefits of such attitudes [12].

Even if those initial stages were primarily related to building consciousness, the forthcoming ones are more based on law and the concept of a Global Civil Society. What is crucial here, it is nothing else but strengthening the idea of responsibility for a community which is not defined classically in terms of local or regional territory, but in relation to the global village as a place where all people live [13]. This broadened concept supports the existence of a relationship between the world, country, region, and all the citizens and entities operating therein.

Sustainable development in terms of territories was analyzed in the second half of the 20th century, especially in terms of environmentally endangered areas [14]. Forthcoming times proved that protection should be extended not only to those areas that are unique, but also to those that function in developed countries alongside the remaining nature [15]. The issue of the second was analyzed in relation to their citizens and the technology that influenced both the people and environment. Nevertheless, there was an economic aspect added [16] to the issues of ecology, technology and society. At that point, the whole spectrum of analysis was complex enough to start implementing changes. However, to sustain the standard of life achievable with the use of highly toxic technologies and energy resources, the innovations were to be implemented. The visible element of those changes is the Strategy for European Union – Europe 2020, which underlines the need for sustainable and intelligent development.

#### **Sustainable development in a context of open innovation**

While analyzing the relation between sustainable development, understood as a complex work in various fields, and open innovation, understood as the easy flow of information and knowledge, it is crucial to concentrate on strengths and weaknesses and the potential of applying them both. Regions that concentrate on sustainable development need to develop in many areas, including social, technological, intellectual and ecological aspects. Since the previous experiences of regions created some barriers and limits for change, a new attitude is required that may be built on the implementation of innovations and management [17]. Because innovations appear in the open environment, they are usually an effect of an intellectual blow than an intellectual process of thinking.

[18] For that reason, it is useful to use the whole potential that might be gathered around one idea to support sustainability. On the other hand, concentration on open innovation requires similarly sustainable development potential to be more efficient, especially while social environment is concerned.

For the those reasons, it is required to construct a model for interrelation between sustainable development and open innovation, which is presented below.

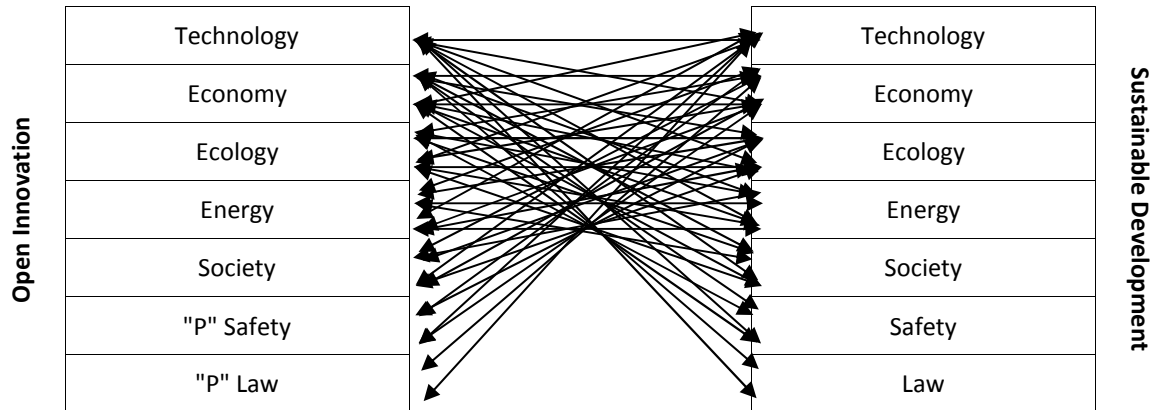


Fig. 2: Relationship between fields of open innovation and sustainable development

Source: own research results

It is worth noticing that the basic model of sustainable development was built based on four dimensions: economy, society, technology and ecology [20]. This is related to the belief that only those four elements state the world and the balance between them can become unstable unless all the elements are unchanged or developed in a parallel way. This is caused by the fact that modifications of each of the four aspects influence the behaviour of the others. Nevertheless, while the assumption of certainty of the thesis is confirmed, then safety (defined as the stability of boundaries and the stability of development of the regions) and law (as a form of guarantee of stability of the environment) should be included. This is of the utmost importance, especially considering the relation between open innovation and sustainable development. Even if those dimensions were acceptable and it was well justified to apply them at the national scale, then it was not that perfectly applicable in the micro scale of one region or the great scale of global economy. Additional fields were added to guarantee the highest possible objectiveness and complexity of the analysis, especially if they were to be applied by countries or regions.

It is justified to expand the scope of the elements in open innovation and sustainable development, because in contemporary reality all mentioned aspects are correlated and implementing changes in one field requires them in another. Although fields such as law, safety or energy were not previously enlisted as fields of sustainable development, it is required to separate them as those areas which influence highly the other ones. There might appear a question for reasons as to why the elements are the same in the open innovation area and why some of them are presented as potential fields. Those potential fields, prefixed with "P", are those which are to be authorised, because they cannot develop without the control of public authorities who are representatives of the people in a territory. Such an assumption is based on the history and general laws.

The assumption of interrelations between all the elements and the need to develop them within sustainable development and open innovation field is reasoned with the fact that only while innovations develop freely and there is a possibility of flow of knowledge, sustainability is possible. It is an issue of secondary importance whether in examples law can be developed in an open way, with open suggestions of all citizens and if this would influence possibility to implement RES, or if the evolution of an RES system within a sustainable development trend would open the new field for open innovation in the field of waste usage for energetic purposes. The crucial element is that openness of creating and evolution of the system can guarantee the parallel advance of all development areas with the intelligent use of both trends.

## Conclusions

Open innovation is a growing trend in the world. All countries gradually become more aware of the fact that sustainable development is strictly related to innovations and innovative solutions, and it is proven that there is

a relation between the sustainability of countries' development and their attitude to open innovation [5]. Nevertheless, a similar trend is permanently developed in companies, especially international ones [6]. As far as open innovation is a form of tendency that influences modern perception of development, it is crucial to create connotations between sustainability of innovations and openness of the development. There is only a question which may be an entry for further explanatory and exploratory research, to which extent those conclusions are applicable to developing countries and if the model of the spread of innovation is universal or if it is dependent on the culture or some other factors which remain undiscovered.

### Bibliography

- [1] H. Chesbrough, "The Era of Open Innovation," *MIT Sloan Management Review*, pp. 34-41, Spring 2003.
- [2] M. Weber, *The Protestant Ethics and the Spirit of Capitalism*, New York: Routledge Classics, 2001.
- [3] J. Gaffin and D. Thoms, *Caring and Sharing: the centenary history of the Co-operative Women's Guild*, Manchester: Co-operative Union, 1983.
- [4] P. Sztompka, "The Trauma of Social Change. A Case of Postcommunist Societies," in *Cultural Trauma and Collective Identity*, P. Sztompka, Ed., London, University of California Press, 2004, pp. 155-158.
- [5] H. Chesbrough and M. M. Appleyard, "Open Innovation Strategy," *California Management Review*, pp. 57-76, Fall 2007.
- [6] B. Gotwald, *Jak zarobic w Internecie: portal społecznościowy i jego promocja*, Lodz: Leader-Great Publishers, 2010.
- [7] K. Pham-Gia, *Radical innovation and Open innovation creating new growth opportunities for business. Illuminated with a case study of LED industry*, Hamburg: Diplomica Verlag, 2011.
- [8] E. Kochańska and M. Staniszevska, "Cooperation Model Between the Bioenergy for the Region Cluster and Competence Network DeENet," *Acta Innovations*, pp. 5-17, April 2013.
- [9] R. Mullin, *Sales Promotion. How to create, implement and integrate campaigns that really work*, 5th Edition ed., London: Kogan Page Ltd., 2010.
- [10] Luckie, "Twórcy Shadowrun Online opisują model płatności," 31 May 2013. [Online]. Available: <http://www.gry-online.pl/S013.asp?ID=77457>. [Accessed 08 July 2013].
- [11] A. Szromnik, *Marketing terytorialny: miasto i region na rynku*, 4th Edition ed., Warszawa: Wolters Kluwer Polska, 2012.
- [12] S. Baker, *Sustainable Development*, New York: Routledge, 2006.
- [13] A. E. Egelston, *Sustainable Development: A History*, London: Springer, 2006.
- [14] R. B. Browne and M. W. Fishwick, *The Global Village. Dead or Alive?*, Ohio: Bowling Green State University Popular Press, 1999.
- [15] D. Pearce, E. Barbier and A. Markandya, *Sustainable Development. Economics and Environment in the Third World*, London: Edward Elgar Publishing Ltd., 1990.
- [16] H. E. Daly, *Ecological Economics and Sustainable Development*, Northampton: Edward Elgar Publishing Ltd., 2007, pp. 33-60.
- [17] M. Mawhinney, *Sustainable Development*, Malden: Blackwell Publishing, 2002.
- [18] U. Steger, *Sustainable Development and Innovation in the Energy Sector*, Berlin: Springer, 2004.
- [19] J. de la Mothe and D. Foray, *Knowledge Management in the Innovation Process*, Norwell: Kluwer Academic Publishers, 2001.
- [20] T. Strange and A. Bayley, *Sustainable Development. Linking economy, society, environment*, Paris: OECD, 2008.
- [21] M. Cervantes and K. De Backer, "Open Innovation in Global Networks," *Policy Brief*, pp. 1-8, November 2008.
- [22] L. Mortara, J. Napp, I. Slacik and T. Minshall, *How to implement open innovation. Lessons from studying large multilevel companies*, Cambridge: University of Cambridge, 2009.