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MEASUREMENT OF PUBLIC ENTREPRENEURSHIP IN THE POLISH HEALTH SECTOR

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Abstract:
The paper presents an approach for the measurement of entrepreneurship in the public sector. A research model and the preliminary results of the research conducted at public health units in Poland were presented on the basis of theoretical research. The way the Public Sector operates nowadays, especially in highly developed countries, indicates crucial changes in the management of its entities, as well as new forms of managing the staff behaviour. The consequences are innovative solutions in the public services area, for example: acquiring additional resources for services financing. Efficiency of Health Care Services is related to two aspects: entrepreneurship takes place in the Public Subsector as the Health Care is considered to be a public good and its provision is an essential responsibility of the government; entrepreneurship also takes place in a private sector, as it has been defined above, the Health Care is a public good and therefore providing health care services cannot be limited only to public units. The study of entrepreneurship in the Health Care may bring very interesting results in dealing with improving the efficiency of the national Health Care systems, mainly in reducing the cost increase. Examining entrepreneurship in the Health Care Service may not only be helpful in its study (cognition) but may result as well in practical reforms of the Sector.

Keywords: innovation, entrepreneurship, public entrepreneurship, entrepreneurial orientation, health sector

1. INTRODUCTION

The notion of entrepreneurship in economic studies is related to observation of individual's business behaviour, the creator of a business model. It is also associated with finding ways to improve organizational effectiveness achieved through enhancing entrepreneurial behaviours among larger commercial organizations employees. Recent studies concerning entrepreneurship surpass private sector (Głód, 2013) and focuses on the public sector research or social entrepreneurship (Wronka, 2013).

The given article deals mainly with measuring the level of entrepreneurship in the Public Sector Units. In the context of recent changes and the necessity to improve effectiveness of the Public Sector Units, this aspect tend to be interesting and crucial concept from scientific point of view as well as it might be helpful for economic practices. Increasing demands of the Public Sector clients and the influence of many external conditions (mainly demographical and technological) make it necessary to search for new ways to improve effectiveness. One of them can be applying more entrepreneurial management elements in the Public Sector Units as a result of introducing good practices from the Private Sector.

The scale of changes in the public sector is very wide, with very diverse solutions applied by similar public administration. Introducing a strategic approach sets the mission, the goals, and an evaluation system focused on the measurement of performance gaps. This makes public managers more accountable to politicians: the theoretically gives more freedom to managers regarding the organizational structure, the allocation of resources, and the managerial tolls to implement (Longo, 2007, p. 13).

The pace of change has increased significantly in recent years within booth private and public sectors and is set to quicken even further in a highly competitive environment, where all organizations will have to fight to develop even faster to stay in existence in a new atmosphere of “hyper competition” (Baaker, 2007, p. 5). Some studies underline the necessity for partial introduction of market rules into the Public Sector made through commercialization (without the necessity for privatization) (Matthews, 2014). One of the example of units with this approach are the Public Health Units which are of this paper concern[1].

2. THEORETICAL FRAMEWORK

The concept of public entrepreneurship is difficult to define as entrepreneurship is not easily defined. Public sector entrepreneurship can be understood as an ability to search for, combine and recombine resources which is done by units and Public Sector organizations in order to create social value. Entrepreneurial behaviours can result in: achieving profits; improvement of intra-organizational processes, creating new solutions which can bring gains to whole society. Public management reform consists of deliberate changes to the structures and processes of public sector organizations with the objectives of getting them (in some sence) to run better (Pollit, Bouckaert, 2004, p. 8)

Entrepreneurship has also been defined as a notion which leads to changes and innovations. It is possible because entrepreneurship enables opportunities to achieve effective results both in the Public as well as in the Private Sector. There is no other model in the public sector, as far as changes are concerned, which is so efficient as entrepreneurial behaviours are (Kim, 2010).

Studies of entrepreneurship misses discussion of the Public Sector entrepreneurship (it has been observed by Wojciecha Dyduch during his broad studies on the organizational entrepreneurship) (Dyduch, 2011). Since the 80s of the last century, scholars dealing with entrepreneurship regardless of their areas of interest (economy or management) all agreed that the term entrepreneurship cannot be limited only to enterprises (business enterprises). At that time the concept of “the public entrepreneur” appeared in the subject literature. As C.J. Bellone and G.F. Goerl admit the 80s is the time of an entrepreneur who also “entered” the Public Sector (USA). B. Luke and M.L. Verreynne made an

[1] publication in the project, which was funded by the National Science Centre in Poland allocated on the basis of the decision No. DEC-2012/05 / D / HS4 / 01444

attempt to transfer the concept of the strategic entrepreneurship introduced by G.D. Meyer, H.M. Neck and M.D. Meeks, to the Public Sector (public enterprises). The basics of the concept are the categories which describe the strategic entrepreneurship in the Public Sector. They are as follows: an identification of suitable opportunities, innovations, risk taking, flexibility, the vision, the strategy and rewards. One should notice that research related to the given trend the New Public Management (NPM) has been conducted. In the USA it is conducted in its distinct field, that is reinventing government – incorporating such elements as: market effectiveness, customers' satisfaction, the public entrepreneurship and competition (Kraśnicka, 2011).

Another trend of research can be perceived in Europe, it is somehow close to the nature of NPM and it functions as New Modes of Governances. It is associated with the European Union projects which are aimed at widely understood concept of management improvement and the Public Sector management. Examining entrepreneurship in the Health Care Service may not only be helpful in its study (cognition) but may result as well in practical reforms of the Sector. Implementing change in healthcare is difficult, challenging and often results are short-lived (Parkin, 2009, p. 8). The necessity for entrepreneurial behaviours (in the context of the process of dealing with changes) has been brought by K.Guo who underlines the crucial role of the public manager (Guo, 2006).

Introducing the notion of entrepreneurship into management studies brought the need to understand it as one of management concepts. The main problem seems to be many dimensions and many aspects of entrepreneurship.

It leads to many concepts of organizational entrepreneurship measuring, described by this paper. One of them is the concept of entrepreneurial management, entrepreneurial orientation, entrepreneurial potential, results of entrepreneurship, its context or intra entrepreneurship.

According to W. Dyduch measuring entrepreneurship is worth trying as it can serve as a base to indicate these elements in organization which are the most important as far as business results are concerned (Dyduch, 2011).

Entrepreneurial orientation is often seen as a major strategic factor increasing a chance of success in business development. The main focus of the entrepreneurial orientation is on the company’s characteristics and the specific features of managers. Based on the Miller’s conceptualization, three dimensions of entrepreneurial orientation were identified: innovativeness, risk-taking, and proactiveness. Some researchers argue that the creation of an entrepreneurial orientation is best seen as a one-dimensional concept , and thus the different dimensions of orientation should relate to activities in a similar way (Knight, 1997).

Contemporary studies on entrepreneurial orientation indicate that the dimensions of orientation can occur in various combinations, each of which represents a different aspect of the multidimensional concept. According to Wu, without the possibility of converting resources to a benefit, the resources of entrepreneurship do not translate into performance. Therefore, entrepreneur’s characteristics, particularly in relation to entrepreneurial orientation, are crucial to obtain the required resources and capabilities (Wu, 2007).

Prior to literature overview one can state that carrying a research that concerns measuring entrepreneurship in the Public Sector units is a rare practice. One of the most important studies are these of Y.Kim's and F.E. Diefenbach's studies as well as the assumptions made by C. Kearney, R.D. Hisrich and F. Roche. The core of Y.Kim's research is based on the concept of the entrepreneurial orientation (Kim, 2010), while F.E. Diefenbacha's research investigates entrepreneurial behavior of the middle level management in the Public Sector (Diefenbach, 2011). Whereas, C. Kearney, R.D. Hisrich, F. Roche put an emphasis on the difference in researching entrepreneurship in the Public and the Private Sector (Kearney, Hisrich, Roche, 2009).

The subject literature presents several dimensions of entrepreneurship. As Harbison claims, the entrepreneurship both in the Public and in the Private Sector covers many dimensions. They are as follows: risk taking, dealing with a lack of economic stability, planning, innovations, coordination, control, administration, control of company's daily practices. One of the most accepted entrepreneurship definitions is the one which includes its complexity and 3 dimensions: risk taking,

innovativeness and proactiveness. These three dimensions can also be used in defining entrepreneurship in the Public Sector (Kim, 2010).

Interesting seems to be the lack of using two dimensions of entrepreneurial orientation which characterizes entrepreneurship in the Private Sector: autonomy and competitive aggressiveness.

It is important to notice that the Public Health Units are nowadays almost forced to struggle with their competitors and make autonomous decisions concerning their future. Measuring entrepreneurship in the Public Sector requires taking into account its specific aspects. Though, sometimes we do not deal with the typical management process but only with administration.

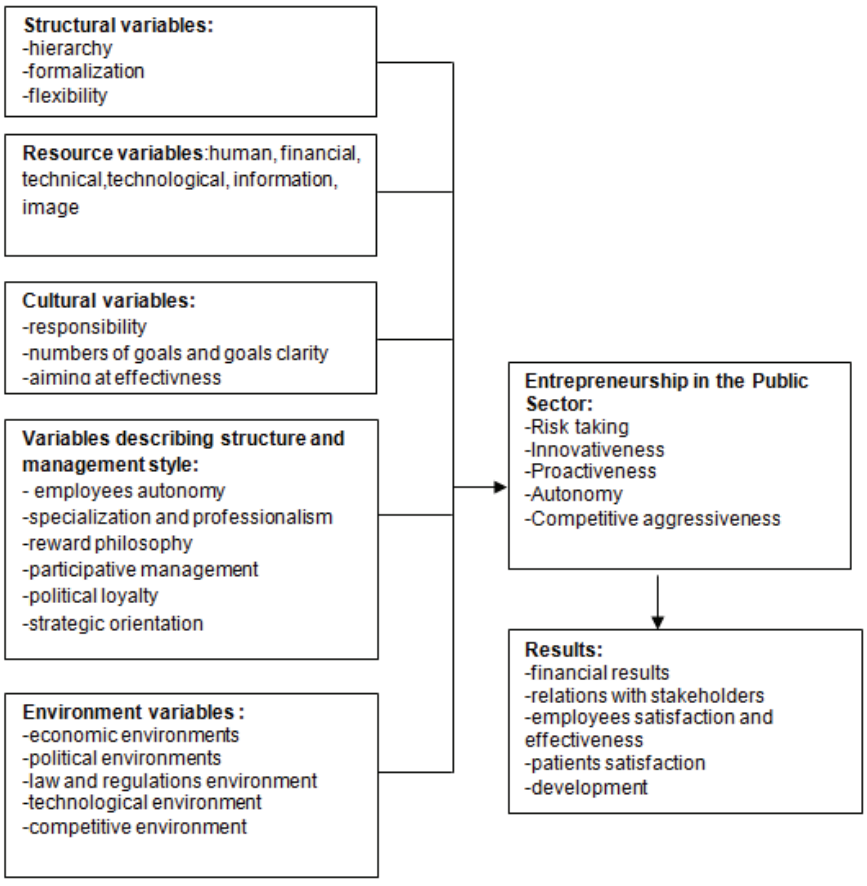
3. METHODOLOGY

Management in the Public Health Units seems to meet many more formal obstacles than management in the Private Units. Therefore, measuring organizational entrepreneurship requires special measuring tools. Applying the same tools as for the Private Sector without their correction would not be a good solution.

The research was aimed at finding answers to the following research questions:
1) What are the main factors which enable entrepreneurship in the Pubic Health Units?
2) Which determinating factors related and not related to entrepreneurship play crucial role in the process of rising the level of entrepreneurship on its different areas in the Public Units?
3) What is the level of entrepreneurship in the Public Health Units?
4) How different aspects of public entrepreneurship influence financial as well as not financial success gained by researched units?

Based on research overview the given research model has been created (figure below). It has been done taking specific characteristics of Health Unit Sector into account.

Figure 1: Research model considering conditions for entrepreneurship in the Public Sector



Source: Author's own elaboration

The questionnaire is based on Y. Kim's approach (Kim, 2010). It has been broaden when it comes to variables describing structure and management style, by an entrepreneurial management approach in the area of strategic orientation (Brown, Davidsson, Wiklund, 2001) and by political loyalty(Tummers, Knies, 2013). Moreover, environmental variables are related to specific characteristics of every area of Health Unit Sector environment. The level of public entrepreneurship has been measured using the concept of 5 level entrepreneurial orientation (Dess, Lumpkin, 1996).

In order to assess the reliability of the applied research tool - Cronbach's alpha factor has been estimated -for the areas mentioned in the research questionnaire(table no.1).
As received results show the given research tool can guarantee reliable results.

Table 1: Reliability of Cronbach's alpha statistics in the applied research tool

Dimension of the model	Cronbach's alpha coefficient
Structural variables	0,72
Resource variables	0,84
Cultural variables	0,93
Variables describing structure and management style	0,82
Environment variables	0,66
Public entrepreneurship	0,87

Source: Author's own elaboration based on research results

The research was carried in the Public Health units in Poland.
The given article presents results of the research conducted in units of the Upper Silesian Industrial Region in Poland.

In the research carried in the 4th quarter of 2014, 50 Public Health Units from Silesia were examined. Among them were 48 public hospitals and 2 public units of specialist outpatient clinics.

As it has been indicated 38 units function as independent Public Health care Institutions, whereas 12 are commercial partnerships with Public Health Unit as a major shareholder.

As far as the kind of a unit is concerned the research investigated: 16 provincial hospitals, 13 civic hospitals, 10 clinic hospitals, district hospital as well as 2 specialist outpatient clinic units.

4. ANALYSIS OF THE RESEARCH RESULTS

The table below presents descriptive statistics concerning evaluation of different dimensions of the model with 7- grades scale of assessment (where 1 means completely lack of coefficient occurrence and 7 relates to high percentage of coefficients appearance).

Table 2: Descriptive statistics of the research model coefficients

Variable	The average	Median	Standard deviation
Hierarchy	5,38	5,33	0,91
Formalization	5,40	5,50	0,69
Flexibility	4,67	4,67	1,28
Human resources	5,36	6,00	1,35
Financial resources	4,06	4,00	1,66
Technical resources	4,90	5,00	1,57
Technological resources	5,32	6,00	1,32
Information resource	4,58	5,00	1,58
Image of a unit	5,10	5,50	1,42
Responsibility	5,30	5,40	0,97
Number of goals and goals clarity	5,36	5,75	1,07
Aiming at effectiveness	5,01	5,00	1,18
Employees autonomy	4,01	4,00	1,06
Specialization and professionalism	4,99	5,17	1,21

Variable	The average	Median	Standard deviation
Reward philosophy	3,58	3,63	1,37
Participative management	3,92	4,00	1,00
Political loyalty	3,41	3,25	1,22
Strategic orientation	4,69	4,67	0,92
Economic environment	3,07	3,00	0,79
Political environment	4,71	4,67	0,81
Laws and regulations environment	2,96	2,88	0,92
Socio-demographic environment	4,33	4,33	1,01
Technological environment	4,45	4,33	0,71
Competitive environment	2,75	2,67	0,98
Risk taking	3,44	3,00	1,25
Innovativeness	3,93	4,00	1,54
Proactiveness	4,78	5,00	1,40
Autonomy	4,24	4,00	1,42
Competitive aggressiveness	4,26	4,00	1,22
Financial results	4,56	4,50	1,32
Relations with stakeholders	4,48	5,00	1,22
Employees satisfaction and effectiveness	4,04	4,00	1,21
Patients satisfaction	5,42	6,00	1,13
Development	4,60	5,00	1,58
Structural variables	5,17	5,10	0,71
Resource variables	4,89	5,00	1,11
Cultural variables	5,25	5,38	0,98
Variables describing structure and management style	4,03	4,05	0,68
Environment variables	3,67	3,68	0,49
Public entrepreneurship	4,22	4,23	1,06
Results	4,53	4,64	1,03

Source: Author's own elaboration based on research results

Synthetic assessment of public entrepreneurship in the given units can be described as entrepreneurship at a moderate level as the average of scale grades was 4,22. As far as entrepreneurial orientation is concerned the concepts of risk taking and innovativeness have been given the lowest grades, whereas proactiveness got the highest.

When it comes to internal conditions in the group of structural variables, hierarchy has been evaluated as the most crucial while flexibility as the least important.

In the group of resource variables the highest evaluation has been given to human resource and the lowest to financial resources.

Furthermore, cultural variables have been assessed at an approximately similar, rather high, level and attitude towards effectiveness has been put on the lowest place.

As far as variables describing structural and management style are concerned, specialization and professionalism of employees have been indicated as the most important whereas reward philosophy and political loyalty as the least.

Among external conditions, influences of technological and political environment have been perceived as the most crucial while influences of economic environment and law regulations environment as the least ones.

During another stage of research results analysis, the value of Pearson correlation coefficients between different variables and measures of entrepreneurship has been indicated. It is presented in the table below.

Table 3: Pearson Correlation Coefficients between variables and entrepreneurship measures

	Risk taking	Innovativeness	Proactiveness	Autonomy	Competitive aggressiveness	Public entrepreneurship
Hierarchy	0,10	0,19	0,23	0,13	0,31	0,27
Formalization	0,00	0,13	0,18	-0,06	0,31	0,20
Flexibility	0,29	0,51	0,49	0,46	0,38	0,54
Human resources	0,33	0,34	0,29	0,39	0,50	0,50
Financial resources	0,18	0,21	0,06	0,21	0,39	0,31
Technical resources	0,06	0,52	0,22	0,14	0,55	0,49
Technological resources	0,22	0,66	0,41	0,34	0,64	0,66
Information resources	0,22	0,46	0,58	0,55	0,42	0,57
Image of a unit	0,37	0,60	0,62	0,50	0,66	0,73
Responsibility	0,22	0,51	0,42	0,43	0,53	0,58
Number and goals clarity	0,31	0,49	0,45	0,52	0,58	0,63
Aiming at effectiveness	0,35	0,53	0,55	0,54	0,53	0,65
Employees autonomy	0,35	0,32	0,49	0,43	0,45	0,51
Specialization and professionalism	0,35	0,63	0,54	0,49	0,64	0,72
Reward philosophy	0,24	0,66	0,53	0,43	0,55	0,67
Participative management	0,19	0,50	0,49	0,39	0,48	0,55
Political loyalty	-0,34	-0,19	-0,08	-0,26	-0,10	-0,22
Strategic orientation	0,49	0,32	0,47	0,64	0,41	0,55
Economic environment	0,12	0,17	-0,17	0,00	0,12	0,10
Political environment	-0,07	0,11	0,07	0,01	0,09	0,08
Laws and regulations environment	0,04	0,28	0,07	-0,01	0,22	0,21
Socio- demographic environment	0,26	0,60	0,48	0,39	0,50	0,61
Technological environment	0,32	0,51	0,33	0,18	0,41	0,49
Competitive environment	-0,19	-0,05	-0,15	-0,22	-0,19	-0,19
Structural variables	0,20	0,40	0,42	0,27	0,44	0,47
Resource variables	0,30	0,61	0,48	0,47	0,70	0,72
Cultural variables	0,31	0,55	0,50	0,53	0,59	0,67
Variables describing structure and management style	0,30	0,63	0,66	0,53	0,66	0,75
Environment variables	0,13	0,48	0,19	0,10	0,34	0,38

Source: Author's own elaboration based on research results

Analyzing the most important correlation coefficients one can come into conclusion that at a public entrepreneurship level a high influence of cultural, resource variables, as well as variables describing structure and management style exist.

Furthermore, the analysis of the influence of public entrepreneurship level(and its different areas) on effects which have been achieved(in their different aspects). The following table shows the results of the evaluation.

Table 4: Pearson correlation coefficients between measures of entrepreneurship and measures of the given effects

	Financial results	Stakeholders relations	Satisfaction and employees effectiveness	Patients satisfaction	Development	Effects
Risk taking	0,30	0,53	0,37	0,16	0,05	0,36
Innovativeness	0,55	0,52	0,69	0,55	0,50	0,72
Proactiveness	0,29	0,60	0,42	0,34	0,45	0,50
Autonomy	0,46	0,62	0,36	0,20	0,27	0,49
Competitive aggressiveness	0,40	0,58	0,53	0,57	0,22	0,56
Public entrepreneurship	0,53	0,71	0,66	0,55	0,40	0,71

Source: Author's own elaboration based on research results

The most important conclusion is that one can observe high and positive influence of entrepreneurship, in the researched Public Health Units, on the achieved results. It worth mentioning that influence of innovativeness and competitive aggressiveness is high.
Additionally, as far as entrepreneurship measures are concerned, partial correlation coefficients and results have been calculated including influence of other coefficients. When it comes to partial measures the influence of other partial entrepreneurship measures has been taken into account.

Table 5: Partial correlation coefficients between entrepreneurship measures and measures results

	Financial results	Stakeholders relations	Satisfaction and employees effectiveness	Patients satisfaction	Development	Effects
Risk taking	0,29	0,42	0,35	-0,14	-0,04	0,31
Innovativeness	0,39	-0,15	0,45	0,21	0,14	0,41
Proactiveness	-0,26	0,24	-0,26	-0,13	0,11	-0,17
Autonomy	0,33	0,05	-0,13	-0,19	0,20	0,16
Competitive aggressiveness	-0,25	-0,09	-0,22	0,23	-0,15	-0,2
Public entrepreneurship	0,20	0,29	0,24	0,12	0,01	0,27

* for every partial entrepreneurship measure, we controlled for all the remaining partial measures.
Source: Author's own elaboration based on research results

In the given example the influence of public entrepreneurship on the results seems to be moderate (0,27). Nevertheless, one can observe rather high differences between influence of different partial measures. Especially, risk taking, innovativeness and autonomy have a positive and moderate influence on all of the results. The rest, on the other hand, (proactiveness and competitive aggressiveness) tend to have a negative influence.

5. CONCLUSION

The given research results confirmed that there is a need for developing entrepreneurial behaviors in the Public Health Units. Most of all the following aspects should be considered:

- innovativeness- as far as solutions related to new medical technologies are concerned as well as solutions related to organization functioning.
- risk taking – associated with trying to create new market niches and with a change from passive to active approach during competition with commercial medical units. Moreover, as well as making strategic decisions concerning capital which will enable a longtime competitive advantage.
- autonomy- which is understood as actions which may help to gain autonomy. Actions such as building financial and political autonomy. It is also a role of supervisory organs where

substantive criteria should dominate over political ones when it comes to decisions made by owners.

Apart from indicating the dependence between level of entrepreneurship and achieved results, one should also notice the identified entrepreneurship conditions at its different levels.
In the researched units the above aspects have not been highly evaluated what seems to show even more visibly the potential of possible changes in entrepreneurial behaviors increscent.

The used research structure seems to be correct and useful and it is possible to be used in research of other functional areas of the Public Sector(apart from the Public Health Units).

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