
STATUS OF HUMAN CAPITAL, ITS ROLE IN INNOVATION AND OPPORTUNITIES FOR STRENGTHENING THE ENTERPRISES OF THE FOOD INDUSTRY IN THE YEARS 2007-2011

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6.1. Introduction

Human capital in the company, often referred to as a whole of the production capacity of man, by D. Begg is accumulated by an employee expertise, experience and skills, so that it is possible to obtain a higher income by the company¹. It is a kind of investment in the future and just as physical capital is about to contribute to generate revenue by the company. American neoclassical work by G. Becker *Human Capital*, published in 1964, develops the idea that for the same reason as technical capital, attained education is also a form of capital². As noted by J. Hausner, decomposition of the innovation potential indicator shows that the only dimensions in which Poland does not place in the lowest positions among the countries of the European Union, are the quality of human capital (education), and - a bit lower - investment companies, and in all other dimensions (system quality research, funding of research, entrepreneurship and linkages, intellectual resources, economic effects) Poland is at the end, and the lowest place in the category of “innovators”³. Human capital in the enterprise is treated as a resource, as it focuses capital, labour and entrepreneurship. In other words, it is seen as knowledge, efficiency and human capacity, which determine the growth of its productive capacity. A worker creates his or her ability to work, which is the source of its future income and skilfully adapts to the changing environment, efficiently trying to solve the problems and obtains satisfaction. With human capital company receives income in proportion to its quality. Extremely important for companies operating in the field of agribusiness entrepreneurship is the ability to connect knowledge in the field with manufacturing processes. Employees working in food businesses prepare and implement strategic management, which is a

¹ D. Begg, S. Fischer, R. Dornbusch, [2007]: *Mikroekonomia, Polskie Wydawnictwo Ekonomiczne, Warszawa: 340.*

² J. Bremond, J.F. Couet, M.M. Salort, [2005]: *Kompendium wiedzy o ekonomii, Wydawnictwo Naukowe PWN, Warszawa: 322.*

³ T. Geodecki, G. Gorzelak, J. Górniak, J. Hausner (red.), S. Mazur, J. Szlachta, J. Zaleski, [2012]: *Kurs na innowacje. Jak wprowadzić Polskę z innowacyjnego dryfu, Fundacja Gospodarki i Administracji Publicznej, Kraków, s. 24.*

compilation of strategic congruence juxtaposition of elements of intellectual capital to the practical needs and strategic competence of their executives⁴. Proper acquisition from the outside or their own generating the necessary strategic managerial competence translates into competitiveness and growth of enterprises⁵. Strategic competence of entrepreneurs has, in turn, a significant relationship with the intensity of the development of entrepreneurship in agribusiness which means strengthening the links between the various elements of food production and the inclusion of agriculture in the social division of labour, that is, to clarify its relationship with the industry⁶. To sum up, human capital and its main components determine the proper management of the company, which translates into market success of it. While studying the functioning of food businesses, will be aware of human capital, because the quality of the enterprise, its future and the market value is determined by the immediate impact of the competence of employees, intellect and personal predispositions, as well as gained certificates of people who play leadership roles. We should also do not forget that the Polish food industry still uses the structural funds of the European Union, and in 2007-2013, the entrepreneur could apply for funds from the following Operational Programmes: 5th National Operational Programme - Infrastructure and Environment, Innovative Economy, Human Capital Development Eastern Poland Technical Assistance; 16th Regional Operational Programmes; Programmes of European Regional Cooperation⁷.

6.2. Aim and Methods of the Study

The main aim of the study was to determine the effectiveness of human capital in enterprises of the food industry in the years 2007-2011. Today, in the era of the operation of enterprises in the EU structures agro - food industry are trying to look for their export opportunities, win new allies, trade, create concepts of effective foreign investment and strengthen the human capital⁸. By investigation of these relationships it was possible to verify the claim that competition and competitiveness should be combined, and for the company, properly conducted business activity by effectively used human capital in the long term leads to growth of the market value.

Studies have been done with the help of a questionnaire, which was prepared in order to obtain primary data from respondents, who are employees of companies of the food industry. The study was performed in 2013, and the period covered the years 2006 to 2011. Questionnaire survey was summarized in several parts; each consisted of questions the most important areas of the company. One part of the research was devoted to human capital. The subjects of the study were the food industry enterprises that have been entered in the REGON register on 30.10.2012 r. To ensure a representative sample

⁴ K. Firlej, [2008]: *Rozwój przemysłu rolno-spożywczego w sektorze agrobiznesu i jego determinanty*, Wydawnictwo Uniwersytetu Ekonomicznego w Krakowie, Kraków: 86.

⁵ Ibid.

⁶ K. Firlej, [1999]: *Przedsiębiorczość w polskim agrobiznesie [w:] J. Targalski, [red.], Przedsiębiorczość a lokalny i regionalny rozwój gospodarczy*, Wydawnictwo Akademii Ekonomicznej w Krakowie, Kraków, s. 119-127.

⁷ K. Firlej, D. Żmija, [2014]: *Transfer wiedzy i dyfuzja innowacji jako źródło konkurencyjności przedsiębiorstw przemysłu spożywczego w Polsce*, Fundacja Uniwersytetu Ekonomicznego w Krakowie, Kraków, s. 68.

⁸ K. Firlej, [2010]: *Strategie adaptacji spółek z indeksu WIG – Spożywczy, Zrównoważony rozwój lokalny. Warunki rozwoju regionalnego i lokalnego*, Stowarzyszenie Naukowe – Instytut Gospodarki i Rynku, Zachodniopomorski Uniwersytet Technologiczny, T. II, Szczecin, s. 14-15.

survey technique probabilistic choice was used, so sufficient minimum necessary sample size was established. The total population of entities operating in the food industry by the registry was 33 662 companies, to study 267 were chosen. Of the companies selected for the study, 30.7% worked in the market for at least 20 years or more, in the case of 20.2% of the companies their period of market operation covered the period 11 - 15 years, and the same in the range of 16 - 20 years. Approximately 16% of businesses were operating in the market in a period of 6 - 10 years, and the least of them in action does not exceed 5 years. Ten years after the accession, the food industry has diversified structure, which was formed under the influence of multi-directional transformations taking place and carried out economic reforms as well as privatization and modernization processes. Tests were carried out on the basis of deductive and inductive method, and their thorough analysis was performed using quantitative and qualitative methods. The procedures explaining the cause - effect relationship were mainly used. Also were used: an economic analysis, time series analysis (analysis of the dynamics, structure and indicators) and comparative analysis. This enabled the identification and critical assessment of previously introduced measures to enhance human capital and material, as well as their role in competitiveness and current functioning of companies⁹. There were also other factors enumerated, aimed to strengthen competitiveness, as well as related knowledge resources, which were: reduced costs, increased level of innovation of products and services, increased productivity, improved customer relations, human capital development, corporate social responsibility of the organization and its ethical aspects¹⁰.

In 2013, there were performed studies of modern management paradigms that are used in the current activities of food businesses. For this purpose, there were used companies in the food sector of the Warsaw Stock Exchange. They are expressed in WIG-Food Index. The food sector in the Polish economy has always had a significant position, representing the diet of the nation, and now, when there is a continuous increase in the prices of food products, its functioning is even more interesting. In global financial markets is increasingly noticeable interest in the prices of food products, and their indexes are the subject of speculation since the last crisis¹¹. The WIG Food consisted of 07.03.2013 of the 25 companies¹². His companies are attractive to investors, although in 2012 accounted for less than 3% of the total stock market and 10% of the capitalization of companies in the industrial sector. The aim of the research was to identify and describe modern management paradigms that are used in the current activities of food businesses.

⁹ K. Firlej, D. Żmija, [2014]: *Transfer...s. 13*.

¹⁰ *Ibid.*

¹¹ More about this: K. Firlej, [2008]: *Stymulanty konkurencyjności w zarządzaniu spółkami z indeksu WIG – Spożywczy [w:] Zarządzanie przedsiębiorstwem w warunkach konkurencji, Uniwersytet Warmińsko – Mazurski, Olsztyn, s. 141-149.*

¹² *WIG-Food companies included on 3.07.2013: Agroton Public Limited w Nikozji, AB Agro will Group w Wilnie, Ambra S.A. w Warszawie, Astarta Holding NV z siedzibą w Amsterdamie, Colian S.A. w Opatówku, Polski Koncern Mięsny Duda S.A. w Warszawie, Graal S.A. w Wejherowie, Industria l Milk Company S.A. w Luksemburgu, Indykpol S.A. w Olsztynie, Zakłady Mięsne Henryk Kania S.A w Pszczynie, Kernel Holding S.A. w Luksemburgu, Kofola S.A. w Warszawie, Zakłady Tuszczowe KRUSZWICA S.A. w Kruszwicy, KSG Agro S.A. w Luksemburgu, Makarony Polskie S.A. w Rzeszowie, Zakłady Przemysłu Cukierniczego MIESZKO S.A. w Warszawie, Milkiland NV w Amsterdamie, Zakłady Przemysłu Cukierniczego Otmuchów S.A. w Otmuchowie, Ovostar Union N.V. w Amsterdamie, Pamapol S.A. w Ruścu, PBS Finance S.A. w Sanoku, Przedsiębiorstwo Przemysłu Spożywczego PEPEES S.A. w Łomży, SEKO S.A. w Chojnicach, Belvedere S.A. w Beaune, we Francji i Wawel S.A. w Krakowie.*

6.3. Results

Considering the problem of human capital in enterprises of the food industry in Poland, employment in those was analysed for the period of interest. Based on data from the Central Statistical Office, it was found that since 2007, employment in all enterprises in the Polish food industry underwent total reduction, which was also due to dramatic cost savings, as well as the actions of a restructuring and modernization, especially in modernizing the fleet of machines. In many cases, the machine effectively replaced human labour, by which human capital has been replaced by modern technologies.

Table 1. Employment and average wages and their dynamics in the food industry in the years 2007-2012

EMPLOYMENT/WAGES	2007	2008	2009	2010	2011	2012
FOOD INDUSTRY EMPLOYMENT (NO. OF PEOPLE):						
- FOOD PRODUCTION,	466 216	458 555	416 328	421 767	406 960	371 522
- SOFT DRINKS PRODUCTION,	-	-	29 843	26 514	26 605	23 968
- TOBACCO PRODUCTION.	7293	6844	6 367	6 024	5 612	5 581
AVERAGE WAGES IN FOOD INDUSTRY (PLN):						
- FOOD PRODUCTION,	2 467.0	2 673.09	2682.99	2 809.09	2950.02	3021.92
- TOBACCO PRODUCTION.	4 838.81	4897.39	5209.47	5287.61	5730.29	5830.01

Source: Central Statistical Office data, *Employment in national economy 2009, 2010, 2011, 2012; Employment and wages in national economy 2009, 2010, 2011, 2012.*

Employment and average wages and their dynamics in the food industry in the years 2007 - 2012 are shown in Table 1, and it can be concluded that during the period employment has decreased not only in the food industry in general, but also in all its employee groups. Over the six years in the case of food production it was 25% decrease, manufacture of beverages (since 2009) also 25%, and manufacturing of tobacco products 31%.

Positive, albeit small, but growing trend can be noted in the case of average wages in the food industry, as in the case of total food production in the period can be noted an increase of 22.49%, and the manufacture of tobacco products 20.48%. In relation to changes in other indicators of economic growth is not satisfactory, but it should be noted a positive trend in the tested range.

6.4. The Role of Human Capital in the Innovation of Enterprises of the Food Industry in the Years 2007-2011

When trying to set the role of human capital in the innovation of enterprises of the food industry, the changes that have occurred as a result of the implementation of innovations were assessed. Respondents evaluated the importance of change and their impact on innovation company using the rating scale from 0 to 6, where 0 meant the answer is definitely not, 1 - no, 2 - probably not, 3 - I have no opinion, 4 - rather yes, 5 - yes, 6 - definitely yes. The results presented in Table 2 highlighted that the implementation of innovative actions brought the expected results, which were well received by entrepreneurs. They emphasized that in the modern food industry functioning high standards of production and quality standards are being applied, to which each company has to respond and to survive in the market, simply apply. Unfortunately, entrepreneurs still among the most important factors do not see human capital, which was confirmed by the results of the research. It is difficult to identify the reasons for this, though, say the entrepreneurs, the level of their degree of human capital is sufficient, and certainly protects their current needs. Given the level of ratings 4, 5 and 6, which was considered conducive to the occurrence of the positive effect associated with the implementation of innovations, it was noted that a large group of companies - 70.3% indicated that the most positive result of the implementation of innovation in their company is to raise the level of customers satisfaction, then productivity growth (68.4%), increasing the range of products (59.9%), entry into new markets (57.8%) and an increase in the level of innovation of products and services (55%). Half of the respondents indicated that implemented innovations have contributed to the streamlining of internal processes, and 49.8% indicated cost reduction.

Table 2. Effects of innovation observed in the period 2007 - 2011 the enterprises of the food industry

The effects of the implementation	Percentage of answers						
	0	1	2	3	4	5	6
Cost reduction	8.2	12.1	11.7	18.2	21.2	21.7	6.9
Increase in the level of innovation of products and services	9.5	8.2	6.9	20.3	23.4	23.4	8.3
Increasing the range of products	9.1	8.2	11.2	11.6	18.5	29.3	12.1
Entry into new markets	9.9	12.1	9.1	11.1	25.0	19.0	13.8
Productivity growth	9.1	5.6	7.4	9.5	27.3	25.5	15.6
Increased level of customer satisfaction	7.3	5.6	6.5	10.3	23.7	29.8	16.8
Development of human capital	7.8	11.6	13.8	26.3	22.4	15.5	2.6
Streamlining internal processes	9.5	8.6	9.9	22.0	27.1	16.4	6.5
Faster adaptation to changes in the company	8.6	10.3	9.5	34.1	20.7	12.1	4.7

The presented data shows that the least number of respondents believed that innovation contributed to the rapid adaptation to changes in the company (37.5%) and the development of human capital (40.5%). A pooled analysis of responses 0, 1, 2 indicated that in the opinion of many respondents innovations did not affect the development of human capital (33.2%), cost reduction (32%) and the entry into new markets (31.1%)¹³.

The study conducted among 267 (241 responded) companies of the food industry proved statement of the reasons for the lack of introduction of innovative activity to be interesting (Table 3). It turned out that the main ones are associated with very high costs of innovation, and also the lack of financial resources. At the same time, respondents noted that the lack of need for the implementation of the innovation involved the introduction of them in the previous years. Such causes were also highlighted, as there is no need to innovate due to market conditions, and excessive economic risk of the implementation of innovative solutions. As a less significant causes of this kind were observed: lack of information on the possibility of implementing innovative solutions, lack of skilled workers, obsolete machinery and regulations, standards and regulations.

Table 3. **Reasons for not undertaking innovative actions in the company in the years 2006-2011**

Causes	No. of answers
No need to implement innovations due to the introduction of the previous years	36
No need to innovate due to market conditions	29
Too high economic risk of implementation of innovative solutions	28
High costs of innovation	54
Lack of financial resources	44
Lack of skilled workers	14
No information on the implementation of innovative solutions	16
Obsolete machinery	12
Regulations, standards, legal aspects	8

Source: own study

In order to analyse the practical implementation of modern management paradigms, the holistic approach of managers in all companies of the WIG-index was analysed in the test and is presented in the table presenting selected, most involved in these activities entities. Sequentially were presented and analysed paradigms of conditioned current approach and the status quo in the area of internationalization activities, such as the conduct of operations, human capital approach to quality management, environmental protection, marketing and attention to technological development. As seen above, among them also human capital was identified, which should be treated as a resource in the organization, which must be protected, nurtured and developed. As part of in-depth interviews and accessible reporting of companies surveyed, it was stated that food companies in their business often underestimate the role of human capital, although

¹³ K. Firlej, D. Żmija, [2014]: *Transfer...s.* 135.

consider it as an important resource that contributes to the generation of the company's profits. Managers of companies allocate part of the revenue to the training and skills of employees. Competence of employees begins to provide for the position of the company, earned income and its perception by the competition. Many companies are beginning to invest in student placement, which subsequently result in the acquisition of highly skilled workers. Do not forget also about enabling the professional development of people with disabilities (tab. 3)¹⁴.

Table 4. **The approach to human capital - employees as a resource in organizations and individuals**

Company	Current activities	Directions of activities
AB AgrowillGroup	The company is obliged to take care of her loyal staff - good and reliable employees should be motivated by rewards commensurate with the results achieved. We understand that every employee should take care of the measures, which works not only protect, but also increase the value of the assets.	Enhancing human capital by training and upgrading skills and competencies of employees.
Astarta Holding NV	One of the values is to work in a team where each employee is a professional. The company draws attention to the personal and professional development of employees, providing favourable conditions for the work environment. This all affects the attitude of creative professionals, high productivity and low staff turnover. The specialists of the company are involved in training, conferences, seminars, both in Ukraine and abroad. For example, experts from the agricultural sector participated in international conferences in Belarus, the countries of the Balkans and Egypt.	It is planned to further participation of professionals in European training courses and international conferences.
Confectionery Plant MIESZKO SA	Human resource management is one of the main principles of personnel policy of the company. The company aims to work with ambitious, competent people who wish to develop their skills and broaden the scope of knowledge. For a company it is important to attracting employees engaged and opened. To achieve these purposes, professional recruitment. Employees, as practitioners who know the reality of the company have extensive knowledge and practical skills.	The Company intends to continue to invest in employee development, leading an intensive training program. Focuses on internal training and offers a wide variety of external training.

Source: own elaboration on the basis of information contained on the websites of the companies surveyed, and their accounts <http://www.agrowill.lt/pl/>; (accessed: 28.06.2013)¹⁵.

¹⁴ A. Bargiel, K. Firliej, [2014]: *Nowoczesne paradygmaty zarządzania, jako element podnoszenia wartości spółek przemysłu spożywczego*, Zeszyty Naukowe Uniwersytetu Ekonomicznego w Krakowie, Wydawnictwo UEK, Kraków.

¹⁵ *Ibid.*

6.5. Summary and Conclusions

The results of studies on the role of human capital in the surveyed enterprises of the food industry, made it possible to construct the following conclusions:

The enterprises surveyed were not interested in bearing the cost of human capital development, mainly due to the high innovation cost with the lack of financial resources at the same time.

The enterprises surveyed did not notice the need of employee reconversion, stating that their human capital level is appropriate to conduct current activities and there is no need to expand it.

The study based on the practical test of human capital role in food industry enterprises shown that it strengthens their current activities and increases their market value. The development of managers and employees with an individual approach aimed at growth and development are one of the most important aims and ways of future actions in the companies.

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