

# **Approach to Human Capital in National Postal Providers: A Cross-Country Analysis in Europe**

## **ABSTRACT**

The article investigates human capital in National Postal Providers (NPPs), which is an area that yet has to be underpinned by research. There is a number of works dealing with human capital, but only few address human capital in the sector of postal service. The main aim of the article is to define differences in approach to human capital management in selected NPPs. Differences are expressed via the overall Human Capital Index (HCI). Due to the fact that so far there has been no complex research analyzing activities related to human capital in NPPs, it was necessary to carry out a content analysis of annual reports of selected NPPs. Results of the analysis served as a basis for expression of overall HCI. Results of this article are vital for sustainable development of the postal service sector.

**Keywords:** Human Capital; National Postal Providers; Postal service.

## **INTRODUCTION**

Human capital is currently a much debated topic. Among others, it is closely related to the change in philosophy of company management. Human capital as a part of intellectual capital has gradually established itself as an area whose effective management is essential for the increase of a company's value. At the moment, there are virtually no areas of company activity that are not affected by human factor. For this reason there has been an elevated interest in human capital both on the part of management of companies and the scientific community. This interest has been driven by efforts to identify, analyze and effectively manage all processes that directly affect individuals (employees) or groups of individuals (groups of employees).

Results of scientific studies dealing with human capital provide company managements with vital information on the interrelations of various social constructs. Social construct is defined as an area which is constructed into a process of social interaction and communication among individuals or groups of individuals. Social interaction is defined as a process in which an individual (or a group of individuals) exerts influence upon other individual (or a group of individuals) in a system [1], whose interaction encourages the formation of human capital. Because of the number of works dealing with this topic, definitions of human capital slightly vary from author to author. It is thus necessary to understand human capital from a particular author's point of view. The works on human capital can be divided into two large groups, focusing either on the micro-economic or the macro-economic level. The former investigate interactions of social constructs that form human capital within a company, while the latter look into interactions that form human capital outside of a company on the societal level.

Transport and telecommunications is one of the basic sectors of national economy in all countries. This sector also includes postal service, which is regulated by laws of each country. Among other providers of postal service, National Postal Providers (NPPs) play an important role. These subjects must by virtue of their function guarantee provision of universal postal service in the general/public interest. This universal postal service is practically exclusively provided by NPPs. Universal postal service represents a minimal set of services that must be provided continually on the whole country area under the same conditions for all users, for an affordable price and in a specified quality [2]. The Universal Postal Union (UPU) is the supreme postal authority with 192 members. The UPU not only coordinates the operation of the postal market, it also discusses current trends related to its

development. Human capital is one of the areas which are currently being discussed in relation to development of postal market.

The article sets out to show the differences in approach to human capital management in selected European NPPs.

In order to do that, it was necessary to:

- Define main areas of approach to human capital in selected NPPs, i.e. identify concrete activities which are organized in relation to human capital.
- Categorize the identified activities into components according to areas they focus on.
- Express the overall Human Capital Index (HCI).
- Discuss discovered links and relations that are relevant for the used methodology and consider various perspectives that must be present in the research of human capital.

The article deals with a topical issue in a completely new context, in which human capital has not been researched so far. Results of the article provide sound ground for further research.

The first part of the paper deals with background and literature related to this topic. Next section defines used methodology of calculation of the overall HCI, while the third chapter presents results of its application to a sample of NPPs. In chapter four we discuss results and broader context to which the results are applicable. The last chapter sums up conclusion.

## **1 BACKGROUND AND RELATED LITERATURE**

Human capital is an area of economic sciences and forms a part of a relatively new economic sub-discipline called intellectual capital. Intellectual capital has got into the forefront of interest after the Endogenous growth theory was proposed in the 1980s. It holds that intellectual capital is an endogenous factor, meaning that it does not occur randomly, but has to be produced with the use of resources. The importance of human capital in ensuring sustainable growth is mentioned by Coleman [3], who claims that in order to ensure sustainable growth, it is necessary to respect newly established social constructs, which are essential in the process of establishing trust and loyalty among members of a particular group. Intellectual capital is viewed as an area whose formation is affected by many social constructs. Edvinsson and Malone [4] examined the intangible components which influence the value of a company and classified intellectual capital as follows:

- Human capital – comprises peoples' knowledge, skills, experience and abilities, such as the ability to innovate, creativity, know-how, previous experience, flexibility, the ability to work in a team, work motivation and satisfaction, the ability to learn, loyalty, education.
- Structural capital – is made up of organizational capital and customer capital. It is closely related to internal processes, knowledge and abilities.
- Customer capital – covers long-term relationships of a company with its most prominent customers, including the information about these customers and their specific needs.
- Organizational capital – comprises traditional intellectual assets (such as patents), databases, IT. Generally, even various cultural aspects can be included in this category, such as the culture of sharing knowledge and collaboration. Organizational capital is made up of innovation capital and process capital.
- Process capital – expresses a company's ability to improve and document internal processes.
- Innovation capital – expresses a company's ability to react to the future market developments. It is comprised of intellectual property and intangible assets.

- Intangible assets – all assets of intangible nature. For each company, the most valuable assets are those that are original and difficult to imitate.
- Intellectual property – proprietary rights of companies, are related to intangible assets.

Donate et al., Marzo and Scarpina, Rossi et al. and Yaseen et al. [5-8] examine the impact components of intangible assets have on the increase of a company's value. Human capital is currently viewed as a tool that can significantly increase the value of a company. For this reason, its further investigation is highly relevant [9-11].

As mentioned above, studies dealing with this topic can be divided into two large groups according to author's definition of human capital. First group investigates human capital from the micro-economic perspective. These works usually bring analyses of selected activities related to employee development in a particular company – an employee is seen as a basic entity which determines the value of human capital. In addition, they analyze the causal relationships among indicators of employee satisfaction levels and other internal performance-related indicators [12-15]. Second group examines human capital from the macro-economic perspective. These authors usually understand human capital as an area whose effective management leads to increase in economic performance and overall economic stability of a country [16-18].

The macro-economic perspective also deals with the individual. As Kirdina [19] notes, the discussion about macro and microeconomic approaches to the role of individual has been one of the main topics in sociology in the last few years. In his view, an individual is influenced by their surrounding environment, which is reflected in the way they execute work tasks. Their individual performance is then reflected in the company's overall performance. This way, the society as a whole influences the company.

In order to provide a comprehensive overview of works dealing with human capital, it is necessary to mention works that combine both micro and macroeconomic approaches. To name just a few, Polachek et al. [20] use a tractable nonlinear earnings function to derive ability measures and show their link to cognitive ability, personality traits and family background. Wright and Boswell [21] oppose the 1980s division of human resource management (HRM) into two independent areas (strategic and functional) and propose a typology of HRM research based on two dimensions (level of analysis – individual/group or organization and number of practices – single or multiple) which they apply to review the recent research in this area. They claim that although significant progress has been made in each area of HRM, a potential for even greater gains lies in looking across each area. Both areas can significantly contribute to each other and result in a greater impact on HRM than each one can contribute independently, and thus a more integrative view of HRM is needed. Authors use the term “human resource management”, not human capital management. This is because the term human capital management in the way we understand it now started to be widely used only after the publication of works of Edvinsson and Malone (1990). Human capital management is currently discussed in relation to coordination of activities promoting employee development (not only activities which are carrying out by human resources department such as employees' motivation, rewarding employees etc., but also other activities, such as improvement of working conditions, better communication, diversity management, etc.). Human capital management is thus an add-on to the concept of human resources management. Various activities are therefore coordinated in accordance with the current development trends in given sector and respect the employee as an individual whose general attitudes are reflections of the society in which his or her individuality is formed [5]. Ployhart and Moliterno [22] propose a multilevel model to analyze the emergence of human capital as a firm resource that connects micro, intermediate and macro levels. The model comprises three parts: cognitive and non-cognitive characteristics of an individual, how they

are combined and amplified in the interaction with others, and finally how human capital emerges from these processes.

The number of works on human capital make it evident that it is a modern area of concern, reflecting today's globalized world. For this reason it is necessary to respect all possible overlaps in the definitions of human capital as various authors or works define it differently [23-26].

### **1.1 Existing literature on Human Capital in postal services**

As mentioned above, no research addresses postal service with the aim of defining approach to human capital, and a similar situation prevails outside the scientific community. For this reason it was necessary to carry out an original analysis of approach to human capital in postal service, specifically in European NPPs. This was done by means of a content analysis of annual reports. This method is not a new one, on the contrary, it has been used in many works published in scientific journals [27-35]. The selection of NPPs was governed by the deadline for the publication of their 2015 annual report, which was set to September 20, 2016. Some NPPs have not published their reports by this date and therefore were not included. In the end, thirteen NPPs have been subjected to the analysis, namely: Poste Italiane (Italy), La Poste (France), Bpost (Belgium), Deutsche Post (Germany), PostNL (Netherlands), AN Post (Ireland), Correos y Telégrafos (Spain), Posti Ltd (Finland), Österreichische Post AG (Austria), Posten Sweden Post (Sweden), Česká pošta (Czech Republic), Lietuvos Pastas (Lithuania) and Magyar Posta (Hungary). The final sample comprises thirteen NPPs that are more or less evenly distributed around Europe and thus represent all its geographical parts. For this reason, it was unnecessary to broaden the sample with 2014 annual reports of those NPPs that had not completed their 2015 annual report by the deadline.

The process of content analysis of annual reports has a number of subprocesses. At the beginning it was necessary to appoint people who would carry out the content analysis. It was done by three researchers, who worked individually to ensure maximum objectivity of the analysis. It was necessary to appoint committed people who would fully identify with the aim of the article and were educated accordingly.

Next step was the identification of activities that were to be sought for by the researchers in the annual reports. These are the activities that were organized by the NPP for the purpose of employee development: not only activities designed by human resources management department, but also other activities, such as improvement of working conditions, better communication, diversity management, etc. Authors draw on the general paradigm that an employee is a basic entity which determines the level of human capital. For this reason it was necessary to search for all activities that are organized for the purpose of employee development across all areas. Therefore it was not possible to focus only on chapters dealing with description of activities of HR departments, but it was necessary to analyze the whole text of annual reports, 2,582 pages in total.

Each researcher produced a list of identified activities, which were compared in the next step. In the case of any divergence, such as when one researcher did not identify an activity, which was identified by the other two, it was necessary to repeat the whole process again. This procedure was repeated until full compliance was achieved among the three researchers. The output of the content analysis is the list of activities of approach to human capital in European NPPs (Table 1).

Table 1: List of activities of approach to human capital in European NPPs □

<b>A: Safety at work, employees' health protection, working conditions</b>	
A1	Programs (seminars, lectures) of prevention of accidents at work and occupational diseases
A2	Creating conditions for increasing safety at work
A3	Stress management programs (seminars, lectures)
A4	The possibility to consult a psychologist
A5	Modern technology programs (pocket computers, smartphones)
<b>B: Benefits and other forms of support</b>	
B1	Supporting art associations and associations of employees
B2	Supporting sports activities
B3	Supporting employees in volunteering
B4	Declared employee benefits
B5	Other (benefits beyond list of declared benefits)
<b>C: Education, training and skills</b>	
C1	Educational institutions for employees (company university, in-house department)
C2	Cooperation with educational institutions (high schools, universities) in training courses
C3	Programs (seminars, lectures) to increase employees' qualification
C4	Programs of skills development (active skills training)
C5	Cooperation with other subjects (trainers, mentors, consultants) in skills training
<b>D: Communication</b>	
D1	Use of new communication tools
D2	Intranet, company newspaper
D3	Programs to improve communication among departments
D4	Etics (code of conduct), professional communication
<b>E: Organizational structure, infrastructure</b>	
E1	Procedural approach dealing with employees' activities (ISO 9001, ISO 14001)
E2	Targeted delegation of employees' authority
E3	Programs of career development support
E4	Programs of mobility
E5	Working hours management
<b>F: Diversity management</b>	
F1	Creating conditions for supporting employees from other countries
F2	Programs of integration of employees with limited capacity to work
F3	Programs of supporting employees on parental leave
F4	Raising awareness of diversity management
F5	Support of employee charity organizations
<b>G: Demographic structure</b>	
G1	Programs of gender equality
G2	Analysis of available information on gender differences (salary, department structure)
G3	Programs of junior employee support
G4	Programs of senior employee support
<b>H: Information gathering</b>	
H1	Feedback from employees – satisfaction with activities in component A
H2	Feedback from employees – satisfaction with activities in component D
H3	Feedback from employees – satisfaction with activities in component E
H4	Gathering information on employee satisfaction (questionnaires)
H5	Regular reporting (related to strategy)
H6	Gathering information on employee satisfaction (interviews)
H7	Assessing employees to create staff reserves

Source: Authors

The list is divided into individual components according to the field (such as Health and safety, Working conditions; Benefits and other forms of support; Diversity management etc.).

This list will be used for the expression of the overall Human Capital Index (HCI), which will serve as a basis for the demonstration of differences in approach to human capital management in selected NPPs.

## 2 METHODOLOGY

Of the three possible approaches to human capital investigation (microeconomic, macroeconomic, combination of both), this study represents the third type, as it demonstrates the differences in approach to human capital management in selected NPPs. In order to do this, approach to human capital in each NPP must be investigated in the first place (microeconomic perspective). Then, following the below described methodology, the issue can be investigated in a more complex way within the group of sample NPPs (macroeconomic perspective).

This chapter describes the process of calculation of overall HCI. Firstly, three independent evaluators (it was the same evaluators which participated on content analysis of annual reports of NPPs) were appointed and the methodology for evaluation was set. It had to be determined which activities are organized at which NPP, because the number varies and some NPPs organize more activities than others. This led to the creation of an overview of activities that are organized at each NPP. It was also important to reflect the differences in the form of implementation as some NPPs implement activities in a rather sophisticated way (such as in the form of a long-term project), while others implement it only marginally (the project does not yet exist, but is in the making).

In the process of evaluation, activities were assigned a value according to the following key: 0 – activity is not implemented, 1 – activity is not yet implemented, however, a draft of its implementation process has already been prepared or is in the making, 2 – activity is already implemented (project, process, evaluation, etc.).

Each activity from table 1 can be assigned value 0, 1 or 2. Even if there are more projects/processes for one type of activity, the maximum value is still 2. Calculation of value of each component is given by the equation no. 1 (see below). Researchers evaluated activities independently and then discussed and compared their results. In the case of any divergence it was necessary to carry out the whole process again.

The next step was a comprehensive evaluation of approach to human capital. This indicator serves as a basis for the determination of differences in approach to human capital.

To determine overall HCI, it is necessary to observe:

- the number of identified activities and their categorization (i.e. the distribution of individual activities into components),
- evaluations of individual activities in individual NPPs.

Each component consists of a number of activities. To calculate the overall HCI, it was necessary to calculate the value of each component using the following formula:

$$X_j = \frac{1}{n} \sum_{j=1}^n x_{nj} \quad (1)$$

where:

$X_j$  is the total value of each component (A-H)

- $j$  is the sequence number of a component (A-H)
- $n$  is the number of activities in a component
- $x_{nj}$  is the value of an activity  $nj \in \{0,1,2\}$

The overall HCI can only be expressed when each main component has been calculated. In this case, the overall HCI consists of eight principal components: Safety at work, employee's health protection, working conditions (A), Benefits and other forms of support (B), Education, training and skills (C), Communication (D), Organizational structure, infrastructure (E), Diversity management (F), Demographic structure (G) and Information gathering (H).

The overall HCI will serve for the formulation of differences in approach to human capital. For this reason, it was convenient to choose such a method that would allow for a clear expression of the position of each component's total value at one NPP to the position of the same component's value at the remaining NPPs. One such method is the z-score method [36]. Mathematical formulas are used in this context to find population mean, standard deviation and the z-score of a member of a population. The normalized score is the signed number, therefore, the higher and lower value indicates that the z-score is above and below the mean respectively.

Formula to find z-score:

$$z = \frac{x - \mu}{\sigma} \quad (2)$$

where:

- $z$  is the Z-score
- $x$  is a raw score to be standardized
- $\mu$  is the sample mean of the population
- $\sigma$  is the sample standard deviation of the entire population

Z-score was expressed for total value of each component and then the resulting overall HCI was calculated from the eight partial scores using the following formula:

$$HCI = \frac{1}{m} \sum_{j=1}^m Z_{mj} \quad (3)$$

where:

- $HCI$  is the overall Human Capital Index
- $m$  is the number of components
- $j$  is the sequence number of a component (A-H)
- $Z_{mj}$  is the Z-score of number of a component (A-H)

### 3 RESULTS

This chapter presents results of the analysis of thirteen annual reports. Results in Table 3 show z-scores within groups of each eight components (columns A - H). These scores were used to calculate the overall HCI.

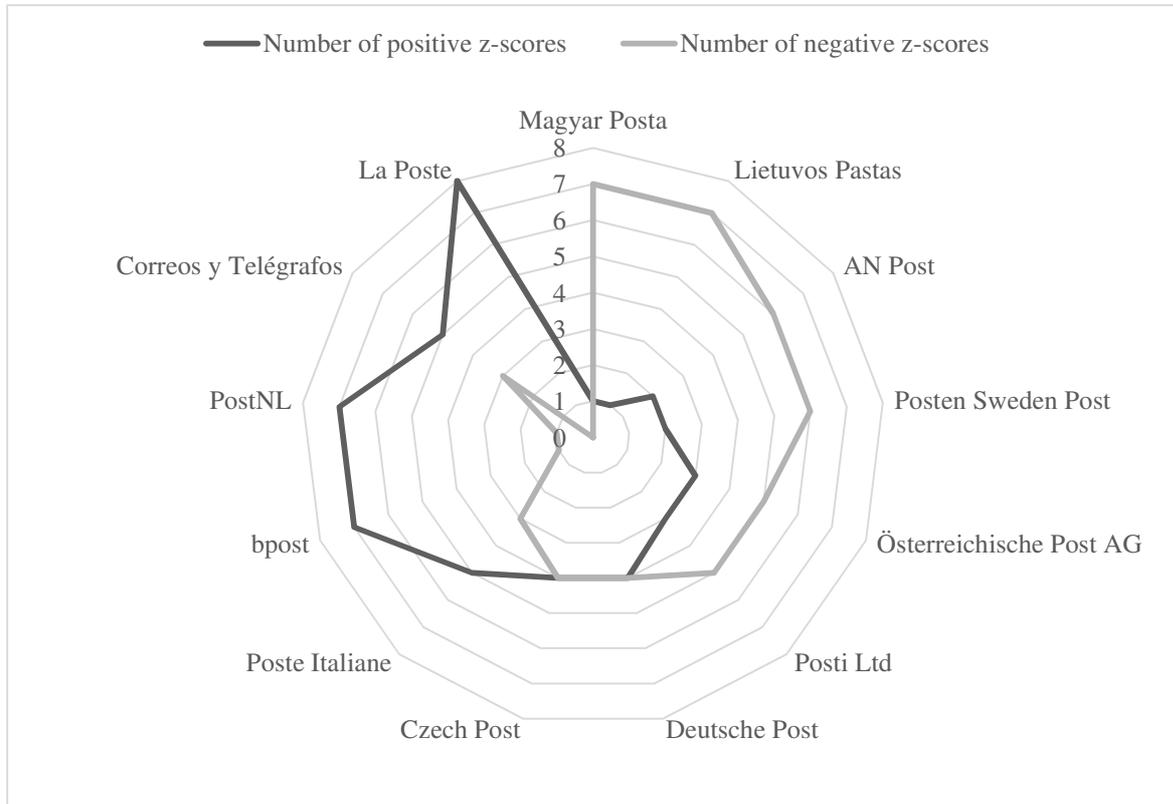
**Table 2** Z-score values of each component and the overall HCI

	A	B	C	D	E	F	G	H	HCI	RANK
Österreichische Post AG	-0.809	0.151	-0.098	0.000	-0.531	-0.371	-0.125	0.000	<b>-0.223</b>	9
Correos y Telégrafos	2.697	1.461	-0.098	2.040	0.688	0.944	-0.531	-1.317	<b>0.735</b>	2
Posten Sweden Post	-1.247	-1.159	-0.946	-1.020	-0.125	-1.685	0.688	1.317	<b>-0.522</b>	10
Posti Ltd	0.067	-0.504	-0.946	1.020	-0.125	-1.247	-0.531	0.658	<b>-0.201</b>	8
AN Post	-0.809	0.151	-0.946	-1.020	-1.344	0.506	-0.938	-1.317	<b>-0.714</b>	11
Bpost	0.067	1.461	0.750	0.000	1.500	0.067	-0.938	0.658	<b>0.446</b>	4
Česká pošta	-0.371	0.151	0.750	0.000	-0.125	-0.371	-0.531	0.658	<b>0.020</b>	6
Deutsche Post	-0.371	-1.159	0.750	-1.020	-0.938	0.506	0.688	0.658	<b>-0.111</b>	7
La Poste	0.944	1.461	1.174	1.020	2.313	0.944	2.313	0.658	<b>1.353</b>	1
Lietuvos Pastas	0.944	-0.504	-0.946	-1.530	-0.938	-0.809	-0.938	-1.317	<b>-0.755</b>	12
Magyar Posta	-0.809	-1.814	-1.794	-0.510	0.281	-0.371	-0.938	-1.317	<b>-0.909</b>	13
Poste Italiane	-0.371	0.151	0.750	0.000	-0.938	2.259	0.281	-0.658	<b>0.184</b>	5
PostNL	0.067	0.151	1.598	1.020	0.281	-0.371	1.500	1.317	<b>0.695</b>	3

Source: Authors

La Poste scored the highest (1.353), followed by Correos y Telégrafos (0.735) and PostNL (0.695). On the other hand, Magyar Posta and Lietuvos Pastas scored the lowest (-0.909 and -0.755, respectively).

The highest score for each component is highlighted. In component A (Safety at work, employee's health protection, working conditions), Correos y Telégrafos scored the highest with 2.697, in component B (Benefits and other forms of support) it was Correos y Telégrafos, bpost and La Poste with the same score of 1.461, in C (Education, training and skills) PostNL ranked first with the score of 1.598, in D (Communication) it was Correos y Telégrafos again (2.040), in E (Organizational structure, infrastructure) it was La Poste (2.313), in F (Diversity management) Poste Italiane scored the highest with 2.259, in G (Demographic structure) it was La Poste (2.313) and finally in H (Information gathering) PostNL and Posten Sweden Post scored the highest with 1.317.



**Figure 1** Number of positive and negative Z-scores (Authors)

Figure 1 shows the number of positive and negative z-scores in the group of analyzed NPPs. La Poste scored the highest on the overall HCI and achieved a positive score in all components. On the other hand, bpost, which ranked fourth on the overall HCI, shows only one negative z-score (in G - Demographic structure), while Correos y Telégrafos, which ranked second, shows a negative z-score in three components (C - Education, training and skills; G - Demographic structure; H - Information gathering). This is given by the fact that bpost has in many components a positive score which is very close to zero, i.e. the average z-score. Magyar Posta and Lietuvos Pastas achieved the highest number of negative scores.

It must be stressed that individual NPPs are in no way similar to each other. Their dissimilarity can be exemplified in a number of ways. This argument is further developed in discussion.

#### 4 DISCUSSION

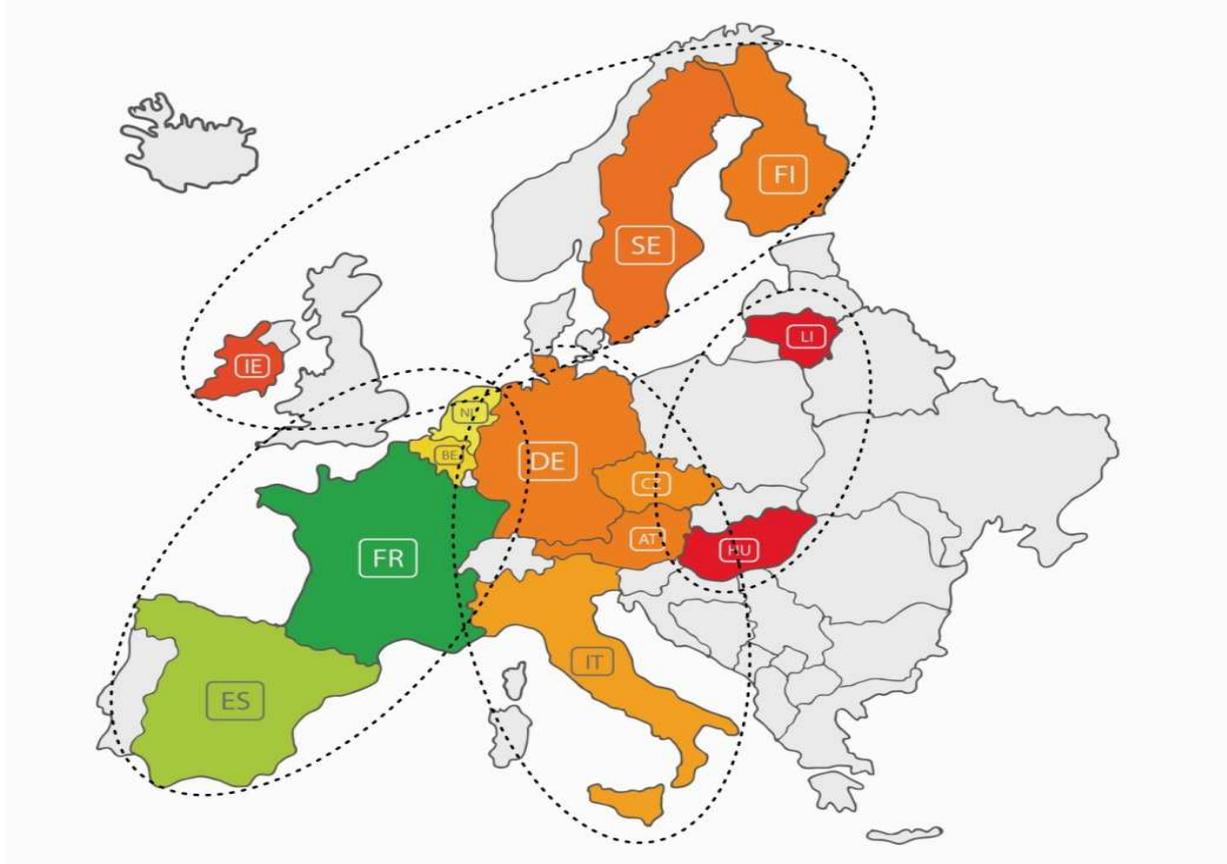
Human capital in the sector of postal service is an area which yet has to be scientifically explored as it receives only little attention. For this reason, results of this study are rather unique and bring new detailed insights both into research on human capital and postal service market.

Results shown in Table 3 confirm that significant differences in approach to human capital management were found. These differences can be discussed from a number of perspectives:

- Geographical perspective

- Economic-administrative perspective
- Social perspective

As Figure 2 shows, a possible relationship can be established between the values of HCI and the geographical position of a country where a given NPP operates.



**Figure 2** Graphical expression of HCI in European NPPs (Authors)

NPPs can be divided into four groups based on their HCI value: the highest scores were achieved by NPPs in Western Europe (PostNL, bpost, La Poste, Correos y Telégrafos), second group consists of NPPs situated in Central Europe (Deutsche Post, Česká pošta, Österreichische Post AG, Poste Italiane), the third group comprises NPPs from Northern Europe (AN Post, Posten Sweden Post, Posti Ltd). NPPs in the second and third groups showed more or less similar scores, however, most of Central NPPs showed better absolute values of overall HCI than Northern Europe states (see Table 3). The fourth group is formed by NPPs from Eastern Europe (Lietuvos Pastas, Magyar Posta), who achieved the lowest overall HCI score. This result supports that countries situated in the east of Europe lag behind their western counterparts in many key areas (economic stability, education, level of social responsibility, etc.).

On the other hand, historical development cannot account for the differences that are found between NPPs from Western Europe and their northern counterparts. Although the development of these countries was similar in the last few decades, differences in values of their overall HCI are significant. It is thus clear that the sole aspect of geographical position cannot explain the differences in approach to human capital management.

Found partial connections between value of overall HCI and the geographical position could be built on in further research that would investigate explanatory variables in their connection to these two aspects. Such research would bring new insights into regional studies,

whose works usually investigate causal relationships between indicators of economic development, political stability or indicators of society development and geographical position.

Another point of view which can shed some light on the reasons for differences in approach to human capital management is the economic-administrative perspective. This perspective addresses the differences in number of employees, internal organization (if they belong to international groups), and also the legal perspective (NPP as a state-owned enterprise, private enterprise, private enterprise with government participation).

Regarding the size of the NPP, causal link between the number of employees and value of overall HCI cannot be established. For this reason, it cannot be confirmed that NPPs with a higher number of employees score higher on the overall HCI, meaning that they organize more activities targeting human capital. For example, Poste Italiane employed 138,236 employees, while Česká pošta employed 31,416 employees and yet managed to reach a similar overall HCI. At the same time, bpost employed 26,381 employees and had a higher score on the overall HCI than Poste Italiane and Česká pošta (all data as of 2015).

Regarding the inclusion of NPPs into organization structure of other subjects (international or national group of companies), numerous differences can be found in this area also.

An interesting fact emerged in this connection: NPPs who achieved the highest score on overall HCI (La Poste and Correos y Telégrafos) are not independent companies but belong to a larger national group of companies. La Poste forms a part of La groupe La poste, which is structured around five business units: the Services-Mail-Parcels business unit, the GeoPost business unit, La Banque Postale, La Poste Network and the Digital Services business unit. Spanish NPP Correos y Telégrafos also forms a part of a larger group: Correos Telecom, S.A., Nexea Gestión Documental, S.A., Correos Express Paquetería Urgente, S.A. It can therefore be assumed that NPPs that function as parts of big corporations are more likely to organize more activities connected to human capital development. Deutsche Post is also part of a larger corporation – DHL Group, but by far does not reach the score achieved by Spain or France. This can be explained by the organizational structure of the above mentioned subjects into corporations. La Poste and Correos y Telégrafos are national corporations with tight links among its units, while Deutsche Post belongs to the international corporation DHL Group, which is organized in a completely different way - subjects organized in DHL Group operate independently without the need for tight cooperation among its members.

Some differences can also be observed in the legal framework under which NPPs operate. NPPs such as Poste Italiane, bpost, La Poste, Deutsche Post or PostNL are fully or partly privatized, while Magyar Posta is owned by The Hungarian National Asset Management (HNAM Inc.). As one of the most important supporting organizations of the Ministry of National Development, HNAM Inc. exercises ownership rights over state assets of over 17 trillion Hungarian forints, representing almost 50 percent of the annual GDP of Hungary. A similar situation prevails in the Czech Republic, where Česká pošta is state-owned, as well as Correos y Telégrafos in Spain.

Following this, no link between the type of ownership and the value of overall HCI can be observed.

Another perspective that is taken into account is the social perspective: it is possible to explain the differences in overall HCI scores using the data on level of development of the society.

It has already been mentioned that countries from Eastern Europe achieved the lowest overall HCI score. This suggests a small number of activities that are organized in these NPPs in order to develop human capital. This fact can perhaps be attributed to the historical

development of these countries, which was rather different from the rest of Europe until 1980s.

This group of post-communist countries also includes the Czech Republic, whose democratic development was faster thanks to its central position close to other democratic states. Its geographical position thus accelerated the development of democracy after the fall of communism. This is supported by the values of Human Development Index: between the years 1990-2015, the Czech Republic always reached a better score on the Human Development Index than Hungary and Lithuania [37].

NPPs whose countries have lower Human Development Index scores achieve also lower overall HCI scores. It should then follow that the highest HCI is achieved by NPPs from countries with a high Human Development Index score.

Countries such as Finland, Sweden and Ireland are in the long-run perspective countries whose Human Development Index is among the highest in the world. Surprisingly, NPPs from these countries achieve only very low scores on the overall HCI.

An explanation is offered by Ping Chu and Ghosh [38, 39]: in their opinion, the most developed countries (among which Finland, Sweden and Ireland can certainly be included) lack the need to formally modify aspects relating to behavior of individuals within a group, formalize rules related to discrimination against other cultures, etc. Results of this study confirm their findings. All NPPs from Northern European states (AN Post, Posten Sweden Post, Posti Ltd.) which continually rank high on the Human Development Index, achieved low scores in components F and G (components related to social climate – see Table 2) when compared to other NPPs. Posten Sweden Post and Posti Ltd show in component F (Diversity management) the lowest score when compared to the rest of NPPs, which means that they do not organize any activities in this component.

## CONCLUSION

Human capital is a currently very discussed topic, especially because it has a positive impact on the added value of a company. There is a number of works dealing with human capital in various areas of national economy, however, human capital in the postal service sector has received very little attention. Due to the absence of any research into this topic, the main aim of this article is to define the differences in approach to human capital management in selected NPPs. It was necessary to carry out a content analysis of annual reports in order to identify activities that reflect current approach to human capital. Identified activities were then subjected to evaluation, which provided a solid basis for definition of differences among selected NPPs. Differences are expressed via overall HCI. This methodology had been chosen because it allows for a clear distinction in approach to management of each activity in a NPP as opposed to approach of the remaining NPPs.

Results of this article show that the highest value of HCI was yielded by French La Poste (1.3781). This was also the only NPP that had zero negative scores, meaning that none of the activities is managed worse than is the average value of this activity within thirteen selected NPPs. The opposite is true for Lithuanian NPP, which scored the worst (-0.797). Partial Z-scores also confirm that NPPs situated in the north of Europe have generally lower results of component H: Diversity management than remaining NPPs. This can be attributed to the level of advancement of Northern European societies. There are also differences among NPPs in respect to relation of overall HCI value and the geographical position of the state. Four main groups can be identified that show similar results. These groups are geographically determined.

It can be concluded that results of this study bring new insights into the topic of human capital and provide a solid ground for further research.

## Acknowledgements

The article was supported by student grant – SGS\_2017\_009

## References

- [1] Schiek D. *Economic and Social Integration The Challenge for EU Constitutional Law*. Massachusetts: Edward Edgar Publishing Limited; 2012.
- [2] Sarac D, Kopic M, Mostarac K, Kujacic M, Jovanovic B. Application of set covering location problem for organizing the public postal network. *Promet-Traffic & Transportation*. 2016;28(4):403-13.
- [3] Coleman JS Social Capital in the Creation of Human-Capital. *American Journal of Sociology*. 1988;94:S95-S120.
- [4] Edvinsson L, Malone MS *Intellectual Capital: Realizing Your Company's True Value by Finding Its Hidden Brainpower*. New York: Harper Business; 1997.
- [5] Donate MJ, Pena I, de Pablo JDS HRM practices for human and social capital development: effects on innovation capabilities. *International Journal of Human Resource Management*. 2016;27(9):928-53.
- [6] Marzo G, Scarpino E. Exploring intellectual capital management in SMEs: an in-depth Italian case study. *Journal of Intellectual Capital*. 2016;17(1):27-51.
- [7] Rossi C, Cricelli L, Grimaldi M, Greco M. The strategic assessment of intellectual capital assets: An application within Terradue Srl. *Journal of Business Research*. 2016;69(5):1598-603.
- [8] Yaseen SG, Dajani D, Hasan Y. The impact of intellectual capital on the competitive advantage: Applied study in Jordanian telecommunication companies. *Computers in Human Behavior*. 2016;62:168-75.
- [9] Zéghal D, Maaloul A. Analysing value added as an indicator of intellectual capital and its consequences on company performance. *Jnl of Intellectual Capital*. 2010;11(1):39-60.
- [10] Scafarto V, Ricci F, Scafarto F. Intellectual capital and firm performance in the global agribusiness industry The moderating role of human capital. *Journal of Intellectual Capital*. 2016;17(3):530-52.
- [11] Singh B, Rao MK Effect of intellectual capital on dynamic capabilities. *Journal of Organizational Change Management*. 2016;29(2):129-49.
- [12] Mehralian G, Rasekh HR, Akhavan P, Sadeh MR. The Impact of Intellectual Capital Efficiency on Market Value: An Empirical Study from Iranian Pharmaceutical Companies. *Iranian Journal of Pharmaceutical Research*. 2012;11(1):195-207.
- [13] Collewaert V, Manigart S. Valuation of Angel-Backed Companies: The Role of Investor Human Capital. *Journal of Small Business Management*. 2016;54(1):356-72.
- [14] de Albuquerque NR, Vellasco MMR, Mun J, Housel TJ. Human Capital valuation and return of investment on corporate education. *Expert Systems with Applications*. 2012;39(15):11934-43.
- [15] Shahzad K, Bajwa SU, Ansted RB, Mamoon D, Khaliq ur R. Evaluating human resource management capacity for effective implementation of advanced metering infrastructure by electricity distribution companies in Pakistan. *Utilities Policy*. 2016;41:107-17.
- [16] Czaller L. Increasing social returns to human capital: evidence from Hungarian regions. *Regional Studies*. 2016:1-11.
- [17] Ngcwangu S. The Ideological Underpinnings of World Bank Tvet Policy: Implications of the Influence of Human Capital Theory on South African Tvet Policy. *Education as Change*. 2015;19(3):24-45.
- [18] Weckroth M, Kemppainen T. Human capital, cultural values and economic performance in European regions. *Regional Studies, Regional Science*. 2016;3(1):239-57.

- [19] Kirdina SG. Methodological institutionalism as a new principle of complex social systems' analysis at meso-level. *Terra Economicus*. 2016;14(1):98-108.
- [20] Polachek SW, Das T, Thamma-Apiroam R. Micro- and Macroeconomic Implications of Heterogeneity in the Production of Human Capital. *Journal of Political Economy*. 2015;123(6):1410-55.
- [21] Wright PM, Boswell WR. Desegregating HRM: A review and synthesis of micro and macro human resource management research. *Journal of Management*. 2002;28(3):247-76.
- [22] Ployhart RE, Moliterno TP. Emergence of the human capital resource: a multilevel model. *Academy of Management Review*. 2011;36(1):127-50.
- [23] Nielsen K. Human capital and new venture performance: the industry choice and performance of academic entrepreneurs. *Journal of Technology Transfer*. 2015;40(3):453-74.
- [24] Ployhart RE, Nyberg AJ, Reilly G, Maltarich MA. Human Capital Is Dead; Long Live Human Capital Resources! *Journal of Management*. 2014;40(2):371-98.
- [25] Vieira VR. Public and private: change and continuity in economy through two meta-fields in society. *Cambridge Review of International Affairs*. 2014;27(1):21-38.
- [26] Pollitt M, Stern J. Human resource constraints for electricity regulation in developing countries: Developments since 2001. *Utilities Policy*. 2011;19(2):53-60.
- [27] Slack R, Munz M. Intellectual capital reporting, leadership and strategic change. *Journal of Applied Accounting Research*. 2016;17(1):61-83.
- [28] Priyadarshini SK, Kamalanabhan TJ, Madhumathi R. Human resource management and firm performance. *International Journal of Business Innovation and Research*. 2015;9(2):229-50.
- [29] Sharma JK, Shukla S. Strategic HR orientation of companies in India: A content analysis approach. *Prabandhan: Indian Journal of Management*. 2015;8(7):7-22.
- [30] Kateb I. Voluntary human capital disclosure in French annual reports. *International Journal of Learning and Intellectual Capital*. 2015;12(4):323-41.
- [31] Adelowotan MO. Human capital development (HCD) through open, distance and e-learning: Evidence from corporate annual reports (Cars) of top South African listed companies. *Turkish Online Journal of Distance Education*. 2014;15(3):68-79.
- [32] Gamerschlag R. Value relevance of human capital information. *Journal of Intellectual Capital*. 2013;14(2):325-45.
- [33] Moloi T. Governance of risks in South Africa's public higher education institutions (HEIs). *Investment Management and Financial Innovations*. 2016;13(2):226-34.
- [34] Biswas PK, Bala SK. Usefulness of corporate annual reports to individual investors in Bangladesh. *International Journal of Disclosure and Governance*. 2016;13(2):97-116.
- [35] D'Amico E, Coluccia D, Fontana S, Solimene S. Factors Influencing Corporate Environmental Disclosure. *Business Strategy and the Environment*. 2016;25(3):178-92.
- [36] Matloff N. *From Algorithms to z-scores: Probabilistic and Statistical Modeling in Computer Science*: Orange Grove Texts Plus; 2009.
- [37] United Nations. *Trends in the Human Development Index, 1990-2015* 2016 [Available from: <http://hdr.undp.org/en/composite/trends>].
- [38] Ping Chu JK. *The Simple Science of Being*. USA: Xlibris; 2004.
- [39] Ghosh BN, Guven HM, editors. *Globalization in Third World*. New York: Palgrave Macmillan; 2006.