Szent István University

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Evaluation of HR Practices Application of Large Companies in the Private Sector

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1. ANTECEDENTS AND RESEARCH OBJECTIVES

1.1. Relevance of the subject

The role of people in the success of a company has been researched widely. Companies need people, who the owners entrust with the operation of their capital, expecting a return. The human factor, people's behavior or motivation cannot be described by concepts, which describe other resources required to run a business (Fitz-enz, 2000, Becker et al., 2001). Researchers took a variety of approaches to find the most adequate theories and models to manage human resources. The literature on the subject also relies on a wide range of methods, including observations, experiments, questionnaires, analysis of economic data, and others. In HRM research the empirical studies dominate the field, which is the most appropriate to uncover the characteristics of the field, at the same time empiric studies have their limitation, too.

It is an exciting work to influence the strategic directions of HRM at a company; however, my experience is that if the level of execution is not receiving appropriate attention and feedback, then even the best strategy may fail. Strategic objectives can be implemented by breaking them down into specific HR practices. During the implementation HR professionals and line managers jointly make the everyday HR decisions. To support this process, HR practitioners require justifiable and actionable solutions, which could create a competitive advantage for the organization through building organizational capabilities. Therefore my own preference is to work with pragmatic approaches and tools which could be associated with organizational effectiveness and ultimately with business results.

In the 1990s and 2000s the HR profession has gone through a major transformation, while the HR practices became more diverse and sophisticated. The views and results of mainly American academics shaped this transformation. Brewster et al. (2005) argued that in Europe there are other influences; therefore he suggested a broader definition of HRM. In the past three decades the HRM research resulted in some prestigious research initiatives

(Poór, 2009, Bokor, 2011). The new HRM practices arrived to Hungary mainly through the international companies, and these practices usually taken over by local companies often with delay, if taken over at all.

Human resource still is one of the most critical sources of competitive advantage for companies operating in the private sector. The competition to attract and retain the appropriate people is getting fiercer, and companies implement a variety of tools and practices to handle market challenges. Therefore the research and analysis of these practices is relevant today.

1.2. Prior Literature

Prior to my research I reviewed some aspects of strategic human resource management (SHRM). I put emphasis on the main SHRM model and organizational effectiveness, because these formed the theoretical basis of my work.

The appearance of SHRM and their "hard" and "soft" approaches were fueled by the more generic business strategy frameworks, which included non-financial success-criteria into their models. One of the most quoted models is the balanced scorecard by Kaplan and Norton (1992). This model brought human resources aspect to the attention of strategic leaders. Other HRM approaches popped up in the meantime, which aimed to quantify the return of HRM investments. Schultz (1983) compared the characteristics of human capital and other, physical forms of capital. Fitz-enz (1997, 2000) created a model, based on financial return models, to describe the return of human capital. I find his work important, because he created a coherent toolkit, and used a language which is meaningful to business leaders and financial managers, and also demonstrates the importance and the effectiveness and return of investment into "soft" processes.

I have reviewed several SHRM models. The so called "hard HRM" forms the basis of traditional HRM theories, which sees people as resources, and evaluates their economic values based on the cost-benefit model, putting emphasis on the performance management and cost-optimization (Tichy et al. 1982, Devanna et al. 1982). The origin of the "soft" models is the Harvard model, which emphasizes the "human" part of human resource. Its main theorists are Beer,

Lawrence, Specter, Quin Mills, Waltan (Beer et al., 1985). These models take into consideration the motivation of people, the effective communication to people, and also build on the employee engagement and empowerment, in contrast with the control-driven hard models.

The most popular SHRM models are published by American authors. To describe the European HRM systems, more aspects need to be taken into consideration, because there are substantial differences among countries, which must reflected in the HRM model, too (Brewster and Larsen, 1992). European countries have different laws, a variety of geographical, cultural and social characteristics, and this influence the HR function of their companies, too. This was the basis of Brewster's European HRM model (Brewster, 1994). The Cranet research, from which I took data for my analysis, is also based on the structure of this model.

The definitions of organizational effectiveness are very diverse; there is no consensus about the concept of organizational effectiveness. Cameron (1986) compared eight organizational effectiveness models; these were the precursors of today's approaches. These models are very different in what they consider as the main driver of effectiveness (organizational goals, resources, processes, product quality, or corporate values). What is common among them is that they define the directions of organizational changes for a more effective operation. Almost all of them use employee turnover and absence as indicators of organizational effectiveness. Therefore I also analyzed these indicators in relation to my model in this dissertation.

The role of the HR function within the organization is strongly connected to the development of strategic HRM models. The most famous for researching the role of HR is Ulrich (1996), whose model on the role of HR divided the HR profession, but his merit is unquestionable in initiating a worldwide discussion on the need for the HR function to be more strategic and business aware, which required a major transformation from their traditional viewpoints (Ulrich and Beatty, 2001). Kohont and Brewster (2014) also emphasize that the increasing internationalization raises new role expectations towards HR. They argue that HR professionals need to demonstrate the ability to think strategically, being sensitive to cultural differences, open to changes, and knowledgeable on

international business environment and business processes. The role of HRM was also researched in Hungary; Poór (2009) assessed some aspects of the HR function of subsidiaries of international companies operating in Hungary. He has proven that the role of HR shifted to a more strategic position. The change of local HR practitioners' role is in accordance with the local requirements, as well as the global corporate culture.

1.3. Research goals and hypotheses

During my research I aimed to capture the characteristics of the entire system of HR practices. The main question was: how the complex system of HR practices may be quantified by components which both the individual practices and the applying organizations may be described. To answer this question I created a new model. My research objectives (O) and hypotheses (H) are the following:

O1: Creation of a new model to explore and quantify the typical characteristics of the application of HR practices.

H1: New information is gained through studying the application of HR practices by large companies when both the frequency of their occurrence and the ratio of employees reached by these practices are analyzed together.

H2: The application characteristics of HR practices are changing in time.

H3: Conclusions based on the new model are in accordance with previous research.

C2: Analyze large companies based on their attitude towards the application of HR practices.

H4: The complexity of an organization is associated to its orientation to HR practices application.

   a) The structural relation to headquarter of organizations is associated to their orientation to HR practices application.

   b) The headcount of organizations is associated to their orientation to HR practices application.

H5: The role of the HR function in organizations is associated to their orientation to HR practices application.

a) *The HR staff ratio in organizations is associated to their orientation to HR practices application.*
b) *The existence of a written HR strategy is associated to the organization's orientation to HR practices application.*
c) *The representation of HR leadership at board level is associated to the organization's orientation to HR practices application.*

H6: Organizational effectiveness is associated to the organizations' orientation to HR practices application.

a) *Turnover rate is associated to the organizations' orientation to HR practices application.*
b) *Absence is associated to the organizations' orientation to HR practices application.*
c) *Labor cost ratio is associated to the organizations' orientation to HR practices application.*

H7: The prevailing orientation to HR practices application shows differences by the country of operation of the organizations.

I have also set delimitations to the scope of the research goals and hypotheses:

- *Delimitation of the research goals:* In this work I aimed to explore generic phenomenon, therefore I do not include analysis of specific geographic regions or countries. Although the results of this work may become the foundation for a region- or country-specific analysis.

- *Delimitation of the sample:* HR management in a structured form is typically present in larger organizations. In this study I take into consideration organizations which have an HR department within their organizational structure. I also decided to limit the sample of this study to the private sector, due to the fact that the majority of the founding theory was also based on the private sector. Therefore the analysis considers those respondents form the Cranet database which employ more than 250 people and operate in the private sector. In line with this, the conclusions and suggestions also applicable to this set of organizations. In this study I exclude the analysis of other organizational sizes or sectors.

- *Delimitation of time:* for my analysis I used the two recently completed research cycles of Cranet, which were closed in 2010 and 2016, so the results also reflect the data collection periods related to these research cycles.

2. MATERIAL AND METHODS

2.1. Introduction of the Cranet Research

„The Cranfield Network on International Human Resource Management" (Cranet) is a research project started off in 1989, in order to „meet the need for ready access to information on best practice and comparative performance within Europe and now globally" (quotation form the *cranet.org* website). The research is coordinated by the Cranfield School of Management, which is a leading contributor of the HRM research in Europe. The publications of the network mainly are focused on comparative HR. The founder of the project, Chris Brewster, who is a recognized authority of international HRM, and he had overseen the project personally until the recent years. Today over 40 universities are part of the network. They analyze the research results, publish comparative studies and created benchmarks, by which the development and trends of certain HRM aspects may be followed. Publication of the results is also the aim of the network.

Two Hungarian universities are taking part in Cranet: the University of Pécs joined the network in 2004, and the Szent István University followed in 2011. Farkas et al. (2009) argues that the extension of Cranet to the region largely contributed to describing the characteristics of the Central-European HRM as a separate cluster.

2.2. Tools used to carry out the analysis

I have received the raw Cranet data in SPSS format. I converted these into csv files, which then I worked on in Excel to relate the variables between the two research cycles. For any other data manipulation I used R 3.6.2, with RStudio (v. 1.1.456) editor. The code to clean and analyze data and create the graphical visualizations was written by me, with the help of packages available in the Comprehensive R Archive Network (CRAN) repository. References of the utilized packages are detailed in section 6.2.

2.3. Methods used in analyzing the hypotheses

H1: New information is gained through studying the application of HR practices by large companies when both the frequency of their occurrence and the ratio of employees reached by these practices are analyzed together.

To substantiate my first hypothesis I created a two-dimensional model, taking into consideration the literature, available primer data and my analysis objectives. The model creation is the fundamental element in my thesis; therefore I expound the related details in a separate chapter.

H2: The application characteristics of HR practices are changing in time.

In order to prove my second hypothesis I calculated the significant changes of the model indicators between the two research cycles. The two main indicator types of my model are measured on different scales; therefore separate methods were used to measure their changes. To calculate the difference in the occurrence rates of individual practices I compared the ratio of the applying organizations within their respective samples. I tested the significance of the change by χ^2-test, based on which I concluded if there is a difference between the theoretical χ^2-distribution and the observed frequency rates.

The other indicator type was measured on a ratio scale and calculated as averages. In these cases I adapted a non-parametric approach demonstrated by Caffo (2016), which measures the significance based on the confidence intervals of the two sets of sub-samples. I considered a difference between the two research cycles significant, if the 2.5% - 97.5% confidence intervals of the two sample sets are not overlapping.

H3: Conclusions based on the new model are in accordance with previous research.

To substantiate my first hypotheses I made a research in literature, in which I considered not only Cranet publications but also other authors, as well as statistical data, which I compared to my findings based on the new model. I have structured this section according to the HR specialist areas.

H4. The complexity of an organization is associated to its orientation to HR practices .

I analyzed two variables related to the complexity of the organization: the headcount (in a categorized form) and the type of organization based on its structural relationship to headquarters (independent company, member of a local group or member of an international group). I used χ^2-test to prove the association with the orientation to HR practices application, and calculated the contingency coefficient and the Cramer V statistic to measure the strength of the association.

H5. The role of the HR function in organizations is associated to their orientation to HR practices application..

In the data there were three variables related to the role of the HR function in the organization: the existence of a written HR strategy, the representation of HR leadership at board level, and the ratio of HR staff. The first two are categorical variables; in these cases, similarly to H4, I used χ^2-test to prove the association with the orientation to HR practices application, and calculated the contingency coefficient and the Cramer V statistic to measure the strength of the association. To show the association between the orientation to HR practices application and the HR staff ratio I applied the Kruskal-Wallis rank-sum test, considering the HR staff ratios belonging to the four different orientation types as independent samples.

H6. Organizational effectiveness is associated to the organizations' orientation to HR practices application.

Three organizational effectiveness indicator were available in the data set: the annual turnover rate (%), the average absence (days/head/year), and the staff costs in proportion of the total operating cost (%). These are all measured on a ratio scale. I applied analysis of variance (ANOVA) on the data grouped by the orientation to HR practices application. One of the pre-conditions of the ANOVA is the homogeneity of variance among the compared groups, which I tested with the Levene-test. In case of variables where the ANOVA did not produce significant results, I performed the Kruskal-Wallis, test.

H7. The prevailing orientation to HR practices application shows differences by the country of operation of the organizations.

The country, in which the organization is located, incorporates an economic, societal and cultural environment, which effects the organization's operation and decision making. Therefore I assume that the orientation to HR practices application is also different from country to country. At first it would be obvious to compare the averages of the main model indicators, the application rate and the coverage, to compare the typical orientation of different countries. However, the averages, due to their offsetting effect, would probably take place in a small range, and would not uncover the main differences among the countries. This is the reason I attempted to prove this hypothesis with another method. I took the six model indicators (A, A_{poz}, A_{neg}, L, L_{poz} and L_{neg}, definitions detailed in the next chapter) and performed a Principal Component Analysis (PCA) on them. This way I can include not only the two main model indicators, but all the six of them, which may lead to a more subtle comparison, revealing which indicators to what extent contribute to the explanation of the variance. The countries will be connected to the model through the two dimensions of PCA with the highest explanatory power.

Prior to the PCA I reviewed the correlation of the indicators. By calculating the Pearson's correlation coefficient for each pair, the correlation matrix of the indicators were prepared. I also performed the Bartlett-test to assess if the correlations (the coefficients outside the diagonal of the correlation matrix) are not just randomly deviate from 0 (Sajtos-Mitev, 2007). The Kaiser-Meyer-Olkin-test assesses the adequacy of the data for PCA.

Hajdu (2018) recommends the R package "FactoMineR" for the PCA, this is what I also applied in my work. The advantage of the package is that beside the so called "active" variables, which are used to extract the components, other, even nominal supplementary variables could be included. The package will generate to each category of the supplementary variables (in this case the countries and orientation categories) coordinates in the PCA dimensions, and a v-test statistic, which is a "criterion with a normal distribution, square correlation ratio" (Husson, 2017). The positive sign of the v-statistic refers to overrepresentation, and the negative sign means underrepresentation. Husson

(2017) considers the association of the dimensions and the category significant, if the absolute value of the v-statistic is larger than 2. With this method the association (and its significance) between the model variables and the countries can be proven, and also may be visually presented.

3. DEFINITION OF THE HR PRACTICES APPLICATION MODEL

3.1. The basic idea of the model

My research approach was to capture the characteristics applicable to the entire set of HR practices versus the individual practices. I also aimed to move away from the traditional specialist areas and find indicators which explore the HR practices and the related strategic considerations from a novel perspective.

The decisions on HR practices are made by line managers and HR professionals based on internal and external factors. Among the internal factors I mention the efficiency and effectiveness of these practices. Efficiency may be measured by cost, time, and required resources, for example, the cost and time to fill a vacant position. the effectiveness measures show the competitive advantage the organization gained through applying that practice. These are more qualitative measures, such as the success ratio, and indicators related to the strategic objectives, such as the success in building an organizational capability. Among external data benchmarks or market information is considered. If in a particular industry or geographical area a certain practice (e.g. flexible benefits) is widespread, and there is a market consensus about the necessity or utility of this practice, then the competing organizations must take that into account when making decisions about (1) the application of this practice and (2) the extent to which they make this practice available within the organization. At a competitive labor market firms must provide appropriate sets of HR practices in order to be able to attract and retain the best people. Therefore a company never makes the decision on HR practices in isolation, they, beside the internal considerations, must consider the market consensus. This does not mean that they follow the consensus by all means, but they are positioning themselves in relation to the market though their decisions about HR practices.

At large companies there is a diverse workforce, in terms of motivation, life cycle, etc. A more flexible HR policy and a wider range of practices are more likely to help in the retention of staff and the attraction of new hires, than a narrower range of practices and rigid policies. The "market equilibrium" of HR practices therefore is shaped by the companies' attitudes towards HR

management, as well as the requirements of the workforce. Based on this I raised the question whether the HR practices are extended to a wider range of employees would influence the organizational effectiveness, and whether the strategic role of the HR function may be associated with the characteristics of the application of HR practices, especially the number of practices applied and the range of people they are extended to. This resulted in the backbone of my model, which examines both the occurrence of HR practices and the extent of their availability within the organization. I aimed to create a model based on the Cranet data which meets the following criteria:

- It examines the set of HR practices in integration.
- It uses generic indicators, which could be interpreted to all practices, making it possible to evaluate them in one framework.
- Its professional meaning goes beyond the descriptive statistics, uncovering additional information.
- It forms a comprehensive framework which may be reproduced and operated by empirical data.

3.2. Conceptual definition of the HR practices application model

The basic concept of my model is to analyze the occurrence of HR practices in combination with the proportion of employees it reaches within the organization. I have interpreted the occurrence of a practice as the organization's judgement of its necessity, and the proportion of people the practice covers (which I called reach) is the decision of the degree of differentiation of the practice. These are the input data of the model (shown in Table 1.): two decisions on each HR practices by each respondent: the decisions about the necessity and the differentiation of the practice (obviously the differentiation only can be used for the necessary, i.e. the actually applied practices).
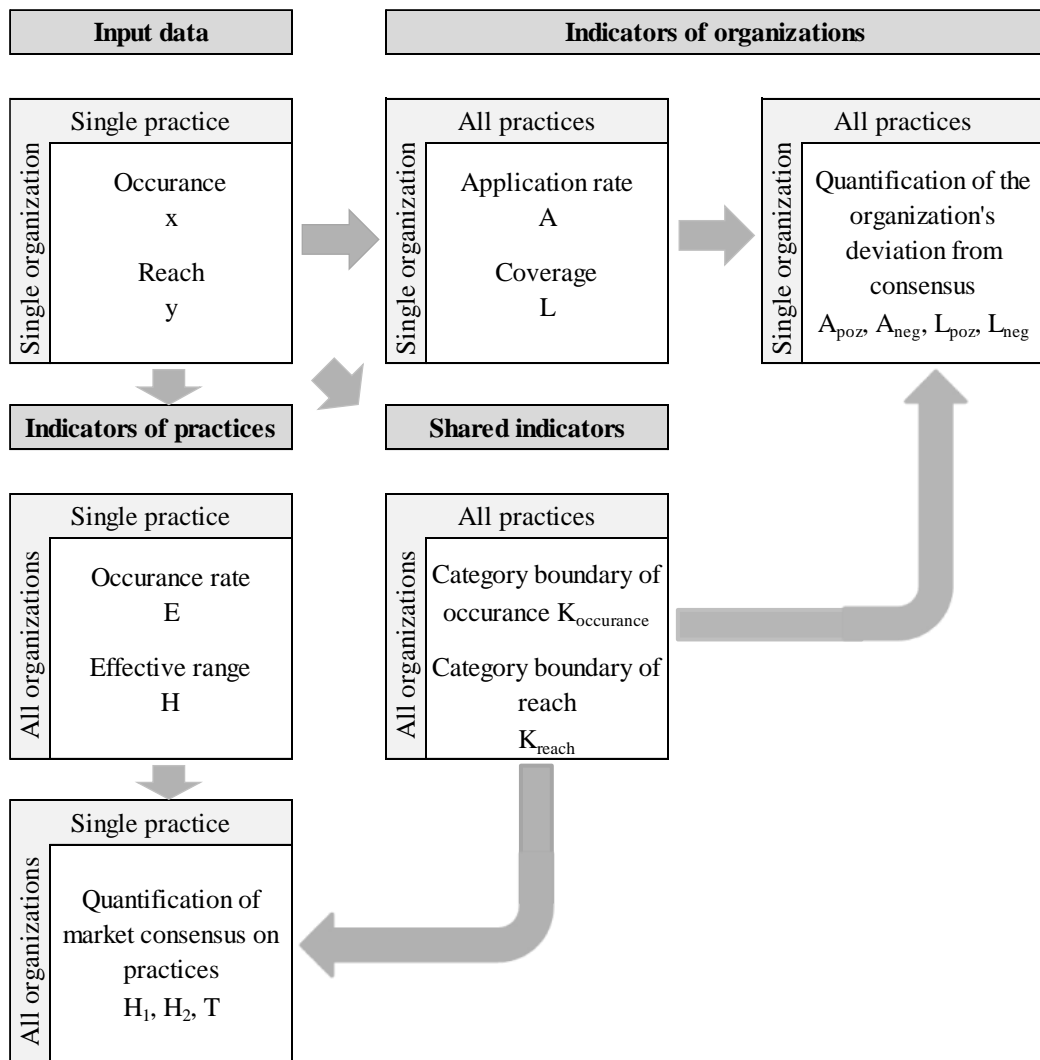
Table 1: Input data for the HR practices application model

	Occurance			Reach		
	Practice1	Practicej	Practicem	Gyakorlat$_1$	Gyakorlat$_j$	Gyakorlat$_m$
Organization$_1$	$x_{1,1}$	$x_{1,j}$	$x_{1,m}$	$y_{1,1}$	$y_{1,j}$	$y_{1,m}$
Organization$_i$	$x_{i,1}$	$x_{i,j}$	$x_{i,m}$	$y_{i,1}$	$y_{i,j}$	$y_{i,m}$
Organization$_n$	$x_{n,1}$	$x_{n,j}$	$x_{n,m}$	$y_{n,1}$	$y_{n,j}$	$y_{n,m}$

Source: the author's own edition

Only those practices could be included into the model which has data on the occurrence and the reach, as well. Simplifying the filtering criteria, this means that we need to have the reach data available, because form the reach data the occurrence can be inferred.

I have defined a variety of indicators through summarizing the input data. If the summary is performed by individual practices, then we receive the resultant of the decisions of the practice by all organizations, which could be viewed as the market consensus on the particular practice. If we summarize the input data by individual organizations, this could be interpreted as the organization's relation to or deviation from the market consensus on the entire set of HR practices. This lead to a system of indicators built upon one another, as shown on Figure 1. The definitions of the indicators can be found in Table 2.

Input data

Indicators of organizations

Single organization — Single practice

Occurance
x

Reach
y

Single organization — All practices

Application rate
A

Coverage
L

Single organization — All practices

Quantification of the organization's deviation from consensus
A_{poz}, A_{neg}, L_{poz}, L_{neg}

Indicators of practices

Shared indicators

All organizations — Single practice

Occurance rate
E

Effective range
H

All organizations — All practices

Category boundary of occurance $K_{occurance}$

Category boundary of reach
K_{reach}

All organizations — Single practice

Quantification of market consensus on practices
H_1, H_2, T

Figure 1. Hierarchy of indicators of the HR practice application model
Source: the author's own edition

Table 2. Definitions of the indicators in the HR practice application model

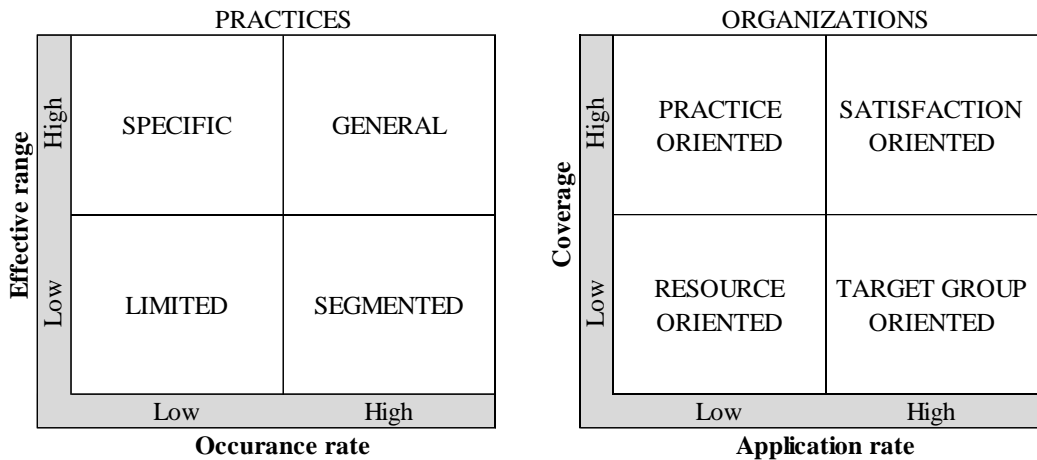| Notation	Indicator	Quantification	Meaning
x	Occurance	0 if the practice is not applied in the organization and 1 if applied	An organization's decision on the necessity of an HR practice.
y	Reach	Proportion of poeple reached by the practice ($0 < y <= 1$)	An organization's decision on the degree of differentiation of an HR practice.
E	Occurance rate	Proportion of organizations applying the practice ($0 <= E <= 1$)	Market consensus on the necessity of an HR practice.
H	Effective range	Average reach of the practice at the applying organizations ($0 < H <= 1$)	Market consensus on the degree of differentiation of an HR practice.
H_1	Lower effective range	Average reach by the organizations applying the practice with lower reach than the effective range ($0 < H_1 <= H$)	Market consensus on the degree of differentiation of an HR practice of those organizatinos which extend the practice below its effective range (more exclusive view).
H_2	Upper effective range	Average reach by the organizations applying the practice with higher reach than the effective range ($0 > H_2 > H$)	Market consensus on the degree of differentiation of an HR practice of those organizatinos which extend the practice above its effective range (more inclusive view).
T	Distance	Difference between H_2 and H_1 ($0 > T > 1$)	Difference between the prevailing views on the differentiation of a practice.
A	Application rate	Proportion of HR practices applied by the organization within the total set of HR practices ($0 => A => 1$)	An organization's view on the optimal complexity and vairety of the HR practices.
L	Coverage	Average reach of practices applied by the organization ($0 => L => 1$)	An organization's view on the average degree of differentiation of the applied HR practices.

Table 2. continued

Notation	Indicator	Quantification	Meaning
$K_{occurance}$	Category boundary of occurance	Arithmetic mean of all the occurance values in the sample $(0 > K_{occurance} > 1)$	Market consensus on the avearge necessity of the HR practices. It separates the high and low occurance rates of the practices and the high and low application rates of the organizations.
K_{reach}	Category boundary of reach	Arithmetic mean of all the occurance values in the sample $(0 > K_{reach} > 1)$	Market consensus on the avearge differentiation of the HR practices. It separates the high and low effective range of the practices and the high and low coverage of the organizations.
A_{neg}	Average negative deviation of application rate	Average of the absolute value of negative occurance-occurance rate differences in an organization $(0 >= A_{neg} >= 1)$	To which degree an organization negatively deviates from the market consensus on the necessity of HR practices.
A_{poz}	Average positive deviation of application rate	Average of the positive occurance-occurance rate differences in an organization $(0 >= A_{poz} >= 1)$	To which degree an organization positively deviates from the market consensus on the necessity of HR practices.
L_{neg}	Average negative deviation of coverage	Sum of the absolute value of the negative reach-effective range differences devided by the number of applied practices $0 => L_{neg} > 1$	To which degree an organization negatively deviates from the market consensus on the coverage of HR practices.
L_{poz}	Average positive deviation of coverage	Sum of the positive reach-effective range differences devided by the number of applied practices $0 => L_{poz} > 1$	To which degree an organization positively deviates from the market consensus on the coverage of HR practices.

Source: the author's own edition

The HR practices may be classified into four categories based on their occurrence rate and effective range. These categories classify the application characteristics and provide information on the market consensus (typical application attributes) of the practice. The categories of the organizations signal the organization's preferences in applying HR practices. These categories are

the reflection of what the organization considers the main source of efficiency when applying their HR practices, which I called the orientation of HR practice application. These categories are shown on Figure 2.

PRACTICES		ORGANIZATIONS	
High SPECIFIC	GENERAL	**High** PRACTICE ORIENTED	SATISFACTION ORIENTED
Low LIMITED	SEGMENTED	**Low** RESOURCE ORIENTED	TARGET GROUP ORIENTED
Low	High	Low	High

(Effective range / Occurance rate) (Coverage / Application rate)

Figure 2. Categories of the HR practice application model for individual practices and organizations
Source: the author's own edition

3.3. Cases and variables included into the model

Following the definition of the model indicators, I could review the Cranet database and select the respondents and the HR practices for which sufficient data exist to calculate the indicators. My aim was to include the widest range of the HR practices, and the highest possible number of cases, and kept in mind the comparability between the two survey cycles when defining the selection criteria which were applied to the two datasets.

From the practices I considered those which are directly impacting the employees (i.e. the presence of the practice is noticed by non-HR staff). Because the occurrence value can be derived from the reach value, I used the availability of the reach data to decide which HR practices I can include into the analysis, and which ones I have to leave out. The different practices were measured in several ways in the survey, so I also used different approaches to calculate the reach values from the raw data. From the 2010 database 76 practices, from 2016 83 practices were included into the model, 73 practices were identical in the two surveys.

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From the organizations those private sector companies were considered, which employ more than 250 people. Another filtering criterion was the availability and accuracy of the proportions of the different employee groups, which are required to establish the reach value in many of the HR practices. From 2010 1342 cases, from 2016 2388 cases met the criteria.

4. RESULTS

4.1. Evaluation of the Hypotheses

The main question that I intended to answer in my work is: How can I break down the complex set of HR practices to such components which characterize both the HR practices, and the organizations which apply them. Based on this I set two research objectives and seven hypotheses. Below I summarize their evaluation.

O1: Creation of a new model to explore and quantify the typical characteristics of the application of HR practices

H1: New information is gained through studying the application of HR practices by large companies when both the frequency of their occurrence and the ratio of employees reached by these practices are analyzed together.

To underpin my first hypothesis I defined a two-dimensional model to capture the attributes of HR practices. The first dimension is the occurrence rate of the practice in the total sample; the other is the proportion of staff covered by the practice. I interpreted the occurrence as the decision on the necessity of the practice, and the reach as the decision on the differentiation on the practice. The categories defined by the model, and some of the underlying indicators are new information, there is no similar approach in the literature.

My model reveals the following information: (1) Market consensus on the degree of the necessity of the practice, quantified by the occurrence rate, similar indicator exists in the literature. (2) Defining the effective range of HR practices is a new approach to describe the market consensus on the degree of differentiation of the practices. (3) The lower and the upper effective range indicate the different equilibrium viewpoints and the distance between them shows the polarization of the views on the differentiation of the practice. The effective range is the dividing line between the opposing views. (4) Based on the degree of necessity and the differentiation of practices, as quantified by the market consensus indicators, I defined categories of the typical combinations of these views (general, specific, segmented and limited practices). (5) The

application rate shows the proportion of the analyzed HR practices applied by the organization, a similar indicator can be found in the literature. (6) The coverage of an organization shows the organization's preference in the differentiating the HR practices it applies. (7) Based on the application rate and the coverage I defined the typical categories of the organizations' orientation to HR practices application.

Information in points (2), (3), (4), (6) and (7) are the result of a novel approach in modelling application of HR practices. Information detailed in points (4) and (7) was made possible by the combined analysis of the two input variables. This proves my first hypothesis.

H2: The application characteristics of HR practices are changing in time.

46 of the 73 HR practices appearing in both surveys have shown a significant change in the application rate between the two survey cycles. The effective range moved significantly only on case of 2 practices. 17 practices showed a significant change in the H_1 - H_2 distance (meaning that H_1 or H_2 or both showed a significant change. The data showed that the opinions on the necessity of the HR practices changes more dynamically than the opinions on the differentiation of the practices. The calculations of the significant changes, which are summarized in Table 3, prove my second hypothesis.

Table 3: Significant changes of the model indicators between the two survey cycles by HR practices

Group	Practice	Indicator				
		E	H_1	H	H_2	T
REC	internal	0.035	0.084	0.138	0.033	-0.051
REC	recommendation	0.138	0.132		0.024	-0.108
REC	advertising	-0.243				
REC	website	0.098				
REC	job-site	0.082			0.020	0.005
REC	agency	-0.058			0.058	0.053
REC	job-center		0.073			-0.044
SEL	application form	0.050				
SEL	psychometric tests	0.054			0.050	0.049
SEL	assessment centre	0.074			0.104	0.078
SEL	references	0.050				
SEL	ability test	0.097				
SEL	professional test	0.062			0.054	0.013
WORK	shift-work		0.143		0.242	0.099
WORK	felxible work time	-0.063	-0.080		-0.178	-0.098
WORK	weekend work	-0.067				
WORK	overtime	-0.056				
WORK	annual hours	-0.047	0.102		0.139	0.037
WORK	job sharing		0.014		0.134	0.119
WORK	compressed week	-0.076				
WORK	part time	-0.065	0.017		0.129	0.112
WORK	temporary contract	-0.117	0.021		0.164	0.144
WORK	fixed term contract	-0.053				
WORK	home-based work	-0.034	0.013		0.253	0.240
PERF	immediate supervisor	0.056	-0.129			0.131
PERF	employee	0.055	-0.087			0.093
PERF	subordinates	0.120				
PERF	peers	0.068			0.038	0.049
PERF	results in training	0.044				
PERF	results in career	0.069				
PERF	results in workforce pl.		-0.060			0.062

Table 3 continued

Csoport	Gyakorlat	Mutatók				
		E	H_1	H	H_2	T
CAR	special tasks	-0.090				
CAR	project team	-0.033				
CAR	networking	-0.126				
CAR	formal career plan		0.120		0.205	0.085
CAR	development center		0.115		0.217	0.102
CAR	talent program	0.087				
CAR	assignment		0.113		0.225	0.113
CAR	e-learning	0.076	0.114		0.194	0.081
WAGE	regional bargain	0.051	0.185	0.132	0.046	-0.139
INC	employee share schemes	-0.079				
INC	profit-share	-0.061				
INC	stock options	-0.077				
INC	felxible benefits	-0.047				
INC	individual bonus	-0.030				
INC	team bonus	-0.068				
COM	financial performance	-0.032				
CHA	TU representative	-0.059				
CHA	WC representative	-0.150				
CHA	workforce meetings	-0.071				
CHA	team briefings	-0.046				
CHA	suggestion schemes	-0.041				
CHA	employee surveys	0.056				

Source: the author's own edition

H3: Conclusions based on the new model are in accordance with previous research.

To verify my third hypothesis I compare the research of the literature with the results of my model. I found the following sources being in line with the results of my model directly or indirectly: (1) Szretykó and Hajdú (2017) found that the printed advertisements lost its importance in the recruitment. This is also reflected in my model: the printed advertising shows the largest significant decline in both the occurrence rate and the effective range. (2) My results are in line with the claim of Biemann et al. (2018) that the configuration of HR

practices shows similar tendencies. I also found that several practices are moving into the same direction, including those which were analyzed by the authors, in particular practices of recruitment, selection, career management and performance management. (3) My results underpin the findings or Berkery et al (2017), according to which in the German speaking and Nordic locations the ratio of organizations applying flexible work schedule is twice as high, than in Eastern Europe and Asia. My model provides additional information to this claim, showing that this is not only true for the occurrence rate, but also stands for the effective range. (4) The model data on the atypical employment forms show similar magnitude to statistical data from Eurostat, U.S. Department of Labor (DOL), and OECD for the contingent work, part time work and the flexible work schedule. (5) Fleenor and Prince (1997) made a meta-analysis on the literature on the use of the 360-degree feedback in performance management. Their conclusions show that the views on this subject are strongly polarized. This is in accordance with my model's indicators on two of the practices strongly related to the 360 feedback in performance management: subordinates and peers acting as evaluators in the performance assessment. The difference between the lower and upper effective range (which is proportionate to the degree of polarization between the prevailing views) are in the upper quartile for these practices in both survey cycles. (6) Hancock et al. (2018) found that people prefer transparency of the compensation principles, and the extent of this transparency is in connection with their perception of the performance management process. My model mirrors the organizations' efforts to pursue this transparency: the practice of taking into consideration the results of the performance management has above average occurrence rate and effective range.

Besides the above mentioned references, the results of my model are in line with other sources, too, but these are the most direct connections to the literature and my model data. This proves my third hypothesis.

C2: Analyze large companies based on their attitude towards the application of HR practices.

H4: The complexity of an organization is associated to its orientation to HR practices .

a) *The structural relation to headquarter of organizations is associated to their orientation to HR practices .*

b) *The headcount of organizations is associated to their orientation to HR practices application.*

In both sub-hypothesis the significant association was proven by χ^2-test. Association between the orientation in the application of HR practices and the organization's structural relation to headquarter: n=2240 cases analyzed, χ^2=80.861, 0.025 and 0.975 confidence at 6 degrees of freedom: 1.237 and 14.449, p-value=0.000, C=0.187, Cramer V=0.134.). Association between the orientation in the application of HR practices and the headcount: n=2388 cases analyzed, χ^2=115.5, 0.025 and 0.975 confidence at 15 degrees of freedom 6.262 és 27.488, p=0.000, C=0.215, Cramer V=0.127.

Based on the contingency coefficient and the Cramer V statistic I found a week association in both cases. I also concluded that among the more complex organizations the satisfaction orientation is overrepresented, while in case of the less complex organizations the most frequent is the resource orientation. The above analysis proves my fourth hypothesis, including both sub-hypothesis.

H5: The role of the HR function in organizations is associated to their orientation to HR practices application.

        a) *The HR staff ratio in organizations is associated to their orientation to HR practices application.*

        b) *The existence of a written HR strategy is associated to the organization's orientation to HR practices application.*

        c) *The representation of HR leadership at board level is associated to the organization's orientation to HR practices application.*

Based on my analysis all the three variables related to the HR function's role in the organization shows a significant association to the orientation of HR practices application. In case of the HR strategy I have proven the significant association by χ^2-test. The association of the existence of a written HR strategy and the orientation of HR practices application: χ^2=226.38, 2.5% and 97.5%

confidence at 3 degrees of freedom: 0.216 and 9.349, p-value=0.000, C=0.296, Cramer V=0.310.

Association of the HR function's representation at board level and the orientation of HR practices application: χ^2=82.797, 2.5% and 97.5% confidence levels at 3 degrees of freedom: 0.216 and 9.349, p-value=0.000, C=0.185, Cramer V=0.188. Association of the HR staff ratio and the orientation of HR practices application based on the Kruskal-Wallis test: χ^2= 29.953, at 3 degrees of freedom the 2.5% and 97.5% confidence levels: 0.216 and 9.348, p=0.000.

In case of the HR strategy the contingency coefficient and the Cramer V statistic suggests near medium strength, while the HR function's board level representation shows a significant but weak association with the HR practices orientation. All the three analysis suggests that the more emphasized HR role is the higher representation of the satisfaction orientation can be observed, while the HR function's role is the least important among the resource oriented organizations. This proves my fifth hypothesis.

H6: Organizational effectiveness is associated to the organizations' orientation to HR practices application.
> a) *Turnover rate is associated to the organizations' orientation to HR practices application.*
> b) *Absence is associated to the organizations' orientation to HR practices application.*
> c) *Labor cost ratio is associated to the organizations' orientation to HR practices application.*

The analysis of the association between the selected indicators of organizational effectiveness (turnover, absence, labor cost ratio) and the orientation to HR practices application did not lead to a significant result, neither with ANOVA nor with Kruskal-Wallis rank sum test. The detailed results are summarized in Table 4.

Table 4: Result summary on the analysis of the association between indicators of organizational effectiveness and the orientation to HR practices application

TURNOVER (n=1677)				
	Satisfaction	Target group	Practice	Resource
n	568	350	386	373
Median	9.4	10	10	10
Mean	11.102	12.042	12.770	13.100
Standard deviation	8.672	9.648	10.819	10.694
Levene-test	F=6.3912, p=0.0003			
ANOVA	Homogenity of variance is not sufficient			
Kruskal-Wallis test	χ^2= 4.47 (df=3), p=0.2148			
ABSENCE (n=1344)				
	Satisfaction	Target group	Practice	Resource
n	451	284	316	293
Median	5	5	5	5
Mean	5.733	6.222	5.530	6.004
Standard deviation	3.536	3.459	3.620	3.346
Levene-test	F=1.3474, p=0.2574			
ANOVA	p=0.075			
Kruskal-Wallis test	χ^2= 10.103 (df=3), p=0.0177			
PERSONNEL COST RATIO (n=1046)				
	Satisfaction	Target group	Practice	Resource
n	356	239	221	230
Median	40	35	37	35
Mean	20.387	19.619	20.364	20.418
Standard deviation	3.536	3.459	3.620	3.346
Levene-test	F=0.4285, p=0.7327			
ANOVA	p=0.181			
Kruskal-Wallis test	χ^2=5.0476 (df=3), p=0.1683			

Source: the author's own edition

In case of turnover the Levene-test did not confirm the homogeneity of variance therefore the analysis of variance was not performed, and the Kruskal-Wallis test did not produce a significant result (p=0.2148). The Levene-test confirmed the adequacy of the ANOVA in case of the absence (p=0.2574), but the result of it was not significant (p=0.075). The Kruskal-Wallis test produced a significant

p-value (p=0.0177), but there is no difference between the medians of the groups (all of them are 5 days/head/year), so despite the significant test, the association between the absence and the orientation to application of HR practices cannot be quantified. Based on the Levene-test for the labor cost ratio (p=0.7327) I performed the further analysis, but neither the ANOVA (p=0.181) nor the Kruskal-Wallis test (p=0.1683) was significant.

I concluded form the results that from the perspective of the organizational effectiveness any orientation to HR practices application may be justified, as any of them could lead to effective a non-effective organizational performance. The sixth hypothesis was not confirmed, at the same time the result uncovered by the analysis is important, from the point of view of interpretation and further application of the model and its data.

H7: The prevailing orientation to HR practices application shows differences by the country of operation of the organizations.

I performed a PCA based on six model variables (A, A_{poz}, A_{neg}, L, L_{neg}, L_{poz}) of the 2016 data (n=2833). The Bartlett-test confirmed that the correlation of the variables are not random (K^2=5393.3, at 5 degrees of freedom, p=0.000). The Kaiser-Meyer-Olkin test for the adequacy of the data to PCA was 0.5026, which suggests that the data is not ideal for PCA, the value is around the lower end of the barely acceptable range. The summary of the PCA results are in Table 5. The total variance is explained by 5 dimensions, from which the first two dimensions accounts for 81.3%. The third component still has meaningful part in the explanation (11.2%), the other two components are negligible. The first two components include a good representation of all the six variables. The further columns of the table show the extent of the representation of each variable in the dimensions, which is described by 3 variables: r is the correlation of the variable and the dimension, the percentage value shows the extent of representation of the variable in the dimension, and the *cos²* value quantifies the degree of projection of the variable to the axes of the multidimensional co-ordinate system consisting of the dimensions (Husson, 2017).

Table 5: Summary of results of PCA performed on the model variables

	Variance explained (%)			A	A$_{poz}$	A$_{neg}$	L	L$_{poz}$	L$_{neg}$
Dim.1	0.0	0.0	r	0.98	-0.91	0.92	-0.03	0.00	0.86
			%	28.7	24.6	25.0	0.0	0.0	21.7
			cos^2	0.97	0.83	0.84	0.00	0.00	0.73
Dim.2	0.0	0.0	r	0.13	-0.14	0.09	0.92	0.77	-0.36
			%	1.0	1.2	0.6	52.3	36.9	8.2
			cos^2	0.02	0.02	0.01	0.84	0.59	0.13
Dim.3	0.0	0.0	r	-0.10	0.11	-0.08	-0.37	0.64	0.31
			%	1.6	2.0	0.9	20.6	60.4	14.5
			cos^2	0.01	0.01	0.01	0.14	0.40	0.10
Dim.4	0.0	0.0	r	-0.03	0.37	0.37	0.04	-0.01	0.03
			%	0.2	49.5	49.2	0.7	0.1	0.3
			cos^2	0.00	0.14	0.14	0.00	0.00	0.00
Dim.5	0.0	0.0	r	-0.06	0.04	-0.08	0.14	-0.04	0.20
			%	5.2	2.1	8.2	26.4	2.7	55.3
			cos^2	0.00	0.00	0.01	0.02	0.00	0.04

Source: the author's own edition

I analyzed the position of countries in relation to the two dimensions with the largest proportions of explained variance. The program assigned a v-value to each of the 33 countries, from which 21 showed significant associations with at least one of the two dimensions. This is shown on Figure 3.
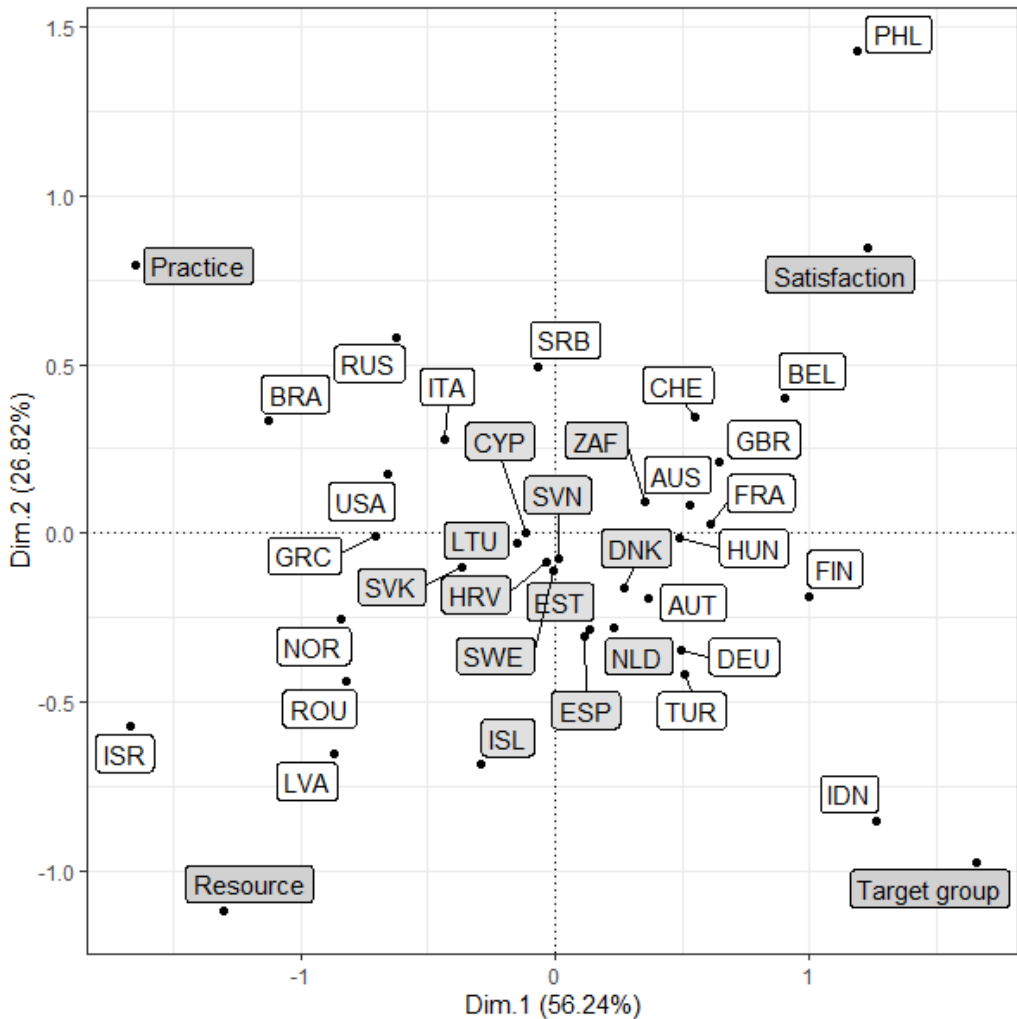
Figure 3: The association of the countries with the first two dimensions extracted by the PCA
Source: the author's own edition

I also placed the four orientations of the HR practices application to the graph with the same method, in order to visualize which orientations are closest to each country. The grey background in the country label means that the country's association with the dimensions is not significant, i.e. the v-statistic suggested by Husson (2017) has an absolute value below 2. These countries are scattered around the origin of the graph. The other countries have a significant association with at least one of the dimensions. In these cases we can make a conclusion on which orientations are overrepresented in these countries.

This proves my 7th hypothesis, that the HR practices orientation show different characteristics by countries.

Apart from the sixth hypothesis, all of my hypotheses are underpinned by evidence – this completes my two research goals. Through the analysis of the hypotheses I also answered my main research question: I captured two generic aspects of HR practices based on which the entire set of HR practices and their relation to the organizations which apply them can be modelled: the necessity and the differentiation of HR practices. The indicators of the HR practices quantify the market consensus on the necessity and the optimal differentiation of the practices, while the organizations may be characterized by their relation and deviation from this consensus. The model may enrich the toolkit of organizational diagnostics with a framework assessing the organizations' orientation to HR practices application based on market benchmarks. This could help HR practitioners and the management to re-think and purposefully position their HR practices applications, contributing to the organization's adaptation to their external environment.

4.2. New and novel scientific results

The following new and novel scientific results (R) are concluded based on my research:

R1. The most important result of my research is the definition of a new model to characterize the application of HR practices, by analyzing the occurrence rate of the practices and the covered proportion of the organization by them together. This quantifies the typical views (market consensus) on the necessity and the differentiation of the practices, and the organizations' relation to this consensus. The HR practices application model contributes to the enrichment of the tools of organizational diagnostics.

R2. The calculation of the occurrence rate and effective range of 86 HR practices lead to the classification of the practices by their typical application characteristics (general, specific, segmented and limited), reflecting the underlying market consensus about each practice.

R3. I have quantified the significant changes of the occurrence rate and the effective range of the practices between the two survey cycles. I have also calculated the extent to which the opposing views on the differentiation of each practices (measured by the lower and upper effective range) moved significantly further from or closer to each other. I have also proven that the consensus on the necessity of the HR practices (measured by the occurrence rate) changes in time more dynamically, than the consensus on the differentiation of the practices (measured by the effective range indicators).

R4. I have compared my model's conclusion to other sources of literature. I have demonstrated that the claims made based on my model are in accordance to previous research, and in some cases they provide additional, new information to previous results.

R5. I have described the organizations' relation to and their deviation from the market consensus on application of HR practices. My model also uncovered which factor the organizations optimize for in their HR practices application approach, based on which I identified satisfaction oriented, target-group oriented, practice oriented and resource oriented organizations. This is a new way to model the organizations' preferences to HR practices application.

R6. I have proven that the complexity of the organization (measured by the organization's structural relation to headquarter and the headcount) is associated to the orientation to HR practices application. I have also identified the key aspect of the association: the application rate: more complex organizations apply larger number of HR practices.

R7. I have proven that the role of HR in an organization is associated to the orientation to HR practices application. Specifically, the existence of a written HR strategy and the board level representation of the HR function and the HR staff ratio are the highest in the satisfaction-oriented organizations and lowest in the resource-oriented organizations.

R8. I have established that there is no significant association between the selected indicators of organizational effectiveness (turnover, absence and personnel cost ratio) and the orientation to HR practices application. This suggests that from the point of view of organizational effectiveness all four orientations is legitimate and any of them may lead to effective or less effective organization performance. Based on that I concluded that the orientation to HR practices application plays more important role in the organization's strategy to adapt to the external environment. The internal operating effectiveness of the organization is the function of other factors (which are not examined in this paper).

R9. I have proven that the country of operation and the orientation of HR practices application are associated. Out of 33 examined countries 21 showed a significant overrepresentation of some of the orientations to HR practices application.

5. CONCLUSIONS AND RECOMMENDATIONS

The main question of my research was: how the complex system of HR practices may be quantified by components which both the individual practices and the applying organizations may be described. Below I summarize the most important conclusions based on the results of analyzing the model data. I do not intend to list all my observations claims which I detailed under the results section, I only summarize those conclusions which puts the results into a broader context.

The Cranet database made it possible to analyze samples from two research cycles which were carried out internationally. I selected the organizations over 250 employees and filtered them further by the availability of the model data. From the 6039 cases of the 2010 cycle 1342 cases and from the 2016 cycle 2388 cases met the criteria to analyze them in the model. After setting up the model from the Cranet data, I made analysis on both the HR practices and the organizations.

I revealed significant changes of the occurrence rate of 46 practices, out of these only 17 showed change in the H_1 - H_2 distance. This lead to the conclusion that the view on the necessity of the HR practices changes more dynamically than the view on the differentiation of the HR practices. The highest changes in the occurrence rate between the two cycles were observed in the practices falling into the area of the recruitment and career management. The data also suggested that those practices became more frequent which require less resource (e.g. employee recommendations or the company's own website), or could be implemented relying mainly on internal resources (e.g. programs for high potential or assessment center). The practices using technology also became more frequent (e.g. own website or jobsite in recruitment or e-learning), while the more traditional but less efficient practices lost importance (e.g. printed ads in recruitment).

In terms of the effective range only 2 practices showed significant changes: recruitment internally and the wage bargain at a regional level. While the latter is explained by a large change in a handful of countries, the increase of the effective range of the internal recruitment can be observed almost everywhere.

This is the practice which had the largest increase in importance, showing the largest increases in the effective range among all practices, as well as an above average increase in the occurrence rate. This indicates that organizations became more reliant to their own employees, which may open up more opportunities for advancement. This is also underpinned by the fact that a number of the career management practices show the increased occurrence and became more inclusive.

Apart from two practices the effective range did not show significant move between the two survey periods. I attribute this to that fact that in order to the effective range to be moved, at least one of the lower or the upper effective range must make a considerable shift to also cause a significant shift at the level of the effective range, which fills the role of the boundary between the different views. Therefore, beside the effective range, I also examined the shift of the opposing views and their distance by individual practices. In case of 13 practices both H_1 and H_2 increased, i.e. the views on the differentiation of the practice moved towards the more inclusive application. 5 of these practices belong to the work schedules and atypical employments, and 4 fall into the area of career management, these are the two areas where consensus on the differentiation of the practices shows the most changes. There are four practices where the narrowing distance between the opposing views on differentiation is attributable shift of the lower effective range to the more inclusive direction, all of these are in the area of recruitment (job portals, job center, and internal recruitment). There was no example for such practice where the opposing views showed a significant move to the opposing direction. In summary, the change in distance between the opposing views is explained by the shift in one of the opposing views in most of the cases, and where both approach changed, then they move to the same direction. A possible explanation to this may be that the market tendencies such as the workforce supply, the regulatory environment or the general economic changes make the most impact on the views on the degree of differentiation of HR practices, which shift both of the opposing views into the same direction.

I have also established that the orientations of HR practices application are not associated directly with the indicators of the organizational effectiveness. This was, however, examined without taking the industry into consideration.

However, the three indicators of organizational effectiveness under review (fluctuation, absence and personnel cost ratio), may be associated to the industry. In a further analysis it is worth to examine the relationship of the organizational effectiveness indicators and the model indicators in a sample grouped by industries. In the light of the results of my sixth hypothesis I assume the answer is no, or even if a significant relationship may be proven, the strength of it will be marginal. The orientation of HR practices orientation compares the organization to external factors, namely the market consensus on the HR practices application approaches, and that indirectly includes the response to certain characteristics of the external environment, such as the cultural or regulatory environment. Therefore I consider the orientation to HR practices application as a way to adapt to external factors, rather than the driver of the internal operating effectiveness. This also means, that from the perspective of the HR practices orientation there is no better or worse orientation to HR practices application, any of the orientations may be adequate in different situations.

The role of the HR function shows a significant association to the orientation to HR practices application. The presence of a written HR strategy, the representation of the HR function at board level, and the HR staff ratio all are in a significant relation to the orientation to HR practices application. It was also established different orientations are overrepresented in organizations which are larger and have a more complex structure, compared to the simpler organizations. In both cases (stronger HR function and more complex organization) the most typical is the satisfaction orientation, and in case of the smaller, less complex organizations, or those with the least HR representation, the resource orientation and the practice-orientation is the most prevailing approach.

My results made me confident that the HR practices application model defined in my thesis may be developed into a diagnostic tool. At the same time, working with the model, I came up also with some suggestions to develop the model further. These are the following:

- The category changes between the two periods highlighted the issue that the classification of the data near the average is not reliable. In the

further development the reliability of the classification needs improvement, possibly with taking into consideration the standard error of the mean, or the other method for classification based on probabilities.

- In the current analysis I used the Craned database taken from several countries to benchmark the HR practices application. The analysis of an organization may be more accurate if it is compared to a more specific benchmark (e.g. industry, geographical region, operating sector, etc.). The organization's HR practices application profile becomes more accurate and actionable if it is benchmarked against more relevant groups of organizations. This may form the basis to design, justify or change the organization's approach to HR practices application.

- In order to improve the accuracy of the benchmark data, the data collection need to include appropriate questions to collect the input data for the model, either built into the Cranet survey or performing an independent survey. This way some of the inaccuracies resulting from the estimation of the input data may be reduced. It would also make it possible to include those practices into the model which I had to leave out of this analysis due to the lack of the adequate input data.
- During the analysis it turned out that the indicators of the deviation from market consensus show high correlation to the main model indicators (and in some cases with each other). This may be partly due to the large proportion of "market conform" organizations in the sample. However, I suggest to review the indicators measuring the deviation from the market consensus in order to ensure that they more reflective of the uniqueness of the individual organizations, and their differences from the sample averages.

- It would also make the model more sophisticated if the different employee groups are compared to their respective benchmarks (e.g. HR practices application for managers evaluated separately).

- One of the model's conclusions is that the model's main utility is to help organizations in their adaptation to the external environment. Therefore it may be a further development direction to examine how the model

relates to other indicators reflective of the external environment, such as indicators of the country's economy, labor market or competitiveness.

In summary, I am confident that the model, with the suggested further development, may be used as a tool for organizational diagnostics, which shows how the organizations HR practices application profile differs from the market consensus, and highlights its main characteristics. This could help HR practitioners and the company management to review their considerations in how they apply HR practices, thus aiding them in the adaptation to their external environment.

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