UNIVERSITY OF TWENTE.

Faculty of Behavioural, Management

and Social Studies

We have HR analytics! So what? – An exploratory study into the impact of HR analytics on strategic HRM

Master Thesis by L. Witte
M.Sc. Business Administration
Track Human Resource Management
Final Version
June 2016

First Internal Supervisor: Prof. Dr. T. Bondarouk
Second Internal Supervisor: Dr. S. R. H. van den Heuvel
External Supervisors: M. Hulshof, S. Stokkink

Acknowledgments

I would like to thank all the people that contributed to the conduction of this thesis by supporting me during the different phases of this research project. Many people have been willing to have extensive discussions with me about my ideas, made great suggestions for improvements, or were a source of inspiration due to their passion about this topic.

First of all, I would like to express my deepest gratitude to my first internal supervisor, Prof. Dr. Tanya Bondarouk, who made this whole project possible by organizing the seminar at KPMG which led to me receiving the opportunity to conduct my graduation internship at that company. During this project, she gave me the opportunity to set up my own study and supported me in the process of shaping the study to what it is now. I would like to thank her for her patience, her support, her belief in the project, and her valuable comments and feedback.

Next, I would like to thank my second internal supervisor, Dr. Sjoerd van den Heuvel, for his enthusiasm about the topic and his appreciation of my study as a contribution to the scarce academic literature on the topic of HR analytics. I feel very grateful to him for providing me with valuable comments and feedback and for helping in shaping the study to what it is now.

Then, I would like to thank the whole People and Change team of KPMG who welcomed me as a member of the team and supported me in the completion of this thesis. I am very grateful for the great time I had with the team and for the experiences that I could gain there.

Two people of the team need to be especially emphasized in this chapter. First of all, thank you to Martijn Hulshof, who enabled my internship at KPMG and the conduction of this thesis by organizing the already mentioned seminar together with Prof. Dr. Tanya Bondarouk. As one of my external supervisors, he supported my research, made suggestions for improvements, and connected me with other helpful people within and outside of KPMG. I would like to thank him for his support and for introducing me to the profession of a consultant in HRM topics.

Second, I would like to thank Sander Stokkink for his support in the conduction of this thesis. With him I had the longest discussions about the study and he supported me by challenging my ideas, making suggestions for improvements, and connecting me to the right people. I feel very grateful to Sander for his enthusiasm, all the time he spent discussing with me or helping me in another way, and his patience.

Additionally, I would like to thank all interviewees for their willingness to spend their time to help me with my study. I would like to express my deepest appreciation for getting the opportunity to conduct those interesting interviews with all of them and for the trust they put in me by sharing the information. I was inspired by their enthusiasm about the topic and enjoyed the interviews very much.

In the end, I would also like to thank my family and friends for their moral support and encouragements and for believing in me.

Prolog

This prolog serves to provide the reader with an overview of the developments of this graduation project.

The starting point was a seminar that was organized by Prof. Dr. Tanya Bondarouk in cooperation with KPMG and that took part at KPMG's head office in May 2014. During the seminar a group of students discussed about the future of HR with two employees of KPMG and received the opportunity to apply for a graduation internship at the People & Change department of KPMG. During the application process, I made a first suggestion of a graduating assignment. After being selected for the internship, I started working on the suggested research project in September 2014. The idea during that phase of the graduation project was to analyze in how far the relationships between employees, HR professionals, and line managers had changed through the introduction of electronic Human Resource Management (e-HRM) and to analyze the effects of different national and cultural settings in this context.

However, the topic was not concrete enough for my thesis and own attempts of narrowing the topic down, as well as input from several actors at KPMG, led to the first concrete research proposal of this project. The broad concept of e-HRM in general was narrowed down and two developments were chosen specifically. On the one hand, the proposal contained the goal of analyzing the influence of HR mobile applications on the relationship between line managers and employees by the means of an analysis of communication satisfaction between these two actors. On the other hand, the influence of HR analytics (HRA) on the relationship between HR and line management was going to be analyzed by using the expectancy model of motivation by Lawler and Suttle. Additionally, it was aimed at observing the effects on the relationships in different cultural settings by sending surveys to the relevant actors of international organizations.

After presenting the proposal to fellow students, the evaluation was made that the focus was still too broad and handled two separable topics. Therefore, the choice was made to focus only on the influence of HRA on the relationship between HR and line management. The newly formulated research question was now to be: "To what extent does the usage of HR analytics influence the HR function and its relationship to line managers?". The plan was on the one hand to measure the satisfaction of line management with HR advisors' roles and performed tasks by comparing the expectations of line managers in this context with line management's perceived reality of role performance by HR advisors. On the other hand, the satisfaction of HR advisors with HR analytics tools was going to be measured, and a model that explains the effect of, among others, satisfaction with the tools on the usage and individual performance, including the provision of strategic value, was going to be tested in the context of HR analytics tools. In total, the overall aim of the study was, thus, to explain the effect of HR analytics tools on the HR function in terms of the function's ability to provide strategic value as well as in terms of the function's relationship with line management. For this purpose, organizations were contacted that already used HRA and a questionnaire was designed and tested before receiving feedback from the contacted organizations. The feedback, however, led to the realization that there was not yet an effect observable of HRA on the relationship between these two actors. The progress of the implementation of HRA was not sufficient enough and line managers were not yet feeling the effects of the HRA implementation.

This realization required again a change in the strategy and a new setup of the study. Since it was not yet feasible to conduct a study analyzing the effects of HRA on the relationship between HR and line managers, it was decided to observe the effects of HRA through qualitative interviews with HR professionals. The outcome of that approach is presented in this thesis.

Management Summary

Human Resource analytics (HRA) involves the usage of data and data-based analysis as a basis for decision making in companies and is currently a hot topic in HR. Many expect HRA to be supportive in the context of HR developing into a strategic partner to the business. The importance of HR in taking on this role is emphasized also in the academic literature; however, the capability of HRA in enhancing this process is unclear due to the topicality of HRA and the fact that organizations are still at the beginning of implementing this new tool to support decision making. This study aims at providing first insights into currently felt effects after the implementation of HRA in companies that have already started using it.

This study addresses the issues of why companies implement HRA, whether HRA is leading to expected outcomes, whether HRA is helping the HR department in becoming a strategic partner to the business, and whether success with HRA is dependent on certain contextual factors. In order to answer these questions, in-depth interviews were conducted with interviewees from the HR department of companies that already use HRA.

The results of this study show that the participating companies primarily implemented HRA to become a better strategic partner, to become more fact-based, to support the business in a better way, to become more mature, or to avoid a misbalance with other departments. Expected outcomes that were mentioned by the interviewees referred to long-term goals that have not been completely realized, since not enough time has passed since the implementation, but progress was seen nevertheless. Stating the effect of HRA on the strategic partner role was hampered by the fact that many parallel developments were happening at the participating organizations. The findings generally suggest that in most companies an increase in the strategic partner role occurs, however, the interviewees could not determine exactly how much of this increase could be attributed to the introduction of HRA. More long-term studies are necessary to gain more insights into the effects of HRA in this context. When looking at the importance of certain contextual factors for the successful use of HRA, it was found that all contextual factors that were proposed as potentially important (HRA maturity, the decision-making culture in a company, support for HRA in a company) were considered as important by the interviewees. Especially support for HRA was identified as very important for HRA to be implemented and used as intended.

The interviewees in this study were all satisfied with the decision of using HRA in their companies and see progress in the achievement of expected outcomes. They all stated that they would advise other companies to invest in HRA as well. Concerning the importance of contextual factors for success, the study

suggests that companies should have a certain size in order to ensure statistical relevance of analytics results. Also, the business should be supportive and interested in analytics insights. Having an experience-based decision-making culture in place seems to be no obstacle for implementing HRA, however, the findings indicate that a culture that is already valuing facts as a basis for decision making facilitates a quicker progress. The interviews also suggested that HRA delivers more value to the business at more advanced stages of maturity, but nevertheless the insights from lower maturity levels were also already valued and led to surprising insights. Overall, most interviewees advised other companies to rather start small and show the value of HRA to the business by conducting first researches, rather than waiting for the perfect conditions. Observations from the interviewees included an increase in the support for HRA after the adoption.

Table of Contents

Table of Figures

Abbreviations

APAC	Asia-Pacific
BA	Business Analytics
CHRO	Chief Human Resource Officer
CoE	Center of Expertise
e-HRM	electronic Human Resource Management
HR	Human Resource
HR BP	Human Resource Business Partner
HRA	Human Resource analytics
HRM	Human Resource Management
IT	information technology
LM	line management
M&A	metrics and analytics
RQ	research question
SQ	sub question
SWP	Strategic Workforce Planning

1. Introduction

This study analyzes the effects of the use of Human Resource Analytics (HRA) on companies, while also considering the effects of three conditional factors on HR's ability to be successful with an adoption of HRA. HRA in this context is understood as the movement towards a fact-based culture in the HR department. Generally, the study pursues two main goals. On the one hand, this study tries to answer which effects HRA has had in the companies that participate in this study. This is approached by addressing three sub questions concentrating on the reasons and motivations for the adoption of HRA, the achievement of expected outcomes, and HRA's effect on HR becoming perceived as a strategic partner to the business. The second goal concerns the influence of three contextual factors on the chance of using HRA successfully. These factors include HRA maturity, the decision-making culture in the companies, and the support for HRA in the companies.

In the context of increasing global competition and ongoing technological advancements, the HR function has been affected by a growing need to transform and to adapt to the new competitive situation (Beer, 1997; Caldwell, 2003; Haines & Lafleur, 2008). Digitalization is a world-wide trend, which is increasingly changing the operations of businesses. Already in 1997, Ulrich identified a common evaluation among academics as well as practitioners that HR needs to "meet the challenge of change" if it wants to avoid being disbanded in the future (Shrivastava & Shaw, 2003, p. 201). The response of the HR function was to turn to technology (Shrivastava & Shaw, 2003). Along with technological developments and the internet, electronic Human Resource Management (e-HRM) emerged as a way of managing organizational HRM issues and organizations are increasingly using IT for their HR issues. The involvement of technology reinforces the transformation of the HR function by helping HR to "becom[e] more strategic, flexible, cost-efficient, and customer-oriented" (Shrivastava & Shaw, 2003, p. 201).

The globalization trend also affected the HR function. Businesses have started to realize the importance of human capital as a source of competitive advantage and therefore high quality human capital management becomes more and more important, especially for companies in high-wage countries (Bassi, Carpenter, & McMurrer, 2012; Dias & Sousa, 2015). Due to this increasing focus on human capital as a strategic asset, the HR department in general is required to "gain[…] increasing strategic emphasis" and, therefore, an "alignment [of HR] with business strategies become[s] more critical" (Dias & Sousa, 2015, p. 105). The transformation of the HR function towards playing a more strategic role by developing into a "strategic partner" has been discussed extensively in the literature (Barney & Wright, 1998; Caldwell, 2003; Ulrich, 1997).

A third development that is important in this context is the emergence of big data and business analytics as an instrument of dealing with the large amounts of data. This trend has also arrived in HR in the last years. HR analytics (HRA) is part of the overall trend of evidence-based decision making and involves the use of data and statistical analysis to make decisions about HR practices based on facts (Davenport & Harris, 2007). The technological development of HRA is considered as potentially important in enabling HR to increase its strategic value, become more effective, and to start speaking the "language of business" (Muscalu & Serban, 2014; Schramm, 2006). Fitz-Enz (2010, p. 8) even asserts that "if you do not speak the same language as your audience, you cannot make an impression"; thus this implies that HR cannot truly "be part of the business" if they do not speak the same evidence-based language of metrics as other departments, such as Finance, do.

HRA is still a rather new trend in the domain of HR. This can also be observed when looking for literature on the topic. The amount of scientific articles on the subject is still quite small and empirical studies actually testing the effects of HRA adoption on the HR function are lacking. More specifically, a search in the 'web of science' with the term "HR analytics" delivers only 18 results, from which only eight actually discuss the topic of HR and only four contain the term "HR analytics" in their title. Related terms, such as workforce analytics (two results) or strategic workforce planning (zero results) show a similar trend. Despite the fact that HRA is not a prominent topic in the academic literature, the already mentioned perceived pressure to adapt to the changing landscape and to adopt the role of a strategic partner to the business is increasingly felt by practitioners. Bassi et al. (2012) stress the two sides of the coin the HRA emergence. On the one side, they state that the big data movement and advanced software applications provide the opportunity for the emergence of data-based decision making. On the other hand, there is also an increased necessity for HR to start with HRA, due to the pressure from the business which considers human capital more and more as the factor to gain a competitive advantage. Generally, analytics and data-based decision making are often linked to an increase in HR's possibility to act as a strategic partner in the literature (e.g. Bassi et al., 2012).

Also empirical studies, such as the study by Deloitte Consulting LLP and Bersin by Deloitte (2014), show the evaluation from the practitioners' points of views on the importance of HRA with surveys which were spread to companies. However, studies also show a large discrepancy between companies' perceptions regarding the importance of the trend and their self-evaluation in terms of readiness. This is also portrayed in the percentage of companies that have actually achieved higher maturity levels of HRA. Bersin, O'Leonard, and Wang-Audia (2013) disclosed that only 4% of organizations that are already making use of

HRA are already also making use of predictive analytics and another 10% are making use of advanced analytics.

These observations, with the perceived pressure to engage in the topic and to become to an increasing extent a strategic partner to the business on the one side, and the currently still low adoption rates of real analytics on the other side, raise the question of the actual effectiveness of HRA in practice. Due to the topicality of HRA, the knowledge on the development and its effects for the HR function is still scarce in the literature. The HR function itself considers the trend to be potentially game-changing and a significant instrument towards becoming perceived as a strategic partner to the business, but whether this will hold true in the end is yet another question. This study aims at exploring which effects the adoption of HRA actually has on the HR function. The term adoption, in this context, refers to the implementation and use of HRA in the company.

The importance of such a study is both of theoretical, as well as of practical nature. In the literature, the transformation of HR towards becoming a strategic partner is a popular topic and has already been linked to the combination of IT with HR. Theoretically, this study will contribute by analyzing through interviews with companies which effects HRA actually has on the companies, among others also on the strategic partner role. From a practical point of view, this study can be a help for organizations that are considering the adoption of HRA to evaluate priorly whether they will be likely to achieve their goals with it.

This thesis consists of six chapters. The second chapter contains a review of the literature, including the specification of the research focus und the research questions. Also the relevance of the study from a theoretical and practical point of view is explained in more detail in the second chapter. The third chapter explains the methodology of the study, including the research design, the case selection and sampling method, the data collection, the data analysis, and the trustworthiness of the study. The fourth chapter presents the findings from the interviews with practitioners and the fifth chapter discusses the findings in the context of the expectations from the second chapter and answers the research questions. In the sixth chapter a conclusion is provided, including a discussion of the limitations of the study and recommendations for future studies.

2. Literature Review

This chapter aims at providing an overview over the literature that exists on the topic of HRA. Generally, HRA is also referred to as “human capital analytics”, “people analytics”, or “workforce analytics” (Bassi et al., 2012; Pemmaraju, 2007) and belongs to the overall development of “evidence-based management” and Business Analytics (BA) as a whole (Bassi et al., 2012). Therefore, this chapter starts by defining what Business Analytics in general is.

2.1. Definition Business Analytics

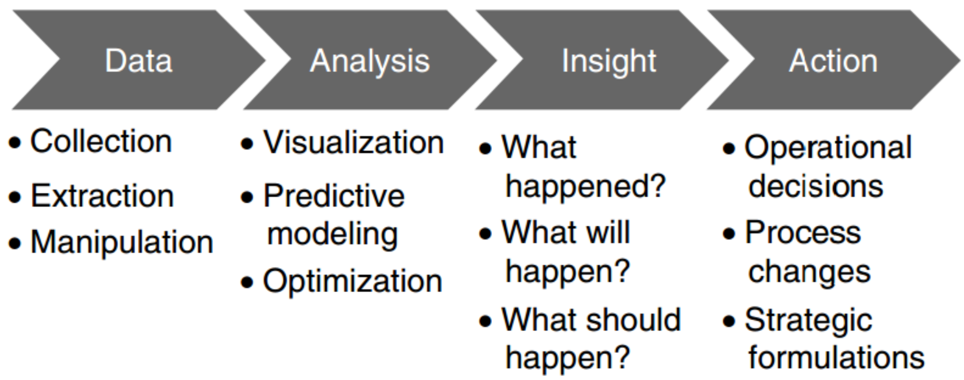
Analytics generally refers to conducting logical analysis (Liberatore & Luo, 2010) and is discussed in the literature as “any fact-based deliberation which leads to insights […] and possible implications for planning future actions in an organizational set up” (Banerjee, Bandyopadhyay, & Acharya, 2013, p. 1). A widely cited definition of analytics comes from Davenport and Harris, who describe analytics as “the extensive use of data, statistical and quantitative analysis, explanatory and predictive models, and fact-based management to drive decisions and actions” (Davenport & Harris, 2007, p. 7). Pfeffer and Sutton (2006) stress the possible impact of evidence-based decision making as “chang[ing] how every manager thinks and acts” and Davenport, Harris, and Morison explain that this results from changing the basis of decision-making from ‘gut feeling’ and intuition to objective data and analysis (Bassi et al., 2012, p. 12).

These citations represent the view of analytics as a “decision paradigm” as summarized by Holsapple, Lee-Post, and Pakath (2014). However, there are different angles from which analytics has also been defined in the literature. Fitz-Enz (2010, p. 4), for example, explains analytics as a “mental framework” which consists of “a logical expression” on the one hand and on the other hand of “a set of statistical tools”.

In Holsapple et al. (2014), the authors set up an overview of different dimensions or classes of definitions that exist in literature. These range from BA as a movement (including definitions that stress the underlying culture and management philosophy involved in BA), BA as a collection of practices and technologies (here, analytics is primarily associated with the necessary statistical tools needed to conduct analyses), BA as a transformation process (where the transformational process of data into insights that form the basis of decisions and actions taken is highlighted), BA as a capability set (referring to BA as “the use of analysis, data, and systematic reasoning to make decisions”), BA as specific activities (stressing “accessing, aggregating, and analyzing large amounts of data from diverse sources to understand historical performance or behavior, or to predict – or manage – outcomes”), and, as mentioned before, BA as a decisional paradigm (where BA is stressed as “data-based decision making, or “the part of decision management that involves logical analysis based on data to make better decisions” (Holsapple et al., 2014, p. 133).

Another relevant definition has been set up by focus group members in a study conducted by Bichsel (2012). It advocates analytics to be seen as a process rather than just metrics. The analytics process is described in a detailed way as “(a) starting with a strategic question, (b) finding or collecting the appropriate data to answer that question, (c) analyzing the data with an eye toward prediction and insight, (d) representing or presenting findings in ways that are both understandable and actionable, and (e) feeding back into the process of addressing strategic questions and creating new ones" (p.6). This definition is useful to understand the steps involved in the process and is therefore useful for defining what analytics actually is. A similar process view of analytics is used by Liberatore and Luo (2010) and visualized in Figure 1.

Figure 1: Process view of analytics



Source: Liberatore and Luo (2010, p. 314)

In summary, there is thus not one universally agreed upon definition of BA, but several definitions stress different aspects or dimensions of the concept. BA can be understood as a decision paradigm, a mental framework, a movement, a collection of practices and technologies, a transformation process, a capability set, and specific activities, as was already elaborated. In this study, BA is defined as "the extensive use of data, statistical and quantitative analysis, explanatory and predictive models, and fact-based management to drive decisions and actions" (Davenport & Harris, 2007, p. 7).

2.2. Definition HR analytics

In order to clarify the difference between BA and HRA, Holsapple et al. (2014) classify HRA as one domain of BA. Next to using analytics in HR, there are other domains where BA is being applied to, including "marketing, […] business strategy, organizational behavior, operations, supply chain systems, information systems, and finance" (p.132). Due to the relation of HRA as an application domain of BA, the above mentioned classes that can be found in definitions of BA can be expected to also apply to HRA.

Fitz-Enz (2010) contrasts HRA not only to BA, but also takes into consideration the area of HR metrics, which he himself first introduced in 1978. Metrics, he states, are "the language of organizational

management" (p.8) and therefore its usage enables HR to adopt a language that is being understood in the whole organization. HRA, he states, can be considered as "an outgrowth of and marriage between human resource metrics and general business analysis" and, thereby, functions as a door opener for a broader, more useful way of looking at metrics (p.15). Whereas in the past metrics focused only on labor issues' relation to the business plan, HRA allows the inclusion of "all BI data to both support the delivery of human resource services and influence the behavior of all levels of employees" (p.15) Due to this relation of HRA with metrics, HRA is also being described by him as a "communication tool" (p.9).
According to Bassi et al. (2012, p. 11), HRA can be understood as "the application of a methodology and integrated process for improving the quality of people-related decisions for the purpose of improving individual and/or organizational performance". Furthermore, Bassi et al. (2012) add that HRA "relies on statistical tools and analysis" and cite other authors' views on HRA. Wayne Cascio and John Boudreau, e.g., stress the aim of "drawing the right conclusions from data", which implies that not only statistical tools are important, but that also the skills and competencies of the people involved in HRA are important (Bassi et al., 2012, p. 11). Fitz-Enz (2009, p. 1) define HRA as "a method of logical analysis that uses objective business data as a basis for reasoning, discussion, or calculation" with the ultimate goal of "predict[ing] and direct[ing] business outcomes". The dictionary of Techopedia adds to the already mentioned definitions that HRA involves "the hope of improving employee performance" through the application of analytics to the HR department, with the ultimate aim of "provid[ing] insight into each process by gathering data and then using it to make relevant decisions about how to improve these processes" (Janssen, n.d.).
BA and HRA are not two separate things; rather, HRA could be summarized as a specific application area of BA, where BA is used in the context of dealing with HR related questions.

Based on the discussion above, it can be concluded that definitions of (HR) analytics stress the inclusion of statistical tools to analyze large amounts of data with the aim of achieving data-based decision making, but are also as diverse as definitions of BA. For the purpose of this study, HRA is understood as the "extensive use of data, statistical and quantitative analysis, explanatory and predictive models, and fact-based management to drive decisions and actions" (Davenport & Harris, 2007) in HRM, by analyzing HR and business data with the goal of predicting and directing business outcomes and employee performance. Furthermore, HRA is used in order to "improv[e] the quality of people-related decisions for the purpose of improving individual and/or organizational performance" (Bassi et al., 2012, p. 11). The process of HRA involves gathering of data, analysis, visualization of insights, predictive modeling, and taking actions e.g. in the form of formulating a strategy on how to deal with issues in the future.

2.3. Analytics Maturity

Another aspect that is discussed in the literature is the types of analytics or orientational dimensions of analytics that are related to different stages of analytical maturity. Holsapple et al. (2014) refer to a study by Capgemini and differentiate between three orientations: descriptive analytics, predictive analytics, and prescriptive analytics. Phillips-Wren and Hoskisson (2015) refer to the same three types. Banerjee et al. (2013) even identify four types of analytics depending on the outcomes of the analytics process: descriptive analytics, diagnostic analytics, predictive analytics, and prescriptive analytics.

The basic difference between these types of analytics is the focus on a certain type of data, like historical data in the case of descriptive analytics, where data are being analyzed to answer the question of "What happened?" in contrast to being more future oriented. The purpose of descriptive analytics is "to understand past and current business performance and make informed decisions" (Evans & Lindner, 2012).

Predictive analytics, on the other hand, is concerned with "seek[ing] options for future business imperatives, predict[ing] future outcomes, and explain[ing] drivers of the observed phenomena using statistical or data mining techniques" (Banerjee et al., 2013, p. 2). Generally, the performance of the past is being analyzed and patterns in the relations between data are uncovered in order to set up a planning on how to deal with these relations in the future (Evans & Lindner, 2012). Special about predictive analytics is its ability to "predict risk and find[…] relationships in data [that are] not readily apparent with traditional analyses" through the help of advanced techniques (Evans & Lindner, 2012). Predictive analytics is the type of analytics that is most frequently discussed in the literature, but there are still not many empirical examples of good predictive analytics at the moment (Banerjee et al., 2013).

Prescriptive analytics even goes beyond predictive analytics by also "suggest[ing] what courses of action may be taken in the future to optimize business processes in order to achieve business objectives" (Banerjee et al., 2013, p. 2). Generally, prescriptive analytics makes use of optimization in order to "identify the best alternatives to minimize or maximize some objective" (Evans & Lindner, 2012). In this type of analytics, predictive techniques together with optimization enable the company to base decisions on data while accounting for the uncertainty that exist in this data. Questions like "How much should we produce to maximize profits?" can be addressed with this type of business analytics (Evans & Lindner, 2012).

Descriptive, predictive and prescriptive analytics are not mutually exclusive, but can all be used together when facing decisions in business (Evans & Lindner, 2012). Overall, the more mature an organization is in terms of its conducted analytics, the more it moves up the maturity ladder of analytics.

Another way of classifying maturity levels is proposed by Bersin by Deloitte. In their study, Bersin et al. (2013) differentiate between Operational Reporting (Level 1), Advanced Reporting (Level 2), Advanced Analytics (Level 3), and Predictive Analytics (Level 4). An overview of their classification is presented in Figure 2.

Fitz-Enz (2010) describes the stages of analytics up to predictive analytics as the highest level. His classification describes the necessary process to arrive at the final stage and at the same time it can also be understood as a way of classifying maturity levels. He set up five steps of analytics, starting with recording your work (step 1) by measuring e.g. how efficient HR's hiring, paying, or training processes are. In step two, HR's results are being linked to the organization's goals, so that the value of HR processes can be shown in terms of "its impact on QIPS goals" (quality, innovation, productivity, service) (p.10). In step three, companies compare their own results of their analysis with those of comparable companies as benchmarks. Step four consists of "understanding past behavior and outcomes" and is therefore termed descriptive analytics (p.10). The author states that this stage represents "the first level of true analysis" (p.10). At this stage, companies explore "relationships among data without giving meaning to the patterns" (p.10). Thus, first trends are being discovered but no future predictions can be made without risk. At the final stage, stage five, companies reach the level of predictive analytics, where "future likelihoods" are being predicted by relating "what we know to what we don't know". Fitz-Enz (2010, p. 10) describes this process as the ascription of "meaning to the patterns observed in descriptive analysis".

However, these are not the only ways of classifying analytics' maturity of organizations. An alternative classification that concerns the maturity of metrics used in the analytics process is presented by Lawler, Levenson, and Boudreau (2004). These authors differentiate between efficiency, effectiveness, and impact metrics that organizations can make use of, where efficiency metrics that are aiming at measuring the HR functions performance regarding its administrative tasks are considered to be "easiest" to collect, since they are useful to evaluate the HR function "as a stand-alone business" (Lawler et al., 2004, p. 2). The second type, effectiveness metrics, looks at the effectiveness of HR programs and HR practices, therefore evaluating whether these are having the "intended effect[s] on the people or talent pools toward which they are directed" (Lawler et al., 2004, p. 3). One example of an area in which this type of metrics is useful is the area of talent management. Effectiveness metrics have the potential to "influence the development and implementation of business strategies" and thereby can be considered a more mature type of measurement. The last type of metrics, impact metrics, is used when measuring the impact of HR programs and practices on "developing and optimizing the capabilities and the core competencies of the organization" (Lawler et al., 2004, p. 4). The authors clarify HR's important role in the development of these capabilities due to the dependence of these core competencies on talent, which in turn is influenced by HR practices.

In general, these classifications are not necessarily mutually exclusive in their use to identify the maturity level of a certain company, but can also be combined as they address the maturity of different areas of HRA. For example, the maturity of the metrics can be analyzed, additionally to the maturity of the analytics stage as described in Figure 2 by Bersin et al. (2013). The topic of different levels of maturity is included in this literature review, since the effects of HRA on a company could potentially depend on the progress they have made in terms of analytics maturity. Whether this is indeed true will be one subject of this study, but generally the expectation could be formulated that companies are more affected by the adoption of HRA if they have moved along the maturity curve of analytics and use the method at a more sophisticated stage.

Figure 2: HR analytics maturity model and implementation progress

Source: Bersin et al. (2013)

2.4. Reasons for emergence and statistical data on adoption of HRA

Concerning the question whether HRA gains popularity at the moment, Bassi et al. (2012) point out both an opportunity as the reason for the emergence, as well as a necessity. As an opportunity, the whole big data movement with the "growing availability of readily accessible data", along with more advanced software applications allows for an increase in data-based decision making and the emergence of insights and intelligence derived from data (p.12). On the other hand, the already mentioned pressure on HR to adopt a core position in the process of gaining a competitive advantage after the realization that human capital is central in achieving competitive advantages in the future creates the necessity for HR to engage in predictive analytics. According to Bassi et al. (2012), the current "new world of accountability" requires HR to "put some hard science around issues that have traditionally been thought of as difficult to quantify" (p.13). "Old HR measures, such as head count, the cost of compensation and benefits, time to fill, and turnover" (p.13) are no longer being considered as sufficient in this new world for the creation of shareholder value and in the alignment of "people decisions with corporate objectives" (Bassi et al., 2012, p. 13). Many HR practitioners are also hoping that HRA will be a "way to prove the value of the HR function and/or its programs", according to Bassi et al. (2012). However, the authors criticize this as not being a wise goal for the adoption of analytics, but stress that the ultimate goal should be the promotion of individual and firm performance. Using HRA in order to prove the value of the HR function or "to justify [the HR function] itself" comes with the risk that executives view the results of HRA suspiciously (Bassi et al., 2012).

The consideration of HRA as an important trend among companies has repeatedly been measured in recent years. In a global study including HR leaders from 94 countries, Deloitte analyzed the perceived urgency of twelve global HR trends in 2014 (Deloitte Consulting LLP & Bersin by Deloitte, 2014). Talent and HR analytics were placed as the number six priority by the study subjects, with 20% ranking the trend as urgent and 51% as important. Only 6% of the respondents considered HRA as being not important to them. On the other hand, Talent and HR analytics was ranked lowest in terms of organizational readiness for this trend. 46% of respondents stated that they were not ready for HRA, whereas only 11% considered themselves ready. In the repetition of their study in 2015, the discrepancy between perceived importance (66%) and perceived readiness (35%) scored -31%, a figure that is comparable to the results of 2014 (-30%) (Deloitte University Press, 2015). The study of 2015 measured that HR and people analytics is considered most important in Africa (72%), Southeast Asia (71%), and Latin & South America (70%), whereas its importance scored lowest in Central & Eastern Europe (60%) and Western Europe (60%). The 2014 study came to different results, possibly due to a different use of analytics as Talent and HR analytics instead of HR and People Analytics and different competing global trends; here, Talent and HR analytics were ranked as one of the top five most important trends in North America (47%), Western Europe (41%) and Asia Pacific (40%), whereas in e.g. Africa only 21% of respondents considered it as among the top five trends. Sierra-Cedar (2015), on the other hand, showed the application adoption of Workforce Analytics/Planning in a comparison between different regions; here, APAC are leading with an adoption rate of 15%, followed by Europe and the Middle East with 14%, and the USA with 12%. Canada is far behind with an application adoption rate of only 4% according to their study.

Both studies by Deloitte show that the differences between the industries are not that big, even though in both cases financial services, professional services, and technology, media & telecommunications score slightly higher than the other industries. Different than in 2015, however, life sciences and health care score highest with 80% of respondents from that industry considering Talent and HR analytics as a priority in 2014. Other studies report different figures for industry comparisons of analytics usage in HR. Sierra-Cedar, for example, reports the application adoption of Workforce Analytics/Planning by industry in 2014 and comes to the result that the worldwide average adoption rate is 12%, whereas the highest adoption rate can be found with 19% in Retail and Wholesale and the lowest in Agriculture, Mining, and Construction (3%) (Sierra-Cedar, 2015, p. 20). Similar to Deloitte's findings, however, Financial Services and Health Care score second best in application adoption with 15% each, followed by High-tech with 14%. In general, there thus are some observable differences between the different industries concerning HRA adoption, but generally adoption is still quite low overall.

Sierra-Cedar (2015) also compared the adoption of Workforce Analytics/Planning of different company sizes, with the result that large organizations (10,000+) are leading with an adoption rate of 17%, compared to medium organizations with 11% and small organizations (<2500) with 9%.

In 2014, Deloitte studied the discrepancy in perceived readiness of the HR function by both HR and non-HR leaders. The results show that HR considers itself more ready (41%: "not ready", 12%: "ready") than non-HR leaders (57%: "not ready", 7%: "ready") (Deloitte Consulting LLP & Bersin by Deloitte, 2014, p. 16). Nevertheless, these figures show that the largest proportion of both groups consider HR to be not ready for HRA. Next to readiness and perceived importance scores, Deloitte also reflects upon the current state of HR analytics capabilities. In 2015, 8.44% report strong HRA capabilities, 35.48% report they are "under active development", 25.06% state they are "planning how to proceed", 34.53% report limited capabilities and 6.49% are not considering analytics at this time (Deloitte University Press, 2015, p. 10). Generally, changes between 2014 and 2015 are rather minor in this context; mostly changes amount to either an improvement by about 4 % compared to the previous year or a decline by about 4%.

Organizations' progress in terms of analytics maturity has been studied by Deloitte as well. In their study from September 2013, Bersin et al. (2013) observed that only 4% of organizations that are using any form of HRA in their study are currently conducting predictive analytics, and only 10% advanced analytics. More detailed information on the distribution can be found in Figure 2.

These figures show us that even though HRA is generally being considered as an important trend by most companies, adoption is going slowly. Especially in terms of analytics maturity, there is still a far way to go until predictive analytics is the norm among a high proportion of organizations. Currently, with only about 4 % adoption, organizations that are able to base strategic decisions on predictive analytics are still a small minority.

2.5. HRA and HR as a strategic partner

As a reason for adoption, Lawler et al. (2004) state that HRA helps with clarifying the impact of HR practices and policies on organizational performance and is therefore considered as "a powerful way for HR functions to add value to their organization" (p.4). They consider the ability of the HR department "to show the bottom line impact of its activities" as the "Holy Grail" for HR in influencing business decisions and business strategies. HR is often perceived as the soft and fuzzy side of business (Tootell, Blackler, & Toulson, 2009) and is sometimes also accused of only producing costs without adding real value. In order to prove the value added by HR, HRA is said to help HR with measuring HR in financial terms (Tootell et al., 2009). According to Lawler, HRA's value lies in the application of statistical techniques that have the potential "to be used to tease out the causal relationship between particular HR practices and such performance metrics as customer satisfaction and […] the profitability of particular business activities" (Lawler et al., 2004, p. 4). This implies that HRA can be considered as an important instrument for HR towards becoming a strategic partner to the business.

Before investigating the current knowledge about the effect of HRA on the strategic role of HR, a definition of what HR as a strategic partner actually means is necessary. A famous author in the context of HR roles and the transformation thereof is Dave Ulrich. The main characteristic that Ulrich and Brockbank (2005) stress about the strategic partner role is HR's partnership with line managers in this role. Strategic partners, according to them, are "business literate and savvy" (p.212) and aim at supporting line managers to achieve their goals. Another aspect concerns knowing about the customers of the present and the future, being able to align the resources of the organization with these demands, and formulating strategies based on this knowledge. Through "focusing on the right decisions and by having an informed opinion about what the business needs to do", strategic partners are able to contribute to the formulation of "winning strategies" (Ulrich & Brockbank, 2005, p. 212). A third factor concerns the execution of strategy, in which strategic partners help with the accomplishment of the vision and mission of the organization "by aligning HR systems" (p.212). Therefore, Ulrich and Brockbank (2005) also associate the strategic partner with a system integrator. A fourth task of strategic partners is to ensure the participation of "the right people in strategy decisions" in order to assist in the strategy development process. As a fifth point, strategic partners also fulfill the role of the change agent through "diagnos[ing] organization problems, separate symptoms from causes, help set an agenda for the future, and create plans for making things happen" (p.212). A sixth task refers to strategic partners as internal consultants and facilitators. Here, leaders are advised by the strategic partner in terms of which actions need to be taken in which way and the strategic partner helps the leaders in the management of the change process. Therefore, Ulrich and Brookbank also refer to the strategic partner as a "rapid deployment specialist" requiring HR to also being "practice masters for getting things done" (p.212). This aspect stresses strategic partners' role as coaches with the task of "shaping points of view and offering feedback on progress" (p.212). The last aspect of HR as a strategic partner concerns the "dissemination of learning across the organization" through "generating and generalizing ideas with impact" (p.213).

This definition of strategic partners and the tasks that are to be fulfilled by HR if they want to be accounted for as strategic partners are useful when measuring HR's actual progress so far in terms of strategic partner role adoption.

An addition is provided by Lawler and Boudreau (2009) in their study of "What makes HR a strategic partner". Among others, they set up a list with strategic activities that they found to be correlated with HR's role in strategy and which is thereby useful when measuring the evolution of the strategic partner role of HR. These activities include (1) to "identify or design strategy options", (2) to "decide among the best strategy options", (3) to "plan the implementation of strategy", (4) to "design the organization structure to implement strategy", (5) to "identify new business opportunities", and (6) to "assess possible merger, acquisition or divestiture strategies" (p.6). All of these activities were significantly correlated with HR's role in business strategy according to Lawler & Boudreau's study.

Contrary to the discussion on the importance of HR becoming a strategic partner to the business, studies observed that the progress of HR towards becoming a strategic partner is very slow (Lawler et al., 2004). In their study of 2004, Lawler et al. conduct research about the metrics that were used by HR functions at that time and the effect of that usage on HR as a strategic partner. They claim that HR "lack analytic models that show the relationship between HR practices and the effectiveness of the organization" (Lawler et al., 2004, p. 1) and find out that there was "room for improvement" in the organizations that participated in their study since they were not yet sufficiently able to "gather and analyze the types of metrics data that are needed in order for HR to be a strategic partner" (p.10). In their study, Lawler et al. found that organizations were mostly using efficiency metrics, whereas effectiveness metrics were most important for HR to prove their added value and become a strategic business partner. Additionally, they reported that HR departments lacked the right metrics and analytical capabilities.

Generally, the empirical study by Lawler and Boudreau (2012) shows the progress HR has made with regard to time spent as a strategic business partner. From 1995 to 2010, that time has increased from 22.0% to 26.8% according to their findings. Additionally, they measured the role of HR in Business Strategy and came to the result that in 31.0% of the studied organizations, HR has a full partner role, in 47.3% an input role, in 17.4% an implementation role and in 4.3% no role at all. In this case, the figures from 2010 compared to 1998's figures have not really changed much; on the contrary, the authors even found that compared to 2001 (41.1% reported to be a full partner) HR even seem to have lost their full partner role in some organizations. Another part of their study deals with the relationship between HRA and metrics use to organizational performance. Here, their outcomes show that especially impact metrics, but also several effectiveness metrics, can be associated with improved organizational performance, whereas efficiency metrics did not show a significant effect on organizational performance. In their conclusions, the authors summarize that organizational effectiveness can be increased if HR acquires a "full partner" role in organizations, uses IT, advises the business based on analytics, bases talent decisions on insights derived from data, and if the human capital strategy is integrated with the business strategy (Lawler & Boudreau, 2012).

All in all, the knowledge about the relationship between HRA usage and HR as a strategic partner for the business is still scarce. HRA is often classified as still being "in its infancy", therefore sufficient empirical evidence for this relationship has not been collected.

2.6. Research Focus

As already elaborated, HRA is considered as a fact-based decision-making method with the goal of "improving the quality of people-related decisions for the purpose of improving individual and/or organizational performance" (Bassi et al., 2012, p. 11). Thereby, HR departments expect to be able to act as a better strategic partner to the business. Many HR departments also consider HRA to be an instrument towards showing the value they add to the business, even though this should not be taken as a motivation to start with HRA, since it endangers the “credibility of any findings” according to Bassi et al. (2012, p. 13). Nevertheless, these goals stress the importance of HRA for HR departments and the hopes they set on it. Several studies have already reflected on problems that exist in the measurement process of HRA due to the selection of metrics and the lack of analytical capabilities in HR departments; however, evaluations of HR’s perceptions of their strategic role after the introduction of HRA are still lacking in literature. Next to the specific expectation of an increased ability of acting as a strategic partner to the business, a general analysis of the effects of HRA on companies is necessary in order to evaluate whether HRA is keeping up with the expectations of the executives.

2.6.1. First Goal: Effects of HRA on Companies

Therefore, the first goal of this study is a qualitative analysis of HRA’s effects on companies. This is approached from several angles.

First of all, organizations that are already using HRA are asked about their reasons for adopting HRA in terms of the goals they were hoping to achieve with the help of analytics. Secondly, these expectations are compared to actual achievements in terms of realizing these outcomes. By comparing the motivations of companies to start with HRA or the expected outcomes to the actually achieved outcomes, conclusions can be drawn on the extent to which companies can already see an impact of HRA in expected ways. Thirdly, since an increased ability in acting as a strategic partner to the business inhabits such a prominent position in the literature as well as in HR’s motivation to start with HRA and a lack in actual findings on this topic, this study puts a special focus on HRA’s impact in this context. This shall provide advice to organizations that are still considering an adoption of HRA, on the one hand, and provide evidence for the effects of HRA in this context, on the other hand.

Since it has already been realized in the literature that adoption is considered to be still in its infancy and especially that the rate of more mature types of analytics, such as predictive analytics, is not yet achieved by the largest proportion of organizations, no specific maturity level of HRA is set as a precondition for selecting participants. The study aims at discovering a realistic view of the achievements in terms of the strategic partner role in organizations through HRA at the moment and since not many have been able to achieve the predictive analytics stage, it is closer to reality and more insightful for organizations that are currently considering an adoption of HRA themselves to sketch the progress of strategic involvement of HR also in earlier phases of HRA adoption.

Derived from the above explained first goal of the study, the main research question arises:

***RQ:* Which effects does the use of HRA have on companies?**

In order to answer this main question, a set of sub questions is addressed in this study derived from the topics outlined above:

***SQ 1:* Why do companies implement HRA?**

***SQ 2:* Is HRA leading to expected outcomes?**

***SQ 3:* Is HRA helping the HR department in becoming a strategic partner to the business?**

2.6.2. Second Goal: Conditional Factors for HRA Success

Since the low adoption rate of HRA has already been addressed, the question arises whether only organizations with certain characteristics are likely to use HRA for their advantage or whether every company could use HRA to extract the expected advantages out of it. HR departments in general pursue the wish of being able, in a better way, to prove their value to the business and to be approached as partners in the development and execution of the business strategy. But are all organizations also likely to have the same potential to achieve this through HRA or do certain characteristics favor this achievement?

In order to include this in the study another sub question is added:

***SQ 4:* Is success with HRA dependent on certain contextual factors?**

As a first step of investigating possible contextual factors, organizations that already adopted HRA were asked to describe different predefined organizational characteristics and analytics characteristics that have been discussed in the literature in connection with BA or HRA. Furthermore, the organizations with experience in the area of HRA adoption were also asked to evaluate the importance of these factors for being potentially successful with HRA from their point of view. This evaluation was carried out by asking the interviewees which factors they considered as influential and important for being successful with HRA as an entrance point. The aim of this is to explore possible factors that influence the success of organizations with HRA. Ultimately, this will help organizations that are considering the adoption of HRA to judge whether they are likely to be successful. In a second step, the focus is pointed towards three topics that appeared as potentially influential in the literature. Thus, sub question four (SQ 4) is being addressed from three different angles.

2.6.2.1. HRA maturity as a conditional factor

The first issue that is being considered as a potential conditional factor influencing the chances of a company to use HRA for their advantage is the issue of HRA maturity. HRA adoption follows a certain development path from descriptive analytics to predictive analytics and prescriptive analytics. Generally, the more mature HRA becomes, the more HR can show its strategic impact and help with developing future-oriented strategies for HR-related issues, such as strategic workforce planning. From this description, the logical conclusion follows that the more mature HRA is, the more strategic impact the HR function can have, and therefore the more HR is being considered as a strategic partner. On the other hand, empirical studies have documented that in reality, HR departments are slow in achieving high levels of HRA maturity due to several problems with the measurement of the right metrics or a lack of analytical capabilities in the HR department. From this finding, the question emerges whether this means that organizations have not yet been able to achieve their goals connected to HRA adoption, especially whether it means that HRA has not yet helped HR with becoming perceived as a strategic partner to the business. In terms of metric maturity, the study by Lawler et al. (2004) already showed a relationship between the presence of effectiveness and impact metrics and the role of HR as a strategic partner. On the other hand, organizations that were making use of only efficiency metrics also showed a higher tendency of being a strategic partner than organizations that were not making use of analytics at all, however the differences were declared as not statistically significant. Based on these insights, the following question can be formulated as a guidance:

<u>SQ 4.1: Is success with HRA dependent on HRA maturity?</u>

In general, getting an overview of actual experiences of HR departments also at earlier stages of HRA maturity in terms of their evaluation of their progress in being perceived as a strategic partner will indicate whether HRA is indeed a good instrument for achieving the strategic partner role or whether organizations are likely to be disappointed with the ability of HRA in showing the strategic value of the HR function if they do not exceed a specific level of maturity. Therefore, HRA maturity is the first context in which the relationship between HRA adoption and HR’s strategic partner role will be observed.

2.6.2.2. Decision-making culture as a conditional factor

Several issues have already been connected with being helpful for organizations to implement HRA or also as facilitators for the adoption of analytics (Banerjee et al., 2013). One of these suggested facilitators and therefore a likely potential influencer of HRA success in terms of outcome achievement is the decision-making culture of an organization. Generally, two types of cultures are differentiated. On the one side, there is the rational decision-making model, where decisions are based on quantitative information (Popovič, Hackney, Coelho, & Jaklič, 2012). This type of decision-making culture is also referred to as evidence-based decision making (Vihari & Rao, n.d.) or analytical decision making (Popovič et al., 2012). The other extreme is non-rational decision making, in which "most information is not actually used in decision-making" (Popovič et al., 2012, p. 732), but instead decisions are made based on experience and instincts or 'gut feeling'. Historically, HR departments have mostly acted based on instinct and experience rather than data-based decision making. Generally, HRA requires basing decisions on insights derived from data analytics; thereby it involves evidence-based decision making. This evokes the expectation that HRA is better suited for companies that have a rational way of decision making or that are valuing decisions based on data higher than based on instincts. Companies with a culture that values evidence-based decisions are therefore expected to be more successful with adopting HRA. Additionally, it could be expected that these types of companies can also profit more or quicker from beginning with HRA, for example in the sense that here HRA is also quicker at helping HR to adopt the strategic partner role, since data-funded decisions are valued in these types of organizations and provide the right type of proof as a basis for strategic decisions of the organization. To clarify whether these expectations are true or whether HRA is as highly acknowledged in non-rational cultures, this study will take decision-making culture as a second context in which the analysis will be conducted.

SQ 4.2: Is success with HRA dependent on the decision-making culture of a company?

2.6.2.3. Support as a conditional factor

A third issue that is of interest in connection to HR being perceived as a strategic partner is the support by top management for HRA and data-based decision-making in HR. Both a lack of support by the management and resistance from other stakeholders can be hindering the success of HRA according to a study by Tootell et al. (2009). Since HR wants to be perceived as a strategic partner to management, management's opinion and support are relevant for the success of achieving this role through the adoption of HRA. If management does not support or value the change in HR's way of decision-making, it is expected to be unlikely that HR will achieve a higher level of strategic partnership through the implementation of HRA. To validate this and to explore the effect of organizational support to a greater extent it will be adopted as a third context in this study.

SQ 4.3: Is success with HRA dependent on the support by the stakeholders?

2.7. Relevance of Study

2.7.1. Theoretical Relevance

The scope of scientific articles dealing with the topic of HRA is still quite limited. Considering the interest in and the hype around the topic this is rather surprising; however, the topicality of the subject and the scarcity of long-term experience of companies with the actual effects of HRA on their operations can be considered as reasons for this gap in the literature. This study aims at exploring, in a qualitative way, which effects of HRA have already been observed in companies. Such insights are important from a theoretical point of view, since HRA is being handled as an important instrument in the process of HR increasingly becoming a strategic partner to the business. In order to test this assumption, this study analyzes the experiences of companies with the effects. However, a broad scale testing of this relationship is not yet feasible, due to the rather low percentage of companies that are actually using HRA at this moment in time. Nevertheless, an exploratory study including qualitative interviews with companies can deliver first insights into the effects of HRA on the position of the HR function.

2.7.2. Practical Relevance

As already mentioned, surveys show that the majority of companies consider HRA as an important trend and as a necessity to invest in in the future. However, there is a large discrepancy observable between the perceived readiness for the adoption of HRA and the percentage of companies who consider the topic important. This means that there are still many companies that aim at adopting HRA in the future when the readiness has risen. Studies have also shown that many academics as well as practitioners feel a necessity to invest in this development if HR does not want to lose its ground, but instead start speaking the language of the business and become more important in strategy development and achievement. The importance of human capital is increasingly being acknowledged and more and more companies start investing in the tools to engage in data, metrics, and analytics in the field of HR. However, before such investments are being considered, companies should know whether HRA can help them in achieving their goals. Without an analysis of the actual effects of an HRA adoption, companies cannot be sure that their investment will pay off in the aspired extent in the end. Therefore, this study can also be considered as delivering valuable insights for companies that are at the stage of deciding whether an investment in HRA is the right step for them. Analyzing the effects on the one side and the influence of contextual factors on the other, this study can be used as input for companies when deciding on their likelihood of success with HRA.

3. Methodology

3.1. Research Design

This study aims at conducting an in-depth analysis of the effects that the adoption of HRA had on companies. The current state of HRA is described as in the infancy stage, where the number of organizations that adopted HRA is still low and progress is rather slow. A quantitative study involving a high number of organizations in order to gather data on which generalizable results can be drawn is therefore difficult to conduct at the moment. For the purpose of this study, in-depth data about organizations' experiences in their HRA progress need to be gathered. Therefore, an exploratory, qualitative study involving the conduction of interviews is the best procedure to receive the necessary data.

3.2. Case Selection and Sampling

The cases were selected through purposeful sampling. The first selection criterion for this study was the usage of HRA by the case study organizations. This was important because only in these organizations the experiences with outcome achievements through HRA adoption can be analyzed. A second criterion concerned the maturity levels which were expected to influence the degree to which outcomes can be achieved. To test this relationship, the organizations participating in this study should vary in their level of maturity of analytics. As Fitz-Enz (2010) indicated that real analytics begins at the level of descriptive analytics, organizations that have at least achieved this stage of analytics maturity will be approached as potential case studies. Therefore, both organizations that are making use of descriptive analytics, as well as companies that are using predictive analytics were asked to participate in this study. This shall enable a comparison of outcomes achievement at different levels of maturity.

The cases were not chosen according to the type of industry they operate in. Rather it was decided to include organizations from all industries. On the one hand, this provides us with results that are not only valid for a certain industry, and on the other hand, it increased the chances of finding sufficient participants for the study. As already mentioned, HRA is a new development and there are not that many companies that already adopted the method in their HR department.

Typically, large organizations are among the pioneers in HRA adoption; therefore the adoption rate and the progress in terms of maturity are likely to be highest in this group of organizations. However, the effect of the size of an organization on HRA success is not subject of this study; therefore no specific minimum size was used as a selection criterion, but it is likely that primarily large organizations can be found as users of HRA.

The participants of the study were selected among organizations in the Netherlands that have already implemented HRA. The reasons for this were of practical nature and included the location of the author's university, as well as the location of the office of KPMG in the Netherlands and the resulting connection to Dutch companies. Due to the difficulty of finding out which companies already adopted HRA, the researcher contacted companies that were proposed by employees of KPMG. The list included ten companies, which were contacted in the scope of a first proposal. In the context of that proposal, all companies declined the participation, due to a discrepancy between the participation requirements and the actual progress in terms of HRA implementation. More precisely, this first proposal required an analysis of the effects of HRA on the relationship between line management and HR advisors; however, feedback received from the contacted organizations clarified that line managers were not yet feeling effects or changes in the relationship with HR on the basis of HRA, due to the fact that HRA was still in its infancy stage at organizations. After adaptations were made and a new study was proposed, the same companies were approached again with the question of participating in a qualitative interview-based study. Six of the approached companies agreed to participate in the study.

The participating companies are all service sector companies from different industries. Due to assurances of anonymity, the industries will not be specified in detail. All companies operate in a multinational context and employ more than 15,000 employees.

3.3. Data Collection

The necessary data for this study were collected through semi-structured interviews. In total a number of six companies participated in the study. In each of the companies, one interview was conducted. The interviewees were one to two people from the HR department who had knowledge about the HRA adoption and the progress thereof, as well as on the strategic involvement of HR and HR's role as a strategic partner since the adoption of HRA. The companies themselves chose who was suitable as an interview partner on the basis of the topics that were to be discussed in the interviews. For this purpose, a list of the main topics of the interview was sent by email to the contact person, so that a decision about a suitable interviewee could be taken. Semi-structured interviews allowed the discussion of upcoming issues that were not predefined beforehand and were therefore considered to be most useful when conducting an exploratory study. Since the literature on HRA is still limited and this study aims at investigating the effect of HRA on a broad range of expected outcomes, semi-structured interviews were chosen to be useful in this context.

The interviews contained questions about a broad range of topics, including the motivations for starting with HRA, the achieved level of maturity in terms of HRA in the company, the organizational decision-making culture, the level of support regarding the adoption of HRA, the satisfaction with achieved outcomes, the role of the strategic partner, and experienced problems with HRA. This topic list was set up on the basis of the research focus and the research questions and was discussed with the first internal supervisor at the University of Twente and the external supervisor at KPMG prior to the conduction of the interviews. The interview protocol can be found in the appendix (Appendix A). Due to the large scope of topics, the interviews were expected to take about one hour. This was communicated to the companies beforehand. All interviews were conducted face-to-face and were recorded by using a voice recorder in order to ensure a correct transcription of the whole interview, which were sent back to the interviewees to check whether everything was recorded correctly. Subsequently, the transcripts enabled coding the qualitative data in order to allow for a structured analysis of the findings. While conducting the interviews, it became apparent that one hour was not always enough to discuss all the questions of the semi-structured interview. In some cases where there were no options to arrange a longer time slot for the interview, it was therefore necessary to leave out questions that were priorly already identified as less important in a meeting with the first supervisor of this research project. The actual lengths of the interviews differed between 33 minutes and one hour and nine minutes. In total, five hours, 27 minutes and 19 seconds of interviews were collected and the transcription thereof took about 80 hours.

3.4. Data Analysis

As already mentioned, the interviews were recorded during the conduction and afterwards transcribed in order to have a precise overview of the gathered data. The transcriptions were then sent back to the interviewees, who could then check whether everything was transcribed correctly and make amendments if necessary. The feedback that was received was subsequently used to finalize the transcripts. In a next step, the interviews were read repeatedly to gain an overview of the data and to start the coding process. First ideas for codes were noted next to the text of the transcripts. This process was repeated and, where appropriate, different codes were summarized or split up. Also the codes that emerged while reading each transcript were compared and, where appropriate, summarized. The topic list of the interview protocol served as an inspiration for codes, since the answers given during the interviews concerned a certain topic that was covered with the question. The following example serves as an illustration: The first question that was asked to the interviewees was *"When did you start with HR analytics?"*. The answers that were given in this context were coded as "starting point" in the coding table. A complete list of the codes can be found in the appendix (Appendix B). In the end, a table was set up based on codes that were identified during the coding process. In the left column the codes were arranged according to the topic list of the interview. In the right column the citations that were assigned that code were copied. These tables facilitated the comparison of the findings from the interviews.

The approach of a cross-case analysis was used for analyzing the interview data. This approach involves "the examination of more than one case" and can be executed either through variable-oriented analysis or case-oriented analysis (Babbie, 2010, p. 395). This study made use of variable-oriented analysis, which is suitable when the purpose lies on explaining or describing certain variables rather than cases (Babbie, 2010). More concretely, this means that the focus was set on one variable or code during the analysis and then the answers of all interviewees concerning that variable were compared. For this purpose, a document was set up containing the topics to be analyzed and the findings from each interview were put in keynotes under the specific topics. This facilitated the writing of the findings chapter and ensured that no important aspects were forgotten.

3.5. Trustworthiness of the study

Using interviews as a method of data collection has implications for the validity and the reliability of the gathered data. Validity is generally perceived to profit from this choice of data collection, since questions about the meaning of certain questions can be asked to the researcher before answering the question, and the answers of the interviewees can be extensive and cover all the issues that the person considers relevant. Also, the researcher can ask follow-up questions if the answer does not fully cover the issues that were supposed to be discussed. Generalizability, however, is considered to be more problematic in the context of qualitative field interviews, since the data that is gathered contains personal evaluations and might therefore differ from answers that potential other interview partners might have provided. Also, in most cases only one person was interviewed, at the most two, since the interviewee needed to have knowledge on specific issues which prevented a broad scale involvement of a large amount of employees per company. The reliability of the data has been tried to increase by first recording the interview with a voice recorder, subsequently transcribing the interviews, and then sending the transcriptions back to the interviewees to be checked before coding.

Generally, the trustworthiness of the study is increased through the data collection process that was applied. By transcribing the interviews based on recordings from a voice recorder and sending the transcripts back to the interviewees to let them check the transcripts again, the correctness of the gathered data was increased and interviewees were given the chance of correcting or adding certain information. Only two companies did not want to check the transcript, all others provided feedback on the transcripts.

Also the method of semi-structured interviews increased the trustworthiness of the study, since it allowed both the researcher, as well as the interviewee to ask (follow-up) questions if some topic was not clear yet. This increased the understanding on both sides and increased the quality of the gathered data.

The fact that the participating companies differ in the industries they operate in also enhances the generalizability of the findings due to the diversity in the sample.

4. Findings

In this chapter, the findings from the interviews are reported according to the central topics of interest for the study. The topics were derived from the research focus of the study and the research questions.

4.1. Reasons and motivations for starting with HRA

When being asked about the reasons, motivations, and expected goals that led the companies to the decision of adopting HRA, the interviewees mentioned different areas of motivations. Some mentioned the organizational developments that made HRA necessary, or that enabled the start with HRA. For example, one interviewee mentioned the increasing globalization of ‘company 1’ that made it necessary to achieve a more detailed overview of the employees of the company (Transcript Int_01). Another interviewee mentioned the necessity of the company to shrink and the decision to start with HRA in order to check which HR practices have a positive impact on the company and “to increase return on investment on human capital” (Transcript Int_03). Another interviewee mentioned a new system in HR that was introduced and that aimed at increasing the degree of self-service among managers, but also offered more capabilities in the area of reporting and analytics (Transcript Int_02). The interviewees from company 4 mentioned HRA’s fit with the company’s genes and the necessary prerequisites to start with HRA as motivations (Transcript Int_04). On the other hand, they also mentioned a pressing factor towards the adoption of HRA in the statement that “clients are going to expect this service”. One driver that was mentioned by all interviewees as a reason for the adoption was the goal to become a better strategic partner to the business. This driver was the only one that was explicitly included in a question about the goals of the HRA adoption, due to its dominant position in the literature. Answers of the interviewees included that the data insights that could be gathered through HRA were necessary to be a credible partner or that you could “only be a strategic partner and a trusted advisor if you know what you are talking about” (Transcript Int_03). Generally, the interviewees identified being a better strategic partner as the key driver or the end goal of the adoption of HRA. HRA was considered as a way to help them in achieving this mainly due to “the power of data” in discussions with management teams (Transcript Int_05). In the interview with ‘company 4’ it was furthermore mentioned that HRA was not the only way to become a better strategic partner, but an important instrument to achieve this because the provision of strategic advice also required a solid analysis. However, the interviewee from ‘company 6’ stated about becoming a strategic partner as a motivation to adopt HRA:

“It was a driver but not the main driver. The main driver for us was we want to be fact-based, we want to improve decision-making. That was way up there. Attached to that goal is that you are more strategically a partner to HR and then a side effect is that the business partner is able to be more a strategic partner where necessary.” (Transcript Int_06)

For them the most important reason to start with HRA was the goal to become more fact-based or data-driven in their way of making decisions and thereby to improve decision making in HR. The goal to become more fact-based was also mentioned by almost all other interviewees as an important reason for the adoption of HRA. The interviewees from ‘company 5’ stated that HRA was necessary to move forward with HR and to avoid a misbalance in the company because the other departments and actors that HR interacts with “are driven by decisions based on facts” (Transcript Int_05). Also the interviewees from ‘company 4’ stated that they wanted HRA to deliver more value by being more fact-based and data-driven. Only the interviewee from ‘company 1’ did not mention the goal to become more fact-based as a reason for the adoption of HRA, but since it was not explicitly asked for whether this issue was of importance, it does not necessarily mean that it was irrelevant for the decision. Another reason for the adoption of HRA that was stressed by several interviewees was HRA’s ability to enable HR to add value to the business or to support the business. Additionally, some interviewees mentioned goals that were connected to the capabilities of HRA at higher levels of maturity, such as to identify the drivers of desired outcomes in the future, to analyze and assess people, to support the HR strategy, or to achieve the state of machine learning, so that predictions of effects of certain HR metrics on business outcomes can be gained simply by putting new data sets into the system.

Generally, it can be concluded that factors such as being able to base decisions more on facts and data, adding value to the business by showing the business impact of HR, and becoming a better strategic partner to the business were the motivational factors that were mostly mentioned by the interviewees for the adoption of HRA.

4.2. Achieved outcomes

When being asked about the outcomes they had in mind before HRA was adopted and that led to the adoption thereof, the interviewee from ‘company 2’ stated that no explicit list of outcomes that were expected to be achieved through the adoption was established. The interviewee said that he/she was really happy with the extent to which the new system could be used at that moment and that he/she was satisfied with the possibilities offered by the system, as well as that predictive analytics was not yet totally realized and also the combination of HR and business data was not yet achieved. The interviewee from ‘company 1’ was not able to evaluate which outcomes had been achieved, and the interviewees from ‘company 5’ were dealing with internal re-organizational issues that led to the fact that they were still busy with building the foundation for HRA. During the interview at ‘company 4’, the interviewees only provided information on the insights that were gained through first pilot studies within the company, instead of a real reflection on which of the expectations were already achieved. In the case of ‘company 3’, the interviewee reported having seen progress in the achievement of the outcomes which were (1) to prove the value of the HR department, (2) to become more fact-based, and (3) to become a strategic partner, however he/she would have hoped to be a bit further at this point in time and the progress did therefore not go according to his/her expectations. Especially in the area of predictive analytics there was still more progress needed, since only a few analyses were done so far and also the business impact of HR decisions could not be shown so far. However, the interviewee nevertheless reported to see a progress. The interviewee of ‘company 6’ said that he/she was satisfied with the progress made in the context of the main driver for the adoption of HRA, namely to support the decision-making of HR, but also reported that the fact-based way of making decisions still had to increase to achieve the goal. The interviewee also mentioned the “appetite and curiosity” within the company towards the topic of HRA as an unexpected outcome, since he/she expected more fear from the people.

4.3. Strategic partner role

In order to evaluate the progress made with regard to the strategic partner role that HR plays for the business, a series of questions was asked to the interviewees.

In ‘company 1’, the interviewee stated that HRA so far had no effect on the roles of HR in general, but that changes will occur more gradually. The interviewee claimed that HR is already on the agenda and well developed in the company and also has a seat at the table when strategic decisions are taken in the business. He/She described the degree of strategic partnership that HR occupies in the company as a full partner role and stated that HR is a partner for line management.

In 'company 2', the interviewee noted that HRA affected the way that HR sees their own role and also led to changes in the HR staff. An increase in the strategic partner role could also be observed, but that change cannot be ascribed solely to HRA since other developments such as normal turnover and new HR BPs with a different profile also affected this development.

"[…] that is partly because of HR analytics, but also partly because there were some new people coming into the function. I mean you have normal turnover, of course, and I think the newest HR business partners that were appointed, they have a bit of a different profile. So they are also more naturally taking on this topic, so that together improved the strategic partnership role." (Transcript Int_02)

The interviewee said that HR generally has a seat at the table of the business; however he/she evaluated the degree of partnership as an input role only. When being asked in how far HR was a partner for line managers, the interviewee stated that this was dependent on the level of the managers, since at different levels the expectations towards HR are also different. Changes due to HRA in this aspect could only be observed at business partner level and not at lower levels according to the interviewee, due to the fact that HR BPs are at the core of HRA whereas HR managers only adopt a minimal role in this context. The reason for this is the belief that HRA is more useful at an aggregated level.

"I would say at the business partner level, but that is also because of the way that we have set up our operating model. The role of the HR manager in HR analytics is very minimal. It is really the HR business partner who is at the core of that, because we also really believe that HR analytics makes sense on an aggregated level, on a business level, on a market level, on a function level." (Transcript Int_02)

At the business partner level, however, there was a change observable due to the combination of new people, higher maturity in HRA, and the introduction of the new system in HR. Thus, the effects cannot be ascribed to HRA only.

For 'company 3' the interviewee evaluated that HR is more and more becoming a strategic partner to the business, but admits doubts on whether this is due to a causal relation between the two factors or simply due to correlation. Generally, the current time could be described as a time of change in the organization, including (1) the increasing recognition of people as the real assets and the value of developing people, (2) the goal to become more digital, and (3) employees are requested to make a change a lot recently, a development in which HR is needed to hire and develop the people. Therefore the interviewee concluded that the developments could rather be considered as two parallel streams, rather than HRA being the key driver of the change in the strategic partnership degree. Nevertheless, the factors that influence this also include the increased way of working on a fact-based level according to the interviewee, and the HR director is increasingly being invited to the table of the business. When asked to evaluate the degree of partnership that HR plays, the interviewee stated that it was currently in between an input role and a full partner role. He/She also claimed that HR was considered as a partner to line management.

In the case of ‘company 4’ the interviewees do see changes in the role of the business partners and the role of the experts. One of the interviewees says that these employees needed to develop more skills and capabilities in the area of HRA and that these skills were added to the profiles of their function. The other interviewee adds that there was also an effect on the way of collaborating in HR. He/She observed a change in behavior in a sense that people start to challenge each other. However, the progress is being characterized as a slow process, but nevertheless noticeable. On the general question whether HR is becoming more of a strategic partner through HRA, one interviewee stated that you become a better conversational partner due to being more fact-based; however, this answer does not clarify whether this is already realized or just an expectation for the future. Concerning the question whether HR had a seat at the table, one interviewee stated:

“We had this discussion often in my team and our conclusion is that we are not sitting at the table when the business strategy is being developed, but one step later we are at the table when it is about the way to realize the business strategy. But to be honest, if ‘company A’ merges with ‘company 4’ then that is not something that HR has a big influence on.” (Transcript Int_04)

One interviewee identified the degree of strategic partnership at ‘company 4’ as an implementation role, but mentioned that HR was also involved in and accountable for the result. He/She furthermore added that there was a change observable in this degree since the introduction of HRA, because HR was becoming “much more important” through the changes in the way of working since being fact-based makes HR a better partner in conversations and increased mutual understanding. Lastly, the interviewees also saw an increasing partnership between HR and line management, but stated that HRA was still too small to have an impact in this relationship.

In ‘company 5’ the interviewees observed no effect of HRA on the roles of HR so far. They furthermore clarified that HR is not becoming a better strategic partner due to being more fact-driven, but that this development is rather based on other factors. Whether HR had a seat at the business decision-making table was dependent on the business and also on the person itself according to the interviewees. Also the relationship between line management and HR was dependent on the business line according to them. Concerning changes in this context, the interviewees stated the following:

“You could say it has a positive effect, but the effect is only once we push something towards the organization”. (Transcript Int_05)

So, the fact that HRA was adopted did not lead to the fact that line managers actively searched for insights based on data, but rather the HRA department had to push the information to them to get them interested.

Also in ‘company 6’ the interviewee stated that there were changes observable in the roles adopted by HR, but that these were not only due to HRA, but the factor of reshuffling some roles of HR BPs towards creating business delivery teams with an increased focus on data and analytics which also played a role in this context. The interviewee generally overserved an increase in interactions of strategic BPs and their business on the basis of insights gathered through HRA. When being asked specifically whether HR was now an increased strategic partner to the business, the interviewee criticized that this was not measured well enough in the business to answer that question properly, but that the HR Metrics and Analytics (HR M&A) team was being observed as a strategic partner to the business.

“You know the funny part is we do not measure that well enough in my opinion. […] I cannot answer that question because I do not know. I only see, because the strategic partner then for me is the HR Business Partner, I know that HR M&A is perceived as a strategic business partner. I see more strategic business partners who are discussing it with them, but we do not have a survey where we ask “do you perceive…”.” (Transcript Int_06)

The interviewee stated that HR already had a seat at the table of the business, but HRA changed what they brought to the table. According to the interviewee, HR has now strategic material available to talk about and thereby the strategic work of HR improved. In general he/she evaluated that HR occupies to one-third each the implementation role, input role, and full partner role at the business table, while a trend towards increasingly becoming a full partner could be detected. Concerning the relationship between line management and HR, the interviewee believed that HR is a partner for line management.

In the interviews with ‘company 1’ and ‘company 2’, additional questions were asked that were based on the aspects that being a strategic partner incorporated according to Ulrich and Brockbank (2005). In the other interviews this was not possible to discuss due to time limitations. The dimensions of the strategic partner role that were covered in the questions included: (1) HR’s ability to predict future needs, (2) HR’s contribution to the formulation of the business strategy, (3) HR’s role in the execution of the business strategy and the accomplishment of the mission and vision, (4) HR’s role in the strategy development process, (5) HR’s role as a change agent, (6) HR’s contribution in advising leaders about necessary actions, and (7) HR’s role in providing feedback to business leaders. The interviewee from ‘company 1’ could not evaluate whether any changes had occurred in HR’s contributions in these contexts due to HRA, due to the fact that he only started to work at the company quite recently, therefore only the answers provided by the interviewee from ‘company 2’ will be summarized here. Concerning the first aspect, the interviewee thought that HRA did not have an effect on HR’s ability to predict future needs, since this ability was rather dependent on your level of understanding of the business agenda and on how close you are to the business leaders. He/She claimed that Strategic Workforce Planning (SWP) could be used as a source of input if you know the future needs of your business, but by itself it does not increase the ability to predict future needs. HR’s contribution to the formulation of the business strategy would be affected by HRA on the other hand, due to HR’s increased ability to “come with a solidly underpinned story” and would therefore be taken more seriously by the business. The third aspect would not be affected by HRA according to the interviewee, while the forth, HR’s contribution to the strategy development process would be affected according to him/her, because data and analysis on human resources are important for making decisions about for example the location strategy. The fifth aspect, the change agent role, would again not be affected by HR according to the interviewee, because a lot of developments cause changes in and outside of the company and uncertainty about the own future leads to problems with mastering the change. The last two aspects, however, would again be affected by HRA according to the interviewee, since HRA makes advising leaders for example on talent management easier. Also in providing feedback to business leaders about the progress, HRA and HR systems are helpful.

4.4. Factors potentially influencing success with HRA / potential preconditions

In the context of the second main goal of this study, an analysis of the influence of potential conditional factors for companies’ success with HRA is required. For this purpose, the interviews contained parts where the interviewees were asked about the characteristics of these factors in their companies. The three characteristics and potential influencers of HRA success under observation are, as already elaborated, the level of HRA maturity, the decision-making culture, and the support for HRA in the companies. These characteristics will be described in individual sub chapters. At the end of each chapter the findings about the interviewees' evaluations of the importance of these characteristics will be summarized. In order to evaluate the relevance of preconditions or contextual factors on the success of analytics, the interviewees were asked whether they thought that success depended on certain factors. Additionally, when discussing the factors that were introduced in the research focus chapter as expected factors influencing the success, the interviewees were also asked whether they thought that these factors were of importance for success with HRA.

4.4.1. Maturity

Regarding the start with HRA, all companies reported that they started with HRA sometime between one and two years ago. The only exception in this context was 'company 5', where the interviewees reported to have three to five years of experience, however, this referred to their start in the area of reporting rather than analytics, since this was primarily the stage where their activities were concentrated at the moment. Concerning the achieved levels of maturity with HRA, most companies reported primarily conducting descriptive analytics while at the same time doing some first pilot studies to try out predictive analytics as well. There were only two exceptions in this context. On the one hand, the interviewee from 'company 1' reported the conduction of "both forward-looking, but also backwards looking" analyses and therefore claimed that prediction was also already an issue at the company. On the other hand, 'company 6', according to the interviewee, started their engagement in HRA at the stage of predictive analytics and at the stage of connecting HR and business data, due to the consideration that this stage was necessary to prove that you can add value to the business and to show that "doing proper analyses really helps the business" (Transcript Int_06). However, the interviewee from that company also stated that the number of companies in the Netherlands which have achieved this stage of maturity was very low. Also in terms of metrics' maturity, the interviewee from 'company 6' stated that they started by measuring impact metrics, and were currently measuring impact metrics and effectiveness metrics. The interviewee stressed that they started at the stage of asking strategic questions to the business and, thereby at measuring the impact of HR practices to show the value of analyses. All other interviewees said they measured efficiency metrics and most of them also effectiveness metrics. Only 'company 3' mentioned measuring impact metrics at an infancy stage, and with 'company 5' the issue of metrics maturity was not discussed specifically.

In the context of maturity, the interviewee from ‘company 1’ stressed the importance of HRA not to stay a tool for HR, but instead for it to “be an instrument that brings the organization to a higher level” (Transcript Int_01). This implies the importance of achieving the stage of measuring the impact of HR practices and therefore the importance of achieving higher levels of maturity.

Concerning the importance of the level of maturity, it is stated by the interviewee from ‘company 6’ that an increasing interest can be observed from the business with increasing levels of analytics maturity. Nevertheless, the answer from the interviewee implied that there is also interest from the business at lower stages of maturity; however, the value to the business is increasing with higher levels of maturity and therefore also the interest grows at higher levels. This evaluation is similar to that of the interviewee from ‘company 3’, who described the reactions from the business at their current stage of descriptive analytics as already “jaw-dropping”, because insights are revealed that they have never seen before so far and which already led to a perception of the HRA team as a valuable asset to the business. However, he/she also stated that achieving the stage of predictive analytics would be really beneficial for them. A point where different opinions exist among the interviewees concerns the level of entrance into HRA. The interviewee from ‘company 1’ stated that you first need to have the basics in view and to achieve a certain level in the organization with HR before HRA can be adopted. The interviewees from ‘company 4’ stated that a lack of maturity in the data and the organizational culture would not be helpful. However, at the same time they stated that not everything needs to be perfect before you can start with HRA, but that you could also approach it from a “hands-on, no-nonsense perspective”. They did that in the pilot study and it also delivered value, they claimed. The interviewee from ‘company 6’ described that they started at the stage of predictive analytics and are now moving down towards conducting descriptive analytics.

4.4.2. Decision-making culture

Generally, the question about the type of decision-making culture that was present in the companies participating in the study was perceived as difficult to evaluate by some interviewees and also led to different ways of describing the processes. Two interviewees stated that it was difficult to evaluate that in general due to its’ dependency on the type of business (Transcript Int_02 and Transcript Int_03). One interviewee mentioned a local type of decision making (Transcript Int_01). Nevertheless, for ‘company 1’ it was noted that the decision-making culture was not always fact-based, whereas in HR there was a combination of fact-based and experience-based decision making. For ‘company 2’ a general “love for Excel, benchmarks, and data” was reported for the business, while in HR a mixed picture could be found in which the emergence of a fact-based way of decision making was a rather new development. The interviewee from ‘company 3’ described the decision-making culture as highly diverse within the company, but generally reported a discrepancy between the marketing and financial side of the business as being more fact-based and HR being more experience-based. For ‘company 4’ the interviewees mentioned a difference between HR and the business in the context of the decision-making culture, with decisions in the business being more taken on fact-based analyses, whereas in HR they were based more on experience and ‘gut feeling’. One interviewee from ‘company 4’ furthermore said that the business is stimulating data-drivenness and data quality. This implies that the decision-making culture of the company in general is in favor of a fact-based way of making decisions and that HR is following expectations through the implementation of HRA. In the case of ‘company 5’, the interviewees described the way of decision making within the company as informal and said that ‘gut feeling’ as well as network connections were important. They furthermore claimed that within the commercial departments the mindsets were closer to analytics, whereas in HR decisions were more taken based on ‘gut feeling’ instead of fact-drivenness. In ‘company 6’, the interviewee evaluated the decision-making culture in the business as “not totally data-driven” and in HR before the introduction of HRA decisions were based on experience, ‘gut feeling’, and intuition.

Regarding the effect of HRA on the decision-making culture in the HR departments of the companies, there exist different opinions among the interviewees. In the case of ‘company 1’, the interviewee claimed that changes do not happen that quickly, but he also mentioned that he cannot evaluate the possible differences because he only started to work at the company recently. In ‘company 2’ the interviewee could observe changes and connected these to the positive impact on HR through the support for using data in decision making from the top. For ‘company 3’, it was argued that “first baby steps” were observable, for example in the way the business partners behaved. According to the interviewee, they would now try to work with hypotheses to an increasing extent and also ask better questions to the HRA team. In ‘company 4’ the interviewees stated that there were changes perceptible in the sense that plans are now being checked by fact-based analyses and business cases and changes were generally perceived as quick:

“I see that it went really fast within one year; there is really a difference between how it was when I came here one year ago and how we are standing there now. Now I see them challenge each other much more on the basis of facts instead of using assumptions.” (Transcript Int_04)

The interviewees from ‘company 5’ did only observe little changes due to HRA, whereas the interviewee from ‘company 6’ sees changes due to HRA, but “not enough yet”.

Also it is necessary to mention that both interviewees from ‘company 1’ and from ‘company 6’ stressed that decision making should never totally get rid of ‘gut feeling’ and intuition.

The factor of the decision-making culture within a business was generally evaluated as influencing the likelihood of success with HRA. The interviewee from ‘company 2’ stated that in a business with an environment where people are used to look at data and where the core business is data-driven, there it is also easier to apply the fact-based way of decision making in HR and to start with HRA, whereas in companies with an experience-based culture, there is no natural fit with HRA and therefore it is also more likely to be difficult to start with it according to the evaluation of the interviewee. A similar view is advanced by the interviewee from ‘company 3’, who claimed that a culture in which the need for data is understood, this could influence the pace of the progress in a positive way. Also the interviewees from ‘company 4’ claim that you need to be open for data, because outcomes of analyses can be counterintuitive.

“I think it can be very difficult in an experience-based culture, because you are getting stuck in your gut feeling. […] I can imagine that if you get stuck in your experience-based culture, then you are not open for this sort of insights and then you are not looking actively for them.” (Transcript Int_04)

Thus, the interviewees from company 4 think that a fact-based and data-driven culture helps with successfully using HRA, but they nevertheless also point out that a combination of experience and being fact-based makes it most valuable. The interviewee from ‘company 6’ argued that having a non-analytical culture in the HR department prior to the introduction of HRA is not an obstacle for adopting HRA. The transformation from a non-analytical culture to a fact-based culture is actually the goal you have when adopting HRA and, therefore, more a reason to start with HRA. The interviewees from ‘company 5’ also stated that in a business with a culture based on ‘gut feeling’ the implementation of analytics is difficult, because people do not like the change at first. This experience was also observable in their company. The interviewees from ‘company 5’ and ‘company 1’ focused also on the necessity for HR to start adopting an analytical culture in order to avoid a misbalance between the departments (Transcript Int_05), and in order to get more mature in HRA (Transcript Int_01).

4.4.3. Support for HRA and usage of it

In this context, the questions dealt with the support from different actors within the organization and about possible changes in the support after HRA was already adopted. To make a comparison more easy, the findings are analyzed per company.

The interviewee from 'company 1' had difficulties with answering the questions about the support before the introduction of HRA, because he had not been at the company at that moment. Generally, the interviewee thought that they valued it very much. When asked about the support from the employees, the interviewee estimated that they were not informed before the introduction of HRA. Also concerning possible changes in the degree of support no answers could be given. However, the interviewee is altogether satisfied with the degree of support experienced.

In 'company 2' the introduction of HRA was never officially announced, since the implementation happened simultaneously with the change of the HR system. Therefore, the degree of support before the actual introduction could not be evaluated. All in all, HRA was sold "as a great benefit" of the newly introduced system. However, due to negative evaluations of the new system, the interviewee reported a spill-over effect and consequently negative perceptions of HRA among the majority of the managers. The value-adding part was only experienced by the small proportion of top managers according to the interviewee. The interest of the managers in HRA and HRA outcomes depended according to the interviewee on personal preference of the manager, the knowledge, the personal background, and on what the person was comfortable with. According to the interview, the degree of support from HR depended on the department. The centers of expertise (CoEs), such as the talent acquisition team and the talent management team, liked it a lot. Among the HR Business Partners (HR BPs) and the HR managers the support and degree of adoption depended on personal factors. More specifically, the adoption in HR was depending on factors such as the drive of the HR BP, the data savviness of the person, the personal background, and the type of business leader in the specific business. This led to the fact that HRA was being adopted very heavily in some businesses, but not so much in others. From the works council the interviewee expected that they liked to switch to the new system. The employees were not explicitly informed about the introduction of HRA, due to the fact that insights in HRA were all gathered on an aggregated level and, therefore, was not relevant for the single employee. The interviewee stressed that there were changes observable in the degree of support for HRA due to three factors. Firstly, as a natural development in change management, HRA is "becoming the new normal" and a gradual adaptation of people with the subject can be observed. Secondly, the achievement of a higher degree of maturity, including the involvement in talent management, were considered to be more value adding and therefore more appreciated by people. Thirdly, the quality of the information in the system has improved which also led to an increase in the level of support and in the adoption rates. Therefore, the interviewee saw generally a positive trend in the degree of support, but nevertheless stated that the support could always be better, especially with regard to the extent to which HR BPs were currently taking up their champion role.

For 'company 3', the interviewee described the board as supportive and stressed especially the supportive attitude of the HR director who was described as a big sponsor of the team. Within HR, the atmosphere was perceived as everybody understanding the necessity of the adoption and acting supportive towards the team, unless discussions about standardizing definitions came up and some were required to adapt to others. In such situations, the interviewee felt a decrease in the level of support. Furthermore, the interviewee stated that the works council was informed priorly to the introduction of HRA, but did not know the response of it. Also whether the employees were informed was not known to the interviewee. However, in a recent case requiring new data points from the employees, the interviewee observed negative responses from the employees and skepticism about personal consequences of the upcoming analyses. The interviewee speculated that this attitude could also be related to the fact that the company needed to downsize at that moment. Regarding the interest of managers in the insights from data, the interviewee mentioned having received indirect feedback from the HR BPs that line managers valued to received insights and valued the data-based approach. Generally, the interviewee described an increase in the level of support because the team was able to prove the value they can deliver with descriptive analytics. However, he stated that also the expectations increased with regard to predictive analytics. In total, the interviewee was "pretty satisfied" with the experienced support.

The interviewees of 'company 4' describe HRA as "very strongly positioned in the corporate HR strategy" and as being on the crest of the wave. They add that there is money and focus on the topic. However, they also point out that not everyone within HR has "the same amount of affinity with the topic". Some people find it more difficult than others. When being asked about changes in the degree of support since the introduction of HRA, the interviewees stated that it was not difficult to get the permission to do a pilot study and that people got enthusiastic due to the insights gathered in that study. If a study is successful and the insights are valuable, then everyone wants HRA. On the same side, the interviewee warned that the support could also decrease quickly if a bad analysis would be presented. At the moment they are satisfied with the support, also in terms of money and time granted for HRA.

In the case of 'company 5', the interviewees claimed that the board understood the necessity of adopting HRA and also supported a large investment in HR data. From management, however, they criticized that there was hardly any pull from them and that many colleagues did not go to the HRA team, only if they were asked by compliance, for example. They criticized the same from the HR BPs and the HR management. Line managers, they stated, had no direct experience with HRA yet and therefore also did not feel any effects or value of it. The interviewees could not reflect on changes in the degree of support because they were not at the company before HRA was adopted.

In 'company 6', the interviewee spoke of excellent support. It was stated that the management teams as well as senior management were "very enthusiastic", also because the HRA team stuck close to what their problems were. The interviewee furthermore identified the CHRO as "one of the drivers of the initiation of HRA". From the HR department in general, however, the interviewee reported mixed experiences. The sentiment in the beginning was negligence towards HRA: "[…] it was like people did not care. They were oblivious about what is HR analytics". Now, after research was done and insights were shown, "about 70 or 80% are true believers", whereas the others still had difficulties with drawing conclusions of the fact-based research and therefore did not use the insights to the full potential. Thus, there was a change observable in the attitude of the HR department. However, the interviewee stated that "you have to have everybody on board to drive the action", which indicates that there is still room for improvements until full satisfaction with the support can be achieved. The interviewee furthermore stated that the works council, the legal department, the compliance department, and IT security were all involved in the HRA adoption process, whereas employees were not asked due to the fact that the focus in the analytics research that is executed lies on an aggregated level and is not used for the purpose of profiling. Therefore, no grounds for discrimination of individual employees came up in the research so far. In general, the interviewee stated that he/she definitely observed changes in the level of support due to the experiences made after the adoption of HRA.

Support from senior management and other actors in the organization was defined by all interviewees as the most important factor influencing the success with HRA. Reasons for the importance of this factor that were mentioned by the interviewees include the purpose of analytics to help the business and to show the business impact of HR (Transcript int_03 and Transcript Int_01). Therefore, if the business is not interested in insights from HRA or does not trust HRA, then HRA cannot fulfill its purpose and does not come to life. Also, it was mentioned in this context that "you have to have buy-in from senior HR and business senior management to do the research" (Transcript Int_06). The interviewees from 'company 5' stressed the importance of support also in the context of having people who understand that it takes a while until first results can be seen and who are willing to support the investment along the road. Additionally, the fact that support is an important requirement to receive money to conduct the analytics studies was pointed out (Transcript Int_04).

4.4.4. Other potential conditional factors

One factor that was mentioned as well by all interviewees, even though it was not proposed as a precondition in the chapter on the research focus, is the necessity of a company to have a certain size in order to engage in HRA. Statistical reasons were mentioned to explain the importance of this factor, since enough data points need to form the basis of the analyses in order to ensure a statistical relevance of the results. However, concerning the minimum number of employees that a company needs to have in order to be able to make use of analytics, no consensus emerged from the interviews.

The interviewee from 'company 1' also mentioned the fact that a company should have a strategic focus for HRA to be of use to it and the interviewee from 'company 2' mentioned the degree of stability of the business a company operates in as influencing whether HRA can be useful for the company or not. He/She claimed that if the business strategy is going into a new direction, then HRA can really help the company.

Another factor that is important according to the interviewee from 'company 2' is the usage or adoption rate. "[I]n the end, the success of any sort of new technology or reporting or analytics is going to depend on if people are really using it and if they see the value in it" (Transcript Int_02).

Lastly, the interviewee from 'company 6' mentioned the existence of two environmental factors that were important for the success with HRA according to him/her. On the one side, that was the support from the CHRO and the business, and, on the other side, it was necessary to have data scientists either in-house or outside by cooperating with a vendor. Furthermore, there was only one other limitation to the success with HRA according to him/her and that was the size of the company due to statistical reasons.

As a general advice, the interviewee from company 6 mentioned that companies should not wait for the perfect conditions, but simply start with HRA. This point of view was also shared by the interviewee from 'company 2'.

4.5. Extra findings

When being asked if they regret their decision to adopt HRA or if they would decide to invest in HRA again, all respondents stated that they would invest in it again. Also, all advised the investment to other companies. The interviewee from ‘company 6’ even mentioned a negative consequence of not investing in HRA: “I think from a strategic position if you do not invest in analytics your strategic role will deteriorate. I mean it will be less and less compared to peers […]” (Transcript Int_06). Thus, the interviewee considers investment in HRA a necessity in the future for HR departments.

The interviewees were also asked how satisfied they were with the progress they made so far. The interviewee from ‘company 1’ thought that all were satisfied.

For ‘company 2’ the interviewee was satisfied with the progress, especially with the extent to which the new system can be used and the possibilities offered by the system. Still, achieving the stage of predictive analytics and combining business and HR data had not been realized so far. Therefore, the interviewee stated to move up the scale as a goal for the future.

In the case of ‘company 3’, the progress was behind the interviewee’s expectations, but improvements could be seen nevertheless. However, progress in terms of measuring the business impact of HR decisions and conducting more predictive analytics was aimed for in the future.

In the case of ‘company 4’, the interviewees stated that HR needs to develop further in terms of implementation power and focus in order to let the added value of HR become more visible and more concrete. They evaluate that HR is behind the business and rate their satisfaction with the progress that was made with the grade five or six out of ten. They justify this evaluation with the reasons that they have just started and HRA is still very small, but that they are convinced of the importance and imbued by the topic, but at the same time still searching.

The interviewees from ‘company 5’ reported that they had already made big steps, but have not reached the ideal state so far. They evaluated their satisfaction with a score 3-5, since they were still only scratching the surface. They criticized that the pull and push on HRA reports was not experienced as desired and needed improvements in the future.

Also the interviewee from ‘company 6’ reported that he/she was not yet completely satisfied, even though he/she also stated to be very satisfied. The interviewee claimed to be still very ambitious and mentioned that the decision-making could still become more fact-based and that machine learning was a goal for the future.

5. Discussion

In this chapter, the findings from the previous chapter are explained and interpreted in the context of the research focus. Additionally, the research questions are answered and the findings will be used to reflect upon the literature that was discussed in the second chapter.

The central question that this study tries to answer concerns the effects of the use of HRA on companies. This question is tackled through the use of sub questions.

The first sub question requires an analysis of why companies actually implement HRA and thus a reflection on the motivations and reasons for companies to start with HRA as well as on the expected outcomes. The findings show that all interviewees reported the goal to become a better strategic partner to the business as an important driver for the adoption of HRA, many of them even stated that it was the key driver for the adoption. This is in line with the expectations due to the dominant stand of the importance of HRA and the strategic partner role in the literature. Next to this goal, the interviews also show the importance of becoming more fact-based as a department, and the goal to add value to the business or to support the business in a better way through HRA. These three goals were mentioned the most. Generally, the impression arises that the interviewees saw HRA as a chance for HR to become more mature and to become more important for the business, as well as a duty in order to avoid a misbalance or to avoid losing its position in the future. As a general remark on the discussion of outcomes in the context of HRA adoption, when asking the interviewees about outcomes they wanted to achieve, several asked what was meant by outcomes in this context. Also, the statement of the interviewee from ‘company 2’ that they did not discuss what outcomes they wanted to achieve beforehand, suggests that the achievement of outcomes might not be the most important aspect to companies when deciding to invest in HRA. However, the interviews certainly suggest that the companies had reasons for the adoption of HRA and also expected positive effects from the investment. To answer the first sub question with one sentence: The companies primarily implemented HRA to become a better strategic partner to the business, to become more fact-based, to add value to the business or to support the business in a better way, to become more mature, and to avoid a misbalance with other departments.

The second sub question asks whether HRA was leading to expected outcomes. Here, the findings show that the question about the extent to which outcomes were already achieved seemed to be rather difficult for interviewees to evaluate. One interviewee reflected on achievements in the context of what has been achieved in HRA rather than on achievements for the business or for the HR function. The reason for this was that pre-defined outcomes to be achieved were not formulated or discussed, therefore a reflection on the achievements was difficult. A second interviewee was not able to assess the progress since, and a third interview discovered that that company was still busy with lying the foundations due to internal reorganizational issues. Generally, interviewees did report seeing progress in achieving outcomes, but since all three main goals mentioned above include long-term change processes the interviewees also responded that they were not fully satisfied yet. Concluding, the answer to the second sub question is thus that the expected outcomes refer to long-term goals that have not yet been realized (completely) since not enough time has passed since the start of the implementation.

Concerning the third sub question, the effects of HRA on the strategic partner role, the findings generally suggest that in most companies an increase in HR's role as a strategic partner occurs. However, this is not only due to HRA but several developments are happening simultaneously in the companies that all affect this role. Proof of the positive effect of HRA on the strategic partner role is given in 'Int_06', in which the interviewee stated that the HR M&A team was being considered as a strategic partner to the business and that HRA changed what HR brought to the business decision-making table. HR would now have more strategic material to talk about which improved the strategic work of HR according to the interviewee. However, contradicting results were also collected. Whereas the interviewees from 'company 5' claimed that HRA had no effect on the roles of HR and that HR would also not become a better strategic partner due to becoming more fact-based in their way of decision making, the interviewee from 'company 3' stated that next to other factors that led to an increase in the strategic partner role of HR, the fact that HR was working on a fact-based level now also influenced this. The interviewee from 'company 1' could not see an effect on the roles by HRA and also suggested that the change would occur more gradually and not within such a short time frame. Thus, the findings did not allow for a clear statement that HRA does lead to an increase in the strategic partner role. Most answers suggest such an effect, but parallel developments in the company make it difficult to be sure how much effect HRA had on the increase of the strategic partner role. Also, the fact that the perceptions of HR as a strategic partner are not measured enough, as criticized by the interviewee from 'company 6', makes it difficult to provide a definite answer in this context.

The fourth sub question deals with the impact of certain potentially influential contextual factors and contains three separate questions. The first issue that is taken into consideration in this context is HRA maturity as a conditional factor. The findings showed that the degree of analytics maturity in a company is expected to affect the results in strategic partner characteristics and activities of the HR department. Even though this expectation cannot be confirmed or denied in the context of achieving strategic partner activities, it can be concluded from the findings that there is already interest from the business at lower stages of analytics maturity, the insights can already be considered “jaw-dropping”, and the adoption of HRA can already be considered value-adding. However, the findings have also suggested that with increasing levels of maturity the interest from the business in the results and insights is also increasing, therefore analytics maturity can be said to have an effect on the value of HRA to the business.

The second contextual factor under consideration is the decision-making culture in a company. The findings from the interviews suggest that the decision-making culture of a business does influence the amount of difficulties that would be experienced when introducing HRA. On the one side it was suggested that it would be more difficult to start with HRA in an experience-based business culture. On the other side it was also stated that the pace of the progress in the HRA adoption would also be quicker in a culture where the need for data is understood, since otherwise people would not like it that much in the beginning and, accordingly, the adoption would progress more slowly. However, whether the culture in the HR department is experience-based prior to the introduction of HR should be no problem according to the interviewee of ‘company 6’, since this change in the decision-making culture from experience-based to fact-based is exactly what you wanted to achieve with HRA. These findings suggest that it is helpful if a company is traditionally valuing basing decisions on evidence and data, but do not necessarily imply that companies with a culture where decisions are more often based on experience cannot make use of HRA. However, if companies do not value data and evidence as a basis of decision-making at all, it is unlikely that HRA will be valued much in the organization.

The third contextual factor is the support for HRA in the company. The findings of this study confirm the importance of this factor, since all interviewees stated this as the most important factor influencing the success with HRA. Reasons for the importance include that support is necessary for being able to start investing in HRA on the one side and that HRA can only fulfill its purpose of supporting the business if the business uses the insights from it. If the business does not use the insights or if it does not trust them, then HR cannot support the business through the insights and therefore HR cannot be successful with HRA. On the other side, if the business does not support HRA, then it will be unlikely to support the investments in this area until the first results can be seen which might lead to a stop in the project at an early state. Thus, the question whether stakeholder support is necessary for success with HRA and to become, for example, perceived as a strategic partner due to HRA can be confirmed.

Generally, it needs to be mentioned that these contextual factors that are analyzed as potential influencers of analytics success are not the only ones of importance. The interviewees also mentioned other factors that have an effect in this context. All interviewees considered the size of a company as a limitation due to statistical relevance. Furthermore, the rate of usage of HRA insights and the strategic focus or the stability of the business a company operates in were mentioned by the interviewees.

After answering the individual sub questions, an attempt can now be made to answer the central question of this study: *“Which effects does the use of HRA have on companies?”* In general, the study has shown that the adoption of HRA is a long-term process where progress happens gradually and effects are not always directly visible. Since all companies that participated in this study have adopted HRA rather recently, the interviews report progress in the achievement of outcomes, but none have reported a full achievement of an expected outcome so far. The interviews have shown that the companies are still dealing with several problems and have not achieved their ideal level of analytics maturity, but all of the interviewees reported that they would decide to invest in HRA again and would also advise others to do the investment. They are all true believers concerning the power of data and concerning the importance of data-based decision making, but company-dependent factors sometimes led to delays in the progress. Analyzing the specific effects of HRA, however, proved to be difficult, due to factors such as parallel developments in the companies that all affect e.g. strategic partnership, a lack of measuring the actual effect within the company, or the slowness with which the progress occurs. Therefore, the question cannot be answered fully. The results suggest that companies as well as the interviewees are generally satisfied with the effects of HRA. However, for a clear statement on to which extent HRA leads to expected outcomes, the companies appear to be not far enough along the implementation road.

In a next step, the findings are being discussed in the context of the literature review from chapter two. Generally, the interviews in the companies confirm the expectation from the literature that companies are still rather at the beginning of implementing HRA. Almost all of the interviewed companies are still conducting primarily descriptive analytics and only testing the conduction of predictive analytics through doing first pilot studies. Also the perceived importance of using HRA is confirmed among the companies participating in the study. All of them advised other companies to invest in it themselves and some said that using HRA was necessary in order to avoid a misbalance with other departments or to avoid staying behind. In the context of expectations that exist in the literature on HRA as a method for HR to achieve an increased strategic partner role, this study could only indicate that HRA potentially helps HR in becoming a better strategic partner, but, due to many simultaneous developments in the companies and the resulting inability of the interviewees to define how much HRA added to the trend that HR is generally taking over the role of a strategic partner to an increasing degree, no definite answer can be given in this context yet.

6. Conclusion & Recommendations

In this chapter the limitations of the study and the implications of the study for practice and for research are discussed.

6.1. Limitations of the study

One limitation of this study is the low number of participating organizations. The sample size of six organizations is not sufficient to draw generalizable conclusions from the findings of the study. They can rather be understood as an indication of possible effects of HRA. However, the topicality of HRA and the difficulties with finding organizations that have already implemented HRA prevented the compilation of a larger study sample. Additionally, the necessity of conducting in-depth interviews with people from the HR department that are responsible for HRA and that have an overview about the implications for HR as a strategic partner, together with the length of the interview of at least an hour made it difficult to find a high number of participants. Nevertheless, also with such a small sample size it is possible to gain first insights into the effects of HRA and the importance of contextual factors.

Another limitation is the fact that the interviews measured the perceptions of the interviewees about the topics discussed. These perceptions are not necessarily representative of all perceptions of the topics within that company, therefore the answer cannot be interpreted as an absolute answer. This factor is a threat to the reliability of the data, since it implies that if the same interview would have been conducted with another person from the same company, the answers to the questions might have been different.

A third limitation is added by the time that was necessary to conduct the interview. Sometimes time limitations made it necessary to discuss questions only shortly while in other interviews more time was available to receive a full answer to the question. This might threaten the comparability of the answers.

Also, not all interviewees had the same degree of knowledge on all the topics. Therefore, some could not answer some questions or the answers might not be valid to the same degree. This resulted from the fact that communication with the companies occurred through being in contact with one person who then suggested who the interview could be with.

All in all, the results from this study must therefore be handled as indications of the effects of HRA, and not as definite proof of these effects.

6.2. Implications for practice

The implications from this study for practice include that companies that have adopted HRA so far are satisfied with their decision and do see progress in the achievements of expected outcomes. All of the interviewees that participated in this study advised other companies to invest in HRA, as well. Concerning the type of companies that is likely to be successful, the study indicated that companies should have a certain size to use analytics due to a necessary statistical relevance of the analytics results that can only be received at a certain amount of data. Additionally, the business should be sufficiently supportive and interested in analytics insights, because otherwise the adoption of HRA is unlikely to be successful. Also, companies with a fact-based culture in which people understand the need for data are likely to find it easier to adopt HRA and to make progress at a quick pace. Lastly, the adoption of HRA can also already be perceived as valuable at lower stages of maturity; however, the interest in the insights and the value it can add are likely to be higher at higher levels of maturity. Another important insight that was emphasized by the interviewees was that companies should nevertheless not wait for the perfect conditions to start with analytics, but should rather start small and show the value of HRA to the business by conducting first researches. Also, the fact that the support for HRA generally increased after the adoption and when first insights were gained shows that conditions can improve after the conduction of first small studies.

6.3. Implications for research

The implications for research include that HRA seems to contribute to the strategic partner role according to several interviewees, but the effects were not that clear that all interviewees shared this opinion. However, this finding can be understood as a first confirmation of the ability to increase the strategic partnership of HR through HRA. Nevertheless, it needs to be emphasized that many interviewees had difficulties with deciding exactly how big the effect was due to several simultaneous developments in the companies that all contributed to an increase in HR acting as a strategic partner. Also, it was indicated that there had not yet passed enough time since the introduction of HRA to see big effects since the process was a gradual one that happened slowly. In general, this topic requires thus further investigation in the future. Additionally, since the sample size was quite low in this context, especially with regard to companies already conducting predictive analytics, a study needs to be conducted in the future involving a bigger sample of companies and also more companies with advanced levels of maturity in the context of HRA. Furthermore, this study only conducted interviews with people from the HR department. An earlier proposal including the participation of line managers and HR advisors appeared to be not feasible at this stage of HRA implementation, since the effects of HRA were not that visible yet to other groups within the organizations due to the recentness of the implementation. Future studies should broaden the analysis of effects of HRA on organizations by including also other participants' views from different departments in the organizations.

6.4. Conclusion

Regardless of the necessity to conduct more studies that focus on the effects of HRA on companies in the future, this study contributes to the literature by gathering qualitative data on companies experiences with HRA and by analyzing which effects HRA has so far had on the companies. It becomes apparent that clearly stating the impact of HRA on the strategic partner role is difficult due to real life conditions including simultaneous developments that also influenced this role of HR. Nevertheless, the answers of the interviewees at least partially suggest that HRA has a positive effect on the strategic partner role of HR. Generally, it is important to note that all interviewees in this study were satisfied with the decision to start using HRA and would recommend using it to other companies. This implies an existent feeling of positive effects of HRA on the HR departments and the companies.

References

Babbie, E. (2010). *The Practice of Social Research* (2 ed.): Wadsworth, Cengage Learning.

Banerjee, A., Bandyopadhyay, T., & Acharya, P. (2013). Data Analytics: Hyped Up Aspirations or True Potential? *Vikalpa, 38*(4).

Barney, J. B., & Wright, P. M. (1998). On Becoming a Strategic Partner: The Role of Human Resources in Gaining Competitive Advantage. *Human Resource Management, 37*(1), 31-46.

Bassi, L., Carpenter, R., & McMurrer, D. (Eds.). (2012). *HR Analytics Handbook*. Amsterdam: Reed Business.

Beer, M. (1997). The Transformation of the Human Resource Function: Resolving the Tension between a Traditional Administrative and a New Strategic Role. *Human Resource Management, 36*(1), 49-56.

Bersin, J., O'Leonard, K., & Wang-Audia, W. (2013). *High-Impact Talent Analytics: Building a World-Class Measurement and Analytics Function - Whatworks Brief*. Retrieved from http://marketing.bersin.com/rs/bersin/images/hita100113sg.pdf

Bichsel, J. (2012). *Analytics in Higher Education: Benefits, Barriers, Progress, and Recommendations*. Retrieved from Louisville: http://net.educause.edu/ir/library/pdf/ERS1207/ers1207.pdf

Caldwell, R. (2003). The Changing Role of Personnel Managers: Old Ambiguities, New Uncertainty. *Journal of Management Studies, 40*(4), 983-1004.

Davenport, T. H., & Harris, J. G. (2007). Competing on Analytics: The New Science of Winning. *Harvard Business School Press*.

Deloitte Consulting LLP, & Bersin by Deloitte. (2014). *Global Human Capital Trends 2014: Engaging the 21st-century workforce*. Retrieved from http://dupress.com/wp-content/uploads/2014/04/GlobalHumanCapitalTrends_2014.pdf

Deloitte University Press. (2015). *Human Capital Trends 2015: Leading in the new world of work*. Retrieved from http://d2mtr37y39tpbu.cloudfront.net/wp-content/uploads/2015/02/DUP_GlobalHumanCapitalTrends2015.pdf

Dias, I., & Sousa, M. J. (2015). Business Intelligence Applied to Human Resource Management. In A. Rocha et al. (Ed.), *New Contributions in Information Systems and Technologies, Advances in Intelligent Systems and Computing 354*: Springer International Publishing Switzerland.

Evans, J. R., & Lindner, C. H. (2012). Business Analytics: The Next Frontier for Decision Sciences. Retrieved from http://www.cbpp.uaa.alaska.edu/afef/business_analytics.htm

Fitz-Enz, J. (2009). Predicting People: From Metrics to Analytics. *Employment Relations Today*.

Fitz-Enz, J. (Ed.) (2010). *The New HR Analytics: Predicting the Economic Value of Your Company's Human Capital Investements*. New York: American Management Association.

Haines, V. Y., & Lafleur, G. (2008). Information Technology Usage and Human Resource Roles and Effectiveness. *Human Resource Management, 47*(3), 525-540.

Holsapple, C., Lee-Post, A., & Pakath, R. (2014). A unified foundation for business analytics. *Decision Support Systems, 64*, 130-141.

Janssen, C. (n.d.). Human Resource Analytics (HR Analytics).

Lawler, E. E., & Boudreau, J. W. (2009). *What Makes HR a Strategic Partner?* Retrieved from http://www.ikgundemi.com/uploads/6/7/8/0/6780997/what_makes_hr_a_strategic_partner.pdf

Lawler, E. E., & Boudreau, J. W. (2012). *Effective Human Resource Management: A Global Analysis*. Stanford, California: Stanford University Press.

Lawler, E. E., Levenson, A., & Boudreau, J. W. (2004). HR Metrics and Analytics - Uses and Impacts. *Center for Effective Organizations, CEO Publication G 04-8 (460)*.

Liberatore, M. J., & Luo, W. (2010). The Analytics Movement: Implications for Operations Research. *Interfaces, 40*(4), 313-324.

Muscalu, E., & Serban, A. (2014). *HR Analytics for Strategic Human Resource Management*. Retrieved from Bucharest, Romania:

Pemmaraju, S. (2007). Converting HR Data to Business Intelligence. *Employment Relations Today*.

Pfeffer, J., & Sutton, R. (2006). Hard Facts, Dangerous Half-Truths and Total Nonsense: Profiting from Evidence-Based Management. *Harvard Business Press, 2006*.

Phillips-Wren, G., & Hoskisson, A. (2015). An analytical journey towards big data. *Journal of Decision Systems, 24*(1), 87-102.

Popovič, A., Hackney, R., Coelho, P. S., & Jaklič, J. (2012). Towards business intelligence systems success: Effects of maturity and culture on analytical decision making. *Decision Support Systems, 54*, 729-739.

Schramm, J. (2006). HR Technology Competencies: New Roles for HR Professionals. Retrieved from

Shrivastava, S., & Shaw, J. B. (2003). Liberating HR through technology. *Human Resource Management, 42*(3), 201-222.

Sierra-Cedar. (2015). *2014-2015 HR Systems Survey: HR Technologies, Deployment Approaches, Integration, Metrics, and Value - 17th Annual Edition*. Retrieved from http://www.sierra-cedar.com/wp-content/uploads/sites/12/2014/11/Sierra-Cedar_2014-2015_HRSystemsSurveyWhitePaper.pdf

Tootell, B., Blackler, M., & Toulson, P. (2009). Metrics: HRM's Holy Grail? A New Zealand Case Study. *Human Resource Management Journal, 19*(4), 375-392.

Ulrich, D. (Ed.) (1997). *Human resource champions*. Boston: Harvard Business School Press.

Ulrich, D., & Brockbank, W. (2005). *The HR Value Proposition*. Boston, Massachusetts: Harvard Business School Press.

Vihari, N. S., & Rao, M. K. (n.d.). *Analytics as a Predictor for Strategic and Sustainable Human Resource Function: An Integrative Literature Review.* IIT), Roorkee.

Appendix A

Interview Protocol

Interviewee Background

Name:

Gender:

Function:

Current employer:

How long have you been …

- at this institution? ___________________________________

- in your present position? ______________________________

Topic list:

- General information:
    - When did you start with HR analytics?
    - Why did you decide to start the adoption of HR analytics?
    - What outcomes did you expect to achieve through HR analytics?
    - Was being perceived as a strategic partner one of the reasons why you implemented HR analytics?
    - How does the overall usage of analytics look like in your organization? / Is almost every department making use of analytics as a decision-making paradigm?
- Maturity:
    - Which types of metrics are used so far? (efficiency, effectiveness, impact)
    - What type of reports are being set up?
    - What is the focus of HR analytics at the moment (descriptive, predictive, prescriptive)
    - Which actors are involved in the process of HR analytics? Do you have a special HR analytics team?
    - Do HR advisors provide advice to line managers based on analytics insights?

- Organizational culture:
  - How were decisions taken in the past (e.g. 15 years ago?) in the HR department: based on experience and instincts? Or based on data?
  - How are decisions taken in the overall organization? Based on experience and instinct or based on data?
  - Would you describe the culture of your organization as data-based or experience-based?
- Organizational support:
  - Who initiated the adoption of HR analytics? / who proposed to start with HR analytics?
  - Was the board supportive with regard to investments in HR analytics?
  - Do you have the feeling that the whole HR department values the introduction of HR analytics?
  - Do you have the feeling that line management values the introduction of HR analytics?
  - Do you have the feeling that employees value the introduction of HR analytics?
- Outcome satisfaction:
  - Have you been able to achieve outcomes that you wanted to achieve through HR analytics?
  - How satisfied are you in general with your progress so far?
  - Would you say that HR analytics helped your HR department with being perceived as a strategic partner?
  - Would you say that HR has a seat at the table when business strategy decisions are being set up?
  - To which degree would you say that HR is being considered as a partner to the business:
    - HR has
      - No role,
      - An implementation role,
      - An input role,
      - Or a full partner role (in developing and implementing the business strategy)
- Strategic partner role:
  - How would you describe the relationship between HR and line management? (Is HR partner to line management in the achievement of their goals?)
    - Has the relationship changed after the adoption of HR analytics?

- How would you evaluate HR's current ability to predict future needs and challenges of the business ? Is HR able to align the resources of organization with demands?
  - Changes since HR analytics adoption?
- Would you say that HR is contributing to the formulation of the business strategy?
  - Changes since HR analytics adoption?
- What is HR's role in the execution of the business strategy and the accomplishment of the vision and mission of the organization?
  - Changes since HR analytics adoption?
- What is HR's role with regard to the strategy development process?
  - Changes since HR analytics adoption?
- Would you consider HR to fulfill the role of a change agent? (diagnose organization problems; separate symptoms from causes; help set an agenda for the future; create plans for making things happen)
  - Changes since HR analytics adoption?
- Would you say that HR advises the leaders of the organization about which actions need to be taken and helps the leaders in the management of the change process?
  - Changes since HR analytics adoption?
- To what extent would you say is HR involved in the progress of the organization by offering feedback to the business leaders?
  - Changes since HR analytics adoption?

- Problems:
  - What are the biggest problems that keep you from realizing expected outcomes?
  - Are you satisfied with your overall process?
  - Would you decide to invest in HR analytics again?
  - Would you advise companies to invest in HR analytics?
  - Do you think that only a certain type of companies is able to use analytics? If yes, which preconditions have to be fulfilled according to you?

Appendix B

Coding table

The following table shows the different codes that emerged during the coding process and illustrates which types of citations from the interviews were matched with the different codes. For this purpose, small parts from the citations from the different interviews were mixed up, so that an identification of the participating interviewees and organizations is prevented.

Topic	Quote from interview
1. General information	
• When start	*"We are working on it now for two years."*
• Reasons for start + goals /outcomes	*"the ultimate goal is to make sure that HR has a big impact on the business"* *"But we did not sit down and write down in two years we would like to get benefit a, b, c out of there"*
• Strategic partner role = goal?	*"That is one of the things that is key"*
• Software	Comment: No examples of used software are provided here since they might potentially identify the interviewed companies.
• General usage analytics (departments)	*"That depends on the type of analytics. So if you are really looking at HR analytics, there are businesses in this company that use it more than others"* *"There are a lot of colleagues that do not come to us"*
2. Maturity	

• Current level of maturity	*"We have sampled a bit. […] So in terms of maturity in analytics, we are not really mature yet."*
• HRA process + actors involved	Comment: This question was not always discussed during the interviews and examples might potentially identify the interviewed companies.
• HRA focus/questions addressed	*"[…] we are answering business questions, again, so we stick close to what their problems or opportunities or KPIs are and we try to give some hard evidence from HR what to do […]"* *"I want to see relationships on an aggregated level."*
• Own evaluation (sufficiency, goal, importance)	**Sufficiency:** *"We are just scratching the surface. You could do so much more."* **Importance:** *"If you do it, you need to do it well and right. […] It needs to be an instrument that brings the organization to a higher level."* *"You can make it very big […]. You can also approach it from a hands-on, no-nonsense perspective."*
3. Organizational culture	
• Way of decision making	*"I find that difficult to assess. […] we do not have a clear guideline I would say on this is how we take decisions and these are the inputs that you need to have."* *"It depends on where you are in the company. It has a high diversity I would say."*
• Culture in HR (before + now)	*"HR is experience, gut feeling, intuition, which is ok by the way."* Changes through HRA: *"Yes. Not enough yet […]."*

• Relevance culture for HRA success	*"The whole idea of just presenting something which has 'evidence' behind it, that is very powerful. […] you cannot move forward with HR without having that analytics culture also in your HR advice people, because the guys you deal with daily, they are driven by decisions based on facts."*
4. Organizational support	
• Support for introduction HRA	*"There is hardly any pull towards us […]. Not from management. […] there are a lot of colleagues who do not come to us."*
• Changes in support	*"In terms of descriptive analytics we proved how valuable we can be. So support increased, but in combination with that support also the expectations increased with regard to predictive analytics."*
• Satisfaction with support	*"It could always be better."*
• Relevance of support	*"Very relevant of course. […] It needs to really support the business. That is why you do it. So it needs to be perceived well, otherwise it does not come to life."*
5. Outcome satisfaction	
• Achieved expected outcomes	*"That is the main drive, to support decision making. And we are satisfied with that."*
• Not achieved expected outcomes	*"I still think we can get much further in moving towards predictive analytics, in combining for example with business data, because that is still something we have not really done […]."*

• Unexpected outcomes	*"There is a lot of appetite and curiosity."*
• Reasons for (non-)achievement	*"Something like employee engagement is of course very sensitive, so we do not have that information even on name level. […] we get it in an aggregated report already, but if you then want to combine it with turnover or performance scores, that is difficult."*
• Satisfaction with outcomes	*"I would say if we then look at our own satisfaction it is still between three and five. […] we are still scratching the surface."*
6. Strategic partner role	
• Effect HRA on HR roles	*"There are changes in the role of business partners and in the role of experts that have to develop more skills and capabilities in the area of HRA. […] Also on how we collaborate within HR."*
• HR = strategic partner through HRA?	*"I am a bit in doubt. I see the influence that HR becomes more and more a strategic partner, but I am not sure whether this is only a correlation or also a causal relation."* *"No, that is too fresh."*
• Seat at the table? + changes	*"It depends on the business line."* *"Yes, but I am not sure if HR analytics is the key driver to this."* *Changes: "No."*
• Degree of strategic partnership	*"I think an input role. There is still space to move up."* <u>If asked, additional questions from literature</u>
• Relationship LM & HR + changes	*"I think overall it is a partner, but it also depends a bit on the level of managers."*

	Changes: *"Not yet. HRA is still too small."*
7. Problems	
• Obstacles experienced	*"The problem can be getting the data."* *"The basics were not in order."*
• How problems solved?	*"Through stakeholder management and leverage of the HR director."*
• Invest in HRA again?	*"Yes, definitely."*
• Advise investment to others?	*"I think if HR does not invest in HR analytics it will lose its position even more."*
• Conditions for success	*"I think in general if an organization is really on that gut feel, then it becomes really difficult to implement something analytical, because people do not like it."*
• Advise to others / lessons learned	*"Start. Don't wait until all conditions are optimized because then you are already in arrears and you will never catch up again."*
• Satisfaction with HRA progress	*"I think we made great steps. It is not my ideal model yet."*