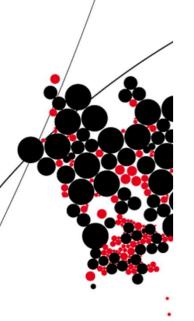# UNIVERSITY OF TWENTE.

What challenges does HR face when implementing HR Analytics and what actions have been taken to solve these challenges?

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Contents

1. INTRODUCTION

Through globalization and changing environments the need for companies to gain a sustained competitive advantage has increased immensely (Martin, 2013). This matter affects companies operating in all industries, since they are forced to compete in a world, which offers both an advance development of technology on daily basis as well as an uncertain, unstable and also very chaotic operating environment (Martin, 2013). The overall effectiveness of the organization has become a central aspect and it is considered as key criteria for surviving in today´s economy (Mihalicz, 2012). Therefore, it is being assumed that one of the main purposes of organizations is to pursue an increased effectiveness within their daily operations, such as increasing the effectiveness regarding decision-making processes.

According to Boudreau (2006) an organization´s ability to both create and maintain a sustained and consistent competitive advantage is highly depended on how well the organization is able to master the management of its people, namely its human resources. Given this information, the impact of the HR function within the organization is essential. However, it is questionable why HR is being kept in its administrative position although its potential of becoming a strategic partner has theoretically been discovered as well as confirmed by several authors already (Ulrich, 1997; Brockbank, 1999; Lawler & Mohrman, 2000). According to Boudreau and Ramstad (2002) the measurement of HRM is missing, which reflects the missing puzzle that prevents HR to actually measure its outcomes. Once the actions of HR can be measured, decision-making about the activities of HR and its impact can be more profoundly converted to business operations. Analytics itself however, is not being considered as the only ingredient for improving decision-making. Other aspects such as the individual context and experience for the given situation combined with a fact-based approach are considered as the right combination for enabling an effective decision-making process (Coolen, 2015). The development of a decision-science in HR could enable a measurement and enhance and foster decisions about people, just as like the marketing uses decision-science to make decisions about the customers as well as the financial department makes decisions about financial matters based on decision-science (Casciou & Boudreau, 2008; Fitz-enz, 2010). Indeed, according to Deloitte (2013), the strong development as well as the maturity of Enterprise Systems is basically forcing organizations to do more with their data. Since Analytics is being chosen to in the overall organization as a measurement tool (Boudreau & Ramstad, 2005), it is advisable for HR to integrate analytics as key element within its function as well. The HR Predictive Analytics Expert Luc Smeyers has defined HR Analytics as the following, namely "making better decisions by systematically analysing (i.e. people) levers of business outcomes", whereas this definition more likely refers to the outcome of the implementation of HR Analytics. Nevertheless, it provides a clear understanding of the opportunity HR Analytics has to offer.

There have been several HR practitioners including Green (2015) as well as Coolen (2015) that have promised a golden future for Human Resource Analytics, which indicates that organizations are indeed willing to consider the implementation of Analytics within the HR department. In this case, implementation does not refer to a process but more likely the execution of assessing HR data with support of analytics in order to provide outcomes and insights that are supportive to business operations. However, if through the implementation of Analytics HR is able to make decision-making processes more effectively, the question arises "Why does not every company have a mature HRA function in place already?" This question implies that the implementation itself might be a major challenge and viewed as a transformation for organizations. Although there are organizations that were successful in

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developing analytics within its HR, such as Shell, Google Company A, there are also many organizations struggling with getting started in general (Deloitte, 2013).

Assuming that all organization implementing HR Analytics face struggle with this transformation of the HR design, it is key to explore the challenges faced once started the implementation as well as the solving method used to overcome these. There are several professional articles written by HR experts such as Green (2015), Smeyers (2015) and Coolen (2015) Bersin (2014;2015) and Marritt (2015). Coolen (2015) for example, published an article "The 10 golden rules of HR Analytics" which describes the 10 rules or requirements HR needs to exert in order for Analytics to work within HR. Further, the HR expert Luc Smeyers also published articles such as "Using the 3 P´s to start with HR Analytics" (2014) to foster as well as to facilitate organizations the start of implementing HR Analytics. Marritt (2015) wrote an article "2015 in People Analytics" addressing the status quo of HR Analytics within companies. Further, Bersin (2014; 2015) also published articles claiming the need for understanding HR Analytics more in depth and its challenges when implementing it properly. The content of these articles might be helpful for creating an in-depth understanding of HR Analytics but nevertheless, these are biased and more likely recommendations that are not objective or nuanced as they are based on experience. According to the authors above, there is a major hype evolving around HR Analytics and its promises to provide insights and building a fact-based decision science. When assuming that the implementation of HR Analytics implies a change, it must be stated that scientifically, there is no lack of literature on how change should be conducted within organizations. Then again, the question "why not every organization does not have a mature HRA function in place" is being addressed. What is so special about the HR Analytics phenomenon that insights cannot be generalized from change management in order to come to the challenges? What is lacking is an empirical study, which provides the required knowledge based on evidence. Therefore, in this thesis we execute a qualitative research that focuses on the transformation in the context of implementing HR Analytics in order to find (1) the challenges organization face when implementing HR Analytics and also (2) their actions to overcome these challenges. With the implementation of analytics, this paper refers to the process of "minimizing human bias, creating new insights, helping employees, using the insights and creating relevant data" (Coolen, 2014).

Therefore, the research question within this thesis is:

What challenges does HR face when implementing HR Analytics and what actions have been taken to solve these challenges?

This thesis executes a qualitative research in form of conducting interviews with three organizations that are implementing or have implemented HR Analytics. The interview questions are based on the research question and the theoretical framework used in this paper and aim to provide insights in first, what challenges these organizations have faced when implementing HR Analytics and second, what actions have been taken to solve these.

Regarding the structure of this thesis, we will start by introducing HR Analytics within its theoretical background and continue with decision-making theory by explaining the evidence-based management movement. Also, since the implementation of HR Analytics is being considered as a transformation within the HR design, Kotter´s work "Leading Change" (1995) will be illustrated connecting the steps of transformation process mentioned by Kotter with HR Analytics. This section is followed by the methodology part explaining the execution of this research and the analysis approaches taken. In the last step the outcomes and conclusions, limitations and future research recommendations will be described.

2. THEORY

In the following section the theoretical part of this paper is being introduced. First, an introduction of HR Analytics will be provided in order to create an in-depth understanding of the phenomenon. In the second part of this section, this paper assumes that the delay of implementing Analytics within HRM is due to the fact that this implementation equals a transformation within the organization. Since many transformations still tend to fail (Dietz and Hoogervorst, 2013), it is important to investigate how successful changes within organizations can be achieved. Therefore, this paper proposes that the Kotter´s eight steps of leading change represent a suitable way of introducing the implementation of HR Analytics within an organization. This is due to the fact that similarities between the steps of Kotter and key aspects of implementing HR Analytics explored by practitioners have been recognized. Further, a connection between the steps of Kotter, particularly with reference to the implementation of HR Analytics, and the literature aspect such as the evidence-based management and the unitarist vs. pluralist view is being built and examined. Each of the eight steps will be shortly explained and related to the challenges organizations might face when implementing HR Analytics. Kotter himself as well as his works have been highly appreciated and his works for the Harvard Business Review have been among the magazine´s top-sellers (Hasbe, 2013). Specially, his bestseller Leading Change (1995) has been acknowledged as a fundamental work towards understanding the implementation of change and strategy (Aiken & Koller, 2009) and thus, has been chosen for as a core aspect for this research.

2.1 ANALYTICS AND HR

Davenport Harris and Morison (2009, p. 5) define Analytics as the method of "using data and quantitative analysis to support decision-making" with the goal of making decision-processes more reliable as well as effective. The authors further describe that analytics itself belongs to one of the most powerful tools that impacts decision-making. Therefore, this technique is being used by many organizations in both a strategic and tactical way to achieve competitive advantage in terms of their analytic capabilities as well as decision-making processes based on data gained from analytics (Davenport, Harris & Morison 2009). Furthermore, the authors distinguish between two types of analytics, namely prescriptive analytics that focuses on information as well as patterns that are currently available, and predictive analytics, which aims to relate given information to the future (Davenport, Harris & Morison 2009). Fitz-enz (2010. P. 11) defines analytics in general as "a mental framework, a logical progression first, and a set of statistical tool second". He confirms the definition of predictive analytics and adds that predictive analytics derives from the observed patterns in descriptive analytics.

Relating Analytics to HR, the authors Davenport, Harris and Shapiro (2010, p.3) have stated, "Analytical HR collects or segments data to gain insights into specific departments or functions". Increased engagement can be one of the major outcomes (Davenport, Harris & Shapiro, 2010).

Mondore, Douthitt and Carson (2011, p.21) define HR Analytics "as demonstrating the direct impact of people data on important business outcomes". Hereby, the authors stress the importance of the implementation of HR Analytics as it highly affects the overall role HR maintains in an organization.

Within this paper, however, this paper makes use of the definition provided by Coolen (2014). His definition most likely tends to describe the approach of the implementation process and the activity aspect of HR Analytics by claiming that HR Analytics "is about minimizing human bias, creating new insights, helping employees, using the insights and creating relevant data" required for improving decision-making processes.

2.2 HR ANALYTICS: REASONS, GOALS AND REQUIREMENTS

Husselid and Becker (2005) justify the implementation of analytics by arguing that first, the opportunities of technology allows much more and faster development in many business areas due to the fact that organizational decision-making processes are much more data driven. Secondly, the authors state that the impact of human capital on performance is a complex system which hampers making beneficial decisions and third, since other departments such as Marketing and Finance, rely on analyses as well as qualitative data, HR needs to follow that trace (Huselid & Becker, 2005). According to Davenport, Harris and Morison (2009), it is nowadays for the utmost importance that organizations make better decisions, which are based on fact-based analytics. Further, the authors critically add that "despite the massive amounts of data that companies have at their fingerprints, few companies know how to make smart decisions using analytics; even fewer succeed at connecting information with decision-making. Instead of basing important decisions on facts, too many managers rely on their intuition, their experience, anecdotal evidence or just plain gut" (Davenport, Harris & Morison, 2009, p.4)

According to the Rasmussen and Ulrich (2015, p. 2) "HR succeeds by adding value to business decisions that intervene and create business success not just by validating existing knowledge in practice". Through the implementation of HR Analytics, great impact on decision making will be achieved: opinions will be replaced with evidence-based decisions, a bridge between management academia and practice will be built, the impact of HR investments will be prioritized and HRM will add value through objectivity instead of experience/opinion (Rasmussen & Ulrich, 2015).

Further, the authors Davenport, Harris and Shapiro (2010, p.3) state, "Analytical HR collects or segments data to gain insights into specific departments or functions". Increased engagement can be one of the major outcomes. However, the authors also argue that the implementation of analytics requires the execution of analytical theory into practice in the first place. Doing so, the requirements contain the need of experts in many fields, namely in quantitative analysis as well as in the psychometrics field, human resource management systems and processes and employment law (Davenport, Harris & Shapiro, 2010). Also, the authors emphasize that analytical HR enables the integration of individual performance data with HR processes metrics with the promise that organizations can "exploit" their talents more explicitly, since any investment in human capital analysis supports the organization and the evaluation of both which next steps as well as actions that have to be undertaken in order to achieve an great impact on the overall business performance. (Davenport, Harris & Shapiro, 2010)

As a conclusion, several authors claim through the use of analytics organizations are able to establish a fact-based decision-making process, which is being described as a major goal of implementing HR Analytics. It is being emphasized that the implementation of analytics within the HR function can be considered as inevitable since decision-making processes within the HR field needs to become more data driven.

2.3 EVIDENCE-BASED MANAGEMENT

The following section aims to provide an in-depth understanding about decision-making processes by examining what more factors are being considered as important regarding decision-making processes. Since analytics is being described as a tool that is supportive for making business processes, information should be provided in a way that best suits the decision-makers (Deloitte, 2013). This fact-based thinking, however, is debatable and stands partly in conflict with evidence-based management. According to evidence-based management not only facts are key for decision-making processes (Rousseau, 2005). Therefore, this paper also considers fact-based management as an important aspect, which should be considered when aiming to find the best way of making decisions.

Evidence-based management has its roots developed in evidence based medicine and evidence based policy and claims the use of the best evidence is key for decision- making (Sackett, et al., 2000). However, contrary to medicine, the judgement of evidence-based management also involves the consideration of including the individual circumstances, behavioural science evidence as well as the related ethical concerns (Rousseau, 2005). Therefore, according to this framework, it requires a combination of conscientious, judicious use of the most suitable and available evidence merged with individual expertise, a high validity and reliability regarding business facts while also considering the impact on stakeholders (Rousseau, 2005).

In a conclusion, the implementation of HR Analytics might support a fact-based process in regard of decision-making processes but it has also to be considered that not only facts but also personal preference, the individual context as well as experience are key determinants for decision makers.

2.3.1 UNITARIST VERSUS PLURALIST

The implementation of Analytics within HR is, as already mentioned during this paper, represents a pure fact-based approach of decision-making processes. Its implementation and the overall transformation process might thus, not be favoured by all employees as conducting analyses on sensitive data about human actors and using them for decision-making processes is a solely rational approach. Individual contexts and circumstances can be important aspects as well, which might not be taken into account. Therefore, this section introduces the terms unitarist thinking versus pluralist thinking that support illustrating the two contrary views on decision-making processes in order to create an in-depth understanding.

The *unitarist* view describes a paternalistic approach that the employees of an organization are being seen as a unit that together with the effort of the organization work towards achieving the same goals (Fox, 1974). Both the management as well as the employees follow the same purpose and share the same outline, as the whole organization is being perceived as one big family. On the other hand, the *pluralist* view is not a paternalistic approach and believes that for an organization to achieve its goals it requires the management of the different employees (Geare & Edgar & Mcandrew, 2006). One main difference to unitarist is that pluralists do not believe in the power exerted by management but that power is widely spread. This encourages employees to speak out their mind and thus, involves employees in daily operations (Fox, 1974).

The implementation of HR Analytics presumes the unitarist view as achieving a fact-based decision-making process through the implementation of Analytics is being seen as the holy

grail of improving decision-making processes. Not everyone, especially when using sensitive data for analysis purposes, is, however, sharing this opinion. In reality, the different departments within the organizations might expose different needs and requirements and also, follow different goals. Therefore, it can be proposed that decisions-processes should rather be aligned with the individualized requirements of the different stakeholders and not rationalized through Analytics.

Hence, these propositions might stay in conflict that only a fact-based measurement of HR outcomes through Analytics will support decision-making processes as a pluralist view might exist.

2.4 INTRODUCTION TO KOTTER

Within environments, which are characterized by globalization and thus, competition, change itself can be considered as inevitable and also be defined as the required transformation from the current state to the desired state (Prosci, 2015). The implementation of HR Analytics presents such a change due to the fact that a transformation of the HR function itself is taking place.

Kotter himself as well as his works have been highly appreciated and his works for the Harvard Business Review have been among the magazine´s top-sellers (Hasbe, 2013). Specially, his bestseller Leading Change (1996) has been acknowledged as a fundamental work towards understanding the implementation of change and strategy (Aiken & Koller, 2009). Further, the practitioners such as Coolen (2015) and Smeyers (2014;2015) emphasized criteria needed for implementing HR Analytics that are involved in Kotter´s eight steps of implementing a change or a transformation within the organization; namely, the importance of creating a vision has been stressed as well as its communication throughout the organization. Doing so, the removal of any obstacles/ challenges when implementing HR Analytics as well as the necessity of getting required support from the overall business is being highlighted. Research confirmed that Kotter is mentioning these aspects and requirements within a transformation process as well. Doing so, this thesis assumes that the implementation of HR Analytics implies a change, which thus can be linked to Kotter´s transformation process and create an in-depth understanding about conducting the implementation of HR Analytics within organizations.

Therefore, within the next part this paper aims to integrate the steps considered as important of HR Analytics with the eight steps of Kotter´s process of leading change. Also, these steps will be combined with the fact-based management and the unitarist vs. pluralist view.

2.4.1 LEADING CHANGE AND THE IMPLEMENTATION OF HR ANALYTICS

Kotter (1995) listed eight steps within a process of leading change, which contains (1) creating a sense of urgency, (2) forming a powerful guiding coalition, (3) creating a vision, (4) communicating the vision, (5) empowering others to act on the vision, (6) planning for and creating short term wins, (7) consolidating improvements and producing still more change and (8) institutionalizing new approaches change (Kotter, 1995).

(1) Creating a sense of urgency
Kotter describes the first step of leading a change process as creating a sense of urgency to enable the start of implementing a change. According to the author, many organizations underestimate the effects of this step and its impact of the overall change process. Kotter further claims that one key requirement of getting the transformation process started, is to ensure the cooperation of many individuals as possible. Therefore, creating urgency such as discussing potential crises as a possible drop in the market position or a possible loss in the financial performance or identifying new business opportunities creates the starting point of a transformation processes and the change effort. The implementation of HR Analytics represents such a new business opportunity that can create the above-mentioned sense of urgency to start a transformation process. According to Deloitte (2015, p.10) "Companies that take the time and make the investment to build people analytics capabilities will likely outperform their competitors significantly in the coming years". Since the business world can be "characterized by a new 'normal' of fast-paced change, related to advancing technology, skill shortages, economic flux, competitive pressures, the global competition for talent and demographic shifts" (Huselid, 2015, p.25), organizations are also suffering a lot of pressure, which increases the need to take opportunities. Further, according to Bersin (2015), a research illustrated that more than 87% of business leaders are worried about both retention and engagement, more than 86% are concerned about leadership and 85% are being apprehensive about working skills in general. This emphasizes the need for making decisions about the human resources more on evidence-based methods to provide possible solutions for these matters. Also, Marritt (2015) added that there is an increased need for senior level HR managers to understand more about analytics in order to find answers and being able to identify possible opportunities, make proper selection regarding vendors or simply feeling more confident when including data and facts in decision-making processes. Therefore, the drive for becoming more fact-based can be seen as one of the biggest opportunities for HR to improve its decision-making processes and find proper solutions when facing issues such as low engagement results or poor performance and making decisions about human resources in general. However, it has to be considered that not all employee´s interests are aligned and thus, not all employees might embrace using sensitive human resource data for analysis purposes (Coolen, 2015). By expecting a unitarist view at the start of this step might expose as a pitfall and hinder the implementation of HR Analytics in the starting phase. Since not all employees might share the same opinion (Geare & Edgar & Mcandrew, 2006), not all employees might experience the sense of urgency. Further, as mentioned above, within the fact-based management it is being stressed that facts only do not contribute to a proper decision-making process and thus, do not substitute other important requirements for making decisions (Coolen, 2015). This might also hinder to transfer the urgency level to the employees.

(2) Forming a powerful guiding coalition
Within the second step Kotter highlights the importance of building a guiding coalition that grows over time. The coalition might consist of the head of the organization, the general manager and many employees as possible in order to develop a shared commitment with the goal of establishing excellent performance. This group of coalition should be powerful in many

terms such as title, information, expertise, reputation and relationships. Relating the second step to the implementation of HR Analytics, the involvement of a supportive leadership might be one aspect and hence, represent a challenge. According to Deloitte (2015), companies are struggling with the overall development of leaders as they are facing skills gaps that need to be overcome. Since HR is reinventing itself in order to deliver business impact and also to be more innovative driven, a leadership that is able to foster and encourage those goals is required (Deloitte, 2015). Once this kind of supportive leadership is developed a guiding coalition can emerge. In order to attract people with the work of HR Analytics, one has to make sure that the outcomes of these analyses are supportive towards business goals. One has to gain the required knowledge in order to understand the business model, its strategy and the current challenges the organization is facing (Coolen, 2015). Further, cooperation with the employees and legal department is required to convince that using the data for analysis purposes is being done with respect to legal aspects (Bersin, 2015). Bersin (2015) therefore recommends to provide a training session in data security, privacy and identity protection for the HR Analytics team to ensure an appropriate use of the data, which will lead to gaining trust and support from the organization. Also, Coolen (2015) argues that in order to sell HR Analytics consultancy skills are key in spreading the message across the organization. The consultant will translate HR Analytics outcomes into business language while being able to explain the general process of HR Analytics in a convincing way with the ability to visualizing the outcomes in a non-technical matter (Coolen, 2015). However, the author also mentions that the consultant should maintain in-depth knowledge of analytics as well in order to be able to answer any questions properly. Further, Kotter claims that the guiding coalition should possess the capabilities to lead the change effort while encouraging team working. Bersin (2015) claims that HR Analytics is considering change management consultants as inevitable when actually implementing the recommended changes. Donaldson (2015) also adds, that knowing the outcomes of analyses will have no impact if the organization does not implement them and thus, turn the advices into actions. Gaining an effective sponsorship will support HR Analytics to acquire the needed resources, both technology and human resources, to succeed and focusing on the key business challenges needed to be solved (Berry, 2015) Therefore, through cooperation with other departments and transparency, the needed support in terms of a guiding coalition of implementing HR Analytics is being considered as one key aspect. Within this step it has to be considered, that while seeking for establishing a group that supports the implementation of HR Analytics, a pluralist view might exist (Geare & Edgar & Mcandrew, 2006) as not all stakeholders might share the same level of interest (Coolen, 2015). Therefore, forming guiding coalition might represent a challenge and should be given awareness.

(3) Creating a vision
The third step of transforming the organizations aims to create a vision that supports directing the change effort through the development of strategies in order to achieve the vision. According to Kotter, (1995) the vision should be easy to communicate and also be attractive for all stakeholders that are affected. Also, the author states that the vision will be finalized and developed over time. When implementing HR Analytics, also because it affects the entire HR function and the organization in general, it is necessary to communicate the vision entirely to every stakeholder involved in order to gain the support of the employees (Farmer, 2014). Doing so, according to Bersin (2015), within the next 10 years, markets are expected to be doubling. The new vision of the HR function will be considering analytics as an integral part of its function. This will also exert an impact on strategic work and capabilities building. Bersin (2014) states that HR practitioners will have to put effort in certain actions that will support organizations measurably better and/or significantly different than alternative methods and competitors. The demand of implementing analytics within HR is growing and will be part of

the general HR function in the upcoming future (Bersin, 2015) with the goal of creating insights and provide valuable information to improve decision-making processes and getting HR to become more fact-based (Coolen, 2015). However, since evidence-based management already stressed that a facts only do not form the basis for decision-making processes, it is important to mention that data science should be integrated as one aspect of decision-making processes next to individual context and experience, in order to attract more stakeholders. Doing so, also the pitfall of expecting a unitarist view will be avoided.

(4) Communicating the vision

Within the fourth step of the transformation process Kotter stresses the importance of using communication vehicles in order to spread the vision as well as the strategies. The guiding coalition should act as a role model and act upon the new vision through its behaviour. Doing so, as many people as possible will be attracted and their willingness to support the organization within the transformation process will increase. According to Deloitte (2013, p.9) "For organizations where analytic support is visible and valued, senior leadership often plays a role in championing the analytics effort." Therefore, for a proper communication of HR analytics throughout the organization, a general sense of analytics in operation might be necessary. Doing so, the basis for the guiding coalition is given to successfully communicate the vision throughout the organization. According to Coolen (2015) the impact of HR Analytics and benefits should be preached to all stakeholders, if possible. This can be done through providing courses with the goal of sharing all results and outcomes to the relevant target group such as the HR community in order to create awareness. Consistency in spreading awareness is being considered as an important aspect and can be continued in issuing booklets containing the results of further analyses. (Coolen, 2015). Also, workshops can be provided to the regular HR community with the goal of explaining the main principles HR Analytics (Coolen, 2015). Doing so, the HR function itself will gain regular knowledge about analytics and capture opportunities for HR Analytics when occur. Through providing these courses and workshops, the vision as well as the impact of HR Analytics can be shared and well communicated throughout the HR community to increase awareness. One important aspect in communication the vision through sharing the outcomes is to develop skills such as being able to tell a story while presenting the insights without many technical details and with strong visualization (Coolen, 2015; Davenport, 2015). Further, it is important that these insights and the new vision of the HR function are well communicated to HR and the overall business since their backing and confirmation will support spreading the impact that HR Analytics has (Coolen, 2015). Within this step of communicating the vision, Smeyers (2015) argues that a role of a translator, such an HR business partner, between the analytics department and the business should be staffed, with the ability to translate analytical outcomes into actionable insights for the management team. The HR business partner should maintain four main skills, such as (1) possessing analytical skills, (2) a comprehensive and widespread understanding of business operations, (3) a high level of consultancy skills and (4) a high ability of steering projects on cross functional levels (Smeyers, 2015). Ergo, the communication of the vision and the impact of the insights HR Analytics can provide, should be communicated well and spread throughout the HR community and the business and is considered as an important aspect. A proper communication is also required according to the pluralist view since it is believed that for an organization to achieve its goals, it is necessary to manage and involve all the different employees (Geare & Edgar & Mcandrew, 2006).

(5) Empowering others to act on the vision

The fifth step contains to remove everything that does not go hand in hand with the new created vision, such as obstacles that prevent the change and systems or structures that undermine the vision. Within this step Kotter encourages a risk taking behaviour as well as embracing non-traditional ideas, activities and actions. The goal of this step is, after the vision and strategies

have been communicated, to not make the employees only understand the vision but also remove the obstacles that prevent them from action upon the new vision and taking initiatives. Relating this aspect to HR Analytics, one key obstacle to remove is to enable the employees attain the required skills in order to apply Analytics (Rasmussen & Ulrich, 2015; Huselid, 2015). According to Deloitte (2015), technical and professional skills have become top priority but many organizations´ training programs have failed to comply with developing providing suitable workshops where the required skills can be developed. Coolen (2015) also approves this aspect and states that the basics of statistics are inevitable in order start with HR Analytics. Further, Coolen (2015) claims that gaining general knowledge about the IT landscape can also be beneficial in order to understand how data can be accessible and to identify unique identifier between multiple systems. Gaining this knowledge can support the collection of the data in a more efficient way. Therefore, one major challenge for organizations is to develop training programs that support employees to learn how to apply Analytics within HRM and thus, enable the employees also to act upon the new created vision of HRM (Coolen, 2015). Otherwise, HR operations as well as the HR skills will not be able to keep up with business needs and prevent from developing business solutions that are adequate for organizational purposes (Deloitte, 2015). Also, further obstacles can be removed such as simplifying the process of cleaning the data or supporting the integration of big data platforms (Bersin, 2015). Moreover, Bersin (2015) states that more than 80% of the organizations are still feeling challenged with reporting tasks due to a technical debt in cleaning the data. In order to empower others to act upon the vision, these obstacles have to be considered and removed. At this point, again, it is important to acknowledge the pluralist view, which claims that not all employees might be sympathetic to implementing HR Analytics and thus, not share the same interests. Therefore, Coolen (2015) stresses that transparency in all the steps of conducting analytics within HR is essential and should be an integral part of conducting analyses. Further, when empowering others to act upon the vision, attention should be paid that not all employees might share the same opinion and thus, different action are required to convince all employees, according to the pluralist view (Fox, 1974).

(6) Planning for and creating short term wins
The sixth step involves the establishment of a rewarding system that recognizes visible performance improvements and rewards the employees involved in the improvements made. According to Kotter, (1995) this is a big requirement as any transformation of an organization absorbs both time and effort but the motivation level needs to be held as high as possible. Otherwise, the urgency level will drop. The creation of short-term wins encourages the employees to keep the focus and achieve the objectives and thus, being rewarded. According to Huselid (2015), rewarding is a part of cultural elements and its integration is an important success factor that should be taken into account when implementing a change. Deloitte (2013) states that small pilot groups did help organizations to effectively plan short-term wins as they yielded tangible results. Doing so, the employees´ motivation level maintained a high level. Also, through a consistent way of communicating the outcomes of the insights HR Analytics provides, the motivation of establishing HR Analytics more and more into daily operations of HR Analytics will increase awareness and encourage employees to recognize that a high demand for providing more insights exists (Coolen, 2015). This also emphasizes the pluralist view as it highlights the fact that power is not only exerted by management but also by all employees/stakeholders that contribute to the implementation of HR Analytics (Fox, 1974).

(7) Consolidating improvements and producing still more change
The seventh step of Kotter´s "Leading change", (1995) states that although the change might be implemented yet the change processes should not end here entirely until the behaviour towards any implementation of changes have been anchored deeply within the organization´s

values and routines. Through bracing the process with new projects and themes, new change should be created. Also, support can be gathered externally through hiring, promoting or developing employees that are able to support implementing the vision. According to Huselid (2015), change should be a fundamental part of any organizations since technology is dramatically advancing which exerts a high impact on how operations will work. Starting with analytics insight HR Analytics follows the goal to go from prescriptive to predictive. According to Coolen (2015) HR Analytics is about the minimization of human biases, the creation of new insights, taking actions upon those gained insights and thus, helping employees and creating a consistent high demand for HR Analytics. Implementing all these steps and find out best practices for each step requires consolidating the improvements but also to produce more changes when improvements are still required. According to Bersin (2015) a group of people with different backgrounds are needed to make HR Analytics work such as data scientists, consultants, OD experts, visual designers and IT people. Doing so, this takes time in order to function properly. Therefore, the search of making more improvements over time is essential to make the HR Analytics function work to the best of its abilities.

(8) Institutionalizing new approaches change
The last step requires building relationships between the new behaviours developed with the corporate success and articulate these to everyone involved within the organization. Also, it needs to be ensured that the future leaders live by the new behaviours and support the leadership style that has been created. Since the major goal of conducting any change within a company is to improve performance as well as efficiency, "the value of major change efforts can be evaluated by determining the extent to which a project influenced measures related to job performance (proficiency) as well as business performance (productivity, quality, cost, tome). If HR expects are perceived as true business partners, HR professionals must become more adept at showing how HR practices contribute to business results" (Ulrich, Schiemann & Sartain, 2015, p.51). According to Bersin (2015), one of the hardest parts of HR Analytics is the implementation of the changes recommended based on the model. A change management consultant team is highly recommended when implementing those changes in order to institutionalize the new insights and methods (Bersin, 2015). Doing so, the need and the demand for gaining continuously new insights can be anchored within the organizational values.

In conclusion, eight interview questions have been developed, partly based on the eight steps of Kotter´s work. This study might reveal eight possible challenges organizations might face when implementing HR Analytics. The eight steps of Kotter that illustrate how change should be implemented however imply for change to be a linear process. Nevertheless, in reality change might not be manageable step by step as the company might be confronted by change in a more chaotic way. Therefore, the proposed steps of Kotter might sound theoretically correct but also might appear less reliable during an actual transformation. Due to these reasons, this paper indeed formulates the eight questions according to the steps of Kotter but develops the questions more likely in a way that they may reflect a category of sources of challenges.

3. METHODOLOGY

Data Collection

In order to gather qualitative data, interviews with open-ended questions have been conducted. The companies to be interviewed were chosen beforehand. Through attending an HR consulting meeting together with ambassadors of other organizations aiming to receive more information of HR Analytics and its implementation, the author got in contact with several companies. Three companies that are trying to implement HR Analytics and also, were willing to participate in this study, have been chosen. The first organization Company A is an all-around Dutch bank that offers a full range of products and services to retail, private and corporate clients. The second one Company B is a Dutch multinational company, which provides financial services. The third one Company C is an organization that holds a strong position as one of the largest suppliers in offering financial services, mainly in the insurance sector. The companies have been contacted via e-mail for participating in this research and further, have been contacted via telephone conversation in order to set up the required meetings for conducting the interviews. Two members of each HR Analytics teams, preferably one with an HR background and one with an IT background across the three organizations have been chosen for conducting this research. Within the framework of this thesis and due to time limitation it was not possible to conduct further interviews with employees outside the HR Analytics department. This was only possible with Company C. An interview with the HR department as well as the Legal and Compliance department of Company C have been conducted. Doing so, it is believed that different challenges from different perspectives as well as solutions can be collected and also reflect on most of the steps mentioned by Kotter. All participants were given the possibility to receive a final version of this research. Due to the fact that the participation in this study was voluntary, no informed consent form has been signed.

Each of the interviewees will be asked the eight questions, which are indeed partly based on Kotter´s eight steps of leading change but are formulated in a way that they rather reflect a category of sources of challenges. With the permission of the interviewee the interviews have been voice recorded. The formulated questions are *(1) When first introducing HR Analytics, what challenges did you face with regard to the HR department? What actions have been taken to solve these challenges? (2) When starting with the implementation of HR Analytics, what challenges did you face? What actions have been taken to solve these challenges? (3) In what a way and to what extend have you faced employee resistance or low motivation during the implementation phase? How and through what actions have you solved these challenges? (4) To what extend have you faced obstacles during the implementation of HR Analytics? What actions have been taken to remove these? (5) To what extend was it necessary to adapt new skills for implementing HR Analytics? What actions have been taken to solve this? (6) To what extend was it necessary to restructure the HR department to develop a HRA team? What actions have been taken to solve these? (7) How would you in general describe the attitude towards the implementation of a change within the company? What actions have been taken to solve this? (8) To what extend did the implementation of HR Analytics have influence/impact on corporate outcomes?* Doing so, this paper assumes that the outcomes of the open-ended questions will support answering the research question.

Data Analysis

Qualitative data has been collected and voice-recorded. The interviews have been thoroughly transcribed by the interviewer. Each transcription has been sent to each respondent of the interview in order to carry out a member check to assure validity as well as trustworthiness with the purpose of establishing a high degree of credibility (Lincoln and Guba, 1985). Each respondents was free to add or correct statements or add additional feedback if desired. However, except for minor textual remark there no content-related feedback has been received.

Further, in order to analyse the transcripts of the interviews and to structure the large amount of the collected data and to preliminary develop interrelations, the *analytical hierarchy* by Spencer, Ritchie and O´Conner (2003) has been used. The authors divide this process into three different phases namely data management, descriptive accounts and explanatory accounts. In the next part these three phases will be explained.

Data management

Once all data has been collected, it is crucial to familiarize in order to start the analysis, which supports in building the foundation of the main structure. Within this activity, the researcher has to make a careful selection of the collected data as it enables not to use the entire data gained but only the required information. To examine both the sampling strategy and the profile might be a solid approach since any potential gaps or overemphasizes will be highlighted. The researcher needs to undertake a thorough review of the data and aiming to list down important themes and concepts within the collected data. Afterwards, a manageable index should be constructed which identifies links between the categories while they are grouped thematically. These categories should have hierarchy consisting of main topics and subthemes. The next step is being described as indexing. This step involves reading the phrases and to create an in-depth understanding of which paragraphs are significant. Also, interconnections between the topics can be identified. The next step is to label and assign the parts belonging to the passage of the collected data. Doing so, the data can be sorted and thus, similar content can be put together with the goal of enabling to focus on each subject and to achieve an intense review of the content. Finally, the original data can be summarized in order to present the essential content of the collected data and reduce the amount of condensed material to its core message. However, certain expressions and used phrases should be retained as much as possible in order to have the possibility for revisiting the original data. Also, material that is chosen as not essential first might become significant at a further stage. Further, through the indexing thematic charts or matrices can be created. Within a thematic chart the key aspects of each data can be summarized and be placed within the thematic matrix. This step involves a judgment carefully made on the content of the material while keeping the key message on point without including making the chart unclear.

First, for indexing issues, a careful selection of the collected data has been made in order to use only the information, which was required. Therefore, a matrix has been created in a Microsoft Excel worksheet where each company has been allocated a separate row while two columns have been placed with the themes "challenge" and "solution". Doing so, the data was labelled, sorted and synthesized according to the two main topics. As thematic charting is being described as a process of "summarizing (…) the key point of each piece of data – retaining its context and the language in which it was expressed – and placing it in the thematic matrix (Spencer et al., 2003, p. 231), the indexing sections has been copied and placed to the chart with the aim of reducing the rata to a manageable amount. However, as described by Spencer et al. (2003) it was aimed to keep as much as possible of the original wording so that

interpretations could be kept to a minimum and to retain certain expressions in order to have the possibility for revisiting the original data at a later stage of this research.

Descriptive accounts

This phase includes the defining of certain elements, dimensions as well as categories and the classification of data with the goal of unpacking the content of the main topic. This includes the presentation of the data that makes meaningful distinctions and provides revealing statements. Three are three key steps that need diligent investigation: *detection,* which requires the discovery of "substantive content and dimension" (p.237). Within this step the researcher needs to look at the themes across the entire materials while noting behaviours as well as expressions related to the theme. *Categorization,* "in which categories are refined and descriptive data assigned to them (p.237). At this step the researcher is able to assign 'labels' to data and subordinate them to a specific theme. And *classify* them *"*in which groups of categories are assigned to ´classes´, usually at a higher level of abstraction" (p.237). The core message in this phase is for the researcher to create an in-depth understanding of all the topics and subtopics and "to construct a coherent and logical structure within which to display the content of the descriptive elements" (p.239).

This step required the identification of substantive concepts from the condensed data in the matrix. Doing so, each column of the matrix has been read thoroughly and carefully in order to detect categories of challenges as well as solutions that all three companies had in common. This has been done through reading across the entire material while making notes of similarities as well as differences. Further, through labelling and identifying categories an in-depth analysis of the challenges as well as solutions has been created.

Explanatory accounts

This phase includes the detection of certain patterns, associative analyses and the identification of clustering. Associative analyses enable the connection or linkages between the topics and thus, create an in-depth understanding. These linkages are referred to 'matched set linkages'. Also, certain patterns may exist within a particular subgroup of the study population. These typologies and also other classifications support presenting certain associations within a qualitative research as they relate certain groups of the populations. Further, a central chart can be created, which displays established classifications within the descriptive phase of the analysis. After the linkages and associations have been discovered by the researchers, it is also important to do further explorations to figure out why. This can be done by looking at how many times the matching is being distributed at the data and questioning the patterns of associations. Here, it is also important to look for patterns that do not match as otherwise the qualitative analysis is never complete when not all scenarios have been explored. Afterwards, based on the synthesized data and the discoveries made, explanations can be developed. Explanations, however, might be *dispositional-* when the explanations derive from certain behaviours or intentions of the interviewee (explicit accounts) or *situational-* when the explanations are based on attributed factors from a context/structure, which are thought to contribute to the explanation (implicit accounts). Also, common sense can be used in order to make assumptions that lead to explanations for certain patters within the data. Other explanations might also derive from other empirical studies or theoretical frameworks.

During this phase, explanatory accounts have been created. With regard of the companies and the different stages they have been at the time of the interview, connections and linkages between the topics have been created. As an example, the challenges mentioned by company A

covered a bigger perspective which was due to the fact that this company has already started three years ago with the implementation of HR Analytics, which is 1 ½ years more compared to the other organizations. Thus, deeper explorations exposed that company A was facing different type of challenges that occur within a later timeframe.

4. STATUS QUO AND RESULTS

Status quo

In this section the findings of the interviews will be illustrated and exemplified. The three organizations will be introduced while presenting the findings of the interview referring to their current state of the implementation of HR Analytics. The objective is to provide this information in order to gain an in-depth understanding and draw conclusions on the current state of HR Analytics within these three organization while taking the whole organizational aspect into consideration.

Company A

Company A is a Dutch state-owned bank, maintaining a strong position as the third largest bank in the Netherlands. It provides several product namely, asset management, commercial banking, investment banking, private banking and retail banking. Two interviews have been conducted with the HR Analytics team of this company, namely the Manager of HR Metrics and Analytics and Lead HR Analytics.

In 2013 this organization started to consider a restructure of the HR function with the drive to become more fact-based regarding decision-making processes. Due to good connection to senior management, this transformation or new idea found a solid ground for opening discussions, which awoke interest and approval. At this point, these two employees had acknowledged HR background combined with business knowledge. However, the lack of experience with data as well as the lack of a data analyst became essential. Also, experience in HR combined with analytics was missing which lead this company to work with external partners. This cooperation put together the ingredients necessary to perform HR Analytics from the beginning. Since the learning process did not stop at this point, different conferences have been visited in order to gain as much knowledge as possible about different themes around HR analytics, such as algorithms, data mining, data system, best practices and different approaches in order to figure out when which method should be applied.

This organization faced different challenges throughout the road of implementing HR Analytics within the company. It decided not to restructure the current HR department but to position the HR Analytics department next to it in order to ensure both parties are able to perform on their functions. Although a strong affinity towards statistics existed with the current team members of HR Analytics, the expertise was lacking. Through the collaboration with external partners the missing roles of lacking data analysts has been resolved. Another role, which had to be integrated within the HR Analytics team, was the role of a so-called "translator". The translator enables a solid communication between the three involved entities, namely the business, HR and IT. It enables to translate the HR perspective needs into thorough research question. Further, this question has then to be refined within the IT landscape in order to perform analytics. Referring to facing resistance, no employee resistance has been faced during implementing HR Analytics since the organization was interested in establishing a data science within the HR function in order to improve decision-making processes. Another challenge

mentioned refers to the data quality. The cleaning process of the provided data is described as a time-consuming process, which also results in 70% of the total work. So, this is a process, which cannot be sidestepped but nevertheless, requires interventions in a sense to speed up. Therefore, this organization decided to invest in machine learning with the goal of saving a lot of time while ensuring a high quality on outcomes. Also, the HR Analytics team decided to offer training to the HR function in general for one main reason; since the analytics team could not be everywhere at the same time serving needs and finding valuable insights, it was decided to offer training to the HR function with the goal of providing them an in-depth understanding and knowledge about HR Analytics in general. Doing so, the HR function could be able to see opportunities for conducting HR Analytics when they faced it. Also, legal and compliance issued to be a subject of interest and which needed profound consideration. Therefore, the HR Analytics team are being consulted by legal experts of the organization before each project starts in order to ensure transparency and working within the legal boundaries. Further, with each starting project the HR Analytics team decided to integrate a business partner belonging to that project into the analysis process. This is due to ensuring a right interpretation of the findings and insights.

Company B

The second organization that participated in this research is also a Dutch multinational company working in the banking industry and offering financial services. It provides products in banking, insurance, leasing and real estate. This organization is facing a reorientation and with respect to confidentiality matters, not all details are allowed to be published. Nevertheless, a lot of information could be gathered and will be illustrated. To be interviewed were two team members of the HR Analytics team, namely the Business Analyst and HR Analyst.

Due to a merger in 2015 a data analyst group has been placed at this organization. Together with the drive of enabling a more fact-based decision making in the HR department, the motive to start with HR Analytics has been developed. Challenges has been faced right in the beginning since the upper management and the business in general had to be convinced in order to provide support. For gaining valuable information about HR Analytics with the goal of convincing the upper management, various organizations working with HR Analytics had been visited. These insights had been presented to upper management. While working on introducing HR Analytics to the organization, the HR Analytics team also worked on the definition of HR Analytics in general while figuring out its meaning for their organization. The team needed to figure out the impact of the integration of analytics within the HR department, how much of a restructure was essential in order to develop a HR Analytics team but also, how much of a restructure was actually advisable and thus, asking themselves if there were limits set?

Further, it has been argued that HR has always been a very protective area with regard to its data, which tended to work rather in isolation. With respect to legal and compliance matters, HR data should be retrieved by placing HR Analytics on a higher strategic level while attracting more executives and increasing the willingness of implementing HR Analytics. Also, it has been claimed that for HR Analytics to provide valuable insights, the HR function itself has to broaden its horizon and create a mind-set in terms of involving business goals within their function in order to support business activities from the HR perspective.

Due to the merger the organization has been facing multiple data sources, which exposed to be a great challenge. A certain system should support the organization to integrate all data sources in an efficient way to facilitate gathering the data needed for performing HR Analytics. With regard of facing resistance, no employee resistance has been faced in general. Discussions about

how and where to place and build up the HR Analytics team had been on the table, however, no further information was allowed to be shared. Moreover, the HR Analytics team faced the lack of skills in order to perform HR Analytics. Therefore, several training opportunities in products, communication as well as storytelling have been provided. Also, in the future, training in statistical modeling will be available.

Also, the interviewees claimed that HR Analytics might be a major improvement for decision-making processes within the HR function but however, also mentioned that facts are not the only key aspect, which need consideration when making decisions. The insights gained through analytics more likely will enable to open discussions about any changes that need to be conducted or to raise attention on certain needs. The facts gained can start the dialogue but other factors such as the experience as well as the context should also be involved when making decisions.

Company C

The third organization belongs to the largest suppliers of financial services, in the Netherlands, mainly operating in the insurance sector and is the result of several mergers. Two interviews have been conducted with members of the HR Analytics team, namely the Senior Advisor in HR Metrics and Analytics and Advisor in HR Metrics and Analytics.

When introducing HR Analytics in 2015, an employee has been hired to set up a team, the so-called HR metrics and analytics team. Thinking about the roles that are needed to perform analytics, different employees with the background of data analyst have been internally recruited. Information about HR Analytics had been gathered through visiting conferences and other organizations that have experience with HR Analytics in order to organize a introduction presentation to the HR department of this organization with the goal of creating an in-depth understanding of HR Analytics and getting support. Further, in order to arise the interest from the HR department as well as the business to request for insights, different metrics had been developed and presented to the target group.

Right at the beginning the first challenge faced referred to the structure of the organization. Due to its centralized structure the process of getting the data was aggravated. Therefore, the HR department needed to be decentralized. Also, due to multiple data sources and a low infrastructure due to an old warehouse, a solid platform with the ability to integrate all data sources into one needed to be implemented. When gathering the data, it was recognizable that each business unit maintained a different approach of measurement for every HR activity, such as measuring sick leave differently. This needed to be changed uniformed since any comparisons were not valid. Through visiting conferences and other organizations the best practices and measurements of the HR function activities have been collected and implemented across all business units.

Further, new skills in statistics and analytics needed to be acquired. Doing so, training has been offered and the team strived for collaboration with other department, such as Marketing. Since other departments involved Analytics within their function and consider it as an integral part of their daily operations, new knowledge about the different statistical and analytical approaches and the required know-how could be gained. The use of the HR data also needed to be considered from the legal and compliance perspective. Hereby, the HR Analytics team carefully paid attention to the policies of their organization in order to use the data without overstepping the lines.

Also, it is being claimed that communication exposed to be a key aspect, which needed further consideration. A solid communication between the three entities HR, business and IT needed to be established. The role of an HR advisor builds the bridge between the overall business and the Metrics and Analytics department and thus, is key for operation purposes. This is due to the fact that for creating insights, the needs of the HR perspective need to be translated in proper research questions. These need further development in order to enable the application of analytics and statistical methods to run analyses. Moreover, frequent meetings with the Legal and Compliance department are taking place in order to avoid any misuse or mistreatment of the HR data.

Results

In the following section the results of this qualitative research will be presented. This table represents the six identified categories of challenges for each organization. The six categories are (1) Lack of business/Management support and interest, which implies that the business does not recognize the necessity of an HR Analytics team and thus, does not consider its benefits and added value, (2) Data & Tools, which implies how to get the data, gaining a solid knowledge on which tools should be acquired as well as which methods are suitable for what kind of analytics techniques, (3) Legal and Compliance, (4), Roles, which implies which roles are needed in order to develop a HR Analytics team, (5) Training and skills and (6) Communication, which implies the lack of the right communication between the different entities. The results illustrated that almost all three organizations that participated in these investigations mentioned these six categories of challenges, which they are facing or have been facing when implementing HR Analytics within their organization. Therefore this paper assumes that when implementing HR Analytics, the following challenges are might appear and emerge.

Table 1 Six Categories of Challenges for HR Analytics

	Lack of Business/ Management support and interest	Data & Tools	Legal and Compliance	Roles	Training and skills	Communication
COMPANY A	Lack of business expertise	There is no ideal data; cleaning the data is time-consuming; general knowledge about the different methods is necessary	Using HR data with respect to legal and compliance	Affinity for statistics is not enough; one needs data scientists	Lack of knowledge about what skills are needed; HR needs to develop technical skills as well	Lack of communication between HR, IT and the business
COMPANY B	Lack of interest from the business and support from management	How to get the data when having multiple data sources		What kind of roles are needed for a HRA team	Getting training in asking the right questions; finding a definition of HRA for themselves	-
COMPANY C	Lack of HR for asking the right questions (that will provide insights) and lack of business support	Facing multiple data sources and having no proper tool for making statistical predictive analytics	Using HR data with respect to legal and compliance	Figuring out what kind of roles are needed	Lack of statistical skills such as analytical skills	Not a solid communication between the business and the HR metrics and analytics team

Further, once recognizing the challenges that organizations face when implementing HR Analytics, it is also crucial to investigate the actions that have been undertaken in order to solve these challenges. Therefore, part of the interview questions has also addressed the solutions of the challenges faced. Table 2 summarizes the mentioned solutions by the three organizations. One has to consider that Company B did not face category of challenges regarding "Legal and compliance" and "communication" and thus, does not provide the corresponding solution.

Table 2 Challenges and Solutions of the three organizations

<table>
<tr><td></td><td></td><td colspan="3">SOLUTIONS</td></tr>
<tr><td></td><td></td><td>COMPANY A</td><td>COMPANY B</td><td>COMPANY C</td></tr>
<tr><td rowspan="6">SET OF CATEGORIES OF CHALLENGES</td><td>Lack of Business/ Management support and interest</td><td>Involve business experts of that particular field that you are working on every project; visit conferences and in order to receive information</td><td>Get Information from other organizations on how to gain business support; providing insights to upper management to make them see the opportunities and insights HRA can provide</td><td>Provide Information on how HRA can provide insight; get info from other organizations how they did it</td></tr>
<tr><td>Data & Tools</td><td>Tools: Get training in machine learning, data mining and algorithm and general knowledge on when to use which method</td><td>Implementing tools that can integrate the multiple data sources into one data source; gain knowledge about when which method should be used</td><td>Implementation of a big integrated platform for data</td></tr>
<tr><td>Legal and compliance</td><td>Ask for approval and show the business results of every project to clients before starting. This strengthens the relationship and also builds up trust</td><td>x</td><td>Try to strictly stick to the policies</td></tr>
<tr><td>Roles</td><td>Work with external partners that have the expertise and knowledge in order to guarantee high quality from day 1; develop an HRA team next to the HR team</td><td>Not allowed to tell; working with external partners to use their knowledge and expertise</td><td>To look for employees with an IT background and start as a project group first</td></tr>
<tr><td>Training & Skills</td><td>Offer training in 1) strategic workforce planning and 2) analytics; visit conferences</td><td>Offer training in order to ask the right questions</td><td>Offered training + collaboration with other business units such as marketing</td></tr>
<tr><td>Communication</td><td>Need of the role "translator" that enables a solid communication between IT, HR and business</td><td>x</td><td>Position someone that functions as a "translator" with the ability to communicate between the three entities: HR, business and IT</td></tr>
</table>

Table 3 Categories of Challenges for HR of Company C

The table below illustrates the challenges faced by HR advisors working at Company C.

Lack of Business/ Management support and interest	Creating a deep understanding for HRA + offer Training	Communication + Transparency	Creating a vision	Roles
The support of the business and the upper management is very important in order to create demand and necessity of conducting HRA	The HR community needs to broaden its borders and understand what is possible with practicing HRA; in case of a change of a system training has to be offered	A clear and continuous communication is necessary to involve the HR and show the possibilities and opportunities HRA offers.	Having a goal and creating a vision	Change of profile of an HR practitioner; Building a bridge and function as an ambassador between the analytics team and the business. Translating the wishes of the one side for the other party and vice versa

The lack of business and management support as well as interest is important and has to be established and is considered as one key aspect. First, the awareness of business and the management needs to be established in order to create a high level of interest and support. Second, in order to conduct analyses that are helpful for business and improving the overall decision-making processes, a high level of interest will foster the creation of a high demand from the business site and enabling the performance of analyses that address business cases. Further, the HR community needs to create a deeper understanding of HR Analytics. The level of interest of the HR community towards HR Analytics differs. This is due to the fact that the degree of information and understanding is limited and needs to be extended. Doing so, introduction lessons and the development of training schedules can be executed. In case of a change of the computer system, which might take place at a further step of the implementation of HR Analytics, required training has to be offered. Through continuous communication and sharing results of the outcomes of the analyses the level of understanding can be increased, new possibilities and opportunities of using HR Analytics can be discovered. By building an online framework the insights of outcomes can be internally shared and visualized. Also, this way of presenting results will likely increase the transparency of working with HR data and thus, increase trust as well as commitment. Moreover, the necessity of creating a vision has been confirmed. Through stating goals and achievements for the upcoming future, employees will have a vision to work towards to and are more likely to maintain focus during the journey. Furthermore, it has been stated that the profile of future HR practitioner might change. Supplementary to the soft skills and the business background, the affinity for data and fact-based way of thinking are required and necessary.

Requirements stated by Legal and Compliance of Company C

Within an interview with an employee working in the legal and compliance department of company C, a different perspective of using HR data for analysis purposes could be discovered and will be presented in this section.

The main goal of the legal aspect of HR data is to ensure the right use of this very sensitive data, staying within the legal boarders of what is possible and preventing the misuse or abuse of this data. Doing so, the company itself, which operates also in the insurance sector, established framework accessible internally for employees that illustrate the restrictions with regard to the use with HR data. Doing so, the HRA team uses the framework as guidance and undertakes adjustment, if necessary. Further, weekly meetings with the legal and compliance department ensure a smooth and adequate consulting session about what is allowed and what is forbidden. Further, transparency in every step of using HR data represents a key aspect and requires special attention as well as awareness. One challenge that the HR Analytics team is facing is keeping up with new regulation and restrictions, as they tend to change and need adjustment on a regular basis. Further recommendations involve an efficient way of working together between the legal and compliance department and the HR Analytics team. A proper preparation and prearrangement of the HR Analytics team beforehand increases the efficiency and effectiveness of staying within the legal boundaries and is considered as less time-consuming.

The following section aims to provide a summary of the outcomes of each organization. The results show that all three organizations have been facing lack of business and management support as well as interest when first introducing the concept of HR Analytics within the company. In case of Company A, there was a lack of business expertise with regard to the cases and projects, which needed to be acquired. Therefore, the organization aimed to involve one business expert in line with each project that will serve as a bridge between the outcomes and that particular field. Thus, the outcomes could be applied and interpreted in the right way. Also, conferences have been serving as a way to receive information regarding HR Analytics in general. Regarding the second category of challenges, data and tools, the challenge for Company A was to figure out how all the data could be "cleaned" in a way that only the required data could be used and also to complete the data in case it of quality issues. This process exposed to be very time-consuming and was considered as a challenge, which needed to be solved. Acquiring a proper tool and gaining knowledge about the different methods such as machine learning, data mining and algorithm and also, which method should be made use of for which case has been experienced as a proper solution. With regard to the legal and compliance aspect, Company A aims to ask for approval before starting each project, which strengthens the relationship and builds up trust. Regarding which roles are needed in order to develop a proper HR Analytics team, this organization started working with external partners that possessed the expertise and knowledge, which they were lacking in order to guarantee high quality for every project from the beginning. Also, skills needed to be adapted. By visiting conferences Company A decided to provide two types of training namely in 1) strategic workforce planning and 2) in analytics with the aim to extend their set of skills. Communication has been seen as a barrier first, which was solved through a team member functioning as a "translator", which serves as a bridge between IT, HR and the business. The importance of being able to translate HR matters to specific business research question and further, to an analytical question to allow analysing the questions is immense. A translator that enables appropriate communication has been considered as a valuable solution to solve this issue

Company B also dealt with lack of business support and management interest. In order to solve this it was decided to visit other organizations to get the required information, namely how business support and interest can be gained. Further, insights were provided to upper management in order to familiarize them with this new topic. Regarding the set of categories data and tools, Company B aimed to implement a tool, which integrates multiple data sources into one data sources. Also, through visiting conferences knowledge about the different methods and techniques could be acquired. Regarding the defining process of which roles are needed for a HRA team no further information could be provided. Here, Company B decided to cooperation with an external partner. Regarding training and skills, training was needed in order to answer the right questions that HR Analytics could provide insights for and thus, were related to predictive analytics. Through offering training lessons with the aim of familiarizing the business with HR Analytics, this challenge is solved to a certain degree. This process however is still in progress. Regarding legal and compliance and also communication no challenges and thus, solutions have been mentioned.

With regard to how to attract the business and getting its support Company C decided to get information on how other organizations dealt with this challenge. By providing the business information on how HR Analytics can provide new insight Company C was successfully in integrating the business and gaining its support as well as interest. Through the different business units Company C was facing multiple data sources, which needed to be integrated into one in order to enable the access to the data. Therefore, the implementation of a big integrated platform for data has been considered as an appropriate solution. Concerning legal and

compliance aspects Company C aims to stick strictly to the company´s policies in order to avoid any misuse of the data. Regarding which roles and functions have to be positioned within the HR Analytics team, the organization started with forming a project team with employees that have an IT or data analyst background. Also, certain skills with respect to analytics had to be acquired. Therefore, training has been provided and further, collaboration with other business units that have already the experience and exercise in the field of analytics such as the marketing department have been approached. For removing the communication barriers an employee with the ability to communicate between the three entities, namely the business, IT and HR has been positioned. The HR advisor has taking over this role with the goal of translating the research questions addressed from the business to the Metrics and Analytics department. On the other hand, insights and outcomes delivered from the Metrics and Analytics department will be translated for the business. Proper communication skills, a statistical background and knowledge of business knowledge are being considered as inevitable for HR advisors. Doing so, the ingrained profile of an HR practitioner has been transformed as data affinity and statistical knowledge have been added to the profile. Further, frequent meetings with the Legal and Compliance department are necessary to stay within the legal borders regarding the use of HR data. The constant change of employment laws need to be observed and recorded.

Similarities and Differences

All three organizations have faced challenges when implementing HR Analytics within the organization and also, aimed to find solutions to overcome these challenges. Within the analysis part one could see that "time" also plays a crucial role. In fact, COMPANY A started with the implementation three years ago whereas the other two organizations, Company B and Company C, started 1 ½ years ago. Hence, COMPANY A yet, could only answer the question if the implementation of HR Analytics had any impact on business results, which was positive. Further, Company B and Company C needed to organize their access to the required HR data in order to clear the road for analytics first. These organizations faced multiple data sources due to many business units. Thus, the multiple data sources needed to be integrated into one data system or platform first, which is being considered as a time-consuming process. Also, during the integration process of the data Company C became aware of the fact that the HR function used different measurements within the different business units e.g. sick leave was measured differently across all business units. This needed to be adjusted first in order to create a uniform measurement across all business units so that the data could be used for making comparisons and providing insights.

Next to discussing which roles are needed within a HR Analytics team the question emerged where the HR Analytics team should be positioned. In case of COMPANY A the HR Analytics team is being separated from the HR function and functions as a separate team. Nevertheless, the urgency to train the HR function in technical areas as well has been notified as very important. This is due to the fact that by knowing the concept of analytics within HR, the HR function can recognize opportunities and the need for insights independently. In case of Company B the structure on how its HR Analytics team will be positioned is already planned and going to happen in the future; due to confidentiality matters no further information was given. At Company C, the HR metrics and analytics team is positioned within the HR function. Future changes will include establishing a distinction between the metrics and analytics part.

Another important aspect, which was mentioned by COMPANY A and Company B as well, is the confirmation of the statements of the evidence-based management. For COMPANY A good decision-processes do not only rely on facts provided by HR Analytics. Contexts as well as experience are also key aspects, which should, together with the facts delivered by analytics,

be used in a decision-making process. Further, Company B highlighted the fact that the outcomes out of HR Analytics indeed form the base for opening discussions about certain topics and matters but should not be considered as the only determinant when making decisions, but should be integrated and applied within the whole context and circumstances. Doing so, the most benefits out of analytics within this field can be gained.

5. DISCUSSION

From our literature review of HR Analytics we proposed that the implementation of HR Analytics supports creating a decision-science within the HR function and thus, fosters decision-making processes to be more fact-based and less concluded on gut-feelings. Wondering why indeed not every organization has an intact HR Analytics team in place already, this thesis assumed that the implementation process itself represents a transformation and reveals challenges that aggravate the operationalization of HR Analytics. An empirical study to find profound outcomes has been considered as necessary as the implementation of HR Analytics might reveal challenges that need further exploration. A qualitative research design in form of interviews with á two members of an HR Analytics team of three organizations that are acknowledged for implementing HR Analytics have been conducted, together with one interview with an HR advisor as well as an employee from the legal and compliance department of company C. The questions asked within the interview are based on Kotter´s eight steps mentioned in his work "Leading Change" (1995). However, the questions did not represent exactly the eight steps as it is being assumed that a transformation in general, in this case within the HR function, is not a linear process in reality, and therefore, the steps are considered as biased. Rather, the questions represent a broader set of categories to reveal any type of challenges. The first goal involved finding out a possible set of categories of challenges that organizations face when implementing HR Analytics and secondly, what actions have been undertaken to solve these. Based on this we formulated the following research question "What challenges does HR face when implementing HR Analytics and what actions have been taken to solve these?" The results showed that there are 6 sets of categories of challenges organizations do face when implementing HR Analytics, namely lack of upper management and business support, lack of using the right tool and also getting the required data, using the data with respect to legal and compliance matters, staffing the team with the right roles, enabling opportunities such as training session for enabling skills development and enabling a productive and effective communication between the three involved entities, the HR function, the business and the IT function. Also, possible solutions have been gathered from these organizations on how the challenges can be addressed.

Further, indeed does the implementation of Analytics within the HR function enable the measurement of HR outcomes and thus, supports increasing the effectiveness regarding decision-making processes. Nevertheless, the results of this thesis also confirm the propositions of evidence based management illustrating that more ingredients, not solely a fact-based approach, but combined with experience and the indicated situation together result in an effective decision-making process and play a crucial role. However, opening discussion with reasoning ground supports decision-making processes to be more justifiable and arguable. Doing so, through the application of analytics within HR, HR´s contribution to the business becomes measureable.

Further, great attention should be paid that certain conditions that enable conducting analytics must be given in the first place before actually starting. Having one measurement throughout the whole organization for all HR tasks is necessary for comparison matters that support getting insights. Further, in case of facing multiple data sources, all data sources have to be integrated

into one big platform to make sure all data needed is also given. Also, a proper tool that can perform analytics and apply the methods and techniques is required for proper analytics. Another condition is to "clean" the data to enable working with the required data only, which is a time-consuming process. One has also to collect information about what kind of roles are needed in order to establish a proper HR Analytics team in place. These aspects build the requirements and should be taken into consideration before actually applying analytics within the HR department.

A major challenge, however, when implementing HR Analytics, revealed to be the change of the HR function itself in the upcoming future, namely a change of the role of an HR practitioner within organizations. The soft skills already manifested within an administrative HR function will be extended by statistical skills and thus, a data science will be established. The practice of analytics within the HR function moves from the commonly known administrative HR function slightly more to a strategic business partner. Decision-making processes are then fact-based and thus, navigated towards achieving business operations and goals. To do so, the role of an HR function now implies maintaining the administrative function with the required soft skills, business background and a solid affinity for data and statistics. This change of profile of future HR practitioner can be considered as one major challenge when implementing analytics within the HR field and thus, might illustrate why not every organization has a mature HR Analytics function in place. Because it is not only about the implementation of a tool within a field, but also about the change of role within the HR function that follows as a consequence.

5.1 IMPLICATIONS FOR THEORY AND PRACTICE

This study reveals many contributions for both theory and practice. HR Analytics is a developing field. The nascent state of theory of the development of the HR function, extended with Analytics and thus, embracing a major transformation for the HR function has been achieved. With the implementation of analytics within the HR function a tool has been introduced, which enables the measurement of HR outcomes and thus, integrates a decision-science within HR. Doing so, this enables for HR to affect business results more effectively and to have a greater impact on decision-making processes and including them to business operations. Due to its nascent state in theory, a first approach has been taken to evolve aspects of the implementation process of HR Analytics by stating what challenges companies are confronted with based on an empirical qualitative research. To the best of our knowledge this has not been done before. The execution of a qualitative research design in form of conducting interviews with open-ended questions exposed as a good method to approach this matter since it emphasized multiple set of categories of challenges as well as possible solutions that support to create an in-depth understanding of how analytics within HR function might be operationalized. With regard to decision-making processes, this thesis also confirms the propositions of the evidence based management stating that a fact-approach is necessary and should be involved in any decision-making process but however, should be combined with other factors such as gained experience and individual context. Especially, with regard to the competence to make decisions about human resources, to the best of our knowledge this aspect has not been studies within the analytical context in HR. Further, the pluralist view has been confirmed when starting the implementation of HR Analytics, since not the whole organizations follows the same interest with regard of conducting analyses with HR data. Moreover, the results of this study emphasize the fact that through the implementation of a change might lead

to change of profile for a particular function, which is not being described by Kotter´s "Leading Change" (1995) within a change process. The implementation of analytics within the HR function can be viewed as an implementation of a tool, used for statistical analyses. This, however, also extends the required skills for the HR function. Thereof, the whole implementation process intensifies and thus, requires an extension of the eight steps of Leading Change (1995) by Kotter. A further step that might be called "Change in profile of function" can be used for creating awareness of such an action and create in-depth understanding and moreover, used as a guideline for implementing change.

For practitioners the outcomes of this thesis can be used for establishing an HR Analytics team within their organization. Since the implementation of analytics within HR is on the rise (Coolen, 2015), these results can support the HR function to evolve and adapt to the new changes coming by embracing the tool that supports measuring the actual outcomes of the HR function and thus, enable to create a decision-science and contribute to business and its decision-making processes more effectively by providing meaningful and valuable insights. The results of this paper create awareness of which factors require special awareness and attention should be paid to. Also, possible solutions of three organizations are being illustrated in order emphasize possible actions that can be taken when implementing HR Analytics and encounter challenges. Further, according to the insights provided by this study, attention should be paid that when starting the implementation of HR Analytics, a pluralist view can be expected as not all interests and attitudes towards the implementation of a data science within the management of human resources are aligned. Conducting analysis with human resource data is a sensitive aspect and adverse behaviour should be expected. Also, in addition to the fact that analytics within the HR function is a new topic, the implementation implies a transformation, which also affects the general role of the whole HR function. Before implementing HR Analytics, one has to ensure a certain level of data affinity within the HR department. For the future of HR Analytics, additionally to the common known soft skills and the business operations knowledge, statistical skills and data scientist´s preference are necessary and preferable. For practitioners aiming the implementation of HR Analytics, these key aspects should be considered and highly respected. Nevertheless, financing analytics within HR and budget setting play also an important role when implementing HR Analytics in order to fulfil the requirements such as the data sets and statistical programs for conducting analytics.

5.2 LIMITATIONS

Like all researches our study was confronted with limitations as well. We have been able to draw conclusions on what kind of challenges organizations might face when implementing analytics and also, provide possible solutions for those challenges. However, the analysis conducted is limited to organizations operating in the banking industry and the financial and insurance sector. Therefore, the willingness of implementing HR Analytics and the approaches taken can differ from industries to industries and therefore sets the limit for generalizability. Further, within the framework of this paper and due to time limitations, no interviews with employees outside the HR Analytics team have been conducted, except for Company C. This limitation has the consequence that a small broader set of categories outside the HR Analytics team could be identified and elaborated. Since the implementation of HR Analytics however, might affect the overall business, more interviews with different departments are desirable.

5.3 FUTURE RESEARCH

The outcomes of this study have made contributions to the theory. However, various aspects still need to be explored and investigated. One of the aspects concerns the measurement of HR Analytics outcomes. We were not actually able to measure the outcomes HR Analytics have on business matters, such as its contribution to business decision-making processes. This is due to the company B and company C were at their starting point of the implementation of HR Analytics. At a later stage, however, this can be addressed. Company A chose to measure its contribution differently than stated in theory. Their success is measured by the increasing demand of their clients for the insights that they are providing. How the impact and contribution of HR Analytics to the overall business decision-making processes can be measured calls for further future research. Also, further investigations should be made on what the key success factors are when implementing HR Analytics in order to guarantee a high level of success. Surely, the outcomes of this paper contribute to this, but however, in order to find out the key success indicators further research is required. Further, a similar research within a longer timeframe can be conducted, which could involve accompanying the companies and setting interviews at different periods. This could lead in exposing more categories with regard to the implementation of HR Analytics. Also, one should consider to question whether and what kind of challenges employees outside the HR Analytics team are facing when implementing HR Analytics. Employees working in the legal and compliance, HR, IT department and the overall business are involved in this process as well and should be integrated in future research. Furthermore, since this research has been conducted within the financial and partly insurance sector, a research also addressing the implementation of HR Analytics in other industries would be interesting, for generalization purposes.

6. CONCLUSION

Through globalization organizations are forced to undergo changes and transformation on a constant basis in order to increase their effectiveness, also in decision-making processes. Most likely any transformation implies facing challenges and requires all the parties concerned to adapt and support finding solutions. The implementation of HR Analytics represent such a transformation as it restructures the HR function through integrating analytics as an integral part in order to enable the measurement of HR outcomes and develop a decision-science within HR. This paper conducted a qualitative research design in form of interviews with three organizations operating within the banking and insurance and financial sector in order to find out a broad set of categories of challenges that HR is confronted with when implementing HR Analytics and also, provides possible solutions for each mentioned category of challenges. Although there are professional articles by HR practitioners providing recommendations and advises, these are not objective and profound. There results of this research are based on an empirical study and represent a major contribution to the field of HR Analytics. Six categories of challenges have been identified, namely lack of business support, data and tools, legal and compliance, roles and communication. Organizations may use these outcomes in order to gain an in-depth understanding of HR Analytics and specially, gain insights on which kind of factors have to be considered when deciding to place an intact HR Analytics team within their HR department and organization. Attention should be paid to one major challenge HR is confronted with, namely the change or extension of the profile of the HR function. Future research can involve conducting a similar research within other industries to examine if the outcomes between industries might differ. Also, it is recommended to conduct a similar research within

a longer timeframe, to accompany the organizations within the implementation process and conduct interviews at different periods.

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