# HR ANALYTICS AT WORK

## Exploring diffusion of innovation within a Swedish-based MNC

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# Abstract

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Purpose: This study aims to explore the spread of HR Analytics (HRA) within the HR function of one larger Swedish multinational corporation (MNC), identifying hinders to diffusion and needs of HR professionals.

Theory: The research draws from Diffusion of Innovation theory (DoI), which helped the researcher frame the problem statement and the research questions. Also, it provided a useful rationale to conduct the empirical study and interpret the findings.

Method: For this thesis, a qualitative study is conducted at one case company. The main empirical data is obtained through 24 in-depth interviews, one workshop facilitated by the researcher, and administrative documents. Prior to the case study, a pilot study consisting of eight interviews was performed among other large MNCs, consultancy firms and system vendors in Swedish settings.

Result: The study discovers different understandings and patterns of diffusion of HRA in the case company, in relation to different divisions, HR activities and HR roles. The study points out hinders to diffusion of HRA, which are mostly in line with the literature on DoI. General needs of HR professionals are also identified in relation to the subject.

# Foreword

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# 1. Introduction

## 1.1 Background - Why HR Analytics?

Over the last few decades, researchers from different fields have been interested in measuring the value and performance of HR activities in the attempt to provide the HR profession with tools to improve decision making and strengthen its link with other organisational areas, often involving applications of mathematical and statistical models (Becker, 1964; Fitz-Enz, 1984; Cascio, 2000; Becker, Huselid & Ulrich, 2001; Toulson & Dewe, 2004; Lazear & Shaw, 2007; Schwarz & Murphy, 2008; Gabcanova, 2012). The HR function seems to be under growing pressure to demonstrate its value (Holbeche, 2009), and recently these subjects have been funnelled into a new concept or discipline (Marler & Boudreau, 2017), which represents one of the main contemporary trends in HR strategy and decision making (Falletta, 2014; Deloitte, 2015): HR Analytics (HRA).

Such increased appeal of the topic possibly has to do with two factors: the mutated conditions of the business environment, and technological development. Concerning the business environment, the traditional sources of competitiveness are losing effectiveness in differentiating companies, and organisations often try to renew competitive advantage by looking inside their boundaries with the help of the HR function, which delivers leadership, capability and talent (Ingham & Ulrich, 2016). In this context, according to Bassi (2011) and Davenport, Harris and Shapiro (2010), HRA can help achieve competitive advantage. Furthermore, recurring waves of digitalisation have made it possible for HR to gather, store and access massive amounts of employee data (Haines & Lafleur, 2008; Van den Heuvel & Bondarouk, 2017), which are collected in large, often unstructured, data sets together with other organisational data (Angrave, Charlwood, Kirkpatrick, Lawrence & Stuart, 2016; Shah, Irani & Sharif, 2017), from which insights can be generated to help the organisation and its processes (Carter & Sholler, 2015).

In terms of usage, according to Deloitte (2015; 2016; 2017), an increasing amount of companies worldwide is starting to take advantage of HRA, outperforming competitors in multiple HR areas. For this reason, it is argued, many CEOs pressure their HR departments to introduce these practices (Deloitte, 2016). Even so, HRA usage is still generally low and mostly limited to standard HR accounting and reporting (Davenport et al., 2010; Smith, 2013;

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Falletta, 2014; Pape, 2016). Driven by commercial motives, many external actors begin to offer their services to help organisations understand the field and overcome practical issues of adoption (Marler & Boudreau, 2017) as companies seem to struggle with defining the value of HR activities and their impact on business outcomes (Holbeche, 2009; Ingham & Ulrich, 2016). Additionally, many HR professionals are considered to be hostile to the topic (Angrave et al., 2016); they lack scientific rigour (Bezzina, Cassar, Tracz-Krupa, Przytuła & Tipurić, 2017), knowledge (Rynes, Brown & Colbert, 2002; Lawler, Levenson & Boudreau, 2004) and time to examine evidence (Sanders, van Riemsdijk & Groen, 2008) when taking decisions. These aspects link to a decade-long discussion on the need for HR to become a 'decision science' (Boudreau & Ramstad, 2005, p. 129), and can possibly represent hampering factors to diffusion of HRA practices within organisations.

From an academic perspective, HRA is object of debates concerning its substance, the way it works, the reasons to pursue it and the actors who should be responsible to carry it out (Bassi, 2011; Rasmussen & Ulrich, 2015; Angrave et al., 2016). Some scholars openly claim that the field is a management fad (Angrave et. al, 2016), or at least warn against such risk (Rasmussen & Ulrich, 2015). Most of the literature on HRA, it is argued, is either normative or industry-driven, therefore poor or void of scientific validity (Marler & Boudreau, 2017; Angrave et al., 2016). Other scholars are more optimistic and claim that organisations can benefit from HRA (Davenport et al., 2010; Mondore, Douthitt & Carson, 2011).

In sum, there exists a lack of clearness on many fronts, both among academics and practitioners. The field offers vast possibilities for academic contributions (Kapoor & Kabra, 2014), especially because empirical research on the topic is extremely limited (Van den Heuvel & Bondarouk, 2017). It is currently unknown how HRA is understood within organisations, how the field spreads within the HR function, and what possible elements could favour or prevent usage of HRA by HR professionals.

In the Swedish context, scholarly research on HRA is simply non-existent. This vacuum emits a particular resonance, since Swedish-based organisations have a tradition in accounting for HR efforts in their annual reports (Toulson & Dewe, 2004), and they were once considered to be leaders in human capital measurement (Roos & Roos, 1997). Furthermore, the country's economic tissue shows high levels of innovativeness (Dutta, Lanvin & Wunsch-Vincent, 2016) and has witnessed a rapid spread of other new management practices in the past, such

as the Balanced Scorecard (Ax & Bjørnenak, 2005). These aspects make the Swedish context an ideal ground for investigation of the topic.

## 1.2 Objectives and research questions

The present study aims to explore diffusion of HRA, in particular within one large Swedish multinational corporation (MNC) and its HR community. By focusing on a single case company, the research tries to gain a real-world perspective (Yin, 2014) on a contemporary phenomenon that is not sufficiently covered by the literature. More specifically, the study aims to understand the meanings and usage of HRA within a single organisation; also, the research intends to discover how usage spreads among HR professionals in different divisions, if there exist factors that hamper diffusion and what possible needs HR professionals have in relation to the subject.

The research questions are the following:

- *How is HRA understood and how does it spread within the HR function of an MNC?*
- *What hinders HRA diffusion, according to HR professionals in the MNC?*
- *What are the perceived needs of HR professionals in order to work with HRA?*

## 1.3 Disposition

Through a literature review, the study accounts for the status of research and practice of the discipline, tracing its origins and purposes. A few cases of HRA usage mentioned in scholarly articles are also described. Chapter 3 outlines the theoretical background utilised, namely DoI theory (Rogers, 1983). Chapter 4 describes the method used for the research: beside a qualitative pilot study among Swedish MNCs, consultancy firms and system vendors serving the Swedish market, the empirical base for the research is mainly drawn from a single case company, a Swedish MNC, through qualitative interviews, a workshop and administrative documents. Chapter 5 presents the results of the pilot study and of the case company study. In Chapter 6, the results are discussed through DoI theory, connected to previous research and to themes discovered in the pilot study. Finally, Chapter 7 presents limitations, practical implications and suggestions for further research.

# 2. Previous research

In this section the main contributions to the field of HRA are presented and discussed. A search for scholarly articles was performed in the databases Scopus, JSTOR, Emerald, as well as in Google Scholar and the social network Research Gate, using the keyword 'HR Analytics' and similar labels (see section 2.3). The search was soon extended to the topics of Business Intelligence (BI) and Business Analytics (BA), in order to better frame the phenomenon object of study, and because several scholars argue for a connection between the disciplines (Holsapple, Lee-Post & Pakath, 2014; Kapoor & Kabra, 2014; Angrave et al., 2016; Pape, 2016; Shah et al., 2017). Before moving on to specific literature on HRA, a brief overview of BI and BA concepts is presented in the following paragraphs.

## 2.1 Business intelligence (BI)

Originating in the late 1980s in the realm of executive information systems (Watson & Wixom, 2007; Negash & Gray, 2008), Business Intelligence (BI) is used by organisations to generate timely insights based on data, as a basis for faster and more reliable decisions, both at the strategic and operative levels (Hannula & Pirttimäki, 2003; Kapoor, 2010). From a computer science perspective, it is defined as a specific kind of Decision Support Systems (DSS) that enable data-driven decisions by incorporating actions on data, such as gathering, storage, analysis and knowledge management (Watson & Wixom, 2007; Negash & Gray, 2008). According to Kapoor (2010), the main components, or subsystems, of BI are:

- Data Management –enables actions of extraction, cleaning and loading of data from different sources.
- Business Performance Management (BPM) – the set of processes that pertains to strategic goals and objectives, measurement and analysis of performance and decision making. BPM consists of tools that visually condense data for consultation and dissemination of information (e.g. dashboards), monitoring a predefined set of Key Performance Indicators (KPIs).
- Information Delivery – enables/restricts users to access reports and monitor business performance.
- Advanced Analytics – includes all actions that apply statistical and mathematical models to data for prediction, optimisation and discovery purposes.

BI can also be considered a process made up of two main activities (Watson & Wixom, 2007):

- Getting data in (or data warehousing) – transferring and transforming data from various sources to an integrated data warehouse, so that it can be more easily retrieved, compared and analysed. It is challenging and very resource-consuming, but fundamental to maintaining overall coherence. Data is usually fed to smaller containers, 'data marts', focused on particular business areas (e.g. Marketing, Finance, etc.), geographical areas or applications.
- Getting data out – accessing the data and using it for various purposes.

## 2.2 Business Analytics (BA)

Previously part of other academic areas, namely operations research & management, econometrics and financial analysis (Holsapple et al., 2014), BA is considered by researchers either as one component of BI (Kapoor, 2010; Bartlett, 2013), or as an emancipated field of research and practice (Davenport, 2006; Holsapple et al., 2014). In the literature there is no agreement on definitions, and different authors highlight distinct characteristics of the discipline (Davenport & Harris, 2007; Liberatore & Luo, 2010; Ramamurthy, Sen & Sinha, 2008; Bose, 2009).

The work of Holsapple et al. (2014) is perhaps the most spot-on effort to reconcile different definitions of scholars and connect competing approaches through the creation of a Business Analytics Framework (BAF). According to the authors (Holsapple et al., 2014), BA can be seen as:

- A movement – it demands that organisations commit to a distinctive mind-set, according to which they exist and ought to act on the basis of problem-solving that is guided by evidence, encompassing a certain culture and philosophy of managers.
- A collection of 'how to' modes and technologies – without the need to undertake any dogmatic mind-set, BA could be practiced in organisations where tools and knowledge are somehow available. These modes or practices include collecting, selecting, generating and eventually transmitting knowledge in the form of evidence to different stakeholders, by the means of technology.

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- A transformational process – where evidence is translated into insights or action, under the influence of individual, group and organisational culture.
- A capability set – in a given organisation, it determines how evidence is managed, how models are constructed and applied, as well as logical reasoning. It includes both the potential for executing analyses and how efforts are effectively coordinated, impacting what transformational processes are prioritised and whether a 'BA movement' is potentially constrained.
- A group of activity types – namely access, examination, aggregation and analysis of evidence.
- A decisional paradigm – an approach to or example of how decisions are made.

As Holsapple et al. (2014) argue, all the previous dimensions are unified and coexist in the BAF, yet BA can be viewed differently, depending on whether the focus is on purposes, practices or operative tools. Also, BA is not just about decision making, but rather about recognising, understanding and solving problems as a foundation for action (Holsapple et al., 2014).

## 2.3 HR Analytics (HRA)

In contemporary research and practice, the phenomenon object of this study takes a variety of different labels and forms, showing that the topic is still under intense development (Marler & Boudreau, 2017). In this specific context, the term 'HR Analytics' is preferred, in order to maintain coherence with the BAF framework (Holsapple et al., 2014). Some of the other labels are:

- Human Capital Analytics (Royal & O'Donnell, 2008; Harris, Craig & Light, 2011).
- Talent Analytics (CIPD, 2013; Lawler, 2015).
- Workforce Analytics (Ramamurthy et al., 2008; Mojsilović & Connors, 2010).
- People Analytics (Waber, 2013; Fecheyr-Lippens, Schaninger & Tanner 2015).
- HR Intelligence (Falletta, 2014).

Sometimes multiple terms are found in the works of prominent scholars (Fitz-Enz, 2010; Fitz-Enz & Mattox, 2014; Marler & Boudreau, 2017). Van den Heuvel and Bondarouk (2017) argue for the existence of differences between some of the terms: the label 'Workforce Analytics', they claim, does not belong to the HR domain and might even assume a negative,

exploitative connotation; on the contrary, 'People Analytics' is seen as more positive in relation to employees (Van den Heuvel & Bondarouk, 2017). The researchers eventually use 'HR Analytics' in their work, along with several other scholars (e.g. Marler & Boudreau, 2017; Angrave et al., 2016; Shah et al., 2017). In the following paragraph, an overview of the origins of HRA is offered.

**2.3.1 Origins**

The first attempts to show that the HR function is able, equally to other fields, to manage its expenses effectively and generate value for organisations can be traced back to the 1970s, through the creation of metrics defining costs, time and quantity of HR activities (Fitz-Enz, 2010; Bassi, 2011). In parallel, disciplines such as finance and economics join the discussion, with the creation of new fields such as HR Accounting (Roslender & Dyson, 1992; Toulson & Dewe, 2004) and Personnel Economics (Lazear, 2000; Lazear & Shaw, 2007). Similarly, new terms and concepts are introduced, for example HR Key Performance Indicators, attempting to measure HR performance using the HR scorecard method (Becker et al., 2001; Gabcanova, 2012). Or Human Capital Metrics (Fitz-Enz, 2000; Pfeiffer & Sutton, 2013) and HR ROI (Becker, 1964; Cascio, 2000), attempting to demonstrate the relationship between Human Capital investment and economic value (Schwarz & Murphy, 2008).

Progressively, as argued by Fitz-Enz (2010), a change of paradigm happens in the discipline, from mere accounting of HR activities to broader human capital management, with attempts to use statistical applications for predictive purposes. Over time, the interest for HRA increases among researchers and practitioners (Bassi, 2011; Levenson, 2011). As noted by Marler and Boudreau (2017), authors of the first specific integrative review on the subject, there is an increase of articles particularly after 2010. It can thus be argued that HRA as a distinctive field of research is eventually reaching a critical mass.

**2.3.2 Defining HRA**

In order to present the phenomenon object of study (Mair, 2008), some perspectives on what is HRA are presented, since different meanings are found in the literature. HRA can either be seen as:

- A practice, or set of practices (Falletta, 2014; Marler & Boudreau, 2017), connected to HR research, which is carried out in a context of HR strategy and decision-making:

HRA as a practice is enabled by information technology, and it can allow data-driven decisions. Through practice, different aspects related to employees can be monitored, such as performance, feedback, support, and talent management.

- An approach, or set of approaches (Bassi, 2011; Harris et al., 2011), to improve decisions in HR, which aims to link HR investments to financial returns with evidence. HRA as an approach translates into a more or less complex set of tools, technologies and applications of methods, from simple HR reporting of metrics to more advanced predictive modelling.

- A process (Lawler et al., 2004; Mondore et al., 2011) that links HR practices to organisational performance, through statistical techniques and models, by searching for cause-effect relationships within data. With reference to the model by Boudreau and Ramstad (2005), HRA as a process can either measure transactional efficiency, effectiveness of HR policies, or strategic impact of HR practices.

- A method (Fitz-Enz, 2009) which utilises data from the business for reasoning through logical analyses.

In sum, different definitions appear in the literature on HRA. Among the common aspects are the emphasis on decision-making, the link with other organisational areas and the close connection to practice. Because of these aspects, the researcher opts to reconnect to the BA literature when choosing a viable definition of HRA for the study. The disciplines seem to share a common evidence-based mind-set, similar purposes – to identify and solve problems, as well as related practices and technologies; this view is also supported by Holsapple et al. (2014). HRA in the present study is thus seen as *the application of BA to the HR domain, integrated in a broader movement, a capability set and a transforming process. It translates into a set of specific activities, practices and technologies for evidence-based problem recognition and solving.* The definition above is directly drawn from the BAF presented in the previous section. The use of Analytics is widely established in other organisational domains, and HR can be seen as a laggard (Harris et al., 2011), rather than a pioneer, in the adoption of an Analytics mind-set to conceptualise problems and drive actions, as opposed to intuition (Huselid & Becker, 2005). According to the definition above, performing and utilising HRA signifies sharing the same approach of BA, that is, to base judgement on hard facts (Falletta, 2014).

Although HRA might share the same mind-set with other BA, the object of the discipline is quite peculiar: HRA deals with intangible assets (Boudreau, 1998; Avolio, 2005; Lawler, 2005; Losey, Meisinger & Ulrich, 2005).

Intangibles (Lev, 2001) are non-physical company assets, which represent a large part of the market value of firms (Boudreau, 1998; Lawler, 2005). They are impossible to buy or imitate, they have a short life span when not used, and they are not visible (Becker et al., 2001). For this reason, it is harder to quantify them and their measurement might be less precise, argue Toulson and Dewe (2004). Nonetheless, measuring the value of intangible assets is still possible (Rucci, 2008), although less straightforward. From this perspective, HRA can be seen as a way to make visible and track intangible assets, as well as their return (Boudreau, 1998; Avolio, 2005; Lawler, 2005; Losey et al., 2005).

### 2.3.3 Purposes of the discipline

As previously mentioned, HRA can help make intangible assets visible, which can be considered a first reason for the existence of the discipline. On the other hand, different purposes of HRA can be found in the literature. In particular, three main categories of purposes can be identified:

- Measurement. To a great extent, this category is the most common in the literature. According to Boudreau and Ramstad (2005) and Lawler et al. (2004), the discipline helps measure the efficiency of HR activities, the effectiveness of specific HR programmes and policies, and the impact of HR on business outcomes. In relation to this last point, Harris et al. (2011), Coco (2011) and Mondore et al. (2011) all argue that HRA is useful for quantifying the link between HR and the rest of the business, through the calculation of Return of Investments in the HR field, much to the advantage of stakeholders. Thanks to measurement, HR can articulate the reasons for its existence by pointing out the production of outcomes that support and inform organisations' competitiveness (Ingham & Ulrich, 2016). However, this category of purposes does not really complete the overview as it hardly shows the support power of HRA, nor the effects of HRA adoption on HR professionals.
- Support for understanding and action, among which decision-making. The generated insights can show the impact of HR on business outcomes, but they can also be utilised for developing, implementing and evaluating strategies (Lawler et al., 2004),

providing the opportunity to align the HR functional work to that of the business (Coco, 2011), and contributing to understand problems as a foundation for action, similarly to other BA (Holsapple et al., 2014). Thanks to HRA, resource allocation can thus be improved by defining priorities and, for instance, targeting HR investments to specific employee groups (Coco, 2011; Harris et al., 2011), eventually boosting the effectiveness of investment decisions (Mondore et al., 2011; Snell, 2011).

- Change of mind-set of HR professionals. HR practitioners currently favour popular sources, rather than evidence, when making decisions (Bezzina et al., 2017), and HRA is needed so that managers can be held accountable for their management philosophy (Beatty & Schneider, 2005; Davenport et al., 2010) and better fulfil their duties in relation to stakeholders (Mondore et al. 2011). According to Boudreau and Ramstad (2005; 2009), HR should be elevated to a decision science: the Finance and Marketing fields turned into decision sciences when the resources they managed, money and customers/offerings, became less available in the market, more traceable and more strategically important; the same is happening to the HR discipline in regard to the talent market, therefore professionals are required to change their mental models, challenging their traditional views of the HR discipline (Boudreau & Ramstad, 2009), potentially through training (Rasmussen & Ulrich, 2015).

It is worth noting that not all scholars agree that HRA has real purposes: according to Angrave et al. (2016), for example, the discipline is just one of many other management fads. Similarly, Rasmussen and Ulrich (2015) point out that there are great chances for HRA to become a fad, unless the discipline develops from real business problems and not from data itself, requiring cooperation among teams that deal with analytics in different organisational functions. Moreover, the human side of HR should be kept in mind: rationality is rarely the only framework for human actions, and although HRA can provide valuable input and elevate decision quality, it should be seen as a means and not an end (Rasmussen & Ulrich, 2015).

### 2.3.4 HRA in practice

This section focuses on passages of the literature that inform on how HRA is dealt with in practice. This particular topic is one of the main objects of research in the field, and so far there is no agreement on how the discipline truly works (Marler & Boudreau, 2017). As pointed out by Angrave et al. (2016), most of the literature is normative, and although

academics collaborate with companies, much of the information cannot be accounted for in scholarly papers due to confidentiality issues: those organisations that succeed with HRA seem to protect their knowledge, as it represents a means for competitive advantage. In general, companies that apply data-driven decision-making outperform competitors (Pease, 2015). Top Analytics users score better financial results, make faster decisions compared to competitors, can execute decisions as intended and are more likely to use data in their decision-making processes (Wegener & Sinha, 2013).

Despite its normative character, one framework that enables some understanding of how HRA works and the implications for practice is the LAMP model (Cascio & Boudreau, 2010). The model identifies four main elements that make a measurement system successful, namely Logic, Analytics, Measures and Processes, and it is frequently found in academic articles, together with the HR scorecard and utility analysis (Marler & Boudreau, 2017). In particular, according to Cascio and Boudreau (2010):

- *Logic* represents the importance of keeping in mind the story behind numbers and their connection with outcomes; this allows non-HR people to understand how a certain method is built and what insights can be drawn from it;
- *Analytics* refers to the ability to build valid research questions and obtain meaningful results, through a coherent research design and the use of proper statistical models;
- *Measures* relates to the necessity of obtaining and using data and indicators that are reliable, available, consistent and timely. Data quality is extremely important in order to conduct successful analyses, and companies should make an effort to increase the quality of their data, otherwise fomenting trust issues and lack of HRA usage by decision-makers;
- *Processes* recalls the necessity to account for values, cultural norms and power relationships within an organisational context. HRA has impact on decisions and behaviours, so a change management process is needed to make sure that knowledge is transferred effectively.

The need for a cultural shift in the HR community is also stressed by Pease (2015). Managers should accept that HRA is possible, and it can be relied upon: this could be achieved by gradually showing the power of analyses to match existing mental models, and by education and training, seen as good ways to increase acceptance and usage (Cascio & Boudreau 2010).

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Only a minority of companies currently reports usage of HRA (Deloitte, 2015; 2016; 2017); on the other hand, organisations are seen as more ready to introduce and utilise HRA, as compared to the past: new specialist staff is recruited, HRA offerings are purchased and efforts to increase data quality are put in place (Deloitte, 2016). Although in the Nordics the topic is not as prioritised as in other regions, MNCs worldwide are lifting HRA higher up in their agenda, spreading it to more HR practices than before: previously performed in small technical groups in specific HR areas, HRA usage is becoming more systematic (Deloitte, 2017). Nevertheless, there still exist different levels of complexity in HRA usage among practitioners, which according to Fitz-Enz (2010) encompasses four degrees of evolution:

- HR transactional monitoring – activity reports of HR processes;
- Human Resource Management – monitoring of HR performance;
- Business Metrics – connections between HR and the business are strengthened;
- Predictive Analytics – predictive power of HRA is utilised for forecasting.

Hence, it can be argued that although HRA is used in organisations, its scope can differ greatly. Many authors argue that very few organisations go beyond standard HR accounting and reporting (Davenport et al., 2010; Coco, 2011; Smith, 2013; Falletta, 2014; Bersin, 2014; Pape, 2016). Similarly, according to a survey by Bersin (2014), very few companies use HRA in its predictive forms.

This might have to do with the existence of barriers, such as the scepticism of professionals, and their lack of skills and knowledge on the topic (Angrave et al., 2016; CIPD, 2013; Rasmussen & Ulrich, 2015). As pointed out by Angrave et al. (2016), other barriers exist at an organisational level: compared to other functions, HR usually occupies a peripheral position and its initiatives do not necessarily encounter support or buy in. Also, the authors argue, organisations are often affected by silo mentalities and it can be hard to access and combine data from different functions (Angrave et al. 2016).

Apart from contributions that deal with complexity and potential barriers to HRA usage, other information on HRA practice can be found in scholarly articles and industry-related literature. Regarding the typical profile of HRA users, according to Pease (2015), most are global or multinational companies based in the US, and specialised teams reside within the HR function. Although this configuration is considered one of the most successful, in other

settings HRA teams are placed outside the HR domain – for instance in Finance or IT, with consequences on the ease of access to HR data (Green, 2016). According to Falletta (2014), HRA teams typically employ up to 10-12 full-time specialists (but their number is often underestimated due to the presence of mixed roles), and staffing levels of HRA teams are generally proportional to company revenues and overall number of employees. According to Pease (2015), most HRA professionals have specialised HR expertise, as well as knowledge of statistics, IT and research. As previously mentioned, in some cases employees do not work full-time with HRA, which Pease (2015) considers less optimal, since this could result in lack of clearness of expectations, lack of guidance and too unstructured work. When dedicated teams or full-time professionals are employed, they often report directly to the Chief HR Officer (CHRO) as such reporting structure is the one that mostly ensures success of HRA initiatives (Falletta, 2014). However, other solutions exist: for instance, HRA teams can be placed under the company's Centre of Expertise (CoE) (Rasmussen & Ulrich 2015), or even outside the HR function. In general, the longer the chain of command, the harder it will be to obtain sponsorship and concrete actions based on the insights produced (Green, 2016). In more mature companies, the responsibility for HRA can be assigned to wider Analytics function, potentially affecting how the discipline is prioritised, compared to other BA (Green, 2016). Finally, another solution is to partially or totally externalise HRA activities, with several consequences in terms of data ownership, delivery times of analyses, availability of technical solutions (Green, 2016) and costs.

### 2.3.5 A few documented cases

This paragraph focuses on cases of HRA adoption and usage. A considerable number of cases can be found, however most of them are not documented enough. In terms of sources, most cases are found in industry-specific blogs or web articles, and only few appear in scholarly articles. These last cases are the ones presented in this section, whereas an overview of others is offered in Appendix 1 with the purpose of showing the versatility of the field in terms of different problems and areas of intervention, results and general insights obtained.

One case of HRA use is that of the baseball team Oakland Athletics (Lewis, 2003), presented by Huselid and Becker (2005): through scientific investigation of game strategies and player evaluation, senior executives managed to increase the goodness of their decision-making, and

the team achieved remarkable accomplishments during games – although players were paid much less than the league average.

Rasmussen and Ulrich (2015) present two applications of HRA by Maersk Drilling: through HRA, the company succeeded with explaining the variance in performance between different oil rigs, using the results of analyses to better deploy knowledge and eventually increase customer satisfaction. The case shows that HRA can help to increase understanding of business problems, and not just HR issues. The same company used HRA to identify the strategic impact of a specific Trainee programme: thanks to the insights obtained, the organisation decided to allocate additional resources to the programme as it was found to have good return on investment (Rasmussen & Ulrich, 2015).

One final case worth mentioning is that of Google's People and Innovations Lab (PiLab), found in Davenport et al. (2010): through data analysis, four segments of managers were identified based on their quality, and with follow-up interviews the company managed to discover key behaviours that affected the outcome of management practices (Davenport et al., 2010). The case suggests that HRA is useful to discover patterns, and other methods can step in to deepen understanding of specific insights.

# 3. Theory

In order to situate the study problem, the research draws on diffusion theory, in specific on diffusion of innovations (DoI) (Rogers, 1983).

## 3.1 Diffusion of innovations

When the habit of recycling paper, a political ideology or a new Youtube video spread over a group of people, each of these items goes through a process of diffusion. Diffusion can generically be seen as the "spread of something within a social system" (Strang & Soule, 1998, p. 266), where the latter is a structured set of connected units attempting to accomplish a goal (Rogers, 1983). In diffusion theories, the most important components are the actual movement from source to adopter, the adopter's choice, as well as those contextual conditions that cause their reaction (Strang & Soule, 1998). Adoption and diffusion might be considered as synonyms, although there is a difference between the two: whereas adoption specifically focuses on the micro level of individuals and their choices, diffusion can have a broader scope, as it refers to how items spread within social systems over time, and to the effects of social pressures and influences (Straub, 2009).

Among the most researched objects of diffusion theories are *innovations*, either seen as a result (e.g. a specific idea or product) or as a process – the introduction of a new item in a system (Gopalakrishnan & Damanpour, 1997). An innovation is defined as anything that is "perceived as new by an individual or other unit of adoption" (Rogers, 1983, p. 11).

Some authors seem to reserve the term innovation to ideas that are successfully introduced (Bradford & Kent, 1977). In general, a new item can be considered innovation if it causes a reaction on individuals or groups, in terms of favourable/unfavourable attitude or active acceptance/rejection – less important in this context is the 'objective' newness of the given item, or the awareness of its existence (Rogers, 1983). Set aside the literature dealing with generation of innovations, such as new product or process development (Utterback, 1971), which is not relevant for the purposes of this thesis, *diffusion of innovations* (DoI) is defined as "the process by which an innovation is communicated through certain channels over time among the members of a social system" (Rogers, 1983, p. 5). Different factors influence how diffusion takes place, namely the characteristics of an innovation, the communication

channels involved, as well as the configuration of the social system in which an innovation spreads (Rogers, 1983).

## 3.2 Factors that influence diffusion of innovations

As Rogers (1983) argues, innovations can differ greatly from each other, and their intrinsic characteristics determine how fast they spread within a system – measured by the rate of adoption (the number of individuals adopting it). These attributes are (Rogers, 1983):

- Relative advantage – An innovation is relatively advantageous when previous solutions have lower economic value or social status; individuals or organisations often make comparisons by getting information through networks;
- Compatibility – Innovations are more or less compatible when they are coherent with the values of adopters, when they meet the adopters' needs and when they fit well with previously introduced ideas;
- Complexity – Innovations that are simple to use and understand tend to spread faster, as compared to complex ones;
- Trialability – If an innovation can be tried or experimented before implementation;
- Observability – When the results of an innovation can be seen by members of a social system; innovations related to visible aspects like hardware, have a faster adoption rate than software, which in its nature is not as visible.

In relation to the third characteristic, it is worth mentioning that, in a study by Davis (1989) on information technology adoption, a strong causal link is found between perceived ease of use, usefulness and usage: when an innovation is considered easy to use (low complexity), it is likely to be considered useful, and eventually it is utilised more.

Apart from the innovation's intrinsic characteristics, its diffusion is also affected by communication channels: interpersonal channels seem to work more effectively than mass media channels, as system members tend to respond better to near-peer suggestions, particularly if communication involves face-to-face exchange (Rogers, 1983).

DoI also depends on the nature and configuration of the social system in question (Rogers, 1983), meaning that a system's structure can affect the spread of an innovation within it. Organisations are social systems with specific goals, predetermined roles for the members and

an authority structure, in which both formal and informal structural elements coexist (Rogers, 1983): on the one hand are roles, hierarchical positions, rules and regulations; on the other are more informal elements, such as norms and social relationships between members (Rogers, 1983). Both sets of characteristics play a role in diffusion of innovations by influencing the behaviours of system members: for instance, if a supervisor instructs his/her direct reports that a certain new methodology should be used, these people will probably be more inclined to use it. At the same time, if their peers have a negative attitude towards it, this also might affect their own attitude.

Some internal structural variables are believed to affect an organisation's ability to spread innovation: among them are centralisation, complexity, formalisation and interconnectedness (Rogers, 1983). Centralisation highlights how much power and control are concentrated: the more centralised an organisation, the less innovative it tends to be (Rogers, 1983) and the slower innovations spread (Burns & Stalker, 1961). On the other hand, Gatignon and Robertson (1989) argue that centralisation might favour acceptance of certain innovations, such as those that require standardised solutions. A second element, complexity, refers to the level of knowledge and expertise of an organisation's members (Rogers, 1983). Where high complexity is found, it is easier for people to propose innovations, although it might be harder to reach consensus and thus make decisions on implementation (Rogers, 1983). Formalisation, a third attribute, marks how important formal structural elements (such as rules) are in the organisational culture: a more formal environment might discourage new ideas, but once they are put into action diffusion happens faster (Rogers, 1983). Interconnectedness refers to how much members are connected through networks, which favours the flow of ideas (Rogers, 1983).

After having identified some important factors that affect DoI in organisations, an overview of the process is offered.

## 3.3 How diffusion happens in organisations

In organisations, according to Rogers (1983), DoI follows a number of steps organised in two main moments: initiation and implementation. The steps take place in a fixed order, although they could be achieved more or less implicitly (Rogers, 1983). The first moment, initiation, consists of two steps (Rogers, 1983):

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- Agenda-setting – the process of identifying a problem in the organisation and seeking for innovations that might solve that problem; it is often motivated by a performance gap (the difference between expectations of how the organisation should perform, and how it actually performs);
- Matching – it consists of tying the problem identified in the agenda-setting with a specific innovation that can solve it. This leads up to a decision to either adopt the innovation or not.

If decision-makers in the organisation decide to adopt the innovation, the implementation phase begins (Rogers, 1983): the organisation reinvents the innovation to fit the context and redefines the organisational structure to accommodate the innovation. Implementation also consists of clarifying: at this stage, system members get to better understand the innovation and utilise it in their work (Rogers, 1983). At last, the innovation is fully incorporated in daily activities – routinising (Rogers, 1983).

## 3.4 On innovation-decisions in organisations

As mentioned above, the main threshold between initiation and implementation is constituted by a decision, which Rogers (1983) refers to as *innovation-decision*. In the organisational context, innovation-decisions are mainly taken collectively or by authority (Rogers, 1983). The first kind of decisions is regulated by consensus, whereas the second kind is performed by individuals possessing "power, status or technical expertise" (Rogers, 1983, p. 347). In both cases, it appears that members' roles, as much as their connection with other members, shape an innovation-decision and the diffusion process as a whole.

## 3.5 Members' roles and connections

Beside the central role of decision-makers, examples of individual roles that influence the process of diffusion are opinion leaders and change agents (Rogers, 1983), hereby described in detail. Opinion leaders are individuals who, regardless of their formal position, are likely to influence other members' view and reactions to innovation (Rogers, 1983). They can do so because they have technical expertise, they are more connected to other system members, or simply because they are considered to act in compliance with the norms of the organisation (Rogers, 1983). The last point is double-sided: if the organisational environment is highly innovative, they will likely foster innovation, but also the opposite (Rogers, 1983). Change

agents are actors that usually do not belong to the organisation, but try to push an agenda through opinion leaders (Rogers, 1983). These actors also act pro or against change, depending on whether they consider an innovation desirable or not (Rogers, 1983). Apart from the roles above, another kind of actors is found in Tushman (1977): gatekeepers. These are organisational members who help transfer information across organisational boundaries, as they typically intercept external sources of information and feedback (Tushman, 1977).

As described above, diffusion of innovation can be affected by individuals with specific roles within and outside the organisation, by means of information and influence. When an individual holds a position of power or has strong communication linkages, he/she is more likely to affect the diffusion process (Baldridge & Burnham, 1975).

A final consideration is reserved to informal networks: within an informal structure, members tend to seek connection with other people whom they perceive as similar to them, according to a principle of homophily (Rogers, 1983). According to Rogers (1983), this could potentially represent an obstacle to diffusion of innovations: for instance, top managers often interact with each other even outside official meetings, and an innovation might not spread towards them if it comes from outside circles, or the opposite. On the other hand, Rogers (1983) argues that, within homophilous groups of individuals, communication is more effective as they share a common set of subjective meanings and understandings, as well as a subcultural language.

## 3.6 How adoption happens at the individual level

As previously seen, individuals are often involved in the diffusion process, either because they have a particular role, or because they are intended as final adopters of an innovation. For this reason, it is worth spending a few words on the dynamics that characterise individual adoption. According to Rogers (1983), adoption typically follow certain steps:

- Knowledge – It is unclear in the literature whether or not individuals get knowledge about an innovation "by accident", or if they seek information about it because they have a need. It is also argued whether or not the innovation itself creates a need for it.
- Persuasion – The individual forms an attitude about the innovation. Especially important at this stage are the innovation characteristics and the communication channels used to seek information, as opinions of near-peers are most convincing.

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- Decision – Activities that lead up to adoption or rejection of the innovation. Important at this stage is the innovation's trialability. So far the process has been mostly cognitive, but during implementation the innovation is used: it is not unusual that difficulties and uncertainties in how to use the innovation arise at this stage, especially if decision-makers and final users are different actors.
- Confirmation – Individuals keep seeking information in order to make sure that their decision to adopt was right, and potentially change their decision.

## 3.7 Barriers to diffusion of innovations

Another important aspect to take into account is that innovations do not always spread as they are meant to, as there exist some hampering factors that can prevent or decelerate diffusion. An overview of the barriers to DoI can be found in Long, Blok, and Coninx (2016), who identify in the literature six different kinds of barriers:

- Economic – These barriers relate to financial factors: too high initial investments, hidden costs, competing financial priorities, temporal asymmetry between costs and benefits, uncertain returns and results, among others;
- Institutional/Regulatory – They include low institutional support, lack of a regulatory framework and too prescriptive standards;
- Behavioural/psychological – Among them are lack of management support and/or awareness, conflict with traditional methods, overly complex technologies, difficulty to observe results/effects, beliefs and opinions, low trust and lack of acceptance, negative biases and assumptions; it is worth noting the parallel between some of these barriers with the factors that affect rate of diffusion (Rogers, 1983);
- Organisational – Examples are lack of required competences and skills, poor readiness of the organisation, poor information, inability to adequately assess technologies, overly short-term reward systems, organisational inertia and habitual routines. In relation to these aspects, Rogers (1983, p. 27) mentions a social system's "norms" – its established behaviours – as possible barriers to change;
- Market – Among them are poor information, market uncertainty, individual uncertainty and consumers' motivation;
- Social – One example of social barriers is peer pressure.

# 4. Method

Since previous research on HRA is relatively rare, in order to answer the research questions an explorative approach is considered the most suitable (Hakim, 2000). According to Della Porta and Keating's classification (2008), the approach is close to the interpretivist type, where objective and subjective dimensions of reality are "intrinsically linked" (Della Porta & Keating, 2008, p. 23). The phenomenon is considered to be somewhat knowable, but in a close relationship with human subjectivity (Della Porta & Keating, 2008).

## 4.1 Pilot study

Although the research deals with a single case company, a pilot study was carried out beforehand, with the purposes of better grasping the phenomenon, scouting the surroundings (the Swedish country dimension), and in order to make a more informed choice of themes in the case company investigation. The pilot study explored diffusion of HRA in Swedish settings, using in-depth interviews as a main method of investigation. Originally designed to include a purposive sample of HR specialists in 18 larger Swedish MNCs, eventually the pilot was conveniently limited to eight informants from Swedish MNCs, consultancy firms and system vendors serving the Swedish market. The change in sampling strategy was due to the fact that it was not always possible to identify specialised professionals in the companies. Also, many informants of the initial sample who were contacted did not reply, declined the interview or provided only limited information through email. This might be an indication that either the companies did not want to disclose their methods, or that informants simply could not provide enough information.

Of the eight informants interviewed, four professionals held the title 'HR Analyst' and were fully employed by their organisation (PS2, PS3, PS4, PS7); one professional was a full-time consultant in the client's organisation (PS1); three professionals were employed by consultancy firms and/or system suppliers (PS5, PS6, PS8). All interviews were carried out virtually in order to minimise costs, recorded upon consent of informants, transcribed and analysed. During transcription, informant names and details on their employers were undisclosed. Each interview was assigned a label consisting of the letters PS (Pilot Study) and a number (e.g. PS2). The pilot study results were analysed before the single case study started.

## 4.2 Single case company

The main empirical base for the dissertation was drawn from a single case company, organised according to the HR Service Delivery model (Boglind et al., 2011). For confidentiality reasons, in the study the fictitious name 'Epsilon' is utilised to refer to the company. Details on the size, number of brands owned and countries of operations are deliberately omitted to safeguard confidentiality. Epsilon was chosen because it perfectly fit the company profile sought by the researcher, that of a large Swedish MNC seeking to spread HRA among its HR community. The case was also partially selected out of convenience: contacted for an interview as part of the pilot study, Epsilon's representatives showed enormous interest in the topic and offered the opportunity for a partnership, providing access to data in exchange for a report containing extensive results and recommendations for decision-makers. Data collection was managed by the researcher, and carried out in three main ways.

### 4.2.1 Qualitative interviews of HR professionals

The main source of information for the research consists of 24 qualitative interviews of HR professionals. The sample was selected together with the company tutor, on the basis of "inherent interest" (Della Porta & Keating, 2008, p. 29) in seven different HR organisations within Epsilon (Figure 1). Informants were selected in order to cover different HR practices.



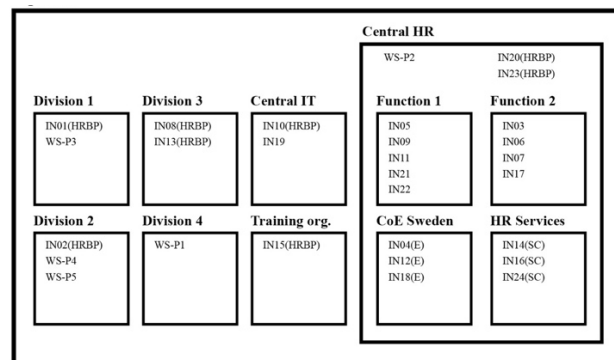*Figure 1 - Visualisation of sample Epsilon sample*

From a job perspective, eight individuals were HR business partners; three Subject Matter Experts; three HR Services managers; the other 10 informants were directors/managers of HR areas. The sample privileged professionals with relatively high level of responsibility in the organisational scale: 0 being the CEO and 1 the CHRO, 15 participants covered position 3;

eight covered position 4; one covered position 5. The age of participants was relatively diverse: five individuals were <40 years old; 11 between 40 and 50; eight >50. From a gender perspective, 15 informants were female, nine were male.

A list of potentially relevant topics was prepared beforehand together with the company tutor (see Appendix 2), although it did not serve as an interview guide: questions were mostly adapted to the settings and asked in an open-ended form in order to allow informants to talk freely about aspects they considered of relevance (Bowden, 2000).

The in-depth interviews were carried out either face-to-face or through Skype. All interviews were semi-structured and lasted between 35 minutes and 1 hour. Upon consent, the interviews were recorded and transcribed, in order to better visualise data. For confidentiality reasons, participants' names were omitted and a label was assigned to their interview, consisting of two letters (IN) and a number (e.g. IN23).

### 4.2.2 Workshop with functional working group on HRA

Additionally, a workshop was carried out at Epsilon headquarters. Workshop participants were members of a functional working group on HRA from different divisions - referred to as 'By The Numbers' (hereinafter BTN). At the workshop, five members of BTN were physically present, representing four divisions of Epsilon: two members belonged to the same organisation, as one had recently taken over the other, and their roles were overlapping at the time of the study. The two group coordinators, among which the company tutor, left the room after introducing the researcher in order to encourage participants' openness.

The workshop consisted of a number of activities, as described in Appendix 3. The researcher held a facilitation role, as he introduced workshop activities, stimulated the discussion when needed and made sure that all members were encouraged to express their reflections. Nonetheless, his interventions as a researcher were kept to a minimum: during the session, he carried out participant observation, took notes and asked for clarifications only when necessary. Upon consent, the session was recorded and then transcribed. In order to guarantee confidentiality, participants were assigned a label consisting of two letters (WS) and a number (e.g. WS-P4).

The workshop enabled to gather additional data, deepening the researcher's understanding of BTN activities. Also, it allowed participants to discuss best practices and potential challenges hindering HRA diffusion.

### 4.2.3 Administrative documents

Finally, additional information was collected with the help of four administrative documents, consisting of presentations used during BTN meetings. The documents were used to contextualise some of the findings and to enrich understanding of the phenomenon investigated. For instance, information on the group was obtained in relation to its formation, its activities and members' profile. The retrieval of administrative documents did not follow any specific timing. Each document was assigned the label AR and a number (e.g. AR02). Existing tools for HRA were also looked at, although they did not represent a major source of information.

## 4.3 Data analysis

The data collected through the interviews and workshop at Epsilon was analysed in phases, whereas the screening of administrative documents was carried out in a relatively unstructured way – when information needed to be contextualised. After transcription, all materials were read multiple times. During the reading, relevant parts were selected, and a set of categories was assigned to describe these passages, in order to code the meanings embedded. Often, similar meanings were found in different sections, and the same categories were used to label the content, otherwise new categories were created based on their apparent difference. Some categories were suggested by the literature, the pilot-study results or pre-defined themes of investigation, although most of those nodes emerged from the context. Progressively, field data reached saturation, and the system of meanings became stable (Marton, 1986).

## 4.4 Ethical considerations

In all phases of the research, ethical principles were taken into consideration and assessed, following the categories presented in Bryman and Bell (2011). This included the pilot study. As far as he is aware, the researcher caused no physical or psychological harm to participants when performing the study; the study did not represent a threat to employment security, nor did it undermine future career possibilities of participants. This was achieved by anonymising

all names of individuals and companies. Concerning the pilot study in particular, employers were not informed of the interviews, safeguarding the right to privacy. Upon request, the thesis supervisor contacted participants, in order to confirm that the research had academic purposes.

In regard to the collaboration with Epsilon, none of the materials collected were shared with third parties, for a confidentiality agreement was signed by the researcher before the collaboration started. All materials received or personally retrieved by the researcher on the company's intranet were used strictly for academic purposes. Information based on the pilot study that was shared with Epsilon contained aliases, therefore no reference to specific companies or industries was provided. The sample of Epsilon employees for the interviews was built in collaboration with the company tutor, however interview results were provided to Epsilon only in aggregated form, so that no information could be reconnected to specific individuals. In order to guarantee informed consent, potential interview participants were informed about the study purposes and objectives by email. Further information was provided upon request. To the researcher's knowledge, all individuals participated voluntarily. Also, permission to record was asked at the beginning of every interview, and further use of recorded materials and interview transcripts was clearly communicated. Interview transcripts were anonymised and later used only for academic purposes – i.e. analysis of results – and strictly by the researcher, therefore no other parties had access to those materials at any point. This applied as well to the workshop transcript.

## 4.5 Trustworthiness & limitations

Because of the qualitative nature of the present study, an important consideration is that of trustworthiness, concept that for many researchers is preferable to those of reliability and validity (Bryman & Bell, 2011). As it connects with a broader theory (DoI), it could be argued that the study is at least partially answering to criteria of transferability and dependability (Lincoln & Guba, 1988). When presenting the findings, the author strived to provide the reader with a real and comprehensive account of different interpretations when they emerged in order to safeguard the fairness of the inquiry (Lincoln, 1986). Hence, the author argues that the inquiry can be considered authentic (Lincoln & Guba, 1988) and, at least to some extent, it hopefully increases understanding of how diffusion of HRA works. Before the collaboration with Epsilon was in place, some elements of the research at the

organisation were agreed upon, such as for instance the research design and timing for the study. Although the researcher's experience of fieldwork was entirely independent, constructive feedback was often provided during face-to-face sessions throughout the research project.

# 5. Findings

## 5.1 Overview of pilot study findings

As mentioned in the method chapter, the main empirical base for the study is drawn from a single case company. On the other hand, this section opens with a brief overview of pilot study results, which enabled the researcher to make a better choice of themes for investigation in Epsilon and to provide a glimpse of the Swedish HRA landscape.

According to informants of the pilot study, among Swedish organisations there is a generally low degree of adoption of HRA. The Swedish market for HRA was regarded as immature by most informants (PS1, PS3, PS5, PS6, PS7, PS8). Those from consultancy firms and system vendors in particular, claimed that adoption among clients is almost non-existent, since it is still common to view the HR function as personnel administration. On the other hand, the level of digitalisation and innovativeness in the country will most likely increase HRA usage in the next few years, despite the fact that companies are currently waiting for business cases: *"They don't really know where to start. They are just waiting for someone to have a case"* (PS5). All informants converged in describing a high perceived need for HRA, and a great interest in the topic – primarily by big companies, because of higher budgets available (PS5, PS8) and higher amounts of data at disposal (PS1, PS3, PS4, PS7, PS8). Consultancy firms and system suppliers are addressing efforts to include HRA in their offerings, and at the same time hold a role of ambassadors among their current and future clients: *"I try to raise awareness (...) when I have a half-day or a whole-day workshop"* (PS5). *"We visit prospective customers and show them the potential"* (PS8). Despite being driven by commercial purposes, education from third parties can nonetheless be seen as a catalyst for adoption of HRA.

In terms of complexity of usage, HRA in Swedish organisations is at its early stages. Activities are focused almost exclusively on HR reporting and descriptive statistics, but organisations are actively setting up processes, teams and routines (PS1, PS3, PS4, PS7). In one case, more advanced use of HRA was found: *"we are already able to predict how long it will be before we fill specific positions"* (PS3). Complexity of usage is believed to increase in the future, better connecting HR practices with business outcomes, and descriptive analytics is generally seen as a step towards that direction: *"From there, you can upscale towards*

*predictive analytics"* (PS4). Some informants remark the importance of running tests in delimited geographical locations, or just for specific HR processes, before adopting a systemic use of HRA or be able to increase complexity.

When it comes to priorities, most informants claim that HRA serves operational purposes: measurement, control and internal benchmark – for instance headcount tracking (PS1, PS2, PS3, PS4, PS7). In most of those contexts, there is however a clear aim to use HRA for long-term decision support in the future: *"provide insights to the business"* (PS3) and *"solve problems of line managers"* (PS7). Also, HRA can improve the way of working of HR and *"change the HR mind-set"* (PS7) as professionals experience a lot of gut feelings in decision making. Priorities in organisations are, according to informants, to harmonise and standardise processes, as well as to integrate data from different parts of the HR organisation (PS3, PS4, PS7). In terms of areas of use, recruitment and selection are the most mentioned, but also compensation and benefits, as well as health and safety – especially sick leave. Usage is also reported for other more specific areas, such as employee engagement and retention. One informant in particular underlines the relationship between employee satisfaction, team environment and quality of leadership: *"Teams that score less than a certain number are identified as 'red teams', which means that they are in a critical stage in terms of leadership or team-stage, so some actions need to be taken"* (PS4).

Some of the organisations investigated had a dedicated HRA team with more than one person. In one company, the team was organised under Talent Acquisition, following the main priority of the organisation: *"The company needs to grow a lot. (...) Talent Acquisition has been a high focus area, where we have spent most HRA efforts"* (PS3). Another organisation had three specialised HR Analysts in performance, reward and workforce management, and several other professionals with mixed roles (PS7). Two companies had only one employee with a mixed role (PS1 and PS2), although one of them was soon going to hire a full-time specialist. Among informants from consultancy firms, one in particular remarked the need for specialised professionals (PS6).

In terms of knowledge, most informants did not have specialised education in HRA or data-related disciplines. However, many of them mentioned that it is relatively easy to learn HRA, through online courses and by following industry-related blogs. Other ways to learn are networking with other professionals at conferences, or simply by practice. Some informants

mentioned that collaboration with colleagues in other business areas is beneficial, as knowledge of analytics can often be found within the organisation. From an organisational point of view, learning can be achieved through tests in delimited locations or with specific initiatives: *"Try it with one region, get feedback, improve the process, and from there expand everywhere and adjust in the meantime"* (PS7).

According to informants, HRA is received in different ways: most HR colleagues are very interested, particularly HR managers and HRBPs (PS1), although for some it is considered boring, too difficult or too complicated. This is partially connected to the way data and figures reach end-users: many HR professionals are interested in the results of analyses, rather than in the raw data they receive: *"Someone waits for the data to come, to validate or contrast certain thoughts. Others are actively seeking. What people don't like is to deal with data itself, they just want the outcome"* (PS4). According to another informant, the more discoveries are made by the HRA team, the more requests and interest by HR colleagues increase, showing that when professionals understand the usefulness of HRA, they might be able to overcome potential fears or bias: *"My manager has needed to say stop, they cannot come directly to me and ask anymore. (...) If someone asks and you provide, then a learning loop will start. You create interest and build knowledge...a positive spiral"* (PS3).

Moreover, informants describe a series of challenges connected to HRA adoption and use. One main challenge is that organisations might not be ready for change, thus failing to act upon the inputs provided by HRA (PS1, PS3) and wasting the opportunity to lift up the mandate of HR: *"The risk is that we produce lots of inputs, and then there is no one asking for it. And it is just going to continue the way it is now, that HR doesn't get any mandate, money, interest"* (PS1). It is thus important to make sure that HRA is used, and that the insights do not remain stuck in the HR department (PS7). Another challenge is the ability to create a culture of decision-making based on evidence: *"create a culture within HR, where the norm is to build decisions on evidence instead of gut feelings"* (PS1), increasing the use of numbers in communication with other functions (PS6). One additional challenge mentioned is manual input of data which, although it cannot be fully eradicated, can be reduced through automation (PS3, PS4). Data quality is another issue that should actively be addressed by organisations (PS1, PS2, PS7, PS8), as it represents a foundation for the credibility of HRA initiatives (PS6, PS8). A final challenge mentioned is the ability of business leaders to ask the

right questions when they commission researches and analyses (PS3). Leaders should take into account that HRA is a means to address action, and its limitations can be bridged with other methods (PS1, PS2, PS3).

In the following paragraphs, results from the case study are presented.

## 5.2 Background information on Epsilon

At Epsilon, HRA activities are carried out at different organisational levels. At a central HR function level, the Workforce Management Team (WMT) provides guidance, supports divisions, coordinates efforts and makes decisions on common tools and practices. They also play an important role in spreading HRA in the organisation: "*They work through networks, pull people together to learn from each other and try to be inspiring*" (IN11).

Epsilon recently changed the way in which the HRA work is organised: in the past, the WMT held a much stronger coordination role, but nowadays HRA activities are largely decentralised. This has led to an increased responsibility of single divisions. "*It used to be very centralised: central HR told how things were going to be measured and done. Now the divisions have this responsibility*" (IN11).

With decentralisation, the work of cross-divisional networks has gained importance. The most important network is BNT, the functional working group, which is getting more and more responsibility in spreading the use of HRA within divisions (IN11). In the period of the study, BTN comprises 25 professionals from different divisions, identified by their division as representatives for HRA and Workforce Planning (AR02). The purpose of BTN is to build a common knowledge base, share best practices, drive and support methodologies and analyses (AR02). Members of BTN are considered to have an important role for the spread of HRA in each single HR community, as put by one of the informants, "*we need to use them as ambassadors, to get usage up, out in the organisation, and so that the HR communities in each organisation know who can they talk to*" (IN22).

The practical ways in which BTN members approach HR professionals in their divisions, are either through email invitations or with face-to-face meetings. The second kind of approach is considered as one that truly works: "*It is not enough to send an email, it is not enough to tell the managers that their people should take the training. The thing I learned is that I have to*

*have a face-to-face meeting"* (WS-P5). The same modalities are used by another BTN member, who also highlights the importance of 'selling-in' new HRA tools to end-users: *"I tell them that this should be the future. It is just like a sales pitch!"* (WS-P2).

However, it seems not always so easy to achieve buy-in of top managers and end-users. In particular, there seems to be a need for endorsement of top management, before being allowed to spread a new HRA tool or methodology. *"First I need to get the buy-in from my manager, the top management HR. Then I know I can push, and then I need to be in the room to see that people are doing it. Then in the best case they are interested… it is exciting… then I get the buy-in from people"* (WS-P5).

## 5.3 Different understandings and attitudes towards HRA.

Before digging into different understandings and attitudes towards HRA among HR professionals, it is worth mentioning that, although in this study the label HRA is used, in Epsilon's administrative documents (AR02, AR03, AR04, AR05) the official label is Workforce Analytics (WFA). Nevertheless, Epsilon has no set definition for either of them. As a matter of fact, both labels exist in field data but, according to some of the informants, they do not always coincide in meaning. Some informants see HRA as more comprehensive than WFA: *"What one calls WFA for me it is very much about numbers. HRA is much bigger, creating business cases for working with HR issues"* (IN15). Other informants have the opposite view: *"WFA is more for the business goals, business decisions. HRA is more for HR in order to better engage the workforce"* (IN17). Regardless of potential differences, this study continues to use the label HRA.

The understanding of HRA varies in complexity among informants. According to some (e.g. IN03, IN12), HRA is seen as just a synonym of HR data, hard facts or figures – *"data around people"* as IN03 puts it. For other informants (e.g. IN02, IN06), the understanding of HRA is notably more complex: HRA is seen as the ability to combine data and draw conclusions that can be used for decisions, both to make sense of previous situations and to predict future developments. *"Foresee how things will develop, or be able to explain why things have occurred"* (IN02). For another informant (IN17), HRA is associated with the ability to get data out of systems in an easy way, at the same time creating a connection between data.

It could be understood from the interviews that the topic frequently overlaps with the concept of Workforce Planning (WFP), and the boundaries between the two labels are often blurry for informants. For instance, one informant (IN10) understands HRA as an instrument to strategically plan the workforce, to achieve numerical flexibility and understand the competences needed in the workforce. However, from a central HR function level perspective the two concepts are considered separate, even if they are closely related. One informant considers HRA as a prerequisite for WFP, the highest step in a scale of increasing complexity: *"At the base we talk about headcount driven budget planning, then the next step is HRA. The third step is strategic WFP, that is really where we want to go, and the middle step needs to be HRA. (...) WFP is really about HRA, to understand what you have today and then to see what you need for tomorrow"* (IN21). Another informant (IN11) advises against mixing the two concepts too much, but at the same time still understands that people are confused between the two. This confusion is confirmed by IN21, who states that some divisions do not differentiate between WFP and HRA.

From the findings in this section, it can be argued that in Epsilon different meanings and understandings of HRA coexist, that they vary in complexity and that the concept frequently interrelates with WFP.

Beside the different understandings of HRA, individuals also have mixed feelings towards the topic. Some of the members of BTN, for instance, have seen very positive reactions to HRA: *"Some people think it is great, they see the benefits of it"* (WS-P2); *"The HR people in my organisation are very interested in HRA"* (WS-P4). In a division that has gone through redundancies, HRA has a very negative connotation: *"when we say 'WFA' everyone thinks number of people... headcount... redundancies. And then there is a very negative note to it"* (WS-P1).

## 5.4 Current use of HRA in Epsilon

### 5.4.1 The basis
Before describing specifically how HRA is used in Epsilon, it is important to understand what kind of data is collected and what analyses are automated. Two main categories of data collected by the organisation are demographics (e.g. age, gender, etc.) and employment data (e.g. salary, contract type, historical records, etc.) (IN05). Another important basis is

headcount, the up-to-date number of people in each division and country (IN09), delivered automatically by the HR system (AR01). Although it can be argued that it represents a first level analysis on its own, headcount data is broadly considered in the same manner as raw data, and used as a basis for further analyses. Actually, headcount is such a relevant basis, that informants witness a common tendency in the organisation to mistake it for HRA – *"everyone thinks that headcount is all analytics is. But it is not, it is so much more"* (WS-P1) – once again pointing out that there exist different understandings of the topic.

Another basis for analyses is mobility/movement data (AR03), which consists of tracking employee movements in and out the organisation (e.g. new recruits, exits), as well as across divisions and jobs (IN21, IN11). Reporting in this area is, like headcount, automatically done by the system (AR03). The organisation also collects employee performance data, based on pre-defined objectives: *"Managers assess each individual on their performance, based on their personal business plan"* (IN07). Also, data on employee attitudes and engagement is collected once a year, through an anonymous survey, although it appears that this data is not connected to other data in the system: *"We have a lot of insights into that data. But I don't think it is connected to workforce data at all. And it is done once a year"* (IN03). Finally, training data is collected by the training organisation, mostly to measure satisfaction of single trainings but also for tracking training objectives involving training owners – those who request them (IN15).

### 5.4.2 Purposes of HRA

HRA in Epsilon serves different purposes, namely to compare and monitor, to make decisions based on insights, and to increase the quality of communication with colleagues. On a lower scale, HRA is used to find hidden patterns that are unknown to decision-makers.

According to the findings, HRA is widely used for comparing and monitoring, for instance in the case of sick leave and other Health & Safety data in different divisions. One informant offers a clear example in relation to production units: *"Keep track of who's here, who has changed departments or is on sick leave, or whatever leave. Because one head needs to be replaced by another head in production everyday, otherwise the customers won't get their product"* (IN01). The purpose takes a particular relevance in Central HR, where data of different divisions is compared: *"If we want to compare Health & Safety data among divisions, we can do that...do some ratios"* (IN09).

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Another important purpose of HRA identified by informants is decision-making, the final goal for obtaining insights: actions can be taken based on certain priorities and key areas that emerge from analyses. *"The goal in the end is to orient actions (...) targeted to the key areas that are going to make a difference"* (IN06).

Furthermore, HRA helps HR professionals in their communication with other employees, typically managers. Some informants (IN20, IN06) argue that it is more convincing to use analytical arguments in Epsilon, and that managers seek this kind of communication. *"We are a company with a lot of engineers and finance people. Numbers tend to speak to them, and often they are the ones asking for it"* (IN06).

To a lesser extent, HRA is used to discover insights and hidden patterns, finding out what is happening in a holistic manner: *"We can see patterns. The big picture"* (IN07).

Although it serves general purposes, HRA is found to be used to varying extents among divisions and types of HR activities. Also, there appears to be high variation in use depending on the role of informants.

### 5.4.3 Use in divisions

Concerning differences among divisions, HR professionals at Division 2 and in Central IT describe a relatively advanced use of analytics, compared to other parts of Epsilon. Informant IN02, for instance, states that at Division 2 it is common to forecast the number of employees that will be working there, and to plan for specific gaps in jobs based on what positions are leaving the division. Similarly, data on exit interviews is made available to HR professionals in a common teamplace, so that HR can use it to analyse why people are leaving. For instance, it is a common assumption that people leave Division 2 for salary reasons: with HRA, it can be seen that current salary largely meets expectations of leavers, thus enabling the organisation to potentially design retention programmes that are not based on salary increases. *"We increase salaries, but it might not matter because that is not the reason why people are leaving (...). We would apply the wrong solutions for this problem"* (IN02).

A similar level of advancement can be found in Central IT, where the level of employers' competition for specific jobs is analysed in order to address job seekers with more active employer branding activities. Furthermore, Central IT is relatively more advanced than others in relation to use of HRA tools: *"We are pretty far ahead when we collect information, to try*

*to make it as user friendly as possible (...). They can see pretty well the needs of the organisation six months ahead"* (IN10).

On the opposite situation is Division 3 which, according to informants in the division (IN08, IN13), does not seem to utilize HRA to the same extent. HRA, or at least what they mean by the term, is not useful or suitable for their context, perhaps because the division is relatively small. *"WFA for me is something to use in the big organisations in Epsilon. We don't use it at all. (...) I know my people by heart, I know their names"* (IN13).

### 5.4.4 Use in HR practices

Apart from the differences in divisions, according to informants HRA is used in different ways across HR practices. In compensation and benefits, for instance, there seems to be an established praxis of HRA use. According to one informant, the area is considered to employ HR professionals that are relatively more used or more positive towards HRA. *"My area is maybe more focused on data analytics than other areas in HR, so there is no fear of taking decisions with numbers at hand…they call us the 'hard facts' HR people, and a lot of people don't like this area in HR"* (IN17). One purpose of using HRA in the area, is to analyse pay structures for labour relation purposes: *"In all compensation and benefits related analyses, we use the data to prepare ourselves for different kinds of negotiations with unions, (...) for analysing the pay structures"* (IN04).

Another HR practice that seems to use HRA to a large extent is Health & Safety. Here, analytics helps to track and reduce accident rates among workers, by finding the root causes of accidents and supporting policies that can prevent risks. One example is given by informant IN09: *"A few years ago in one plant we had a lot of accidents and during the analysis we saw that 30% of the accidents were in the eyes. They just decided to have glasses for everyone, and they decreased the number of accidents"*. Moreover, HRA is used to track when most accidents happen, and the profiles of employees that are more at risk. *"Tuesday is the most common day. There is a peak of accidents at 16:00 (...), perhaps they are tired and less focused"* (IN09).

HRA is also used to a large extent in relation to diversity. Epsilon is committed to increase gender diversity in its staff, and for instance HRA can help deepen the organisation's understanding of retention of female employees: *"This year we started with 18% women, end*

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*of the year 18%. If you stop there, you can say that nothing has happened. (...) Through WFA we dug deeper, we found out that women are entering Epsilon at a rate of 23%, much higher! And why did we end up where we started? If you look at the exits, 21% were female. Those leaving were twice as many as those coming in"* (IN06).

Too limited evidence was found to account for HRA use in other areas.

### 5.4.5 Use in HR roles

Use and function of HRA seems to be very much connected to the role of professionals. HRBPs tend to use HRA to support managers' decisions: *"I can come with fact-based reasoning to things that are very gut connected"* (IN02). Also, to give advice in operative issues as sick leave and salary setting: *"When setting salaries, how would we know where others are situated, if we don't have the data"* (IN23); as well as strategic issues, such as flexibility and gender balance: *"We need to increase underrepresented gender in certain areas, or age range in one area, in order to not being vulnerable in terms of knowledge, experience and turnover"* (IN01). Additionally, HRBPs play an important role in ensuring the quality of data in the systems, as they are often the ones entering or validating it: *"The data is indicated by HRBPs and line managers, that is the information that we have in the system"* (IN24).

When it comes to Subject Matter Experts, who are mainly responsible for creating future policies and advising on specific areas, HRA use is generally more advanced: *"In our area, we are using data several times a day"* (IN04). For instance, when designing a redundancy programme, an analysis of the workforce (demography, competences) was performed, in order to target the right people (IN04). Often, the final users of analyses performed by Experts are HRBPs. *"I receive working hours and absence data every month, and I gather this in presentations…show the HRBPs"* (IN18).

In HR Services, the use of HRA is concentrated in ensuring that raw data or basic analyses get to end-users, in the form of standardised or custom-made reports. *"Our role is to issue a lot of reports, based on the information that we have in our data systems"* (IN14). These reports can concern headcount, information from the payroll systems or vacancies: *"These requests are quite unpredictable really"* (IN14). The role of HR services concerning HRA is thus to

support managers and HRBPs, to *"make their life easier. (...) We always work to have customer focus..."* as one informant (IN24) puts it.

From a Central HR perspective, directors of single functions use HRA to understand where Epsilon as an organisation stands in relation to their area of responsibility: *"WFA helps me find the picture of where is Epsilon today, in terms of different diversities. We have a metric to measure diversity and inclusiveness"* (IN06). With HRA they are able to identify key priorities and inform top HR management on these matters. Often external data is involved. For example, in the area of Health & Safety: *"We showed that, regarding one major KPI that is Accident Rate, we were the lowest performers. This message was discussed (...) and they decided to change that...It was a surprise for them. Everyone thought we were in the best position. But compared to competitors we weren't"* (IN09).

### 5.4.6 Other reflections related to current use

Among other themes that emerge concerning HRA use at Epsilon, is the fact that analytics concentrates mainly on present and past data (as-is), rather than being used to identify future directions (to-be). As put by one informant (IN10): *"We are not looking so much into the future. We can do the analyses right now, but we also need a strategy to be able to look at future needs."*

Also, although data, figures and analytics are seen as crucial inputs, they do not represent the totality of inputs for good HR work. Other, more qualitative components, *"experience, leadership knowledge, business understanding...soft data"* (IN01), still play an important role. One informant (IN03) implies that HRA can guide in the right direction, but then soft skills take over: *"From my perspective it is more important to have the dialogue than to look at the data. The data could help me identify where I need to have this dialogue"*. In general, these aspects are linked to the nature of the HR profession itself: *"The nature of HR work provides the possibilities of using much more gut feeling than facts. It is about people...it comes to something that cannot completely be science"* (IN02).

## 5.5 Hinders and obstacles to HRA

In this section, hinders and obstacles to HRA use are presented. From the findings, eight hinders or obstacles are identified: availability/accessibility of data, lack of skills and knowledge, mind-set of HR professionals, lack of action based on insights, resistance to share

data, mistrust in data quality, lack of coordination and directions, as well as data privacy regulations.

### 5.5.1 Availability/accessibility

According to informants, large amounts of data to perform HRA are available in the organisation's information systems, even more than in other organisations: *"We have a lot of data available that many other companies don't have"* (IN22). However, there seems to be a problem of accessing this data: *"Very often I think that data is available in some systems, somewhere. I would say it's a matter of retrieving it"* (IN01). This might be because the tools and systems are seen as not user-friendly, outdated and not integrated: *"We have data, but not the right tools"* (IN05). As put by another informant: *"The report functionality we have nowadays is too complicated for the main part of our population. It is complicated to run reports on different systems"* (IN04). Another possible reason why data is perceived as hard to access, is related to permission levels: *"I don't have access to [System A], so I can't get access to anything"* (IN12).

### 5.5.2 Lack of skills and knowledge

In addition to the accessibility problem, there seems to be a lack of skills and knowledge of the HR professionals to extract and integrate the data needed, perform analyses and interpret results. *"There is a skill issue when comes to setting up analytics, and also a skill issue when interpreting data…"* (IN01). Some informants connect this to the accessibility issue: *"We have a lot of data that we don't use. And we don't use this data because people don't know how to use it"* (IN23).

The knowledge gap often extends to the whole HRA topic. Some professionals do not know what HRA means, which might be related to the fact that the topic is new and difficult to grasp. *"It feels that they don't know exactly what it is – and I don't know that either. I feel that it is like a blank page for many"* (WS-P3).

Another knowledge-related issue is that Epsilon struggles with understanding the possibilities of HRA and the needs of end-users. *"We deliver a set of standard reports, but the knowledge in the central HR function could be better, to understand the needs of end-users"* (IN05). At the same time, users find it hard to communicate their needs. *"We have a community that has needs but they are not very good at expressing them"* (IN22).

### 5.5.3 Mind-set of HR professionals

Informants show that mind-set of HR professionals is a hinder to HRA use. This has to do with the nature of the HR profession and individual views of it. Many HR professionals do not want to work with numbers and figures: *"As a person working in HR, do you really have to sit with Excel files? Is that what you need to do? Aren't you more to sit with people?"* (IN01). *"Normally you don't study HR if you want numbers, you want to understand the people behind the numbers"* (IN21). However, there is an intention to change this mind-set: *"The biggest challenge for me is to change people's' mind-set"* (IN21). And the HR professionals also seem to express this aim for change: *"It's just a change that we have not really adapted to"* (IN01).

### 5.5.4 Lack of action based on insights

Another perceived hinder to HRA use is related to the fact that decision-makers do not always act upon the insights obtained. *"The problem is not getting insights, rather knowing what is possible and also making decision based on those insights...we need to have a maturity to act upon what we see"* (IN11). This seems to generate some sort of sense of discomfort among those that create insights: *"We generate clever insights, but we don't act upon them. And then comes the next year, we generate the same insights…as if we are surprised. Why would there be any other insights if we are not acting upon the ones from the year before, right?"* (IN07).

### 5.5.5 Resistance to sharing and trust issues

Some informants mention a perceived resistance to data sharing across divisions. They feel like no matter how useful or smart the outcome would be, they would be questioned on their motives, or put in a corner for having used someone else's data when performing analyses. This mistrust emerges more clearly at the moment of requesting data for analytical purposes, and data owners frequently assume that analyses would focus on individuals, although HRA concentrates on aggregate levels (IN21). One informant in particular believes that no matter how clever or provable his/her insights would be, during presentations top HR managers would undermine them at the slightest suspicion of having been bypassed: *"They would be suspicious. They wouldn't like it, regardless of how fancy the conclusion would be. They would be saying: 'have you been using my data?' It would be a lot of 'us and them', 'yours and mine'"* (IN07). It is safe to say that there exists, at least to some extent, a resistance to

data sharing between groups and/or divisions, due to the existence of silo mentalities, openly recalled or paraphrased by many informants.

This issue partially connects with the availability/accessibility issue previously mentioned. One informant (IN07) ties the difficulty of accessing data to trust issues, and is of the opinion that access should be granted to everyone who could potentially make good use of the information. At the same time, several informants witness a secretive, selective culture: *"There is a risk that one says 'no, not everyone can see…you can, but not those guys, we cannot share with them', even at a high level of management, decision-makers"* (IN11).

Admitting the existence of trust issues in Epsilon is particularly dramatic, since trust is one of the organisation's core values: *"I mean trust is one of our main values for god sake! Stop providing excuses"* (IN07).

### 5.5.6 (Mis)trust in data quality

Another issue identified is that data quality is often questioned. For those employees that actively work with spreading HRA use, this aspect is particularly challenging: *"Everyone has something bad to say about the numbers. And it is a bit annoying"* (WS-P3). However, data quality comes down to what is reported and fed into the system, and feeding is to a large extent done by those who complain about the quality (WS-P3). Nonetheless, data quality is considered good by most informants: *"I know for a fact that we have quite good quality data, but people don't think we do"* (WS-P4).

Although the organisation has made tremendous efforts in this matter, the mistrust in data quality might have to do with historical factors, since in the past the data was less reliable: *"It has been a rumour that we weren't able to calculate how many employees we had…now I think we can, but this was the rumour some years ago"* (IN03).

### 5.5.7 Lack of coordination and directions

A perceived issue among some informants is that the central organisation does not communicate clearly what directions to take with HRA: *"We are ready to take on the challenge...if there is a clear direction"* (IN15). In particular, it is unclear how HRA should be used, what KPIs should be followed up and what goals should be reached (IN20). This lack of guidance, together with their increased responsibility, leads divisions to start projects on their own, potentially causing parallel, redundant efforts (WS-P4). Divisions might create

their own HRA tools on the side, using inputs from the main system, but when a change occurs at a central level, these tools become unusable: *"The businesses start to develop their own tools on the side, and then when we change something in the main system we crash their local reports"* (IN22).

### 5.5.8 Data privacy regulations

One final hampering factor to HRA use mentioned by some informants is the increasingly strict data privacy legislation in Europe, which creates concerns about increased strictness and controls (IN17). As put by one informant (IN11): *"It goes against us in that sense. Because we are not allowed to combine all kinds of data"*.

## 5.6 Needs of HR professionals

In this part of the results section, the needs for advancement with HRA expressed by the informants are presented, namely the need for user-friendly tools and accessible data, system-integration, training and learning, as well as the need for smaller projects that can deliver quicker results.

### 5.6.1 Need for easiness and accessibility

Almost all informants expressed a need for easier tools and more accessible data. According to them this would increase the use of HRA. This is strongly related to the previously mentioned accessibility challenge. *"Accessibility is one of the main issues here. If it would be easy to access, I would use more HRA"* (IN12). One informant (IN02) connects this to the fact that HR professionals usually have not spent 5 years at technical universities, and in order to make HRA appealing to them, it needs to be easy and accessible. Easiness also means to make sure that information can be accessed from different platforms. *"I think we need a multi-platform thing that looks good in laptops, smartphones… easily accessible whatever device you have, even without a computer"* (IN04).

### 5.6.2 Need for system integration

Most informants expressed a need for more system integration, or at least that information should be joined together. This partially connects to the previous category of easiness and accessibility, as integration would make HRA more easy and accessible. *"In my dream I wish for an HR tool, that has different HR modules, when comes to workforce, talent, recruitment…that they were connected. The total overall HR…it would be something to*

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*dream of"* (IN13). One informant (IN22) argues that an integrated system/tool would be beneficial also to guarantee the quality of analyses used by end-users, since people find ways to access the data they need, analyse it locally and use the insights for their work, without the Central HR function being able to assure the accuracy of those analyses. The idea of a general system is frequently supported by informants, one of which wishes to be allowed some sort of local customisation of the solution, based on his/her needs: *"One system where you can do your own analytics, choose your own analytics for your team"* (IN01).

### 5.6.3 Need for training

Informants also mentioned a need for HR professionals to acquire the necessary skills and knowledge to use HRA in terms of ability to use the tools and to analyse the results on a deeper level. Informants think that Epsilon should offer more training opportunities in HRA, especially when it comes to analysing reports. People today are quite skilled in taking out those reports from the system, but as one informant puts it: "*People are taking out the report, then they are staring at it…Like what shall I do with it?"* (IN21). Another approach is to talk about the possibilities that HRA can offer, and get people excited about that (IN03). In general, there seems to be a strong need to get training in HRA, and the training organisation also seems ready to develop a training offer in the area: "*It's a very hot topic for us as a project to be in the training organisation"* (IN15).

### 5.6.4 Need for small projects with quick results

Another need that emerges from some informants is to take small steps, do small projects, in order to see if HRA fulfils expectations. As one informant puts it: *"What we need to have is a much more incremental approach…we need to look for these smaller steps. Does it work? Does the organisation find it valuable? Can we draw the right conclusion?"* (IN02). It is argued by one informant (IN15) that if they can clearly see the value from a smaller project or business case, and if people feel comfortable, they would have something to build upon, and would be ready to utilise more complex HRA. According to informants, many cases already exist somewhere in the organisation, although they might not be adequately advertised.

# 6. Discussion

In this section, the findings at Epsilon are discussed through DoI theory and with the help of previous research, in order to answer the research questions. Where possible, a connection with the findings of the pilot study is be provided, although keeping in mind that it relates to a different social system (the Swedish context). After arguing why HRA can be considered an innovation, the section will discuss how the innovation spreads in the case company. Moreover, the hinders to diffusion of HRA in Epsilon are examined, followed by a description of the general needs of HRA users.

## 6.1 HRA as an innovation

As mentioned in the theoretical chapter, in order to be considered innovation a certain item has to be perceived as new and cause a reaction of some sort among users (Rogers, 1983). According to the findings and the literature review, it can be argued that HRA is an innovation in the HR profession, in the Swedish context as a system of companies and in the social system Epsilon. The field is considered new by many informants, it generates different kinds of attitudes (either positive or negative), and it provokes active reactions of acceptance or rejection.

## 6.2 Diffusion of HRA in Epsilon

Having acknowledged that HRA can be seen as an innovation, the discussion proceeds with an analysis of the elements that affect its diffusion in Epsilon, among which individual understanding and attitudes, the innovation's characteristics, the structural components of the company, the communication channels used to spread it, the presence of roles. These aspects often interrelate with each other.

The first finding to be discussed is the presence of different understandings of HRA as a concept, as it connects with many other stances of the analysis. As seen in the results section, informants use various definitions for the innovation, which appear on different levels of complexity. In part, the existence of different understandings and definitions can be connected to the fact that Epsilon has not set any standard on this matter. From the results, it can be argued that informants that understand the innovation seem to use it more, and the other way round.

Apart from understandings of the concept, one set of aspects that impacts diffusion of innovation in a social system are the characteristics of a given innovation, i.e. the innovation's perceived relative advantage, the compatibility with the system, the level of complexity, trialability and observability of the innovation (Rogers, 1983).

In the case of HRA at Epsilon, the innovation's relative advantage seems to be high among informants: HR professionals are enabled to conduct analyses and obtain insights in order to compare and monitor activities and processes, support decision-making, communicate with colleagues and to some extent discover hidden patterns. However, the feeling of relative advantage varies, since not all respondents fully understand the potential of this innovation.

Moreover, different degrees of compatibility can be encountered: according to some informants, HRA can help in communication with managers, as the company employs individuals with technical and financial backgrounds. Also, some divisions and HR areas show a high degree of compatibility with HRA because of their scope (e.g. Central IT, Division 2) or the values of individuals (e.g. the compensation & benefits area employs 'hard facts' HR people). However, other informants argue that HRA is not necessarily coherent with the nature of HR work, as many people choose HR for its 'human' aspects. In one division in particular, informants claim that HRA is not used and it is not needed, because 'they know their people': here compatibility is lower, and the innovation does not spread at the same speed.

In relation to complexity, it can be argued that most informants in Epsilon do not see the innovation as easy to use. This is somehow related to their understanding of the concept, but also to the difficulty of tools and in general to the fact that they believe information is hard to access (see next section). According to Davis (1989), when an innovation is considered difficult to use, it is harder for individuals to perceive it as useful, and this results in lower usage. Given the qualitative nature of the present study, tracing a strong relationship in the findings is inconclusive, also because many informants – even those who find the concept hard to grasp – seem to be using HRA. On the other hand, the few cases of individuals that express active rejection in the interviews are also expressing that HRA is too complicated.

When it is possible to test an innovation and observe its results, according to Rogers (1983) innovations spread faster. To some extent HRA meets these requirements (as exemplified by

the case of salary expectations for people who left Division 2) although in Epsilon tests and observations of the innovation are still on a scale too limited, as shown by the need to see HRA in action. On a broader level, the pilot study findings suggest a similar dynamic: companies are waiting to see a business case before they decide to push the HRA agenda.

The results so far suggest that diffusion of HRA in Epsilon proceeds at different speeds, and in part this is due to the inherent characteristics of the innovation, in part to individual understandings and attitudes, in part to local characteristics of divisions and HR areas. These results are mostly in line with DoI theory: individuals and groups that understand the concept of HRA, and see it as advantageous and compatible with their values, are adopting the innovation much faster than others. Clearly, the individual and group levels are tightly interlinked in the analysis.

Another aspect that affects diffusion of HRA in Epsilon is the presence of formal and informal structural elements in the system (Rogers, 1983). At a formal level, the HRA agenda is pushed by Central HR, which holds an authority role among divisions and their HR communities, for instance when it comes to decisions on tools and methodologies. At the same time, because of decentralisation divisions are given much more responsibilities than before, which tends to favour diffusion (Rogers, 1983), but due to the existence of subcultures and other informal elements, diffusion is not progressing homogeneously. Innovative divisions are speeding up – in some cases even at higher levels of HRA evolution (Fitz-Enz, 2010), whereas other divisions are left behind. Innovation-decisions seem to be made at conflicting levels, and Central HR seems to struggle with keeping the HR functions of single divisions together.

Concerning roles and communication channels used to spread HRA in Epsilon, the only channel displayed in the results is BTN, the functional working group, which acts as a formal network. BTN members have more interest and knowledge of HRA than average users – one requirement for members to become part of the group. They are seen as ambassadors of HRA in their own organisation, as they are responsible for contacting end-users and trying to push ahead new solutions. These professionals can thus be considered opinion leaders (Rogers, 1983). During the workshop, BTN members said that face-to-face communication seems to be much more effective for diffusion of HRA than other, more impersonal means. The finding is in line with Rogers (1983). It is worth noting that BTN members often need to approach

senior HR managers before spreading the innovation to other professionals. Such audience is particularly important because they act as gatekeepers for HRA, because of their relatively high power and strong communication linkages (Baldridge & Burnham, 1975). Senior managers are thus considered to greatly affect the diffusion process. The same can be argued for all interview informants: as they have relatively high level of responsibility, they can help transferring the innovation across organisational silos and even provide a link with the external environment (Tushman, 1977).

Two elements that did not appear in the findings at Epsilon, but were nonetheless present at a broader level in the pilot study findings, were the presence of change agents and informal networks that affect diffusion of HRA. Consultancy firms and system providers take on a change agent role in many contexts, by educating Swedish companies to understand HRA and at the same time driving diffusion of the innovation. Also, outside Epsilon, networks have a very important function: conference and events, as well as cross-functional collaborations, seem to provide an opportunity for HRA specialists to acquire new practical knowledge of the field. The importance of collaborations between divisions is also stressed by Rasmussen and Ulrich (2015). Although the pilot study findings were too limited to investigate single organisations thoroughly, it can be argued that Epsilon is generally in line with the other Swedish MNCs. Some common points can be noticed: for instance, HR practices such as compensation & benefits and health & safety are considered at the forefront for HRA usage both in Epsilon and in the other companies investigated. In the other organisations recruitment seems to be another area of high HRA usage, whereas in Epsilon the area was almost never mentioned by informants. Moreover, concerning the presence of specialised teams Epsilon appears to be the only one decentralising HRA and using internal networks for diffusion. Other companies have one or more specialised HR analysts, or employees with mixed roles, and seem to be rather centralising the discipline.

In sum, diffusion of HRA in Epsilon is not a binary process (as in either overall adoption or overall rejection): although the diffusion stages as they appear in Rogers (1983) are sometimes difficult to trace in the findings as they are not always explicit, in some parts of the organisation it seems that HRA is already spread and to some extent even routinised, whereas other areas are still in the initiation phase, so the innovation-decision has not been made yet. Not only does diffusion proceed at different rates in divisions, but it also varies depending on

HR practices and HR roles. Hence, it can be argued that diffusion of HRA is not homogeneous in the HR community of the organisation, and at the individual level both understandings and attitude towards HRA vary.

## 6.3 Hinders to diffusion of HRA

Concerning hinders and obstacles to diffusion of HRA, the research assumes a slightly more descriptive character, as after the review of previous research and after conducting the pilot study the presence of hinders emerged. Even though the researcher contemplated the possibility that hinders to diffusion of HRA existed in Epsilon, his awareness could not lead to forming strong hypotheses or assumptions before fieldwork was performed, nor were these potential hinders mentioned during the interviews and workshop. It can thus be argued that an explorative mind-set was maintained throughout the study. In any case, the results highlighted the presence of hinders to HRA use in Epsilon. Some of them are coherent with the theoretical toolbox, and in particular with the barriers to innovation adoption and diffusion identified by Long et al. (2016).

According to the authors' classification (2016), most of the hinders found in Epsilon could be considered to have a behavioural/psychological character, i.e. mind-set of HR professionals, lack of action based on insights, resistance to share data, mistrust in data quality, as well as lack of coordination and directions. The first hinder underlines the complexity of HRA as an innovation (Rogers, 1983): according to many informants in Epsilon the nature of the HR profession departs from the use of data, so HRA is not always seen as coherent with one's work – the same challenge can be noticed in pilot study findings, and is mentioned in Angrave et al. (2016), generating different attitudes among HR professionals in Epsilon. Nonetheless, there seems to be increasing readiness for change in the organisation, possibly because of the renewed possibility to gather and use data on employees (Haines & Lafleur, 2008; Van den Heuvel & Bondarouk, 2017) and the fact that talent is becoming less available on the market, more traceable and strategically important (Boudreau & Ramstad, 2005; 2009). As noted in the literature chapter, change of mind-set is one of the main purposes of HRA (Bezzina et al., 2017), and it is also a character of the broader BA movement (Holsapple et al., 2014). However, one way to guarantee the success of this innovation is that the human side of HR is kept in mind: HRA has to remain a means of elevating decision quality, but other non-

quantitative elements should remain important in the profession (Rasmussen & Ulrich, 2015), as stressed by some informants in the study.

Lack of action based on insights is an equally complex issue and is one important challenge even in other contexts, as shown by the pilot study results. It could be argued that HRA unveils a whole new range of possibilities, and at times the insights discovered might seem too difficult to address by decision-makers; nonetheless, a certain degree of maturity is required to act upon what is discovered (Holsapple et al., 2014), otherwise HRA would lose its purpose and the HR discipline would waste the opportunity to show its impact on the business.

The resistance to sharing data is not easy to address: in order to conduct analyses, data from different processes is necessary, both from HR and the rest of the business (Kapoor, 2010). However, silo mentalities in organisations seem to be quite a common issue (Angrave et al., 2016), and in the case of Epsilon they are often stoked by leaders. One potential solution that would take into account power relationships (Cascio & Boudreau, 2010) could be to engage all data owners in HRA projects, as suggested in one of the cases in Appendix 1. This might break the 'us and them, yours and mine' attitude described by one informant of Epsilon, allowing faster diffusion HRA that capitalises on the endorsement of senior managers. One additional way to solve the issue might be to redesign the organisational structure, moving HRA responsibilities as close as possible to the CHRO (Falletta, 2014).

Mistrust in data quality at Epsilon has historical origins: apparently in the past the organisation did not prioritise this aspect, generating a long-lasting uncertainty in the HR community. Today's quality of data seems to be Epsilon's pride and joy, therefore this issue could perhaps be solved by increasing communication efforts to make sure that HR practitioners at all levels are aware of improvements and that they take their share of responsibility in guaranteeing the quality of data, as they are often the ones performing manual inputs in the systems. In both the literature (Cascio & Boudreau, 2010) and the pilot study findings, data quality is considered a prerequisite to make HRA work and a foundation for its credibility.

One final hinder in the behavioural/psychological category is the lack of coordination on what directions to take with HRA. This issue might have its roots in the decentralisation question,

as both HRA practice and innovation-decisions are currently done at different levels, with a large presence of mixed roles (Pease, 2015). Central HR is still in charge of major decisions on tools and methodologies, but divisions are largely independent in terms of their responsibility to utilise HRA. At least part of the HR community seems to be ready to take on the HRA challenge, therefore these elements of confusion should be addressed through effort coordination (to avoid redundant processes), clearer and louder messages on HRA throughout the organisation (e.g. by setting a standard definition) that could change the negative connotations assumed by the innovation among some professionals – issue that is not uncommon, as pointed out in the literature (Van den Heuvel & Bondarouk, 2017).

Another hinder that emerges from field data that can be seen as an organisational barrier (Long et al., 2016) is lack of skills and knowledge. This hinder is two-folded: most HR professionals in Epsilon are not skilled enough at extracting and integrating the data needed for their work, they do not seem to have the ability to perform analyses autonomously or interpret results – this aspect is also pointed out by Rynes et al. (2002). On the other hand, the organisation is lacking knowledge of users' needs, and users find it hard to articulate those needs into clear requirements that can be translated into practical solutions. This could potentially cause Epsilon to invest considerable resources in solutions that do not meet the users' needs and wants.

Data privacy regulation as a hinder, according to Long et al.'s classification (2016), can be seen as an institutional barrier. The only available option for Epsilon is to make sure that the organisation complies with the rules (in order to avoid incurring sanctions), but at the same time it has to ensure that the potential of HRA is fully exploited, possibly making records in the system anonymous before data extraction.

One hinder not explained by the theory, is the contrast availability/accessibility. Although data is available in the organisation, it is perceived as hard to access, in part because of the complexity of tools, in part because of strict permission levels. This issue might partially connect with the resistance-to-sharing hinder previously discussed. The organisation may need to question its current information delivery mechanisms (Kapoor, 2010), and in general make sure that the phase of getting data out (Watson & Wixom, 2007) proceeds smoothly for end-users, at the same time ensuring that values, cultural norms and power relationships are taken into account (Cascio & Boudreau, 2010).

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## 6.4 What is needed in order to work with HRA in Epsilon

As noted by the findings, there exist some needs of HR professionals, which according to informants can foster HRA work and eventually favour diffusion. The first one, need for easiness and accessibility could be connected to Davis (1989): if the innovation is easy to use, it would be perceived as more useful and the usage would increase. However, as previously mentioned, the current research design cannot prove such relationship in this context.

Another need of professionals is that of system integration which, as mentioned in the findings, partially interrelates with the first one. This need might stem from a feeling that there are too many systems in Epsilon, and that they are not always integrated, therefore professionals often find themselves struggling with getting data out (Watson & Wixom, 2007). This would guarantee the quality of outputs and analyses, as well as increased control by Central HR.

The need for training is related to the lack of skills and knowledge, one of the hinders to diffusion of HRA in Epsilon. Through increased training offers in the area, professionals could gain useful knowledge to conduct analyses, interpret results or use them in their daily work. According to the literature, many HR professionals would need to be trained in HRA, and new knowledge would increase acceptance and usage of the discipline (Cascio & Boudreau, 2010). On the other hand, in the pilot study it appears that there exist several, less formal, opportunities to gain skills and knowledge on the topic, e.g. online courses, industry-blogs, conferences and events.

One final need emerging from the study is connected with the innovation's trialability and observability (Rogers, 1983): it appears beneficial for the speed of diffusion that HR professionals experience the power of HRA in small-scale projects; this would guarantee a protected testing environment for models, without committing too many resources and at the same time delivering quick results to the HR function through the creation of a business case. The need for testing is partially mentioned in the pilot study, in relation to specific geographical areas or HR practices, as a way to further expand the scope of HRA in organisations.

# 7. Conclusion

This thesis has sought to understand the diffusion of HRA in a Swedish MNC, identifying the presence of hinders affecting diffusion of the innovation in the organisation and unveiling general needs of HR professionals that can allow HRA work. After a literature review of the discipline – which provided a connection of HRA to the broader fields of BI and BA – and a pilot study in a Swedish setting, a single case study was conducted among HR managers of one Swedish MNC, involving in-depth interviews with 24 informants and one workshop with a cross-functional working group on HRA. The research questions are thus answered:

*How is HRA understood and how does it spread within the HR function of an MNC?*

HRA at the case company is generally proceeding at different speeds. There are notable differences in diffusion across divisions, HR practices and roles. This depends on several factors, for instance the understandings of the topic by professionals, which vary in complexity; also, the innovation's characteristics, in particular the relative advantage and the perceived easiness of use. Moreover, diffusion is affected by the organisation's structural components, examples of which are the central HR function pushing the HRA agenda, the subcultures in divisions and the values of HR practitioners. The presence of roles such as opinion leaders like BTN members, and gatekeepers like top HR managers, also influences how diffusion unfolds in the organisation.

*What hinders HRA diffusion, according to HR professionals in the MNC?*

Hinders or barriers were found to affect the diffusion process of HRA. In particular, hinders relating to behavioural/psychological factors were identified, namely the mind-set of HR professionals, the lack of action based on insights obtained, the resistance to share data, the mistrust in data quality and the lack of coordination. Also, an organisational barrier was encountered, the lack of skills and knowledge, both among HR professionals in relation to HRA, and by the organisation concerning the needs of professionals. Moreover, an institutional barrier was identified: data privacy regulation. One additional hinder found in the case company was the contrast between availability and accessibility to data, which could not be explained with the theoretical framework used.

*What are the perceived needs of professionals in order to work with HRA?*

The HR professionals in Epsilon expressed a need for easier ways to deal with HRA, and for the organisation to improve accessibility to data. Also, there is a need to integrate systems or increase their connection, in order to make analyses simpler and guarantee the quality of outputs. Another need is related to training, since many HR professionals lack the competence and skills to use HRA. Finally, small-scale projects are needed in order to try HRA before making a more systemic use of the innovation.

## 7.1 Limitations

Among the limitations of the study are constraints related to research design and methodologies. A single case provided good opportunities to achieve internal validity, and its qualitative nature allowed to clarify the meanings and understanding of HRA among informants. However, although in line with DoI theory, the findings are not necessarily applicable to other contexts, and it was not possible to establish and test causal effects among the themes that emerged.

Other limitations of the study were related to the sample used: focusing on HR professionals with relatively high levels of responsibility in the organisation, it was possible to obtain the point of view of decision-makers, gatekeepers and potential opinion-leaders. Conversely, it is hard to argue that the findings of the research are all valid for HR professionals at the periphery of the organisation – the end-users of HRA – as they were not part of the sample.

Moreover, the fact that the organisation did not have a standard definition for HRA made it difficult to compare usage of more or less advanced forms of HRA in the organisation, and in the study a rather large definition of HRA was preferred, derived from the Business Analytics Framework (BAF).

## 7.2 Implications for practice

There are several practical implications for the case company, and potentially for other companies that are attempting to spread HRA. This section concentrates on what the researcher considers to be the most important implications. If the organisation intends to spread HRA faster, efforts should be addressed to make the concept more understandable to the HR community, and to make HRA tools easier for end-users.

Similarly, as individual adoption starts with awareness, it is particularly important that the organisation informs and educates HR professionals on what is HRA and how it can be used for HR work. At the same time, diffusion can proceed faster if the organisation addresses issues of trialability and observability, through the identification or creation of business cases.

Individuals tend to continuously confirm the usefulness of an innovation, therefore HRA efforts should not be *una tantum*, but rather receive constant support and clear directions from decision-makers, potentially through the creation of a dedicated HRA team that can serve all divisions, or through the identification of champions at different levels beyond BTN that can push HRA usage.

The identified hinders of diffusion should be all considered key areas towards which to address organisational efforts, primarily approaching issues of mind-set, resistance to share across divisions and HR areas, and clearly identifying a path between the obtainment of insights and their use for decision-making – for instance making HRA one of the strategic priorities, and utilising measurable indicators in HR strategy exercises (Falletta, 2014).

Finally, the needs of HR professionals should be taken into account, for instance that for simpler solutions and access to data from different areas: the first need could be met by increasing data integration, through business information architecture efforts. The second aspect can be addressed by reviewing policies on permission levels and information delivery. Another area to work on is the establishment of dedicated trainings and quick guides for practical consumption. The need to see results of HRA in small-scale projects can once again be met by creating business cases, which at the same time represent a safe environment to build and test models, and provide the opportunity for HR professionals to observe the power of HRA innovation.

## 7.3 Some recommendations for future research

As the field is still vastly unexplored, it is challenging to comprise all aspects that would require further investigation. In relation to the results of this thesis, it can be interesting to further identify variables through other case studies, and later test them with quantitative methods on a larger scale. Research could also explore the presence of informal networks and external pressures on the case company, since according to DoI theory both aspects are particularly important for diffusion of HRA innovation. Another suggestion for future studies

is to concentrate on identifying the most optimal configurations of HRA teams in organisations. Most of the literature on this matter is normative, therefore poor of scientific validity. Research could also investigate the impact of other barriers or hinders to diffusion that appear in the literature and which were not identified in this study, for instance economic barriers, market barriers and social barriers. Finally, future research can attempt to identify more specific needs of HRA users that can be translated into technical requirements and later used for the development of technological solutions.

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# Appendix 1 – Other cases of HRA use

| COMPANY | SOURCE | AVAILABLE AT (accessed 15.03.2017) | PROBLEMS/AREAS OF INTERVENTION | ACTIONS / EXAMPLES | RESULTS | INSIGHTS |
|---|---|---|---|---|---|---|
| **Abn Amro** | iNostix (2016) Green (2016) | www.inostix.com/blog/en/the-hr-analytics-journey-at-abn-amro-interview-with-patrick-coolen/ www.linkedin.com/pulse/people-analytics-interviews-4-patrick-coolen-abn-amro-david-green | - Customer satisfaction, quality and revenues - Engagement - Absenteeism - Leadership - Team effectiveness | - Model to predict customer satisfaction using HR data | - Actionable insights - Increased buy-in of managers | - In order to get actionable insights, the research needs to have business relevance - Importance of a pilot environment, followed by collection of proof and dissemination of results, according to a 3P model: pilot, proof, preach. - Importance of finding business sponsors - Communication is crucial, make analyses understandable to broader audience |
| **Adidas** | InsideHR (2016) | www.insidehr.com.au/3-keys-adidas-people-analytics-strategy/ | - Ineffective traditional HR metrics - Business strategy and HR strategy uncomnected - Employee experience | - Definition of new HR KPIs based on business perspective - Creation of new data visualisation tools for senior management - Increased collection of employee feedback | - Decision making at top levels is made using new KPIs - Support of broader strategic decision-making - Increased understanding of the employee journey | - Importance of collecting feedback all along. - Information must be made easy for users and decision-makers. |
| **Capgemini** | CIPD | www.cipd.co.uk/Images/case-study-capgemini-06052016_tcm18-19986.pdf | - Silo structures preventing collaboration - Siloed data | - Full integration of data systems across the organisation - Engagement of all data owners in the process | - Increased ability to perform HR Analytics within BA - Increased collaboration | - Engagement of data owners increases buy-in - Importance of setting definitions and design tools internally - Distribute tools gradually: first HR, then line managers and team leaders |
| **Shell** | iNostix (2015) Green (2016) Bongenaar (2016) | www.inostix.com/blog/en/the-hr-analytics-journey-at-shell-interview-with-esther-bongenaar/ www.linkedin.com/pulse/hr-analytics-journey-shell-david-green www.linkedin.com/pulse/meet-shell-hr-analytics-esther-bongenaar-1 | - Support transition in HR thinking - Performance management - Remuneration and pay - Talent identification - Other ad-hoc areas | - Construction and use of statistical models, often for ad-hoc purposes (not specified) | - Increased use of data by the HR function - Improved decision making in HR activities and processes (not detailed). E.g. identification of individual characteristics for employees at risk of causing cybersecurity incidents | - Risk connected to distributing insights (e.g. cognitive biases). Insight distribution must be treated carefully, possibly using different levels of aggregation in reports, depending on the audience. |
| **Wegmans Food Markets** | Google Re:Work | rework.withgoogle.com/case-studies/Wegmans-conjoint-analysis/ | - Control of healthcare costs | - Conjoint analysis on employee benefits through questionnaires | - Control of costs without impacting employee satisfaction | - Techniques of other domains can be used (e.g. marketing - customer preferences) - Development costs of models can be split with other firms, even competitors, when issues are common. |
| **Microsoft** | CIPD Green (2016) | www.cipd.co.uk/Images/case-study-microsoft-260516_tcm18-19990.pdf www.linkedin.com/pulse/people-analytics-interviews-3-dawn-klinghoffer-microsoft-green | - Employee turnover - Internal mobility | - Model built to predict exits through transfer rates, engagement survey results, attrition rates and exit survey results | - Simplified policies on job transfers | - Nearly every decision made in HR is driven by data |
| **Nestlé** | Diginomica (2015) | diginomica.com/2015/10/22/nestle-nestles-down-to-hr-analytics/ | - Rising attrition rate | - Model built to predict attrition rates based on employee attributes | - Actionable insights to prevent attrition - Isolation of "false positives" | - Refusing hypotheses has value as much as accepting them - HR can start to count not just by providing proof with data, but also in its increased confidence and ability to negotiate |
| **Linkedin** | Canlas (2015) | www.linkedin.com/pulse/how-we-built-talent-analytics-linkedin-lorenzo-canlas | - HR Analytics journey was too slow | - Leapfrogging | - Instead of waiting data integration, ad-hoc operational reporting was minimised, infrastructure built with incremental capacity to automate dashboards, focusing on impact. - Shared tasks within analytics team (reporting, automated dashboards, predictive modelling) regardless of individual expertise | - HR Analytics maturity is not necessarily linear - Manual reporting, automation of dashboards and predictive modelling can be done at the same time vs. exclusive focus on Predictive HR Analytics - Build can be a viable option instead of Buy or Borrow. |
| **HP** | Analytics Magazine (2013) | analytics-magazine.org/predictive-analytics-the-privacy-pickle-hewlett-packards-prediction-of-employee-behaviour/ | - Employee turnover / churn | - Model built to predict employee behaviour | - Millions $ in estimated potential savings - High predictive ability of the model (40% of employees with highest flight risk score include 75% of those who will quit) | - Retention programmes can be better targeted to certain employee clusters - Potential savings / ROI of HR activities can be quantified |

# Appendix 2 – Themes of interest for interview questions

| Theme | Description | Sample theme questions |
|---|---|---|
| **INTRODUCTION & BACKGROUND** | Contextualises the interview focusing on the role, level of responsibility of the informant and other individual elements (e.g. tenure, previous role, etc). | - Could you introduce yourself and your role? |
| **AWARENESS** | Awareness, personal understanding and perceived use of HRA in the HR organisation. | - What does WF- HR- people analytics mean to you? |
| **AREAS AND CONTRIBUTION** | Areas, themes and goals of HRA in own role. Aims to obtain practical examples of how HRA is used in own work and what contribution it makes (e.g. communication). | - How do you use HRA in your role? How does it contribute? |
| **ATTITUDES** | Personal attitude towards the use of data and HRA in own profession (e.g. level of comfort). | - How useful is it to use HRA in your profession? |
| **TOOLS** | Existence and individual use of tools, as well as the attitude towards them. | - What tools do you use for HRA? |
| **DELIVERY DEMAND AND SUPPLY** | Mechanisms and routines related to delivery of HRA. | - How do you receive or provide data? |
| **AVAILABILITY OF DATA** | To investigate whether they are provided with the data they need | - How do you perceive the availability of HRA? |
| **CHALLENGES & IMPROVEMENT** | Focus on issues and how to overcome them. Potentially unveils needs connected to HRA and areas of improvement. | - Biggest challenges and problems encountered? How to overcome them? |
| **PERCEIVED SUPPORT** | Existence of a support structure and how well informants think it works. | - Where do you seek support? |
| **CONCLUDING QUESTIONS & OTHER DETAILS** | Gives opportunity to add information, concludes with asking personal details (e.g. age, educational background, etc.) | - Anything you would like to add?<br>- What is your educational background? |

# Appendix 3 – Workshop activities

| Activity | Description and implementation |
|---|---|
| **1. Fill-in-the-blanks exercise** | Participants are asked to complete 5 pre-written sentences, which are missing one or more words, covering the following topics:<br><br>- How is HRA received in own division<br>- Perceived challenges related to HRA<br>- Perceived attitudes of HR colleagues<br>- How can Epsilon improve its support<br>- Actions of BTN participants outside official meetings<br><br>The first phase, participants fill the blanks individually, in order to enable self-reflection.<br>The second phase, participants communicate how they completed the sentences with the rest of the group, one at a time.<br>Finally, an open discussion takes place. |
| **2. Quote-commenting exercise** | Participants are presented with three anonymous quotes from the interviews.<br>For each quote, participants are invited to express their interpretation and to share their reflections on the consequences for their own work, the consequences for BTN, and the larger consequences for Epsilon. |
| **3. Brainstorming** | The activity aims to capture participants' vision of future HRA usage at Epsilon. The brainstorming is helped by some input questions, such as:<br>- *how can the organisation utilise the full potential of HRA?*<br>- *How can HRA be used in the HR community?*<br>- *How can data-driven decision-making be promoted?*<br>- *What practical actions can I take to achieve this vision?*<br><br>First, participants are asked to come up with as many inputs as possible, privileging quantity over quality.<br>Second, the inputs are screened and grouped into categories, or eliminated by the facilitator when redundant, upon instruction of participants. |
| **4. Informal conversation** | Wrap-up of the session. Exchange of inputs. |