# The influence of trust on attitude of employees towards HR Analytics in organisations

## Jessica M. Barrière

University of Twente, P.O. Box 217, 7500 AE Enschedé, The Netherlands

Supervisors: Dr. S.R.H. van den Heuvel

Dr. ir. J. de Leede

# ARTICLE INFO ABSTRACT

#### Keywords

HR Analytics Big data Human Resources Attitude Affective Behavioural Cognitive Trust Calculus-based Knowledge-based Identification-based As business leaders increasingly recognize the importance of the ability to access and analyse the right information to support employee-related business decisions, and that the right talent is crucial in enhancing business strategies and competitive advantage, market demand for HR Analytics is on the rise, yielding an array of consequences. Among the consequences, companies need to access routine- and non-routine data from their employees to obtain the most informed analytics insights, requiring active participation of employees, which may not always be easy since they may be unwilling to share personal data. This paper highlights the need to encourage employee participation in HR Analytics, which derives greater value from employee survey efforts and contributes to competitive advantage. Consequently, this paper attempts to illustrate the circumstances in which a positive employee attitude towards HR Analytics can be obtained. As attitude originates from trust, this research considers trust in management (as specific individuals) and trust in the organisation (as en entity) as playing a central role in determining the overall level of employee-trust and thereby relevant in guiding attitudes. Distinguishing between three levels of trust; calculus-, knowledge- and identification-based trust, and three dimensions of attitude; affective-, behavioural- and cognitive attitude, the relationship between trust in management- and organisation, and attitude towards HR Analytics, is investigated. This paper finds significant evidence that although the relationship between trust in management and attitude towards HR Analytics is non-existent, attitude towards HR Analytics is rising chiefly at higher levels of trust in the organisation. Due to the relatively small pool of respondents and restricted research time frame, this paper offers a startingpoint at suggesting that trust in an organisation, as an entity, is the most accurate indicator of attitude towards HR Analytics.

<sup>\*</sup> Corresponding author: Tel.: +31 6 51 79 19 23

Email address: j.m.barriere@student.utwente.nl (J.M. Barrière)

#### 1. Introduction

'Big Data', defined as high volume, high-velocity and high-variety information about any subject, that occurs in raw, uncorrected items existing in files and databases (Mike & Rousseau, 2015), has become the next 'blue ocean' in cultivating business opportunities (Kwon, Lee & Shin, 2014). This development takes place in the wider context of the 'Datafication' of society, which is experiencing growing acceptance as a new paradigm for understanding social behaviour through the utility of data and metadata (van Dijck, 2014) in conjunction with the ever-present need for businesses to make effective decisions (Cascio & Boudreau, 2008). To convert this data into potentially useful information requires the application of logical models and mental frameworks, referred to as the practice of 'Big Data Analytics', which signifies the techniques used to acquire information, analyse, and draw conclusions from Big Data (Gandomi & Haider, 2014) mostly in an attempt to predict employee behaviour in organisations (Sprague, 2015). Developing predictive models and making decisions according to these models is therefore also referred to as 'predictive analytics' (Sprague, 2015). The rise of Big Data has led to an increasing use of predictive analytics in a variety of situations (Sprague, 2015), and has particularly allowed Human Resources (HR) professionals can better justify, prioritize and improve HR investments, objectively and empirically (Ulrich & Dulebohn, 2015).

In HR, predictive analytics based on Big Data has emerged as a part of the concept of 'HR Analytics'. Mondore, Douthitt and Carson (2011) define HR Analytics as "demonstrating the direct impact of people data on important business outcomes, which thereby afford leaders to show the direct impact of their processes and initiatives on business outcomes" (p. 21). Those HR departments that deliver HR Analytics will help achieve a sustainable advantage for their organisations (Rivera, 2013; Sethiet al., 2014). As business leaders increasingly recognize the importance of the ability to access and analyse the right information to support employee-related business decisions, and that the right talent is crucial in enhancing business strategies and a competitive advantage, market demand for HR Analytics is on the rise (Sethi et al., 2014). To obtain the most informed analytics insights, companies need to access routine- and non-routine data from their employees. Standard system data such as when an employee is available, or their work performance history is considered as routine data, but work email content and personal interests might be considered as non-routine data. Accessing this kind of non-routine data requires active participation of employees, and this may not always be easy since they may be unwilling to share personal data (Guenole & Ferrar, 2014). In fact, according to a study conducted by IBM in 2014, fewer than 50% of employees would be willing to share personal details about work-related performance for the purpose of HR Analytics (Guenole & Ferrar, 2014). The extent to which people are willing to share information according to this study can be observed in Fig. 1.

Additionally, Sullivan et al.'s (2014) work in conducting employee engagement surveys across various industries shows that employees are often shy at answering personal questions, because they are scared to lose their jobs, and are therefore prone to fill out things that they consider as 'desirable' answers. According to PwC's 15th Annual Global CEO Survey, "more than 80% of US CEOs say they need critical talent-related insights to make business decisions, but only a small percentage actually receive relevant information" (Sethi et al., 2014, p 2). Therefore, CEOs are starting to demand better information on their employees to support the realization of their business strategy (Sethi et al., 2014). The reluctance of employee participation is important to consider, because without it, HR analytics may be obstructed by a lack of data.

With the growing pressure to retain talented employees to achieve strategic results (Sethi et al., 2014), HR Analytics will need to find a way to encourage employee participation, which will derive greater value from employee survey efforts and will contribute to competitive advantage. Thus, employees need to be reassured that HR Analytics is being conducted to make better decisions in the future for the organisation, and not to harm the employees by, for example, taking their jobs from them, regardless of their answers. To achieve this, organisations need be aware of the circumstances in which an employee would feel threatened –and not threatened– by HR Analytics. In other words, it is important that the organisation is aware of the circumstances in which a positive employee attitude towards HR analytics can be obtained. An attitude is defined as the tendency to respond toward a particular object in a consistent way (Allport, 1935; Stotland, Katz & Patcshen, 1959; Rosenberg & Hovland, 1960). Hence, an employee attitude can be related to tangible business outcomes scientifically and rationally (Mondore, Douthitt & Carson, 2011).

Jones (1996) describes a positive attitude as originating from trust, directed at the goodwill of the one trusted, and to have the confident expectation that the one trusted will be directly and favourably enthused by the thought that another is counting on him or her. In light of this definition, trust can be seen as a willingness to be vulnerable and trust is therefore the antecedent to engage in trusting behaviour (Gedeon, 2013). Also, Gedeon (2013) states that attitude towards behaviour (intention to behave in a certain way) is consistent with the tendency to trust, the intention to trust and the nature of the corresponding trusting relationship. This implies that the circumstances in which a positive attitude would take place are where levels of trust are high. Dirks and Ferrin (2001) confirm this by saying that "trust operates in a straightforward manner: higher levels of trust are expected to result in more positive attitudes" (p. 451). The Theory of Planned Behaviour also supports this statement; it says that the tendency to behave in a certain way (the attitude towards the behaviour) is guided by the level of trust between the parties involved (Ajzen, 1991).

Within organisations, managers play a central role in determining the overall level of trust, since the quality of managers' relationship with subordinates influences subordinate's decisions and performance (Kramer & Tyler, 1996). Since managers are the agents gathering, storing and using the data (Cascio & Boudreau, 2008), trust in management becomes particularly relevant in influencing employee attitude. Furthermore, Settoon, Bennett and Liden (1996) also emphasize the importance of trust in management by stating, "the more that relationships or exchanges between supervisors and subordinates are based on mutual trust and loyalty, the better the subordinate's performance in terms of expected and 'extra' or citizenship behaviours" (p 224). Consequently, whatever level of trust or mistrust is evident in management's actions may well be reciprocated by employees (Kramer & Tyler, 1996; Settoon, Bennett & Liden, 1996). Supporting this argument, Tyler (1994) notes that trust in organisational authority leads to an increase of acceptance of organisational procedures and outcomes, which, in return, has a positive influence on conflict resolution. In clarification, 'managers' and 'management' are used interchangeably, since managers represent management (Elliott, 2014; Beckett, 2015). This means that when enquiring employees in all departments of a company to what extent they trust their own manager, one will have researched the overall trust in the management of the organisation.

Nevertheless, it has been found that many employees hold increasingly negative views of the organisations they work for (Perry & Mankin, 2007), which can be traced to highly visible scandals that have impacted some organisations (Vineburgh, 2010). Therefore, besides considering trust in management as relevant in guiding attitudes, it would also be logical to suggest that trusting the organisation, as an entity, as relevant in guiding attitudes. After all, trusting one's own manager does not guarantee that an employee trusts the organisation as an entity, or the other way round.

Some studies that explored the relationship between trust in management on the employee attitude were done in the context of organisational change. Van den Heuvel, Schalk and van Assen (2015) provide evidence that trust in management influences attitude regarding organisational change in general. Budean and Pitiaru (2015) similarly explore the relationship between trust in management and the attitude towards change, but in the form of a merger, and found that the ability and integrity of the management were important factors in whether people had trust in their management. These studies, arisen from real life change situations, show just how important management's actions can be in whether employees are on board with organisational change, and whether or not they plan to stay (thus, their attitude). Although these studies were not conducted in the context of HR Analytics, the 'organisational change' applies to any implementation of initiatives (such as HR Analytics) into an organisation (Budean & Pitiaru, 2015). This again shows the relevance of trust in management as influential to employee attitudes towards HR Analytics.

However, no prior research has been conducted about trust in relation to attitude towards HR Analytics. The current study contributes to this unexplored area of research by identifying and empirically examining the influence of trust in management on attitude towards HR Analytics in organisations. Hereby, the main question that this study tries to answer is "under which circumstances can a positive attitude towards HR Analytics be obtained?"

#### Figure 1



Information people are willing to share for HR Analytics

Source: IBM survey conducted October 2014; N=4,043

### 2. Theoretical framework

This section seeks to establish a basis for the hypothesis of a link between employee trust in management and attitude towards HR Analytics, and to outline the possible mechanisms through with this relationship may operate. The framework serves to provide a background to the potential channels that connect various theories as to why trust may be an important concept regarding attitude. It begins by exploring existing literature on general and business-related definitions of attitude and trust. It proceeds with theory that builds on arguments to illustrate how higher levels of employee trust in management can explain improvements in attitude and by observing the relationship between trust, attitude and HR Analytics.

#### 2.1 Attitude

To form an attitude, an *attitude object* is necessary, which is not a physical object, but something as defined by and dependent on the attitude holder (Culbertson, 1968). Eagly and Chaiken (1993) describe an attitude as "...a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor" (p. 1), which implies that an attitude is a good or a bad feeling about a particular attitude object (Allport, 1935; Stotland, Katz & Patcshen, 1959; Rosenberg & Hovland, 1960). This is consistent with the fact that most research on attitude has labeled the concept of attitude as either positive or negative, positive being 'willing to change' and 'openness to new ideas and concepts' (Spinell, 2012) and negative being 'resistance to change' (Settoon, Armenakis & Harris, 2000). For example, based on the emotional reactions employees show to workplace experiences (Eby et al., 2000) they form positive, neutral or negative attitudes about objects, positions, events and situations at work that significantly influence their behaviour (Westport International, n.d.).

#### 2.1.1 The ABC-model of attitude

In contrast to the traditional idea that attitudes are either positive or negative, Thompson, Zanna and Griffin (1995) provide evidence that ambivalent evaluations about the same attitude object do exist. Piderit (2000) supports this statement by claiming that studies describing attitude as univalent offer an incomplete view on people's attitude, and neglect the complexity and variety of attitude. Rather, Piderit (2000) prefers to consider attitude as a continuum, which ranges from negative to positive in multiple dimensions, and therefore supports social psychologists that agree that an attitude involves three dimensions (Culbertson, 1968), involving three classes of evaluative responses (Ostrom, 1969). These can be referred to as the ABC (Affective-Behavioural-Cognitive) model of attitude (Muran, 1991; Harreveld, Nohlen & Schneider, 2015; Ostrom, 1969; Culbertson, 1968; Piderit, 2000; Oreg, 2006). To support this statement, Hogg and Vagan (2005) describe an attitude as "a relatively enduring organisation of beliefs, feelings, and behavioural tendencies towards socially significant objects, groups, events or symbols" (p. 150).

The first dimension of attitude as defined by Ostrom (1969) is an *affective attitude*, which is the emotional reaction one has toward an attitude object (e.g. fear, joy, etc.), referred to as the *emotional component* by Cascio and Boudreau (2008). The next dimension of an attitude is the *behavioural attitude* and refers to the way one behaves when exposed to the attitude object (Ostrom, 1969), referred to as *action tendency* by Cascio and Boudreau (2008). The third and final dimension of an attitude is the *cognitive attitude*, which refers to a set of beliefs of the attitude holder about the attitude object, in which he/she believes that the object is either good or bad (Ostrom, 1969). Piderit (2000) recognizes that employees' affective, behavioural attitude for

specific research purposes by saying that "any definition focusing on one view at the expense of the others seems incomplete" (p. 786).

## 2.1.2 Employee attitude towards HR Analytics

Since HR Analytics may scare employees to losing their jobs and consequently encourage them to fill out 'desirable' answers (Sullivan et al., 2014), it is helpful to organisations to get insight into the relationship between the circumstances within the organisation (the extent to which employees trust their managers) and the attitude of employees towards HR Analytics.

The ABC model of attitude toward HR Analytics will be revisited in later sections by modifying their hypothesized role in a proposed conceptual framework.

#### 2.2 Trust

Numerous studies have focused on the three major distributions of trust within organisations: interpersonal trust (Mayer, Davis, & Schoorman, 1995, 2007; Coleman, 1990), trust in management (Butler & Cantrell, 1984; Budean & Pitiaru, 2015; Deluga, 1995) and trust in the organisation (Tan & Tan, 2000; Bradach & Eccles, 1989).

#### 2.2.1 Interpersonal trust

Existing literature generally recognizes interpersonal trust as a 'trait-like' disposition, meaning the willingness of a person to be vulnerable to another party, and the widespread agreement that trust primarily involves risk. For example, Gambetta (1988) defines trust as the specific expectation that another's actions will be beneficial rather than detrimental, when an action is chosen in preference to others, in spite of the possibility of being disappointed by the action of others. Coleman (1990) describes trust as "an incorporation of risk into the decision of whether or not to engage in the action" (Coleman, 1990, p.91). Deutsch (1958) in Gambetta (1988) refers to trust as a situation where the possible damage may be greater than the advantage that is sought. Otherwise, Miller (2000) emphasizes that trust is manifested in strategic choices about actions, which are based on a trustor's beliefs or expectations about the potential trustee. Specifically, person A trusts person B if A believes or expects that it will be in B's interest to be trustworthy in the appropriate manner at the appropriate time. Moreover, trustworthiness consists of three main characteristics: technical competence to perform a task reliably (ability), having benign motives (benevolence), and acting according to acceptable ethical principles such as fairness and honesty (integrity). In line with these definitions, it can be stated that trust is only required if a bad outcome would make one regret the action (Schoorman, Mayer & Davis, 2007).

In sum, one can conceive of trust as a function, with the amount of trust varying as the result of a combination of three aspects: the tendency of the trustor to trust, the characteristics of the trustor and the trustee, and the experienced trustworthiness of the trustee by the trustor. In this function, the initial expectation of trustworthiness is the baseline or intercept:

Trust = *f*{tendency to trust, human characteristics,

experiences of trustworthiness of the trustee} (Kramer & Tyler, 1996).

#### 2.2.2 Trust in management

Most scholars agree that trust is one of the most important elements of a successful employee-manager relationship (Deluga, 1995; Robinson, 1996; Flaherty & Pappas, 2000; Dirks & Ferrin, 2001; Hoffman, 2014; Wilkinson, 2015; Gottschalk, 2015; Beckett, 2015), since employees rely on guidance from their managers for improving their performance and developing their career (Root, n.d.). For example, Mineo (2014) claims that "trust is the glue that binds the leader to his/her followers and provides the capacity for organisational and leadership success" (p.1). Also, in his research, Deluge (1995) provides evidence that trust in management emerged as a prediction for individual reactions such as work satisfaction, dedication towards the organisation and work performance. Furthermore, Dirks and Ferrin (2001) found that higher levels of trust in management pointed to better satisfaction with and acceptance of decisions and practices inside the organisation, and similarly, Fiorelli & Margolis (1993) in Budean and Pitiaru (2015) state that higher levels of trust in management reduces resistance while increasing responsiveness and commitment to organisational initiatives. Besides, when the employee trusts that the guidance from the manager is accurate, it develops credibility for the manager in the employee's eyes. Consequently, when the sense of trust between an employee and a manager is solid, it positively influences the efficiency in other elements of workplace dynamics (Root, n.d.). In line with this thinking, Rousseau and Tijoriwala (1999) argue that trust in management increases the perceptions of legitimate reasons and explanations provided by managers.

In sum, since the level of trust in management plays an important role in shaping the success of the implementation process of a particular initiative (Rousseau & Tijoriwala, 1999) and managers are the agents who will be gathering, storing and using the data (Cascio & Boudreau, 2008), trust in management may help building positive attitudes of employees towards HR Analytics.

#### 2.2.2.1 Levels of trust in management

Similar to the concept of attitude, many scholars have viewed trust and distrust as two ends of a single trust-mistrust continuum or view the presence of low trust as suggesting mistrust (Van de Walle & Six, 2013). However, Lewicki, McAllister and Bies (1998) posit that trust is distinct from distrust; they argue that relationships between individuals are multiplex. Hence, both trust and distrust are separate concepts that can exist simultaneously within aspects of interpresonal relationships, for instance within relationships between colleagues in different domains of work and different contexts, where the colleague may be trusted in some domains but distrusted in others. Thus, underlying to this conceptualization of trust is the view that trust is a multi-faceted concept with multiple bases.

Scholars that explore these dynamics of trust more in-depth have only confirmed the above-mentioned statement. Kadefors (2004) states that trust is not only tied to a person's trustworthiness, but also to circumstances; decisions on whether to trust are continuously revised in light of new information. Howorth, Carole, Moro and Andre (2005) support this statement by saying that trust assumes different forms dependent on the situation, the background and relationship histories. On top of that, Bargeron (2015) says that trust evolves over time based on experiences between individuals.

In sum, considering that trust and distrust can exist at the same time, depend on circumstance and relationship histories, and evolve over time based on experiences, we can detect usefulness in identifying several levels of trust (Shapiro, Sheppard & Cheraskin, 1992). Therefore, Shapiro, Sheppard, and Cheraskin (1992) developed the stage-theory of trust, which involves three sequential stages of trust: Calculus-based trust, Knowledge-based trust and Identification-based trust.

Lewicki and Bunker (1995) extended this theory by applying it to professional relationships, which can be applied to employee-manager relationships and by extension trust in management.

*Calculus-based trust* I Shapiro, Sheppard, and Cheraskin (1992) define Calculus-based trust as trust based on consequences of noncompliance (the disadvantages associated with not complying with agreements and the benefits associated with complying with agreements). In their extension of the stage theory of trust, Lewicki and Bunker (1995) generalized Calculus-based trust as the relationship between the fear of punishment of violating trust and the reward for preserving it. This suggests that Calculus-based trust is a calculation of costs and benefits of creating and sustaining a relationship versus the costs and benefits of severing it.

Calculus-based trust does relatively little to build a relationship other than preventing the outbreak of a conflict, and often has only a narrow applicability. It will positively influence the rewards of fair conduct and prevent individuals from engaging in punishable behaviour, but it will not prevent the individuals from harming one another in other areas (Coltri, 2010). Moreover, Calculus-based trust is primarily based on self-interest (e.g. only motivated by money (Goleman, 2015)), which counteracts the development of a relationship based on mutual respect and reciprocity, which in turn produces attitudes that contradict understanding between individuals (Kadefors, 2004). Goleman (2015) explains this argument by stating that especially the trust employees instill in managers/leaders can be fleeting when leaders put their self-interest above all else.

Therefore, to be able to show this level of trust in a manager *does not* imply that employees need to have a positive attitude towards him/her. However, this does not necessarily include all three components of attitude. For example, based on the first impression of the manager, the employee can dislike the manager (affective attitude). However, the employee may think that the manager wouldn't be a manager if he/she wouldn't conduct business in a fair way and therefore may not be skeptic (cognitive attitude), but since there is no fundamental trusting relationship between the employee and the manager, this will not guarantee that the employee will comply with the manager's wishes about non-routine data collection (behavioural attitude).

Hypothesis 1: Calculus-based trust is not related to affective attitudeHypothesis 2: Calculus-based trust is not related to behavioural attitudeHypothesis 3: Calculus-based trust is positively related to cognitive attitude

*Knowledge-based trust* I Knowledge-based trust occurs when an individual has enough information and understanding about another person to assess that person's trustworthiness, developed from repeated interactions and communications in different contexts (Lewicki & Bunker, 1995). For example, if a woman needs to attend a business meeting, and leaves her children with their regular baby-sitter, she can trust that the baby-sitter will keep them safe, because of his/her history of having done so in the past, and because the mother may have knowledge about the baby-sitter's background, values and skills in other social contexts in which the mother has observed him/her (Coltri, 2010). This description can be applied to a manager and an employee when the employee and manager have had enough interactions over time to establish a consistent display of trustworthy behaviour. In this case, the employee has had enough experience with the manager that he/she has a good idea of how the manager will behave and react to everyday issues that they experience in their professional relationship.

Therefore, knowledge-based trust includes the ability to cooperate in a less formalized manner than in Calculusbased trust (e.g. being able to rely on oral and implicit agreements rather than structured, written agreements) and a broader applicability to areas in which the parties involved have knowledge of, among other aspects, one another's attitudes (Coltri, 2010). This insinuates that Knowledge-based trust of employees in managers *can* guarantee credibility of managers in employees' eyes. Therefore, to be able to show this level of trust in a manager implies that employees need to have a positive attitude towards him/her. However, this does not have to include all three components of attitude. For example, based on what we know about our manager, we can respect and like the manager (affective attitude), but at the same time discriminate him/her for gender (Davidson & Burke, 2000) or race (Popp et al., 2003) which may generate skepticism (cognitive attitude) and therefore still not be willing to comply with the manager's wishes (behavioural attitude).

Hypothesis 4: Knowledge-based trust is positively related to affective attitudeHypothesis 5: Knowledge-based trust is not related to behavioural attitudeHypothesis 6: Knowledge-based trust is not related to cognitive attitude

*Identification-based trust* I Lewicki and Bunker (1995) recognize Identification-based trust as the kind of trust that emerges from individuals in organisations assuming a common identity, and where they understand and endorse one another. In this stage of trust, the employees believe that management is concerned with the interests of the employees and act not only for their own interest, but also for the interests of the whole organisation (O'Neill & Lenn, 1995). This requires a feeling of oneness and shared goals and objectives of the employees with the organisation, which works as a basis for generating trust between individuals in the organisation (Hameed, Arain & Farooq, 2013), which also include employees and managers. Coltri (2010) builds on this explanation of Identification-based trust by adding that this stage of trust is characterized by meeting the needs of the other individual to be intrinsically satisfied in return.

Conley (2012) elaborates by saying that Identification-based trust is not appropriate for every relationship, since it requires operating freely without concerns of skepticism and wariness towards one another. Therefore, this level of trust can unlock higher levels of productivity and performance in organisations (Conley, 2012), and motivates individuals to follow the organisational interests (van Knippenberg et. al., 2007). It is thereby logical to insinuate that these organisational interests can include the gathering of personal employee data for the purpose of HR Analytics.

In light of the principles of attitude formation, strongly identifying employees have more positive attitudes towards the management (van Dick, Wagner, Stellmacher & Christ, 2004; Brief, 1998), which suggests that Identification-based trust of employees in managers *does* guarantee credibility of managers in employees' eyes, and therefore the kind of trust that is needed for a positive employee attitude towards the gathering of their personal data by those managers. For example, based on what the employee knows about the manager, the employee may like and respect the manager (affective attitude), and since the employee can identify with the manager, is not skeptic towards him/her (cognitive attitude), and therefore the employee will follow the manager's wishes (behavioural attitude).

Hypothesis 7: Identification-based trust is positively related to affective attitudeHypothesis 8: Identification-based trust is positively related to behavioural attitudeHypothesis 9: Identification-based trust is positively related to cognitive attitude

These three stages of trust are linked and build on one another, and trust alternates between the dimensions as a professional relationship develops over time. A professional relationship that develops and matures can move up and down the scale from Calculus-based trust to Knowledge- and Identification-based trust. In undeveloped relationships, the breach of a contract (e.g. an agreement or a bond) in which trust was involved, can easily lead to damage, but if trust has been allowed to deepen and mature, disruptive actions may have less impact (Lewicki & Bunker, 1995).

#### 2.2.3 Trust in the organisation

Placing trust in individuals (e.g. a manager), called interpersonal trust, and placing trust in collective entities (e.g. organisations, institutions), called collective trust, are used interchangeably in the literature without consideration for whether the differences in the trust object are meaningful or appropriate (Bachmann & Zaheer, 2006). What has been established is that a person may claim to trust an organisation while actually referring to the trustworthiness of a specific individual in the organisation (e.g. his/her manager). "We argue that these are not instances of collective trust, since there is no separate attribution of trustworthiness to the organisation as an entity itself" (Bachmann & Zaheer, 2006, p. 55). In other words, even though collective trust is distinct from interpersonal trust, it is usually interpreted as interpersonal trust.

In this research, it will be investigated to what extent the level of trust in the organisation plays a role in influencing attitude towards HR Analytics, in contrast to trust in management. Since above it was argued that collective trust is often interpreted as interpreted as interpreted as interpreted at this would mean that a higher level of trust in management implies a higher level of trust in the organisation. Therefore, it is hypothesized that there is a positive relationship between trust in the organisation and attitude.

Hypothesis 10: Trust in the organisation is positively related to affective attitudeHypothesis 11: Trust in the organisation is positively related to behavioural attitudeHypothesis 12: Trust in the organisation is positively related to cognitive attitude

## 2.3 Control variables

In their research on trust and trustworthiness, Glaeser, Laibson, Scheinkman and Soutter (2000) found that trusting behaviour in experiments is predicted by past trusting behaviour outside of experiments. Trust rises with the duration of acquaintanceship between two individuals. Therefore, as this theory predicts, the duration of the acquaintanceship between employee and manager could influence the level of trust in their relationship. Hence the first control variable is about how long the employee works for his/her current manager.

Secondly, Glaeser et al. (2000) found that background characteristics capturing the level of status strongly predicts the level of trust between two individuals. For example, trust is higher among well-educated individuals. "College graduates are 30 percent more likely to answer yes to the trust question than high school dropouts" (Glaeser et al., 2000, p. 816). This might occur because more educated people associate with other more educated people who are, in their eyes, more trustworthy. Hence, the survey controlled for level of education as well.

Thirdly, the research by Glaeser et al. (2000) also found that people are less likely to trust someone from a different country, race or nationality. Since asking directly for a person's race might invoke a negative attitude towards this research

since it could be associated with discrimination, the survey controlled for difference in nationality between the employee and the manager.

Also, whether a person practices IT or not might have an influence on whether that person is familiar with Big Data processes and consequently might have a better understanding and more accurate view of what HR Analytics entails. Hence, this study controlled for profession as well.

Lastly, age and gender control variables were added, because younger people might be more comfortable with Big Data processes than older people, and it was found that men are slightly more trusting than women (Glaeser et al., 2000).

## 2.4 Structural model

As mentioned previously, attitude originates from trust (Jones, 1996) in that, as an employee, to develop a positive attitude towards HR Analytics, trust in management, and/or the organisation, needs to be established. Therefore, this research describes the ABC model of attitude by Ostrom (1969) in relation to the three sequential stages of trust from Lewicki and Bunker (1995) and trust in the organisation.

#### Figure 2





## 3. Methodology

#### 3.1 Population and sample

A Dutch cleaning company (1000 employees) and a Multinational company (100 employees) in the food industry have agreed to participate in this study. Stratified sampling was used as a sampling approach. Stratified sampling uses a stratum (a subset of the population that share at least one common characteristic). A few stratums were used in this research. Of both companies, only the non-managers were asked to participate in the survey. Particularly of the Dutch cleaning company, all non-managers with a computer at their disposal were asked to complete the survey. When the stratums were selected, random sampling was used to select a number of subjects from each stratum to come to a sample size large enough to be reasonably

confident that the stratum represents the population. Finally, the selected employees were invited by email to participate in an anonymous study, and to fill out a short survey via the link provided in the email. The questionnaire was sent out to a total of 110 people. After 4 weeks, a total of 47 respondents had completed the survey. This makes a response rate of 43%.

#### 3.2 Instrumentation

The data was collected using the online survey tool Qualtrics. First, the official survey questions were transferred from a word document to the tool, and then the link to the Qualtrics survey tool was created and provided in the email as mentioned above. The data was recorded in the Qualtrics online tool, where the researcher could see the amount of responses. After 4 weeks, the online survey was closed and the response set in the tool was transferred to the statistical programme SPSS. In SPSS, the data was organised after which the data was transferred to the statistical SEM programme SmartPLS (section 3.6).

#### 3.3 Language and translations

The survey was available in Dutch, since the population at both participating companies was Dutch-speaking. The original 'attitude' items derived from Oreg (2006), and the original 'trust' items derived from Saparito (2000) were both solely available in English. Native Dutch speaking individuals from the researcher's personal network translated the original English items of the scales into Dutch.

#### 3.4 Measurements

Since HR Analytics was not practiced at the organisations participating in the survey, the respondents were provided with a small explanation about HR Analytics prior to filling out the survey, in the email that contained the link to the survey and as an introduction to the survey itself. The full survey is provided in appendix 1.

*Attitude towards HR Analytics* I Oreg (2006) describes the changes in ABC-dimensions of employee attitude as a reaction to change in an organisation, which can be in the form of management practices such as gathering routine- and non-routine data of employees (HR Analytics). Therefore, this scale was used to measure employee attitude. Oreg (2006) designed three subscales according to the ABC-dimensions of attitude, which measure the three dimensions of employees' attitudes towards an organisational change. He then tested whether the items loaded on the three factors (the three dimensions of attitude) using Confirmatory Factor Analysis, by which an overall satisfactory fit was established (reliability scores of .78, .77 and .86 for the affective, behavioural and cognitive subscales (Oreg, 2006) correspondingly). In his study, Oreg assessed how the attitude of employees had changed after the modification of the organisational structure of the particular organisation. Therefore, the items in the scale were phrased in the past tense; for example 'the change made me upset'. Since in the present study, surveys were administered before HR Analytics was introduced in the organisation, questions about the expected outcomes of HR Analytics were phrased in the present tense.

Each dimension of 'attitude towards change' subset contained five items in Oreg's (2006) scale and the content of these subsets were modified to fit the context of the current study. In line with the accepted definitions of attitudes, the items that measure affective attitude involve positive and negative feelings towards the HR Analytics. Examples of items measuring the affective dimension are therefore "I have good feelings about HR Analytics" and "I am quite excited by HR Analytics". The items that measure behavioural attitude address employees' intentions to act for or against the change (the

intention to act for or against HR Analytics). Examples of items measuring the behavioural dimension are therefore "I do not look for ways to prevent HR Analytics from taking place" and "I encourage HR Analytics". Finally, the items that measure cognitive attitude involve employees' evaluation of the worth and potential benefit of the change (the worth and benefit that the employee associates with participating in HR Analytics). Two examples of items measuring the cognitive dimension are "I believe that HR Analytics would help the way things are done in the organisation" and "I believe that I could personally benefit from HR Analytics". The negatively phrased items of the original scale were reverse coded (all of the items except 3, 10, 14 and 15), so that a higher score indicated a more positive attitude towards HR Analytics. The scale uses a 5-point scale ranging from 'strongly disagree' (1) to 'strongly agree' (5).

Before the scale, the following line was stated: "The following statements are about how you think and feel about HR Analytics. Please read each statement carefully and decide if you agree with this statement".

*Trust in management* I Saparito's (2000) scale reflects the three stages of trust in professional relationships identified earlier (Calculus-, Knowledge- and Identification-based) and by extension in management. Drawing upon employees' beliefs about management's trustworthiness and fairness in other studies (i.e., Cummings & Bromiley, 1996; McAllister, 1995), Saparito (2000) adapted and created these items for each trust stage. Several constraints guided the development of the items for the trust in management-scale (Saparito, 2000) such as "(1) To avoid problems with social desirability, the items do not use the word trust; (2) Items reflect either calculation, knowledge, or identification. That is, some items are phrased in terms of calculation (e.g., I believe they comply with our agreements because...), knowledge (e.g., I know..., I can predict...), or identification (e.g., I feel..., I can share ...); (3) Items were kept as short and simple as possible..." (p. 8). These items have been tested and confirmed for content validity using Cohen's kappa (Cohen, 1960).

Each 'trust in management' subset represented a stage of trust in management and contained four items in Saparito's (2000) scale. In line with the accepted definition of trust, the trust in management-scale consists of 12 statements about how the respondents experience their relationship with their manager.

Some of the items measuring Calculus-based trust are formulated in a rather complicated manner, such as "I believe my manager complies with agreements because he/she knows the economic benefits of a good business reputation/costs of a damaged business reputation". These formulations might be too complex and confuse the participants. Therefore, these items were reformulated into simpler sentences: (1) "I believe my manager complies with agreements because he/she knows the benefits of compliance" was reformulated as "I believe my manager complies with agreements to avoid conflict", (2) "I believe my manager complies with agreements because he/she knows the economic costs of a damaged business reputation" was reformulated as "I believe my manager complies with agreements to prevent a damaged business reputation", (3) "I believe my manager complies with agreements because he/she knows the economic benefits of a good business reputation", (3) "I believe my manager complies with agreements because he/she knows the economic benefits of a good business reputation" was reformulated as "I believe my manager complies with agreements to prevent a damaged business reputation" (3) "I believe my manager complies with agreements because he/she knows the economic benefits of a good business reputation" was reformulated as "I believe my manager complies with agreements to foster a good business reputation" and (4) "I believe my manager complies with agreements because it is in his/her own self-interest to do so" was reformulated as "I believe my manager complies with agreements because it is in his/her own self-interest to do so" was reformulated as "I believe my manager complies with agreements to satisfy his/her own interests".

An example of an item measuring the Knowledge-based trust stage is "from past interactions, I know my manager is dependable". Finally, an example of an item measuring the Identification-based trust stage is "I can freely share concerns and problems about my manager and know that he/she will be interested in listening". The items of the original scale were all positively phrased and stayed that way for the current study. In this way, a high score indicates a higher level of trust in

management. The scale uses a 5-point scale ranging from 'strongly disagree' (1) to 'strongly agree' (5) and the items are phrased to reflect the context of employee-manager relationship. Before the scale, the following line was stated: "The following statements are about how you feel towards your manager/supervisor. Please read each statement carefully and decide if you agree with this statement".

*Trust in the organisation* I The organisation Trust Inventory (OIT) (SciTs, 2011) measures an individual's level of trust in his or her work organisation as a whole. This item was used as a scale in the current survey to assess whether an employee's level of trust in the organisation as an entity influences his/her attitude towards HR Analytics. The question measuring the trust in the organisation is "my level of confidence that this organisation will treat me fairly is ...". The answer option uses a 7-point scale ranging from 'nearly zero' (1), to 'near 100%' (7). Before this question, the following line was stated: "*The following statement is about how you feel towards your organisation as a whole. Please read the statement carefully and decide if you agree with this statement*".

*Control variables* I The control variable measuring working time was asked as "starting date for your current supervisor". The answer to this question could be filled out by hand in a blank space. The second control variable is the education level, which was asked as "what is your highest qualification obtained?" A few answer options were given, namely "no high school diploma", "high school diploma", "undergraduate", "graduate" or "PhD". The third control variable is nationality, which was solely stated as "nationality" and a blank space to fill out the nationality by hand. The same was done for the control variable "age". The answer to "gender" was provided in a "male/female" format. Lastly was controlled for profession, which was asked as "area of expertise" and consisted of the answer options "IT", "HR", "Project", "Operations", "Supply Chain", "Ecommerce", "Sales", "Finance", or "other" in which the respondents were asked to specify their profession in a blank space.

#### 3.5 Respondents

The complete sample consisted of 23 males (48,9%) and 24 females (51,1%). The average age was 42 years. 21% of the employees have been at the company only a short time (1 month to 1 year) and 79% of the employees have been at the company for a longer time (more than 1 year). The Nationality of 46 of the respondents (96%) was Dutch; hence the study could not be controlled for Nationality because too big of a group had formed. Concerning profession, almost every respondent had filled out a different profession, which caused too small groups to form. Hence the study could not be controlled for profession either.

#### 3.6 Statistical test

This research applied Structural Equation Modelling (SEM) to analyse the results of the conceptual model. There are two types of SEM softwares. The AMOS software applies SEM based on covariates (CB-SEM), and the SmartPLS software applies SEM based on partial least squares (PLS-SEM). The difference between them is, among other differences, the parametric- or non-parametric statistical approach (Awang, Afthanorhan & Asri, 2015). SmartPLS was chosen rather than AMOS to analyse the structural model of this study. The reason for this is that CB-SEM relies on assumptions such as adequate sample size and normally distributed data (and is hence a parametric test), which this study did not have. According to Hair, Ringle and Sarsted (2011), the non-parametric procedure of PLS-SEM can execute the analysis using a small sample

size and does not require a normal distribution. Another reason for choosing PLS-SEM is the fact that all the independent and dependent variables are ordinal (measured on a Likert scale). In her study, Cantaluppi (2012) finds that PLS-SEM more properly deals with ordinal variables than CB-SEM, since the algorithm of CB-SEM is designed to deal with variables measured on interval scales.

## 4. Results

The conceptual structural model in Fig. 2 was analysed using SmartPLS, a PLS structural Equation Modelling tool for nonparametric tests. The study could not be controlled for two of the control variables. Firstly, the profession of a person (to indicate whether a person practiced IT or not) within an organisation was rejected as a control variable, since this dataset contained many different categories of practices and this would cause too small groups to form. The low amount of respondents causes doing specific tests for each category to be irrelevant. Secondly, nationality was rejected as a control variable since almost all respondents had a Dutch nationality. For clarification purposes, these two control variables were taken out of the structural model in the results.

### 4.1 Reliability results

Reliability results are given in table 1. The data indicates that the measures are robust in terms of their internal consistency reliability as shown by the composite reliability. Only knowledge-based trust has a composite reliability of 0.57, which is lower than the recommended threshold value of 0.7 (Nunnally, 1978). In addition, consistent with the guidelines of Fornell and Larcker (1981), the average variance extracted (AVE) did not exceed 0.50 for each variable. Knowledge-based trust performed the worst in this case, which is in turn consistent with composite reliability of that variable. Therefore, these results indicate that knowledge-based trust is not a robust latent variable.

Latent variables	Composite reliability (internal consistency reliability)	Average variance explained
Calculus-based trust	0.794	0.497
Knowledge-based trust	0.574	0.356
Identification-based trust	0.703	0.405
Affective attitude	0.904	0.655
Behavioural attitude	0.788	0.438
Cognitive attitude	0.906	0.661

 Table 1

 Assessment of the structural model

# 4.2 Structural model

In the results of the structural model, the bèta ( $\beta$ ) values (path coefficients) and P-values (between brackets) are shown. Fig. 3 shows the structural model results omitting the influence of the control variables. In this model, all the  $\beta$ -coefficients that are negative (i.e. in the expected direction) are not statistically significant, while all  $\beta$ -coefficients that are positive are statistically significant at different levels (i.e. as indicated in the notes). Fig. 4 shows the results of the structural model with

control variables. All  $\beta$ -coefficients that are significant are either positive or negative at different levels (i.e. as indicated in the notes). For clarification, Appendix 2 includes all these results in tables.

# 4.2.1 Structural model without control variables

In this structural model, *trust in the organisation* has a positive influence ( $\beta = 0.362$ , P < 0.05) on *cognitive attitude*. Also, *trust in the organisation* has (at the 0.10 significance level) a positive influence ( $\beta = 0.374$ , P < 0.10) on *behavioural attitude*. Lastly, *trust in the organisation* has (only at the 0.15 significance level) a positive influence ( $\beta = 0.249$ , P < 0.15) on *affective attitude*.

# Figure 3





# Notes:

Green = significant at 0.05 Blue = significant at 0.10 Orange = significant at 0.15

#### 4.2.2 Structural model with control variables

In this structural model, *trust in the organisation* still has a positive influence ( $\beta = 0.380$ , P < 0.05) on *cognitive attitude*. Also, *trust in the organisation* has (now only at the 0.15 significance level) a positive influence ( $\beta = 0.319$ , P < 0.15) on *behavioural attitude*. Lastly, *trust in the organisation* still has (only at the 0.15 significance level) a positive influence ( $\beta = 0.239$ , P < 0.15) on *affective attitude*. Hence, the relationships between trust in the organisation and attitude towards HR Analytics were not influenced by any of the control variables.

Only the *working time* has a statistically significant negative effect ( $\beta = -0.334$ , P < 0.10) on *affective attitude* (the longer one works at an organisation, the worse the affective attitude towards HR Analytics becomes). Comparing the R<sup>2</sup> before and after including control variables can motivate this. Table 2 presents the R<sup>2</sup> with control variables (0.203) and without control variables (0.126). Since the R<sup>2</sup> for *affective attitude* is significantly higher when including *working time* as a control variable (i.e. indicated in bold in table 2), the working time has a significant influence on the accuracy with which affective attitude can be predicted using the structural model.

#### Figure 4

Structural model results (with control variables)



# Notes:

Green = significant at 0.05 Blue = significant at 0.10 Orange = significant at 0.15

**Table 2** $R^2$  without- and with control variables

Latent variable	R <sup>2</sup> without control variables	R <sup>2</sup> with control variables
Affective attitude	0.126	0.203
Behavioural attitude	0.181	0.181
Cognitive attitude	0.258	0.283

# 5. Discussion

Table 3 presents the hypotheses and outcomes. The 'finding' column indicates whether the hypothesis was true or not true, with the significance level and path coefficient if applicable, and the 'conclusions' column indicates whether that hypothesis was: (1) supported or (2) not supported. No hypothesis was refuted. The outcomes in table 3 are elaborated on below.

#### Table 3

Hypotheses conclusions

Hypothesis	Finding	Conclusion
H1: Calculus-based trust is not related to affective attitude	Yes: not significant	Supported
H2: Calculus-based trust is not related to behavioural attitude	Yes: not significant	Supported
H3: Calculus-based trust is positively related to cognitive attitude	No: not significant	Not supported
H4: Knowledge-based trust is positively related to affective attitude	No: not significant	Not supported
H5: Knowledge-based trust is not related to behavioural attitude	Yes: not significant	Supported
H6: Knowledge-based trust is not related to cognitive attitude	Yes: not significant	Supported
H7: Identification-based trust is positively related to affective attitude	No: not significant	Not supported
H8: Identification-based trust is positively related to behavioural attitude	No: not significant	Not supported
H9: Identification-based trust is positively related to cognitive attitude	No: not significant	Not supported
H10: Trust in the organisation is positively related to affective attitude	Yes: $(\beta = 0.239, P < 0.15)$	) Supported
H11: Trust in the organisation is positively related to behavioural attitude	Yes: $(\beta = 0.319, P < 0.15)$	) Supported
H12: Trust in the organisation is positively related to cognitive attitude	Yes: $(\beta = 0.380, P < 0.05)$	) Supported

With the growing pressure to retain talented employees to achieve strategic results, HR Analytics will need to find a way to encourage employee participation, which will derive greater value from employee survey efforts and will contribute to a competitive advantage. To reassure employees that HR Analytics will not harm them, it is important that the organisation is aware of the circumstances in which a positive employee attitude towards HR analytics can be obtained. Therefore, the main question that this study tried to answer was "under which circumstances can a positive attitude towards HR Analytics be obtained?" The following discussion of the findings and corresponding conclusions will lead to an answer to what these circumstances might be. Since attitude is guided by trust (Jones, 1996), it was expected that the higher the trust in management and the organisation, the higher the attitude towards HR Analytics.

*Conclusion 1* I As suggested by Glaeser, Laibson, Scheinkman and Soutter (2000), trust rises with the duration of acquaintanceship between manager and employee, but there was no effect between behavioural- and cognitive attitude towards HR Analytics and working time for the current manager. There was, however, a negative effect between affective

attitude towards HR Analytics and working time for the current manager, meaning the longer one works for a company, the worse their affective attitude towards HR Analytics. An explanation for this could be that people who work at a company for a shorter time have a bigger chance not to have dealt with HR Analytics than people who work at a company for a longer time, hence the longer people work for a company, the more they could have formed a (negative) feeling towards HR Analytics. This would imply that *in the circumstance that employees have had an experience with HR Analytics, their attitude towards HR Analytics aggravates.* 

*Conclusion 2* I Concerning age and gender, it was argued that the younger people are, the more comfortable they would be with Big Data processes, and it was found that men are slightly more trusting than women (Glaeser et al., 2000). However, this study suggests that age and gender do not influence attitude towards HR Analytics at all, which implies that *what age people have, and what gender they are, are not circumstances that influence attitude towards HR Analytics*.

*Conclusion 3* I In level of education, it was argued that trust would be higher among well-educated individuals. Consequently, it was expected that employees with a higher level of education would exhibit a higher level of trust and thereby a better attitude. Nevertheless, this expectation was rejected since no significant relationship was found. An explanation for this finding might be the possibility for respondents to specify their education manually in the answer options (and too small groups to form), but it might also be that *education is not an indicator for attitude towards HR Analytics*.

*Conclusion 4* | Since it was argued that there is no separate attribution of trustworthiness to the organisation as an entity (Bachmann & Zaheer, 2006), it was hypothesized that there is a positive relationship between trust in the organisation and attitude. This hypothesis was based on the theory that trust in management (interpersonal trust) would be interpreted the same way as trust in the organisation (collective trust). In this research, trust in the organisation proved to be a more accurate indicator for determining the attitude towards HR Analytics than trust in management. So, the respondents have clearly distinguished between interpersonal trust and collective trust. Therefore, the hypotheses were confirmed, but the basis on which the hypotheses were built was in fact incorrect.

A possible explanation for this is the following. In cases where a survey would solely inquire about trust in the organisation, it would still be unknown whether the respondents have based their trust in the organisation on a particular person within the organisation. However, the current survey inquired about trust in management and trust in the organisation simultaneously, which gave the respondents the opportunity to clearly distinguish between trust in management and trust in the organisation. Therefore, in this research the trust in the organisation proved to be a very clear indicator for determining the attitude towards HR Analytics, which implies that the attitude towards HR Analytics is governed by trust in the organisation, *a positive attitude towards HR Analytics can be obtained*.

#### 6. Recommendations

Recommendations 1-3 are based on the above-mentioned conclusions. Recommendation 4 is not based on the conclusions mentioned above, but solely on the limitations of the study.

**Recommendation 1** I This study suggests that the longer a person works at a company, the worse their affective attitude towards HR Analytics. The assumption of the cause of this negative relationship mentioned in the conclusion needs to be investigated further. The survey should therefore contain questions that test whether the experience with HR Analytics has an influence on the attitude towards HR Analytics. This study was not longitudal in design; measuring attitudes before and after HR Analytics is implemented in the company could therefore give better insights in this case.

**Recommendation 2** I In further research, this study recommends to not provide the 'blank space' option with "please specify" when asking about level of education, as this may cause the results to become inaccurate. A few respondents did not encounter their own particular school or study within the answer options and hence filled out the blank space instead of selecting something similar to their school or study from the answer options. This may have an influence on the results; leaving out this option might cause a relationship to emerge. Additionally, a bigger sample size could also be a solution to this problem.

**Recommendation 3** I The most prominent conclusion was that if an organisation wants employees to have a positive attitude towards HR Analytics, it should optimise the trust the employee has in the organisation. For this, further research would be required to identify the subjects of trust the employee can have in the organisation in order to improve this type of trust.

Even though trust in management proved to not influence attitude towards HR Analytics, if this research would be replicated, it is recommended to still implement a question about trust in management, so that the respondents can clearly distinguish between individual and collective trust.

**Recommendation 4** I The sample size of 47 respondents with which this research was conducted was rather small. In order to substantiate the results from this investigation one could try to have a larger group to do the same tests. This would allow the control variables that were not taken into account (nationality and profession) to be included, and also it would provide better insights concerning the control variable education. Small groups were formed within the control variable 'education' due to the small sample size. These limitations make it difficult to control for important variables that can explain under which circumstances a positive attitude towards HR Analytics can be established.

# References

Ajzen, I. (1991). The theory of planned behaviour. Organisational behaviour and human decision processes, 50(2), 179-211.

Allen, N. J., & Meyer, J. P. (1993). Organisational commitment: evidence of career stage effects? Journal of business research, 26(1), 49-61.

Awang, Z., Afthanorhan, A., & Asri, M. A. M. (2015). Parametric and Non Parametric Approach in Structural Equation Modeling (SEM): The Application of Bootstrapping. Modern Applied Science, 9(9), 58.

Bachmann, R., & Zaheer, A. (Eds.). (2006). Handbook of trust research. Edward Elgar Publishing.

Bargeron, L., Lehn, K., & Smith, J. D. (2012). Corporate culture and M&A activity.

Beckett, G. (2015, November 30). Trust in Management. Retrieved February 4, 2016, from https://www.linkedin.com/pulse/trust-management-garrick beckett?trkInfo=VSRPsearchId:2720373011454574839437, VSRPtargetId:6077171322251730944,VSRPcmpt:primary&trk=vsrp\_influencer\_content\_res\_name

Bradach, J. L., & Eccles, R. G. (1989). Price, authority, and trust: From ideal types to plural forms. Annual review of sociology, 97-118.

Brief, A. P. (1998) Attitudes In and Around Organisations, Sage, Thousand Oaks.

Budean, A., & Pitariu, H. D. (2015). The relationship between trust in manager and the attitude towards change in the context of an international merger. *Psihologia Resurselor Umane*, 7(1), 29-42.

Butler Jr, J. K., & Cantrell, R. S. (1984). A behavioural decision theory approach to modeling dyadic trust in superiors and subordinates. Psychological reports, 55(1), 19-28.

Cacioppo, J. T., & Berntson, G. G. (1994). Relationship between attitudes and evaluative space: A critical review, with emphasis on the separability of positive and negative substrates. *Psychological bulletin*, *115*(3), 401.

Cantaluppi, G. (2012). A Partial Least Squares Algorithm Handling Ordinal Variables also in Presence of a Small Number of Categories. arXiv preprint arXiv:1212.5049.

Cascio, W., & Boudreau, J. (2008). *Investing in people: Financial impact of human resource initiatives*. Upper Saddle River, N.J.: FT Press.

Coleman, D. (2015, August 9). How Leaders Build Trust. Retrieved February 4, 2016, from https://www.linkedin.com/pulse/how-leaders-build-trust-daniel-goleman?trkInfo=VSRPsearchId:2720373011454572944147, VSRPtargetId:6035869933177487360,VSRPcmpt:primary&trk=vsrp\_influencer\_content\_res\_name

Coltri, L. S. (2004). Conflict diagnosis and alternative dispute resolution. Pearson College Division.

Conley, R. (2012, October 25). Three Levels of Trust - Where Do Your Relationships Stand? Retrieved January 27, 2016, from http://leaderchat.org/2012/10/25/three-levels-of-trust-where-do-your-relationships-stand/

Conway, E. (2004). Relating career stage to attitudes towards HR practices and commitment: Evidence of interaction effects? *European Journal of Work and Organisational Psychology*, *13*(4), 417-446.

Cron, W. L., & Slocum Jr, J. W. (1986). The influence of career stages on salespeople's job attitudes, work perceptions, and performance. Journal of Marketing Research, 119-129.

Culbertson, H. (1968). What is an Attitude? *Journal of Cooperative Extension*, 79-84. Gambetta, D. (1988). Trust: Making and Breaking Cooperative Relations. *The Bodleian Library: University of Oxford*. Basil Blackwell Ltd.

Davison, H. K., & Burke, M. J. (2000). Sex discrimination in simulated employment contexts: A meta-analytic investigation. Journal of Vocational Behaviour, 56(2), 225-248.

Dirks, K. T., & Ferrin, D. L. (2001). The role of trust in organisational settings. *Organisation science*, *12*(4), 450-467 Eby, L. T., Adams, D. M., Russell, J. E., & Gaby, S. H. (2000). Perceptions of organisational readiness for change: Factors related to employees' reactions to the implementation of team-based selling. *Human relations*, *53*(3), 419-442.

Eagly, A. H., & Chaiken, S. (1993). The psychology of attitudes. Harcourt Brace Jovanovich College Publishers.

Elliott, D. F. (2014, September 10). Yes, Most Employees Don't Trust Management. Retrieved February 4, 2016, from https://www.linkedin.com/pulse/20140910195907-115890802-yes-most-employees-don-t-trust-management?trkInfo= VSRPsearchId:2720373011454574769829,VSRPtargetId:5895905516219047936,VSRPcmpt:primary&trk=vsrp\_influencer\_ content\_res\_name

Festinger, L., & Carlsmith, J. M. (1959). Cognitive consequences of forced compliance. *The Journal of Abnormal and Social Psychology*, 58(2), 203.

Flaherty, K. E., & Pappas, J. M. (2000). The role of trust in salesperson—sales manager relationships. *Journal of Personal Selling & Sales Management*, 20(4), 271-278.

Fornell, C., & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. Journal of marketing research, 39-50.

Gandomi, A., & Haider, M. (2015). Beyond the hype: Big data concepts, methods, and analytics. *International Journal of Information Management*, *35*(2), 137-144.

Gedeon, S. A. (2014). How to measure and build intra-and inter-organisational trust. International Journal of Business and Globalisation, 14(1), 122-142.

Gottschalk, M. (2015, June 1). To Impact Engagement, Focus on Building Trust. Retrieved February 4, 2016, from https://www.linkedin.com/pulse/affect-engagement-focus-building-trust-dr-marla-gottschalk?trkInfo= VSRPsearchId:2720373011454573190606,VSRPtargetId:6003873743565246464,VSRPcmpt:primary&trk=vsrp\_influencer\_ content\_res\_name

Guenole, N., & Ferrar, J. (2014). Active Employee Participation in Workforce Analytics: A Critical Ingredient For Workforce Analytics Success. *IBM Corporation 2014*.

Guthrie, J. P., & Schwoerer, C. E. (1996). Older dogs and new tricks: career stage and self-assessed need for training. Public Personnel Management, 25(1), 59-72.

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). Multivariate data analysis (Vol. 6). Upper Saddle River, NJ: Pearson Prentice Hall.

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. Journal of Marketing theory and Practice, 19(2), 139-152.

Hameed, I., Arain, G. A., & Farooq, O. (2013). Identity-Based Trust as a Mediator of the Effects of Organisational Identification on Employee Attitudes: An Empirical Study. *International Journal of Management*, *30*(2), 666.

Harreveld, F., Nohlen, H., & Schneider, I. (2015). The ABC of Ambivalence. *Advances in Experimental Social Psychology*, 52(5), 285-324. doi:10.1016/bs.aesp.2015.01.002

Hoffman, R. (2014, July 28). Managers: It's Time to Rebuild Trust With Your Employees. Retrieved February 4, 2016, from https://www.linkedin.com/pulse/20140728003703-1213-managers-it-s-time-to-rebuild-trust-with-your-employees?trkInfo= VSRPsearchId:2720373011454573305904,VSRPtargetId:5892348451210932224,VSRPcmpt:primary&trk=vsrp\_influencer\_ content\_res\_name

Jones, K. (1996). Trust as an Affective Attitude. Ethics, 4-25. University of Chicago Press.

Laerd Statistics (2013). Jonckheere-Terpstra test using SPSS Statistics. Retrieved June 2, 2016, from https://statistics.laerd.com/spss-tutorials/jonckheere-terpstra-test-using-spss-statistics.php

Lipman, V. (2013). The Foundational Importance Of Trust In Management. Retrieved December 27, 2015, from http://www.forbes.com/sites/victorlipman/2013/10/07/the-foundational-importance-of-trust-in-management/

Lynn, S. A., Cao, L. T., & Horn, B. C. (1996). The influence of career stage on the work attitudes of male and female accounting professionals. Journal of Organisational Behaviour, 17(2), 135-149.

Kramer, R., & Tyler, T. (1996). Trust in organisations: Frontiers of theory and research. Thousand Oaks, Calif.: Sage Publications.

Kwon, O., Lee, N., & Shin, B. (2014). Data quality management, data usage experience and acquisition intention of big data analytics. *International Journal of Information Management*, *34*(3), 387-394.

Lewicki, R., & Bunker, B. (1995). Trust in relationships: A model of development and decline. *Conflict, Cooperation and Justice*, 132-173.

Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995). An integrative model of organisational trust. Academy of management review, 20(3), 709-734.

Mike, B. (2015). Footprints in the Sand: Denise Rousseau. Organisational Dynamics, 44(3), 243-252.

Miller, J. (2000). Trust: The Moral Importance of an Emotional Attitude. Retrieved December 12, 2015, from http://www.practical-philosophy.org.uk

Mondore, S., Douthitt, S., & Carson, M. (2011). Maximizing the impact and effectiveness of HR analytics to drive business outcomes. *People and Strategy*, *34*(2), 20.

Muran, J. (1991). A reformulation of the ABC model in cognitive psychotherapies: Implications for assessment and treatment. *Clinical Psychology Review*, *11*, 399-418. Jossey-Bass Inc. Publishers.

Nunnally, J.C. (1978). Psychometric Theory. McGraw Hill, New York.

O'Neill, H. M., & Lenn, D. J. (1995). Voices of survivors: Words that downsizing CEOs should hear. *The Academy of Management Executive*, 9(4), 23-33.

Oreg, S. (2006). Personality, context, and resistance to organisational change. *European Journal of Work and Organisational Psychology*, *15*(1), 73-101.

Ostrom, T. (1969). The relationship between the affective, behavioural, and cognitive components of attitude. *Journal of Experimental Social Psychology*, 12-30.

Paris, M. (n.d.). Attitude: The Power of Positive in the Workplace. Retrieved February 05, 2016, from http://www.selfgrowth.com/articles/Attitude\_The\_Power\_of\_Positive\_in\_the\_Workplace.html

Perry, R. W., & Mankin, L. D. (2007). Organisational trust, trust in the chief executive and work satisfaction. Public Personnel Management, 36(2), 165-179.

Petty, R. E., & Cacioppo, J. T. (1986). The elaboration likelihood model of persuasion. In *Communication and persuasion* (pp. 1-24). Springer New York.

Piderit, S. K. (2000). Rethinking resistance and recognizing ambivalence: A multidimensional view of attitudes toward an organisational change. *Academy of Management Review*, 25, 783-794.

Popp, D., Donovan, R. A., Crawford, M., Marsh, K. L., & Peele, M. (2003). Gender, race, and speech style stereotypes. Sex Roles, 48(7-8), 317-325.

Ralston, E. S. (2006). Structure of organisational trust in military-type and civilian organisations: Validation of the Organisational Trust Questionnaire.

Rivera, R. (2013, February 5). HR Analytics And Competitive Advantage. Retrieved February 27, 2016, from http://www.forbes.com/sites/sap/2013/02/05/hr-analytics-and-competitive-advantage/#1dfc4d2c29b3

Robinson, S. L. (1996). Trust and breach of the psychological contract. Administrative science quarterly, 574-599.

Root, G. N. (n.d.). The Role of Trust in an Employee-Manager Relationship. Retrieved January 27, 2016, from http://smallbusiness.chron.com/role-trust-employeemanager-relationship-11614.html

Rosenberg, M. J., & Hovland, C. I. (1960). Cognitive, affective, and behavioural components of attitudes. *Attitude organisation and change: An analysis of consistency among attitude components*, *3*, 1-14.

Rousseau, D. M., & Tijoriwala, S. A. (1999). What's a good reason to change? Motivated reasoning and social accounts in promoting organisational change. *Journal of applied psychology*, 84(4), 514.

Saparito, P. (2000). Three Dimensions of Trust in Small-Bank Firm Relationships: Instrument Development and Preliminary Examination of the Production of Trust by Various Organisational Structures. Retrieved January 27, 2016, from https://fusionmx.babson.edu/entrep/fer/XVII/XVIIA/XVIIA.htm, Babson College

Schoorman, F. D., Mayer, R. C., & Davis, J. H. (2007). An integrative model of organisational trust: Past, present, and future. Academy of Management review, 32(2), 344-354.

Settoon, R. P., Bennett, N., & Liden, R. C. (1996). Social exchange in organisations: Perceived organisational support, leader-member exchange, and employee reciprocity. *Journal of applied psychology*, 81(3), 219.

Shapiro, D. L., Sheppard, B. H., & Cheraskin, L. (1992). Business on a handshake. Negotiation journal, 8(4), 365-377.

Spinell, G. (2012). Beyond intent: Crossing the threshold to your dreams. S.I.: Outskirts Press.

Sprague, R. (2015). Welcome to the Machine: Privacy and Workplace Implications of Predictive Analytics. *Robert Sprague*, *Welcome to the Machine: Privacy and Workplace Implications of Predictive Analytics*, 21.

Stotland, E., Katz, D., & Patcshen, M. (1959). The reduction of prejudice through the arousal of self-insight1. *Journal of Personality*, 27(4), 507-531.

Sturges, J., Guest, D., & Mac Davey, K. (2000). Who's in charge? Graduates' attitudes to and experiences of career management and their relationship with organisational commitment. European Journal of Work and Organisational Psychology, 9(3), 351-370.

Sethi, B., Dunphy, K., Robertson, B., Starmann, K & Uzcategui, K. (2014). Trends in workforce analytics: Capturing the latest results from US Human Capital Effectiveness Benchmarks, 2014. PwC.

Tan, H. H., & Tan, C. S. (2000). Toward the differentiation of trust in supervisor and trust in organisation. Genetic, Social, and General Psychology Monographs, 126(2), 241.

Thompson, M. M., Zanna, M. P., & Griffin, D. W. (1995). Let's not be indifferent about (attitudinal) ambivalence. *Attitude strength: Antecedents and consequences*, *4*, 361-386.

Ulrich, D. (1997). Measuring human resources: an overview of practice and a prescription for results. Human Resource Management, 36(3), 303-320.

Ulrich, D., & Dulebohn, J. H. (2015). Are we there yet? What's next for HR?. *Human Resource Management Review*, 25(2), 188-204.

van den Heuvel, S., Schalk, R., & van Assen, M. A. (2015). Does a Well-Informed Employee Have a More Positive Attitude Toward Change? The Mediating Role of Psychological Contract Fulfillment, Trust, and Perceived Need for Change. *The Journal of Applied Behavioural Science*, 0021886315569507.

Van Dick, R., Wagner, U., Stellmacher, J., & Christ, O. (2004) "The utility of a broader conceptualization of organisational identi cation: Which aspects really matter?", Journal of Occupational and Organisational Psychology, Vol 77, pp 171-191.

Van Dijck, J. (2014). Datafication, dataism and dataveillance: Big Data between scientific paradigm and ideology. *Surveillance & Society*, *12*(2), 197-208.

Van Knippenberg, D., & Van Schie, E. C. M. (2000) "Foci and correlates of organisational identification", Journal of Occupational and Organisational Psychology, Vol 73, pp 137–147.

Venkataraman, A. (2015). HR Analytics and BIG Data – The Rise of Employee Analytics. Retrieved January 1, 2016, from http://blog.hrtecheurope.com/hr-analytics-big-data-the-rise-of-employee-analytics/

Vineburgh, J. H. (2010). A study of organisational trust and related variables among faculty members at HBCUs.

Webb, W. M., & Worchel, P. (1986). Trust and distrust. Psychology of intergroup relations, 213-228.

Westport International (n.d.). What is Employee Engagement? *Scarlett Surveys International*, 1-10. Associate Engagement Research (AERTM)

White, M., & Bryson, A. (2013). Positive employee attitudes: How much human resource management do you need?. *Human relations*, *66*(3), 385-406.

Wilkinson, D. (2015, October 8). What Creates Trust in Management? New Research. Retrieved February 4, 2016, from https://www.linkedin.com/pulse/what-creates-trust-management-new-research-david-wilkinson?trkInfo= VSRPsearchId:2720373011454574364011,VSRPtargetId:6057932416226516992,VSRPcmpt:primary&trk=vsrp\_influencer\_content\_res\_name

# Appendices

# Appendix 1 | Survey

	Items for the HR Analytics attitude scale
Affective	I am afraid of HR Analytics*
	I have a bad feeling about HR Analytics*
	I am quite excited about HR Analytics
	HR Analytics makes me upset*
	HR Analytics makes me feel stressed*
Behavioural	I look for ways to prevent HR Analytics from taking place*
	I protest against HR Analytics*
	I complain about HR Analytics to my colleagues*
	I present my objections regarding HR Analytics*
	I speak rather highly of HR Analytics
Cognitive	I believe that HR Analytics would harm the way things are done in the organisation*
	I think that conducting HR Analytics is negative*
	I believe that HR Analytics will make my job harder*
	I believe that HR Analytics would benefit the organisation
	I believe that I could personally benefit from HR Analytics

Words marked with an asterisk (\*) were reverse-coded.

	Items for the management trust-scale
Calculus-based	I believe my manager complies with agreements to avoid conflict.
trust	I believe my manager complies with agreements to prevent a damaged business reputation.
	I believe my manager complies with agreements to foster a good business reputation.
	I believe my manager complies with agreements to satisfy his/her own interests.
Knowledge-	From past experiences, I know my manager is dependable.
based trust	From past experiences, I can fairly accurately predict how my manager may act.
	From past experiences, I know my manager has been open in describing his/her strengths and
	weaknesses in past negotiations.
	Given my manager's track records, I generally see little reason to significantly doubt his/her
	competence.
Identification-	I can freely share concerns and problems about my manager and know that he/she will be interested in
based trust	listening.
	I feel that my manager would act consistently with what I would recommend without prior discussion.
	I freely share concerns and problems about my manager and know that he/she will respond
	constructively.
	I share common business values with my manager.

 Item for the organisation-trust scale

 My level of confidence that this organisation will treat me fairly is ...

# Appendix 2 | Results

# Table 3

Results structural model without control variables

Latent variable	Path coefficient (bèta)	P-value
Calculus-based trust $\rightarrow$ Affective attitude	- 0.100	0.685
Calculus-based trust $\rightarrow$ Behavioural attitude	- 0.057	0.864
Calculus-based trust $\rightarrow$ Cognitive attitude	- 0.260	0.237
Knowledge-based trust $\rightarrow$ Affective attitude	- 0.022	0.946
Knowledge-based trust $\rightarrow$ Behavioural attitude	- 0.153	0.709
Knowledge-based trust $\rightarrow$ Cognitive attitude	- 0.071	0.791
Identification-based trust $\rightarrow$ Affective attitude	- 0.188	0.593
Identification-based trust $\rightarrow$ Behavioural attitude	- 0.027	0.945
Identification-based trust $\rightarrow$ Cognitive attitude	- 0.076	0.782
Trust in organisation $\rightarrow$ Affective attitude	- 0.249	0.124***
Trust in organisation $\rightarrow$ Behavioural attitude	- 0.374	0.073**
Trust in organisation $\rightarrow$ Cognitive attitude	- 0.362	0.012*

Notes:

\* = Significant at 0.05 \*\* = Significant at 0.10 \*\*\* = Significant at 0.15

# Table 4 Results structural model with control variables

Latent variable/control variable	Path coefficient (bèta)	P-value
Age $\rightarrow$ Affective attitude	0.264	0.237
Age $\rightarrow$ Behavioural attitude	0.125	0.635
Age $\rightarrow$ Cognitive attitude	- 0.012	0.958
Education $\rightarrow$ Affective attitude	- 0.102	0.531
Education $\rightarrow$ Behavioural attitude	- 0.042	0.798
Education $\rightarrow$ Cognitive attitude	0.106	0.488
Gender $\rightarrow$ Affective attitude	- 0.012	0.948
Gender $\rightarrow$ Behavioural attitude	0.115	0.605
Gender $\rightarrow$ Cognitive attitude	0.082	0.618
Working time $\rightarrow$ Affective attitude	- 0.334	0.093**
Working time $\rightarrow$ Behavioural attitude	- 0.133	0.613
Working time $\rightarrow$ Cognitive attitude	- 0.052	0.798
Calculus-based trust $\rightarrow$ Affective attitude	- 0.035	0.892
Calculus-based trust $\rightarrow$ Behavioural attitude	- 0.033	0.917
Calculus-based trust $\rightarrow$ Cognitive attitude	- 0.268	0.273
Knowledge-based trust $\rightarrow$ Affective attitude	- 0.053	0.871
Knowledge-based trust $\rightarrow$ Behavioural attitude	- 0.162	0.718
Knowledge-based trust $\rightarrow$ Cognitive attitude	- 0.047	0.869
Identification-based trust $\rightarrow$ Affective attitude	- 0.258	0.469
Identification-based trust $\rightarrow$ Behavioural attitude	- 0.092	0.820
Identification-based trust $\rightarrow$ Cognitive attitude	- 0.113	0.696
Trust in organisation $\rightarrow$ Affective attitude	0.239	0.136***
Trust in organisation $\rightarrow$ Behavioural attitude	0.319	0.114***
Trust in organisation $\rightarrow$ Cognitive attitude	0.380	0.008*

Notes: \* = Significant at 0.05 \*\* = Significant at 0.10 \*\*\* = Significant at 0.15