HR-related Knowledge Protection and Innovation Performance: The Moderating Effect of Trust

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Introduction

Innovation research has acknowledged managing human resources as a vital area affecting innovation performance (Foss et al., 2010; Sanders et al. 2010). Social exchange and learning supported by knowledge management and human resource management (HRM) have undeniable effects on innovation performance, as knowledge has to be shared in order to create new ideas and launch new inventions. However, at the same time it has been acknowledged that knowledge also needs to be protected to allow firms to capture value from their knowledge and innovations, and to accumulate their innovation bases so as to maintain prerequisites for future innovation (Ahuja, Lampert and Novelli, 2013; Olander et al., 2014). In fact, it can be said that HRM plays an important role in the attempts to balance knowledge sharing and protection. It is the employees of a firm who exchange knowledge within the organisation and in relation to external collaboration partners, and who can determine what happens to specific knowledge assets. Considerable knowledge is embedded in the personnel, and if staff handles such knowledge carelessly or leaves taking the knowledge with them, not only is the door opened to harmful competitive imitation

(McEvily and Chakravarthy, 2002), but the potential for disruption of the innovative activity in the firm increases also. However, the knowledge protection aspect of human resource management (preventing knowledge leakages, in particular) is vastly understudied, or then it is strongly associated to information security – which often is seen as an obstructing factor to innovative knowledge sharing behaviour (Agarwal et al., 2009; Bulgurcu et al., 2010).

Protecting knowledge and capturing value in general have often been studied by examining appropriability mechanisms (mechanisms that allow profiting from innovation based on the exclusivity over specific intellectual assets). These have been considered to include the formal, institutionally established means of intellectual property rights (IPRs such as patents, trademarks, and copyright); contracts, and labour legislation; as well as the informal means of lead time, tacitness, practical and technical means of concealment and secrecy, and human resource management-related practices (Hurmelinna-Laukkanen and Puumalainen, 2007). Although there is a considerable volume of research on certain isolating appropriability mechanisms, especially patents and contracts representing the formal side (Hertzfeld et al., 2006; Klein et al., 2005; Reuer and Ariño, 2005), the informal mechanisms have garnered less attention (see, e.g., Agarwal et al., 2009, on the issue of departing employees). Among them, HR- mechanisms — by which we mean *protection mechanisms* related to human resources, not traditional HRM practices (e.g., compensation, job design, career opportunities) *per se* — are too often overlooked as relevant tools in intellectual property protection.

The few previous studies touching on HR-related protection and relying on HRM for increasing appropriability (e.g., Baughn et al., 1997; Hannah, 2005; Hurmelinna-Laukkanen and Puumalainen, 2007; Liebeskind, 1996 and 1997; McEvily and Chakravarthy, 2002; Olander et al., 2014; Rousseau and Wade-Benzoni, 1994) show that varying HR-mechanisms can be used to protect an organisation's knowledge base and innovations, thereby improving the chances of future innovation performance. The mechanisms described vary from tying bonuses to staying within a

firm for a period of time to setting sanctions for improper handling of knowledge (e.g., Bulgurcu et al., 2010; Liebeskind, 1997). Control and commitment, and hybrid forms enforcing employee conduct and compliance and providing incentives to desirable behaviour (Arthur, 1994; Su and Wright, 2012) are present more or less explicitly. However, in most cases the separate tools, and patterns that connect these to innovation performance are often present only implicitly. In this study, innovation performance is seen widely as the application of new ideas to generate added value, regardless of whether the newness and added value are embodied in products, services, processes, or markets. Hence, we define innovation performance in terms of the degree to which existing products or services are replaced with new ones, in terms of creating wholly new products or services, and creating new markets for the products or services (see Alegre and Chiva, 2008; Weerawardena, 2003). Being able to protect innovations and their bases increases the possibilities and incentives to engage in these activities — providing that the protective approach does not impair knowledge sharing in those places where it should take place.

In fact, we argue, in line with Hannah (2005), for example, that the use of HR- mechanisms for knowledge protection is not a simple activity. First, as mentioned, there is a wide variety of different HR mechanisms that can direct the employee conduct with respect knowledge protection and sharing. Therefore, as our first task in this study, we categorize the mechanisms into three groups: restrictive mechanisms limiting access to knowledge within the firm; hard mechanisms directing behaviours and activities with legal basis as the starting point; and soft mechanisms that build on discreet guidance and commitment. We also acknowledge that as quite different types of challenges emerge in innovation activities — others involving the need to deal with imitation from outside the firm, and others relating to ensuring adequate knowledge exchange — the outcomes from using the mechanisms are not always unambiguous. Therefore, there likely are contingency factors that create a more favourable climate for the relationship between the use of certain types of HR-mechanism for protection, and the innovation performance of the company. Several studies

have suggested that, in more general, HRM works best in the presence of organisational trust (see, e.g., Tyler and Blader, 2005). In particular, trust facilitates organisational efficiency, communication and organisational collaboration (e.g. Blomqvist, 2002; Mayer et al., 1995; Tyler, 2003; Zeffane and Connell, 2003). Therefore, it could be expected that it also affects the extent to which HR-mechanisms can contribute to innovation performance. Examining this is the second area where this study can augment current knowledge, especially considering that only a few studies (see, e.g., Innocenti et al., 2010) have reacted to Dirks and Ferrin's (2001) call for moderation analyses with regard to HRM and trust. In line with this, our research question is: *what is the relationship between the efficiency of different types of HR-mechanisms targeting knowledge protection and the innovation performance of the firm, and what is the role of organisational trust in that relationship?*

The remainder of the paper is structured as follows. First, theoretical aspects of HRM for innovation protection and of this specific area of appropriability are discussed. The discussion is then extended to examine the connection between HRM and organisational trust. Hypothesis development precedes an empirical examination based on the analysis of data collected from 80 companies, before conclusions are finally drawn.

Human resource management in knowledge governance

Human resource management issues can be considered at different levels. This study addresses HRM practices, and, more specifically, HR-related protection mechanisms, as a firm-level system (see e.g. Bornay-Barrachina et al, 2012) as opposed to employees' perceptions of the implementation of certain practices. HR-mechanisms constitute an organisation-wide, more or less explicit and structured system that is utilised within the company. This system covers the ways in which the firm expects its employees to protect knowledge (e.g. through using passwords or other

access restrictions) and the ways in which employees' attitudes towards balancing knowledge protection and sharing are influenced through education or practices designed to increase commitment, for example. Both commitment increasing and controlling mechanisms are put in effect according to the firm policy (see, Arthur, 1994; Su and Wright, 2012).

Previous research has often dealt with HR-related protection simply, by listing possible activities (Liebeskind, 1996; 1997) or then within a bundle labelled 'informal protection' or 'the softer mechanisms for knowledge protection' in comparison to the more formal mechanisms that include contracts and IPRs (e.g. Olander et al., 2013. We suggest that HR-mechanisms for knowledge protection can be meaningfully divided into more precise categories based on their targets, formality, and restrictiveness.

In general, knowledge protection mechanisms can be considered to be designed, first, for addressing issues related to access to knowledge within the firm, second, for determining limits within which (accessed) confidential knowledge can be utilized and for limiting knowledge flows out of the firm, and, finally, for dealing with situations when knowledge is lost through one route or another and imitative activities need to be limited if possible. In other words, the mechanisms can be protective at the origins of the knowledge, or outside the firm boundaries, when the harm has occurred. In most cases, intellectual property rights and inter-firm agreements, for example, address the imitation risk outside the firm rather than knowledge leaking or leaving from the firm. On the other hand, HR-mechanisms can be considered to work quite well in this latter area.

We suggest that the finer-grained categorization of HR-related knowledge and innovation protection mechanisms can be based on both controlling and commitment enhancing, and restrictive and guiding practices. First, in the most extreme form, denying access to core knowledge not only from outsiders, but also within the firm boundaries can be called utilization of *restrictive mechanisms.* This refers to restricting the access of employees to certain knowledge by sharing confidential information with only a few people, using lists of those informed, applying passwords

and access limitations to particular folders and files, and restricting access to certain areas and meetings (Bulgurgu et al., 2010; Hannah and Robertson, 2014). When these mechanisms are deployed, (certain) employees do not gain possession of secret information and knowledge in the first place.

Another set of mechanisms builds on practices that direct the use of knowledge quite formally. In general, these mechanisms are meant to be quite universal and their use has become quite routine like in most firms: When access to knowledge is granted within a firm, issuing non-disclosure agreements (NDAs) and confidentiality clauses, and enforcing non-competition agreements (often only possible with employees with access to specific knowledge) may come into play. Likewise, it is possible to rely on and refer to provisions of labour legislation, such as the legal loyalty principle, or the legal right of the employer to assign tasks. These could be categorized under *hard mechanisms* of HR-related protection, as they mostly build on legislation and are controlling rather than commitment enhancing by nature (Arthur, 1994; Hurmelinna-Laukkanen and Puumalainen, 2007).

The last category of mechanisms examined here also covers those situations where employees access and handle confidential, firm-specific information. Compared to other mechanisms, however, for the group of *soft mechanisms*, the focus is turned to the boundaries of the firm, and the limitations on passing those boundaries are more settle than enforceable rules. For example, mechanisms based on educating employees about their responsibilities in terms of protecting knowledge, enhancing employee commitment (O'Neill and Adya, 2007) by immaterial and material rewards, and aiming to decrease turnover of employees (Baughn et al., 1997) are meant to limit knowledge from leaving the firm. In some cases, these practices have visibly protective connotation, rather than mere hope to generally avoid excessive employee turnover. For example, key employees may be treated differently from other employees carrying out activities with less critical information involved.

HR-related protection can play different roles in innovating companies (Olander and Hurmelinna-Laukkanen, 2010; Hannah, 2005). As there are inherent differences between the aforementioned HR-related protection mechanisms, some forms might, for example, enhance internal (and intended external) knowledge sharing by providing clear instructions on the confidentiality rules, thereby increasing predictability (Brattström et al., 2012), whereas others may inhibit it (e.g., by setting restrictions to accessing certain information; Bulgurcu et al. 2010; Hannah and Robertson, 2014). Therefore, it is relevant to examine the different kinds of HR-related protection mechanisms separately, also acknowledging the potential contingency factors.

The interplay of organizational trust and HRM

The ultimate effects of HR-mechanisms utilized at firm-level may depend on different contingency factors. For example, employees generally are more likely to accept knowledge protection rules when their own values are congruent with the employers' values (Tyler and Blader, 2005), and when the guidelines set by the employer are not contradicting their values or obstructing the work (Bulgurcu et al., 2010; Hannah and Robertson, 2014). Organisational trust that may reflect these aspects can, subsequently, be considered as a relevant contingency factor.

In general, organisational trust refers to the expectations that individuals hold for the relationships within the organisation and behaviour of members of the organisation. For instance, Gilbert and Tang (1998; see also, e.g. Wong et al., 2012) approach organisational trust in terms of confidence in and support for an employer. As organizational trust shows in the employees' faith in the organization and belief that the employer will act in a straightforward manner and will honour commitments, such practices in the firm that manifest this indicate organizational trust at firm level. It has been noted that organisational efficiency and productive social processes are possible only when interdependent actors work together effectively in a climate of positive trust (see, e.g.,

Zeffane and Connell, 2003; Zhang et al., 2008). In organisational settings trust is a crucial factor in various outcomes, such as cooperative behaviour and organisational collaboration (Shockley-Zalabak et al., 2000; Tanghe et al., 2010; Mayer et al., 1995; Tyler, 2003), and efficiency and effectiveness of communication (Shockley-Zalabak et al., 2000; Blomqvist, 2002). It has also been identified as a critical factor in leadership (Tyler, 2003), and performance (Barney and Hansen, 1994). In line with this, trust may contribute to the compliance towards rules (Hannah and Robertson, 2014), like level of knowledge sharing and innovation performance. In addition, trust is relevant for job satisfaction (Shockley-Zalabak et al., 2000), organisational commitment (Aryee et al., 2002; Dirks and Ferrin, 2001; Bijlsma and Koopman, 2003), and employee loyalty (Costigan et al., 1998). Therefore, it could contribute to the tendency of employees to stay in the firm and motivation to look after trade secrets of the employer.

As the above discussion hints that organisational trust could play a role in the relationship between with the protection-oriented HR-mechanisms and innovation performance, we find these issue worth a closer look. The role of trust with regard to HRM used for protective purposes and considering HR mechanisms is largely unknown and, in addition, recent research (Searle and Skinner, 2011; Searle et al., 2011; Eberl et al., 2012) has called for more work on combinations of variables in order to understand more about the effect of trust on outcomes (e.g., commitment and firm performance). This study can add to this line of discussion.

Hypotheses development

The types of HR-mechanisms and their effects on innovation performance

While different kinds of HR-mechanisms are available for firms to use in their knowledge protection strategies, it is noteworthy that they affect the innovation performance through distinct processes. First, the use of *soft HR mechanisms* (employment of mechanisms such as educating

employees on the limits of knowledge sharing and on IPRs (especially trade secrets), offering career paths and education, and rewards to keep them within the firm) tends to be connected to employees' commitment to the firm (O'Neill and Adya, 2007), and to reducing the risk of knowledge leaving (Baughn et al., 1997). In line with "insights from social exchange theory (Eisenberger et al., 1990) […] HRM promotes the discretionary behaviours that are conducive to innovation (Hayton, 2003)." (Shipton et al., 2014). These mechanisms also enable use of generative knowledge in innovation activities (Ahuja et al., 2013). These mechanisms can also contribute to innovativeness through reducing the likelihood of having to deal with the damage caused by the leaking of strategic knowledge that could for example, inhibit taking over a new market or segment by creating competitive barriers: committed and informed employees are less likely to leak confidential knowledge. Hannah (2005) also confirms that educating people on confidentiality issues (e.g. handling procedures for trade secrets) increased the employees' perceived obligation to protect the trade secrets. This, in turn, should have positive effects on innovation performance, both in terms of making sure that the necessary information is at the firm's disposal, and that incentives to innovate are present as the threat of immediate imitation can be avoided. In line with this, it is hypothesized that the stronger the soft mechanisms are in protecting knowledge, the higher the innovation performance is:

Hypothesis 1: The strength of soft HR mechanisms is positively related to the innovation performance of the firm.

Second, we argue that the protective strength of *hard HR mechanisms* including the NDAs, non-competition agreements, basic employment contracts, the legal employer's right of direction (i.e. the right to assign tasks and to decide where the work is to be conducted), and the legal loyalty principle (meaning that the employee must be loyal to employer and not harm or compete with the

employer during employment) should have a positive effect on innovation performance (especially in terms of reducing the risk of knowledge leaking). Brattström et al. (2012) suggest that — contrary to majority of earlier research — structures can support, rather than impair creative activities. The underlying logic is, that structures improve predictability, thereby easing uncertainty. Hard HR mechanism can function in a similar fashion. They legally bind the employees not to disclose company secrets that are generative and prerequisites of innovativeness (Hurmelinna-Laukkanen and Puumalainen, 2007), thereby giving grounds for sanctions. Non-competition agreements and NDAs may also bind the employee legally to the company even after the employment relationship has ended. They may prohibit the employee from working for a competitor or starting a competing company for a certain period, and from divulging company secrets. Such agreements potentially reduce both the leaving and leaking (Bulgurcu et al., 2010; Hurmelinna-Laukkanen and Puumalainen, 2007). The use of hard HR mechanisms increases the employees' awareness of their responsibilities and makes these responsibilities more explicit. Accordingly, the effect of hard HR mechanisms on HR-related risks and on innovation performance should be positive. Consequently, we argue that the direct effect of hard HR mechanisms should be positive, and propose the following hypothesis:

Hypothesis 2: The strength of hard HR mechanisms is positively related to the innovation performance of the firm.

Third, *restrictive HR* mechanisms such as sharing confidential knowledge with only a limited number of selected people and using lists of those informed about confidential information (to be able to monitor potential breaches), using passwords, and limiting access to particular folders and files (Hannah, 2005), and restricting access to certain areas should secure knowledge, and thus affect innovation performance. However, restricting access can be problematic when there is a need

to share knowledge to enable and support innovation (Bulgurcu et al., 2010; Hannah and Robertson, 2014). Therefore, these practices need to be carefully planned (e.g., targeted to only absolutely crucial areas) and justified, in which case they can increase employee awareness of the importance of knowledge protection and address the problem of unintentional knowledge leakages that could harm innovation endeavours. This strengthens the protection to such level where innovation outcomes can be secured. As little is known about the relationship between restrictive mechanisms and innovation performance, we start with the following hypothesis (even if we acknowledge the potential countering effects as well):

Hypothesis 3: The strength of restrictive HR mechanisms is positively related to the innovation performance of the firm.

The role of organisational trust

The knowledge-based view of the firm suggests that organisational trust provides a critical higher-order organising principle that enhances knowledge exchange, identification, voluntary action, and commitment through shared expectations, values, and language (Kogut and Zander, 1992 and 1996; Foss, 1996; Nonaka et al., 2000). Therefore, organizational trust might in principle limit the effectiveness of protective HR mechanisms (by increasing knowledge flows), or support them (by increasing commitment): We believe that organisational trust has the potential to create such a climate within the firm that affects the strength of the effect that the HRM-related protection mechanisms have on innovation performance. Due to the differences in HR mechanisms, the outcomes may vary.

We adopt Dirks and Ferrin's (2001) somewhat neglected model of trust as a moderator and apply it to the link between HRM-related protection mechanisms and innovation performance. The moderation model posits the theory that trust "provides the conditions under which certain

outcomes, such as cooperation and higher performance, are likely to occur" (Dirks and Ferrin, 2001: 450–451). It can be assumed in line with Dirks and Ferrin (2001) that under conditions of strong trust, the actions of the other party are interpreted positively, whereas if trust is weak the actions are more likely to be interpreted negatively. More precisely, if employees trust their employer in general, they could be expected to respond more favourably to the employer's HR-related actions, and that response should include reciprocating trust in the form of enhanced effort and performance. In contrast, if employees doubt their employer's motives, a moderation model would anticipate them being less likely to view their employer's HR-related actions as a positive exchange, prompting a negative effect on attitudes and behaviour at work (Dirks and Ferrin, 2001, see also Hannah, 2005). Consequently, the use of these mechanisms may have opposing effects when considering issues such as trust.

With regard to means of soft HR mechanisms, it can be argued that there is inherent alignment in place: practices increasing commitment and education do not run counter to trust building (Aryee et al., 2002; Bijlsma and Koopman, 2003; Dirks and Ferrin, 2001). Therefore, it could be argued that there is a mutually enforcing effect on firm performance, especially if HR-practices targeted at protection are handled with care. In line with this, the following hypothesis is presented:

Hypothesis 4: Organisational trust positively moderates the relationship between soft HR mechanisms and innovation performance.

Other types of HR-mechanisms are more complex with trust and restrictions (and other types of control) having quite opposing connotations. According to Hannah (2005), the more aware the employees are of the use of restrictive HR mechanisms, the less they will feel obliged to protect such knowledge, the main reasoning being that they do not feel trusted. This could then be

counteracted with high organizational trust: when the employees trust that the employer is putting the restrictions in place for a valid reason, they might be more willing to tolerate the limitations (see Hannah and Robertson, 2014). However, it is possible that the restrictions and trust erode each other, in which case the innovation performance is harmed as a result of poorer knowledge exchange and potentially inefficient restrictions and knowledge protection. Therefore, it could be expected that the interaction effect is negative regarding the relationship between restrictive HR mechanisms and innovation performance (if such exists):

Hypothesis 5: Organisational trust negatively moderates the relationship between restrictive HR mechanisms and innovation performance.

Hard HR mechanisms may function slightly differently: Prior literature has suggested that trust and contracts are sometimes substitutes to each other as forms of relationship control and governance: "Formal contracts may signal distrust of your exchange partner and by undermining trust, encourage, rather than discourage, opportunistic behavior (Ghoshal and Moran, 1996: 24, 27; Macaulay, 1963: 64; Fehr and Gachter, 2000)." (Poppo and Zenger, 2002: 707). This might actually apply to employment relationships and the formal, hard mechanisms utilized in them: Although it is likely that the policies and rules will be followed more willingly when organizational trust is high, referring to contracts and other such mechanisms can be considered personal – even more so than general policies that restrict access to knowledge. If hard mechanisms are brought forward in an organization where organizational trust is high, the mechanisms may no longer promote knowledge security, but give start to the phenomenon acknowledged by Hannah (2005), where employees lose the motivation to protect knowledge.

Hypothesis 6: Organisational trust negatively moderates the relationship between hard HR mechanisms and innovation performance.

Figure 1 below summarises the model tested in the study.

INSERT FIGURE 1 HERE

Methods

Sample and data collection

The six hypotheses were tested by utilising survey data collected in Finland in 2008–2009 from the companies engaged in R&D and with at least 100 employees. The data were collected with a structured questionnaire, using the key-informant technique (two informants, one from the R&D department, and one from HR from each firm). Responses covering the R&D part were received from 213 companies, representing a quite satisfactory effective response rate of 37.4% (213/570), and the HR-oriented survey instrument was returned by 205 respondents (27.4%; 205/747). For this study, we only utilised the data from companies where the responses had been received from both R&D and HR representatives (i.e., each firm included in the analysis had two respondents). Consequently, our final sample used for testing the hypotheses comprised 80 firms. The majority of the firms operate in manufacturing: 18.8% were manufacturer of other machinery, 15% manufactured chemical products, 10.0% metal products, 7.5% wood and paper products, and 5% electronics. Administration and support services, including education (7.5%), wholesale and retail (6.3%), and information and communication (6.3%) were other notable industries. The most of the firms (50.8%) employed 100-250 people, around one third (37.6%) 251-1000 people, and the rest

(11.6%) over 1000 people. Half (50.3%) of the firms were under 20 years old and 25% were under 10 years old. There were also quite many companies with long experience: about one fifth (19.1%) were established over 50 years ago.

Measures

Dependent variable

Our dependent variable was adapted from the work by Alegre and Chiva (2008). *Innovation performance* was measured with seven items from responses to the question, 'How would you compare your organisation's performance over the last three years to that of other organisations operating in the same sector?' The respondents rated items on a seven-point Likert scale anchored with *performed very poorly* and *performed very well*. Appendix 1 provides the wording of the items.

Independent variables

HR mechanisms were addressed by asking the respondents to assess the strength of the mechanism they used to protect the firm's innovations: 'During the last three years, how well have the following mechanisms protected your innovations (products, services, processes) from imitation by competitors?' A list of mechanisms followed, and the respondents rated them on a seven-point Likert scale anchored with *not applicable to our innovations* (1), moving to *poorly* (2) and ending with *very well* (7). The study conducted by Hurmelinna-Laukkanen and Puumalainen (2007) and the Carnegie-Mellon Survey on industrial R&D (see e.g., Cohen et al., 2002) were used in the item-development phase. The three items used to measure *soft HR mechanisms* covered training of personnel, and practices increasing commitment and reducing personnel turnover. The four items used to measure *hard HR mechanisms* included the protective strength of NDAs, non-competition agreements, and the application of the legal loyalty obligation of employees' and the employer's

right of direction. The three items for *restrictive HR mechanisms* covered the limitations on sharing of information, use of passwords, and restricting access to meetings and company premises. The test of discriminant validity described in more detail below was applied to evaluate the measurements (See Appendix 1 for the wording of the items.)

Moderating variable

Organisational trust was measured using nine items. Trust was viewed not only as an attitude but also as a behaviour to create a more active measure for organisational trust, and to allow approaching it at the firm level. The resulting composite measure incorporates the validated items by Huff and Kelley (2003), Blomqvist (2002), Seppänen (2008), and Vanhala et al. (2011) as well as original items. The final scale was pre-tested and evaluated by experts involved in research on trust. The scale measures the communicative and active aspects of trust and the general level of trust within the organisation. See Appendix 1 for the wording of the items.

Control variables

Three measures – firm age, turnover, and personnel – were used as control variables to eliminate the effects that they might have on innovation performance. Firm age was measured in terms of years since establishment, turnover was measured in thousands of euros, and personnel as the number of employees. These variables are commonly used in studies assessing innovation performance (see, e.g., Andersson et al., 2004; Tu and Hall, 2004).

Assessment of bias

The data relied on self-reported measures, and therefore common method variance might affect the findings, although there was a two-respondent setting in place to ease this issue. Common method bias is of particular concern when survey respondents are asked to rank items covering both

independent and dependent variables. We used Harman's one-factor test (Podsakoff et al., 2003), and conducted a principal component analysis that incorporated all the items from all of the constructs. We investigated the solution in order to determine the number of factors required to account for the variance on all the items. The largest factor accounted for 24 % of the variance, which suggests that common method bias is not a concern.

Results

A model illustrating the hypothesised relationships was drafted, and based on that, the hypotheses were tested. We used Partial Least Squares (PLS) for the analyses. According to Hair et al. (2014) PLS-based structural modelling can be utilized with smaller sample sizes and a sample size of 80 is enough for our research model. The first step was to assess the reliability and validity of the measurement models. We then used the structural model to test our hypotheses. In order to analyse moderation effects, the direct relations of the variables and also the relation of the interaction term were examined (see Baron and Kenny, 1986).

Correlation analysis

The correlation matrix, mean scores, and standard deviations for all the main variables are presented in Table 1. The results indicate our moderating variable (organisational trust) meets the criterion by Baron and Kenny (1986), that the moderating variable should not be correlated with either the independent variable(s) (HR mechanisms), or the dependent variable (innovation performance).

INSERT TABLE 1 HERE

Measurement models

In order to test the measurement models, we assessed both internal consistency and discriminant validity.

Measures of construct reliability (CR) and convergent validity represent *internal consistency*. According to the CR test, all the constructs showed a value above the threshold of 0.7 as adopted by Bagozzi and Yi (1991) (see Appendix 1). In order to test for convergent validity we examined CR, the factor loading and Average Variance Extracted (AVE). First, the loadings of all the items were high and statistically significant (see Appendix 1). This means that they all related to their specific constructs, verifying the posited relationships among the indicators and constructs. Second, the AVE measure exceeded the cut-off point of 0.50 (see e.g. Fornell and Larcker, 1981) apart from the innovation performance construct. However, considering all the criteria (i.e. high and statistically significant factor loading) for convergent validity, this measure is applicable too.

As stated above, we argue that HRM-related protection mechanisms can be divided into three mechanisms: soft, hard, and restrictive mechanisms. In order to test that argument, we performed a test of *discriminant validity* for those three constructs. This indicates the extent to which any one construct differs from the others, and in assessing it, the AVE should be greater than the variance shared between that construct and the other constructs in the model (i.e. the squared correlation between two constructs) (Fornell and Larcker, 1981). The test revealed soft, hard, and restrictive mechanisms of HRM protection to be three distinct constructs (see Table 2). The lowest AVE (for hard HRM) is 0.56 whereas the highest squared correlation is far lower (0.31).

INSERT TABLE 2 HERE

In addition, we tested the discriminant validity of the constructs for our studied research model. It also met the necessary criterion (see Table 2) because the diagonal elements (AVEs) are greater than off-diagonal elements in the corresponding rows and columns. In summary, the model

assessments offered good evidence of validity and reliability for the operationalization of the concepts.

Testing the research model

As Tables 3–5 show, our direct effect models could explain 33%, 31% and 25% of the variance in innovation performance. The results were obtained by first estimating the direct effect path models reflecting the posited relationship between the HR mechanisms and innovation performance in order to test our first three hypotheses. *The path estimates from soft HR mechanisms (H1), hard HR mechanisms (H2), and restrictive HR mechanisms (H3) to the innovation performance were as hypothesized.* The soft HRM (B=0.544, p<0.005), hard HRM (B=0.512, p<0.005), and restrictive HRM (B=0.450, p<0.005) all had a significant, positive impact on innovation performance.

INSERT TABLE 3 HERE

INSERT TABLE 4 HERE

INSERT TABLE 5 HERE

Next, we tested the possible moderation effect of organisational trust on the relationships between the three different types of HR mechanisms and innovation performance. As Tables 6–8 show, our interaction effect models explain 51%, 39%, and 29% of the variance in innovation performance. *As hypothesised, for soft HR mechanisms (H4) and hard HR mechanisms (H6), organisational trust is a moderator and in the directions we assumed (positive for soft HR mechanisms and negative for hard HR mechanisms).* The results give a path coefficient of 0.372 ($p < 0.005$) for an interaction effect in soft HRM and -0.234 ($p < 0.05$) in hard HRM. For soft HRM the size of the moderation effect (0.36) was strong and in hard HRM (0.13) moderate (Cohen and

Cohen, 1983; Chin et al., 2003). See also Figures 2 and 3 below for a graphical interpretation of interaction effects.

INSERT TABLE 6 HERE

INSERT TABLE 7 HERE

INSERT FIGURE 2 HERE

INSERT FIGURE 3 HERE

In addition, *we hypothesised that organisational trust negatively moderates the relationship between restrictive HR mechanism and innovation performance (H5). In this case the moderation effect was, contrary to our assumption, positive* (see Table 8). The path coefficient for the interaction effect is 0.146 ($p < 0.10$) and the extent of the moderation effect (0.06) was between weak and moderate (Cohen and Cohen, 1983; Chin et al., 2003). See also Figure 4 below for a graphical interpretation of interaction effect.

INSERT TABLE 8 HERE

INSERT FIGURE 4 HERE

Discussion and implications

Our findings suggest that HR mechanisms are positively connected to innovation performance, and that organisational trust is indeed a moderator between the protective strength of different types of HR mechanisms and the innovation performance of the firm.

The interaction of trust and the *soft HR mechanisms* appears to be a logical relationship: issues related to soft HR mechanisms for knowledge protection (educating personnel, increasing

commitment and minimising personnel turnover) can be strengthened in the presence of strong organisational trust, thereby providing a better starting point for innovation. This is in line with Dirks and Ferrin's (2001, pp. 455) argumentation on how trust operates in organisational settings: "by serving to facilitate (i.e. moderate) the effects of other determinants on work attitudes, perceptions, behaviours, and performance outcomes".

In the case of *hard HR mechanisms*, the moderation effect of trust was negative as expected. Strong reliance on and references to contracts and employer's rights can easily be interpreted as a sign of distrust on the part of the employer. If there is little trust within the organisation to begin with, the hard HR mechanisms and organisational trust do not collide as much as they do in the case of high trust, and therefore this combination does not cause as much trouble. On the other hand, in the case of a high level of trust, the negative effect seems to be greater: The slope for the interaction effect of a high level of trust is steeper than for a low level of trust (see Figure 3 above). The hard HR mechanisms and organizational trust forced together could harm the atmosphere in the firm and therefore lead to lower innovation performance.

Finally, contrary to our initial hypothesis formulation, the moderation effect of organisational trust was positive in the case of *restrictive HR mechanisms*. The positive relationship between the use of restrictive HR mechanisms and innovation performance seems to be enhanced in the context of high organizational trust. Compared to hard HR mechanisms, a couple of notions can be made. First, restrictive mechanisms are not likely to lose their protective strength even if employees would feel distrusted: in case of hard HR mechanisms, they could simply breach the contracts and cause problems by abusing the knowledge that they have accessed – especially if sanctions are not enough to prevent such activities in practice (Bulgurcu et al., 2010; Hannah and Robertson, 2014). Restrictions secure the knowledge base in any case as the knowledge is not available to be mistreated by disappointed employees. Second, it could be that there are fewer negative issues associated with restrictive HR than with hard HR. Restrictive types of mechanisms can be

connected to the office/position of the employees, whereas hard HR mechanisms can be issued to the individual persons. Also, restrictions are present continuously. Hard HR mechanisms (even if they would be applied companywide) are more likely to be brought up only when problems emerge and referring likely indicates that employees have done something wrong. It could be that in the presence of high levels of organisational trust, the use of restrictive HR mechanisms is accepted and understood, and considered to be less personal, a point also made by Dirks and Ferrin (2001). In such a setting, the combination of strong organisational trust and restrictive mechanisms increases the innovation performance. However, this issue warrants further research.

Contribution

Earlier literature acknowledges the role of HR for innovation, but it rarely approaches its relationship to innovation performance from protection perspective (for exceptions, see Baughn et al., 1997; Hannah, 2005; Hurmelinna-Laukkanen and Puumalainen, 2007; Olander et al., 2013; Olander et al. 2014), and hardly ever engages in a more detailed discussion on possible variation among HR mechanisms or the possible contingency factors (see e.g. Foss et al., 2010; Sanders et al. 2010). This study aims to extend understanding of how HR can be approached from knowledge protection perspective at firm level, how it relates from that point of view to innovation performance, and how organizational trust as a contingency factor affects that relationship.

Human resource management, trust, and protection have all been connected to innovation activities and performance — and to each other — but they have been rarely brought under the same framework. For example, the role of HRM for innovation has been addressed (e.g., Foss et al. 2010; Zhou et al., 2013), but then protective aspects have not been explicitly considered. Likewise, trust has been coupled with formal protection or governance, but mostly in relation to alliances (see, e.g., Das and Teng, 1998; Arranz and de Arroyabe, 2012; Jiang et al., 2013), and there is little research on intra-organisational trust and the effects of knowledge protection (see Bijlsma-

Frankema and Costa, 2005; Weibel, 2007). This is among the first studies to explore the role of the organisational trust in the context of knowledge protection, and specifically HR-related knowledge protection with a quantitative research design (see, e.g., Olander et al., 2013). In addition, as our study takes a more fine-grained approach categorizing the three types of HR mechanisms, we are able to draw conclusions from the effects of each type of mechanisms under different trust-circumstances and are thus able to point out also some negative issues potentially associated with certain types of HR –related knowledge protection. We believe that our findings can extend the knowledge of academics in the fields of HRM, innovation management, and trust, and also inform the management of organisations.

Practical implications

Our findings suggest that while various HR mechanisms can protect knowledge and innovations, they can have different effects on innovation performance depending on the situation. Therefore, we propose that firms should increase its readiness to employ different mechanisms. For example, if a firm were to introduce only hard HR mechanisms, such as non-disclosure contracts and labour legislation, into an environment marked by strong organisational trust, the move could harm the innovation performance of the firm because of adverse effects becoming more visible. Similarly, the current research identifies restrictive HR mechanisms as benefitting from an atmosphere of high organisational trust, but if those mechanisms start to limit knowledge exchange too much, the benefits might be lost (Bulgurcu et al., 2010). In case of these mechanisms that inherently emphasize control over commitment justification and reasoning is of high importance to allow preservation of commitment (Hannah and Robertson, 2014). Finally, if the firm were to choose only soft mechanisms, it might unintentionally enable opportunism in case organizational trust declines notably for some reason. Different dynamics should be considered, and therefore, having a wide

range of practices available to deploy improves the readiness of the firm to adopt a range of stances in emerging situations.

Limitations and suggestions for future research

There are limitations to this study that should be acknowledged. First, our dataset was quite small, covering only 80 firms. Future studies with larger datasets might find more rigorous empirical support for our hypotheses, especially those concerning the moderation effect and its size. Second, our data was gathered in a single western country and that may have affected the results: for example, it is quite typical to find a high level of trust within organisations in Finland, and the provisions of labour legislation and contract law are relatively broad and well established. The results might be different in countries with different cultural backgrounds and legal systems (see, e.g., Su and Wright, 2012). In terms of generalizability, further studies would be required to address this issue in more detail.

Another important limitation is that we only introduced the HR mechanisms and examined their effects on innovation performance without being able to capture the processes through which this happens. We speculated on some aspects, like the HR mechanisms potentially providing employees with guidance on which knowledge to share and which not (which eases knowledge sharing and makes sure that knowledge is not withheld just in case, to be safe from sanctions and punishments), and HR mechanisms providing the incentives to continue innovating (e.g., when the expectations on being able to reap higher profit margins from unique knowledge assets and innovation are warranted), but more research is needed to tease out the details and their actual effects.

Finally, our measure for organizational trust was placed on firm-level and it only comprised evaluations of a single respondent. A much stronger measure would cover perceptions of individual employees. While we have managed to produce information on general patterns, quantitative and

qualitative studies in more specific research settings might provide much needed confirmation on these aspects. We hope that the insights presented here – together with the limitations, can serve as a starting point.

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TABLES AND APPENDIX

Table 1 Correlation matrix

	Mean	*SD*	*1*	*2*	*3*	*4*
1. Soft HR mechanisms	4.37	1.32				
2. Hard HR mechanisms	3.86	1.27	0.538**			
3. Restrictive HR mechanisms	3.96	1.44	0.346**	0.559**		
4. Innovation performance	4.49	0.93	0.533**	0.510**	0.412**	
5. Organizational trust	5.66	0.70	-0.001	0.124	0.135	0.144

Notes: ** Correlation is significant at the 0.01 level (two-tailed); * Correlation is significant at the 0.05 level

Table 2 Discriminant validity for the research model

	1	2	3	4	5
1. Soft HR mechanisms	**0.62**				
2. Hard HR mechanisms	0.29	**0.56**			
3. Restrictive HR mechanisms	0.12	0.31	**0.68**		
4. Innovation performance	0.28	0.26	0.17	**0.46**	
5. Organizational trust	0.00	0.02	0.02	0.02	**0.50**

Notes: AVE associated with the construct is presented diagonally.
The squared correlations between constructs are presented in the lower left triangle.

Table 3 Results of testing the direct effect model for soft HR mechanisms

Path	Path coefficient	t-value
Control variables		
Age → Innovation performance	0.019 n.s.	0.302
Personnel → Innovation performance	-0.075 n.s.	0.742
Turnover → Innovation performance	0.144 [a]	1.383
Dependent variable		
Soft HR → Innovation performance	0.544***	7.004
R^2		.326

Notes: *** Significance < 0.005 (one-tailed); ** Significance < 0.01; * Significance < 0.05; [a] Significance < 0.10

Table 4 Results of testing the direct effect model for hard HR mechanisms

Path	Path coefficient	t-value
Control variables		
Age → Innovation performance	-0.038 n.s.	0.513
Personnel → Innovation performance	-0.099 n.s.	0.848
Turnover → Innovation performance	0.192 [a]	1.411
Dependent variable		
Hard HR → Innovation performance	0.512***	6.824
R^2		.307

Notes: *** Significance < 0.005 (one-tailed); ** Significance < 0.01; * Significance < 0.05; [a] Significance < 0.10

Table 5 Results of testing the direct effect model for restrictive HR mechanisms

Path	Path coefficient	t-value
Control variables		
Age → Innovation performance	0.021 n.s.	0.297
Personnel → Innovation performance	-0.278*	1.825
Turnover → Innovation performance	0.359*	2.323
Dependent variable		
Restrictive HR → Innovation performance	0.450***	5.096
R^2		.250

Notes: *** Significance < 0.005 (one-tailed); ** Significance < 0.01; * Significance < 0.05; [a] Significance < 0.10

Table 6 Results of testing the interaction model for soft HR mechanisms

Path	Path coefficient	t-value
Control variables		
Age → Innovation performance	-0.060 n.s.	1.028
Personnel → Innovation performance	0.004 n.s.	0.044
Turnover → Innovation performance	0.133 [a]	1.593
Dependent variable		
Soft HR → Innovation performance	0.542***	6.770
Organizational trust → Innovation performance	0.209*	2.308
Interaction effect		
Soft HR X Organizational trust → Innovation performance	0.372***	3.795
R^2		.506

Notes: *** Significance < 0.005 (one-tailed); ** Significance < 0.01; * Significance < 0.05; [a] Significance < 0.10

Table 7 Results of testing the interaction model for hard HR mechanisms

Path	Path coefficient	t-value
Control variables		
Age → Innovation performance	-0.076 n.s.	0.985
Personnel → Innovation performance	-0.007 n.s.	0.078
Turnover → Innovation performance	0.123 n.s.	1.212
Dependent variable		
Hard HR → Innovation performance	0.484***	5.224
Organizational trust → Innovation performance	0.157[a]	1.547
Interaction effect		
Hard HR X Organizational trust → Innovation performance	-0.234*	2.052
R^2		.387

Notes: *** Significance < 0.005 (one-tailed); ** Significance < 0.01; * Significance < 0.05; [a] Significance < 0.10

Table 8 Results of testing the interaction model for restrictive HR mechanisms

Path	Path coefficient	t-value
Control variables		
Age → Innovation performance	0.007 n.s.	0.115
Personnel → Innovation performance	-0.212 [a]	1.603
Turnover → Innovation performance	0.290*	2.135
Dependent variable		
Restrictive HR → Innovation performance	0.407***	3.765
Organizational trust → Innovation performance	0.127 n.s.	1.146
Interaction effect		
Restrictive HR X Organizational trust → Innovation performance	0.146 [a]	1.332
R^2		.291

Notes: *** Significance < 0.005 (one-tailed); ** Significance < 0.01; * Significance < 0.05; [a] Significance < 0.10

Appendix 1. Measurement items

CONSTRUCT	ITEM	MEAN	SD	FACTOR LOADING	AVE	CR
HARD HR MECHANISMS; Directing the use of knowledge within the firm	Non-disclosure/confidentiality agreements	**4.71**	**1.70**	**.713*** **	**.56**	**.83**
	Employees' non-competition agreements	**3.20**	**1.79**	**.715*** **		
	The legal loyalty obligation of employees	**3.70**	**1.66**	**.820*** **		
	The legal right of the employer to assign tasks	**3.81**	**1.66**	**.749*** **		
SOFT HR MECHANISMS; Limiting knowledge from leaving the firm	Educating personnel on IPR and secrecy issues	**3.92**	**1.75**	**.830*** **	**.62**	**.83**
	Making personnel committed to the firm (e.g. by offering perks)	**4.36**	**1.66**	**.854*** **		
	Small personnel turnover/minimizing it	**4.88**	**1.57**	**.657*** **		
RESTRICTIVE HRM MECHANISMS; Restricting access to knowledge within the firm	Sharing information with just a few	**3.80**	**1.63**	**.656*** **	**.68**	**.81**
	Using passwords	**4.21**	**1.94**	**.899*** **		
	Restricting access to meetings and the firm's premises	**3.86**	**1.64**	**.890*** **		
INNOVATION PERFORMANCE	Replacement of products being phased out	**4.82**	**1.14**	**.593*** **	**.46**	**.86**
	Replacement of services being phased out	**4.67**	**1.24**	**.715*** **		
	Extension of product/service range within main market	**5.27**	**1.17**	**.730*** **		
	Extension of product/services range outside main market	**3.88**	**1.43**	**.767*** **		
	Development of environment-friendly products/services	**4.63**	**1.34**	**.534*** **		
	Opening of new markets abroad	**3.96**	**1.85**	**.578*** **		
	Opening of new domestic target groups	**4.22**	**1.49**	**.798*** **		
ORGANIZATIONAL TRUST	If someone in our company promises something, others trust that the promise will be kept	**5.72**	**.95**	**.835*** **	**.50**	**.90**
	Our company knows its strengths and where it is aiming at	**5.61**	**.85**	**.773*** **		
	Top management has made it clear that our organization does not tolerate unethical behavior	**6.09**	**.89**	**.665*** **		
	Our company strongly emphasizes informing the staff of things important to them	**5.37**	**1.08**	**.641*** **		
	In our company we try to kill inaccurate rumors at once	**5.51**	**1.05**	**.573*** **		
	In our company problems are not hidden but handled openly	**5.26**	**1.12**	**.713*** **		
	Our company emphasizes fair and just practices	**5.92**	**.95**	**.769*** **		
	We do a lot of work to make our staff trust our company	**5.76**	**.86**	**.793*** **		
	Our employees have trust in our company	**5.67**	**.81**	**.506*** **		

Notes: *** Significance < 0.005; ** Significance < 0.01; * Significance < 0.05; [a] Significance < 0.10.

Figure 1 The model tested in the study.

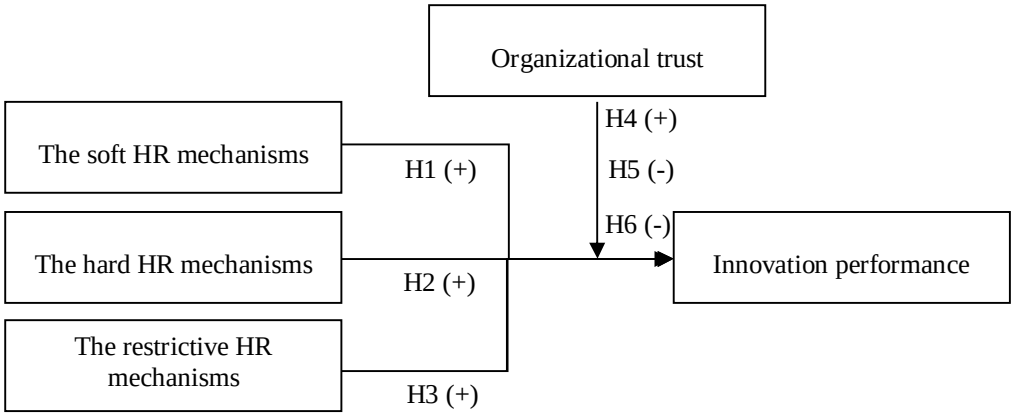


Figure 2 A graphical interpretation of interaction effect in the soft HR model.

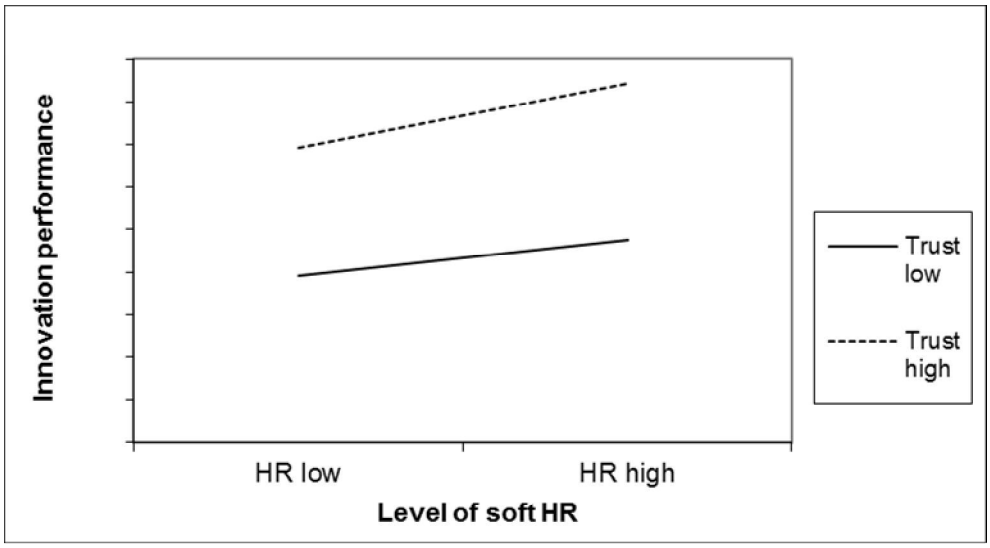


Figure 3 A graphical interpretation of interaction effect in the hard HR model.

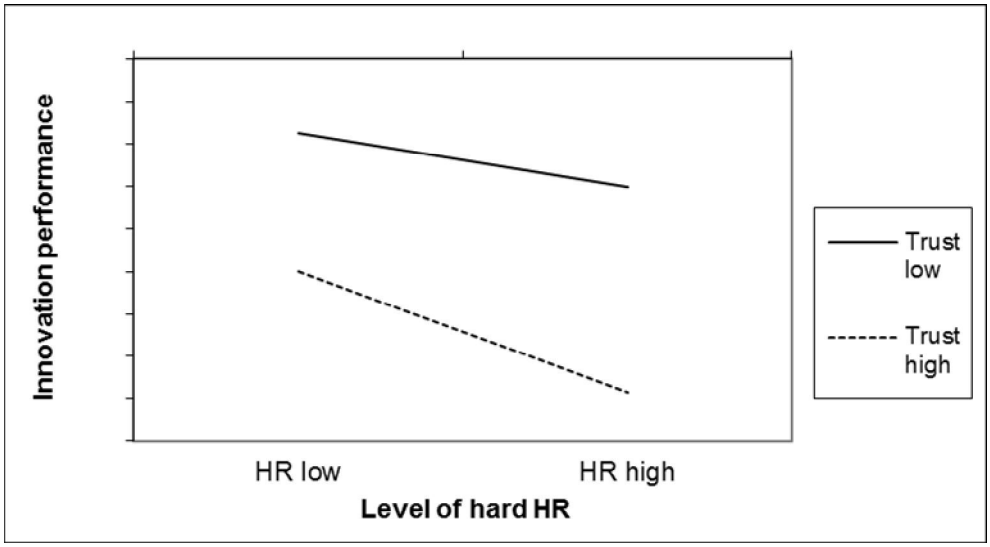
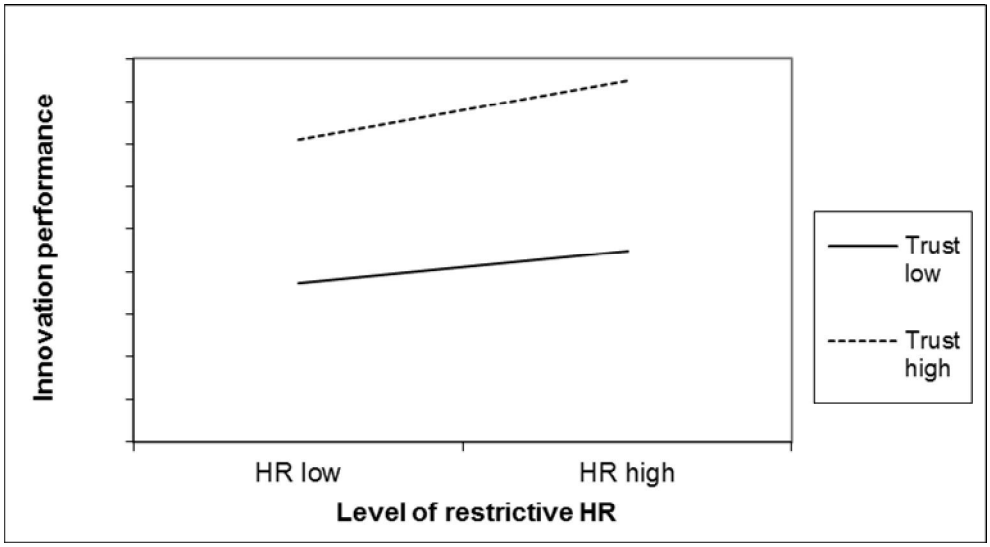


Figure 4 A graphical interpretation of interaction effect in the restrictive HR model.



TABLES AND APPENDIX

Table 1 Correlation matrix

	Mean	*SD*	*1*	*2*	*3*	*4*
1. Soft HR mechanisms	4.37	1.32				
2. Hard HR mechanisms	3.86	1.27	0.538**			
3. Restrictive HR mechanisms	3.96	1.44	0.346**	0.559**		
4. Innovation performance	4.49	0.93	0.533**	0.510**	0.412**	
5. Organizational trust	5.66	0.70	-0.001	0.124	0.135	0.144

Notes: ** Correlation is significant at the 0.01 level (two-tailed); * Correlation is significant at the 0.05 level

Table 2 Discriminant validity for the research model

	1	2	3	4	5
1. Soft HR mechanisms	**0.62**				
2. Hard HR mechanisms	0.29	**0.56**			
3. Restrictive HR mechanisms	0.12	0.31	**0.68**		
4. Innovation performance	0.28	0.26	0.17	**0.46**	
5. Organizational trust	0.00	0.02	0.02	0.02	**0.50**

Notes: AVE associated with the construct is presented diagonally.
The squared correlations between constructs are presented in the lower left triangle.

Table 3 Results of testing the direct effect model for soft HR mechanisms

Path	Path coefficient	t-value
Control variables		
Age → Innovation performance	0.019 n.s.	0.302
Personnel → Innovation performance	-0.075 n.s.	0.742
Turnover → Innovation performance	0.144 [a]	1.383
Dependent variable		
Soft HR → Innovation performance	0.544***	7.004
R^2		.326

Notes: *** Significance < 0.005 (one-tailed); ** Significance < 0.01; * Significance < 0.05; [a] Significance < 0.10

Table 4 Results of testing the direct effect model for hard HR mechanisms

Path	Path coefficient	t-value
Control variables		
Age → Innovation performance	-0.038 n.s.	0.513
Personnel → Innovation performance	-0.099 n.s.	0.848
Turnover → Innovation performance	0.192 [a]	1.411
Dependent variable		
Hard HR → Innovation performance	0.512***	6.824
R^2		.307

Notes: *** Significance < 0.005 (one-tailed); ** Significance < 0.01; * Significance < 0.05; [a] Significance < 0.10

Table 5 Results of testing the direct effect model for restrictive HR mechanisms

Path	Path coefficient	t-value
Control variables		
Age → Innovation performance	0.021 n.s.	0.297
Personnel → Innovation performance	-0.278*	1.825
Turnover → Innovation performance	0.359*	2.323
Dependent variable		
Restrictive HR → Innovation performance	0.450***	5.096
R^2		.250

Notes: *** Significance < 0.005 (one-tailed); ** Significance < 0.01; * Significance < 0.05; [a] Significance < 0.10

Table 6 Results of testing the interaction model for soft HR mechanisms

Path	Path coefficient	t-value
Control variables		
Age → Innovation performance	-0.060 n.s.	1.028
Personnel → Innovation performance	0.004 n.s.	0.044
Turnover → Innovation performance	0.133 [a]	1.593
Dependent variable		
Soft HR → Innovation performance	0.542***	6.770
Organizational trust → Innovation performance	0.209*	2.308
Interaction effect		
Soft HR X Organizational trust → Innovation performance	0.372***	3.795
R^2		.506

Notes: *** Significance < 0.005 (one-tailed); ** Significance < 0.01; * Significance < 0.05; [a] Significance < 0.10

Table 7 Results of testing the interaction model for hard HR mechanisms

Path	Path coefficient	t-value
Control variables		
Age → Innovation performance	-0.076 n.s.	0.985
Personnel → Innovation performance	-0.007 n.s.	0.078
Turnover → Innovation performance	0.123 n.s.	1.212
Dependent variable		
Hard HR → Innovation performance	0.484***	5.224
Organizational trust → Innovation performance	0.157[a]	1.547
Interaction effect		
Hard HR X Organizational trust → Innovation performance	-0.234*	2.052
R^2		.387

Notes: *** Significance < 0.005 (one-tailed); ** Significance < 0.01; * Significance < 0.05; [a] Significance < 0.10

Table 8 Results of testing the interaction model for restrictive HR mechanisms

Path	Path coefficient	t-value
Control variables		
Age → Innovation performance	0.007 n.s.	0.115
Personnel → Innovation performance	-0.212 [a]	1.603
Turnover → Innovation performance	0.290*	2.135
Dependent variable		
Restrictive HR → Innovation performance	0.407***	3.765
Organizational trust → Innovation performance	0.127 n.s.	1.146
Interaction effect		
Restrictive HR X Organizational trust → Innovation performance	0.146 [a]	1.332
R^2		.291

Notes: *** Significance < 0.005 (one-tailed); ** Significance < 0.01; * Significance < 0.05; [a] Significance < 0.10

Appendix 1. Measurement items

CONSTRUCT	ITEM	MEAN	SD	FACTOR LOADING	AVE	CR
HARD HR MECHANISMS; Directing the use of knowledge within the firm	Non-disclosure/confidentiality agreements	**4.71**	**1.70**	**.713*** **	**.56**	**.83**
	Employees' non-competition agreements	**3.20**	**1.79**	**.715*** **		
	The legal loyalty obligation of employees	**3.70**	**1.66**	**.820*** **		
	The legal right of the employer to assign tasks	**3.81**	**1.66**	**.749*** **		
SOFT HR MECHANISMS; Limiting knowledge from leaving the firm	Educating personnel on IPR and secrecy issues	**3.92**	**1.75**	**.830*** **	**.62**	**.83**
	Making personnel committed to the firm (e.g. by offering perks)	**4.36**	**1.66**	**.854*** **		
	Small personnel turnover/minimizing it	**4.88**	**1.57**	**.657*** **		
RESTRICTIVE HRM MECHANISMS; Restricting access to knowledge within the firm	Sharing information with just a few	**3.80**	**1.63**	**.656*** **	**.68**	**.81**
	Using passwords	**4.21**	**1.94**	**.899*** **		
	Restricting access to meetings and the firm's premises	**3.86**	**1.64**	**.890*** **		
INNOVATION PERFORMANCE	Replacement of products being phased out	**4.82**	**1.14**	**.593*** **	**.46**	**.86**
	Replacement of services being phased out	**4.67**	**1.24**	**.715*** **		
	Extension of product/service range within main market	**5.27**	**1.17**	**.730*** **		
	Extension of product/services range outside main market	**3.88**	**1.43**	**.767*** **		
	Development of environment-friendly products/services	**4.63**	**1.34**	**.534*** **		
	Opening of new markets abroad	**3.96**	**1.85**	**.578*** **		
	Opening of new domestic target groups	**4.22**	**1.49**	**.798*** **		
ORGANIZATIONAL TRUST	If someone in our company promises something, others trust that the promise will be kept	**5.72**	**.95**	**.835*** **	**.50**	**.90**
	Our company knows its strengths and where it is aiming at	**5.61**	**.85**	**.773*** **		
	Top management has made it clear that our organization does not tolerate unethical behavior	**6.09**	**.89**	**.665*** **		
	Our company strongly emphasizes informing the staff of things important to them	**5.37**	**1.08**	**.641*** **		
	In our company we try to kill inaccurate rumors at once	**5.51**	**1.05**	**.573*** **		
	In our company problems are not hidden but handled openly	**5.26**	**1.12**	**.713*** **		
	Our company emphasizes fair and just practices	**5.92**	**.95**	**.769*** **		
	We do a lot of work to make our staff trust our company	**5.76**	**.86**	**.793*** **		
	Our employees have trust in our company	**5.67**	**.81**	**.506*** **		

Notes: *** Significance < 0.005; ** Significance < 0.01; * Significance < 0.05; [a] Significance < 0.10.

Figure 1 The model tested in the study.

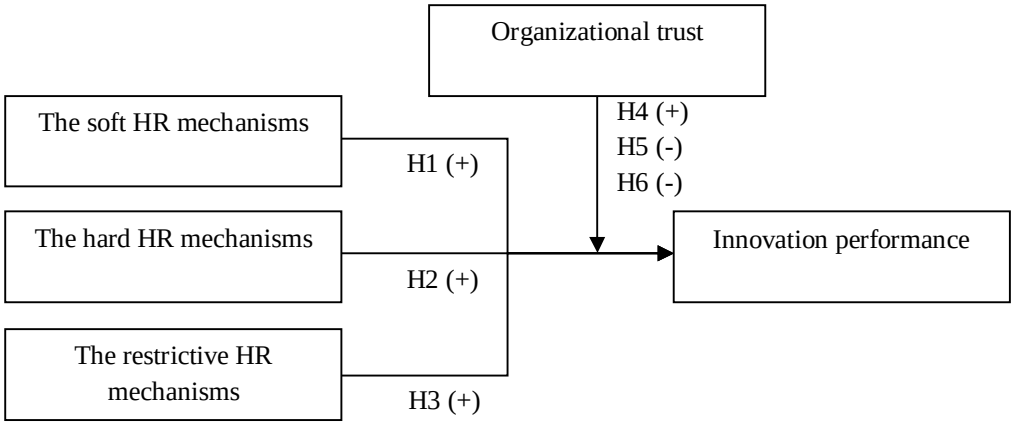


Figure 2 A graphical interpretation of interaction effect in the soft HR model.

Figure 3 A graphical interpretation of interaction effect in the hard HR model.

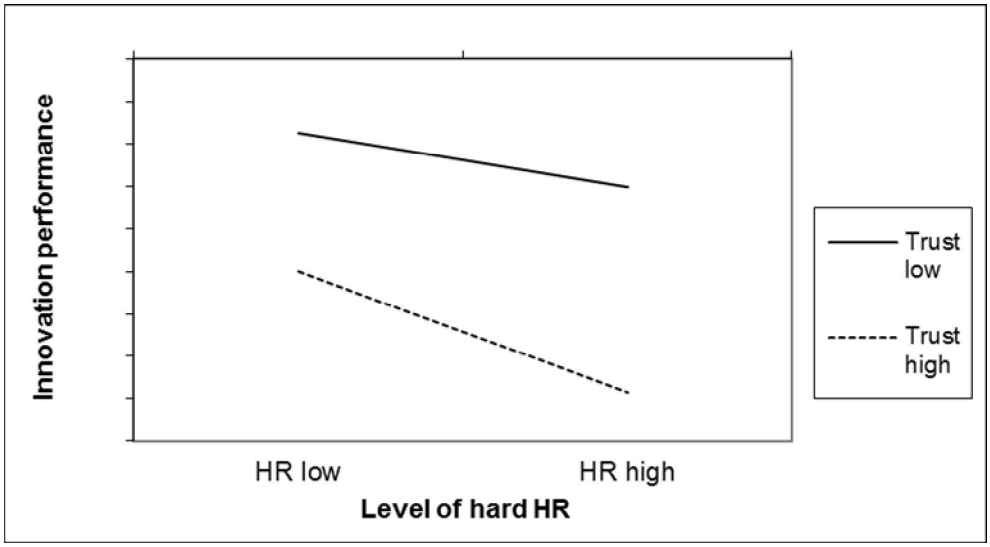


Figure 4 A graphical interpretation of interaction effect in the restrictive HR model.