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Entrepreneurial orientation and human resource management: effects from HRM practices

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Abstract

Purpose – The purpose of this paper is to explore the relationship between HRM practices and entrepreneurial orientation (EO) in large established firms. More specifically, the purpose is to add to the understanding of the influence of HRM practices on EO.

Design/methodology/approach – An e-mail survey was distributed to a sample of Swedish and German manufacturing firms in high-tech and medium high-tech manufacturing industries, and firms in knowledge-intensive services sectors, with more than 250 employees. In total, 810 surveys were distributed, with a response rate of 12.7 per cent.

Findings – The results show that an emphasis on entrepreneurial aspects leads to an increased EO only in the case of training and development. A conclusion therefore is that it seems difficult to recruit personnel or to use appraisal and rewards as to create EO on a firm level.

Practical implications – The study indicates that firms aiming to increase their EO should make sure to emphasize entrepreneurial aspects during staff training and development activities.

Originality/value – This empirical study paves the way towards a better understanding of the link between HRM practices and EO. The results should be of interest for both HR professionals and researchers interested in understanding this important relationship.

Keywords Entrepreneurial orientation, HRM practices

Paper type Research paper

Introduction

Corporate entrepreneurship has been identified as an important explanation to competitive advantage, and a growing body of literature elaborates on how firms should nurture its corporate entrepreneurship (which basically describes entrepreneurship within established organizations, throughout their operations) (Montoro-Sánchez and Soriano, 2011). Although corporate entrepreneurship in some cases might be the result of one brilliant idea within a company, in most cases it is the product of effective management of human resources within the firm (Keating and Olivares, 2007). As noted by Gupta and Singhal (1993, p. 41) “[...] people, not products, are an innovative company’s major asset”. From this follows that human resource management (HRM) is understood to be critical to corporate entrepreneurship (Hayton, 2005).

Dedicated to the memory of Jonas Rundquist, whose friendship, skill and dedication were essential to this work.

This research was conducted when Sebastian Fischer was a master student at the University of Applied Sciences Ludwigshafen.



Firms that want to engage in successful corporate entrepreneurship need to have an entrepreneurial orientation (EO) (Dess and Lumpkin, 2005, p. 147). On an overall level, EO refers to the strategy-making practices that firms use to identify and launch corporate ventures. More specifically, it represents a frame of mind and a perspective about entrepreneurship that are reflected in a firm's ongoing processes and corporate culture (Dess and Lumpkin, 2005). From previous research it can be concluded that EO, as it for instance involves organizational learning shaped by creativity, individual commitment and teamwork, can be influenced by HRM practices (Dizgah *et al.*, 2011; Hayton, 2005). Already in 1986, Schuler noted that certain practices are important to foster successful EO and subsequent research has showed that practices fostering, for example creativity or teamwork skills, improve the intensity of the EO dimensions (Kaya, 2006; Schmelter *et al.*, 2010). However, there are only a few studies that specifically have examined the influence of specific sets of practices on EO (Hayton, 2005).

One exception is the research made by Schmelter *et al.* (2010) that found that staff selection, staff development and training as well as staff rewards are crucial for SMEs to improve their EO. However, so far our understanding of the link between HRM practices and EO is in need of further empirical investigations, and our understanding of the importance of HRM within entrepreneurial companies is only beginning to develop (Dabic *et al.*, 2011). The present lack of empirical research is problematic since it undermines our understanding of how firm should work strategically with HRM practices to develop an EO. To this background, this paper aims to explore the relationship between HRM practices and EO in large established firms. More specifically, our purpose is to add to our understanding of the influence of HRM practices on EO. Two research questions are posed:

RQ1. What is the link between HRM practices and EO in large firms?

RQ2. What are the HRM practices that have a positive impact on EO in large firms?

In our study we deploy Covin and Slevin's (1989) scale of EO, measuring firm-level innovativeness, proactiveness and risk taking. HRM practices variables in our study are staffing, appraising, rewards and training and development. Our motivations for these choices are further elaborated in the section on previous research below.

Previous research and hypothesis

Defining HRM

A reasonable starting point for this section is to define HRM. Previous research has provided several such definitions. An early definition is provided by Beer *et al.* (1984) that defined HRM as the involvement of "all management decisions and actions that affect the relationship between the organisation and employees" (Beer *et al.*, 1984, p. 1). In 1998, Cascio suggested a more detailed definition which included a specification of relevant management actions: "human resource management is the attraction, selection, retention, development and use of human resources in order to achieve both individual and organisational objectives" (Cascio, 1998, p. 2).

Although it is difficult to identify a generally accepted definition from previous research, on an overall level it can be argued that HRM is a distinctive approach of an organization's work systems and employment practices constituted by a set of activities (Bratton and Gold, 2003) that together aim to manage human resources as to achieve organizational objectives.

From a strategic perspective, HRM has been further defined as "[...] all activities affecting behaviour of individuals in their efforts to formulate and implement the

strategic needs of the business” (Schuler, 1992). According to Armstrong (2011) strategic HRM is a people management approach to achieve the organization’s objectives through the employment of its human resources by means of aligned human resource strategies, policies and practices. Hence, on a really general level, strategic HRM is about “[...] systematically linking people with the firm” (Schuler and Jackson, 2007).

In this paper we specifically investigate the link between HRM practices and the corporate objective of entrepreneurial behaviour that ultimately aims to lead to innovation. Although previous research has been criticized for a lack of empirical support, recent empirical results suggest benefits of alignment between HRM and innovation. Jimenez-Jimenez and Sanz-Valle (2005) found evidence for the contingency view in their study of fit between HRM practices and innovation, and Laursen and Foss (2003) found support for that certain bundled HR practices are beneficial for innovation. Additionally, Shipton *et al.* (2006) found that several HR practices are predictors of technological and product innovation. Although previous research clearly points to the importance of HR practices, our understanding of how specific practices effect EO is not well developed.

EO

Prior theory and research make a distinction between the concepts of entrepreneurship and “entrepreneurial orientation” (Lumpkin and Dess, 1996), where entrepreneurship refers to the act of creating new business ventures (e.g. Gartner, 1988). EO, on the other hand, refers to a firm’s strategic orientation, confining specific entrepreneurial aspects of decision-making styles, practices and methods (Lumpkin and Dess, 1996). Examples of operational definitions of EO at a firm level are management perceptions (e.g. Zahra, 1996), resource allocations (e.g. Hitt *et al.*, 1996) or firm behaviours (e.g. Miller and Chen, 1994). EO is also used as a concept on the individual level of analysis (e.g. Busenitz and Barney, 1997). The operationalization of EO on the individual level often involves the application of psychological questionnaires to a group of individuals (e.g. Busenitz and Barney, 1997; Kollman *et al.*, 2007).

When it comes to the understanding of EO, in this paper we adopt the widely diffused concept that was first introduced by Miller (1983) and later extended by Covin and Slevin (1991). According to them EO is a multidimensional firm-level concept that includes three dimensions: innovativeness, proactiveness and risk taking. Innovativeness reflects a firm’s tendency “to engage in and support new ideas, novelty, experimentation, and creative processes that may result in new products, services, or technological processes” (Lumpkin and Dess, 1996, p. 142). Proactiveness refers to processes aimed at anticipating and acting on future needs by seeking new opportunities which may or may not be related to the present line of operations (Venkatraman, 1989, p. 949). This is an act of opportunity seeking, where a proactive firm tries to get hold of initiative by acting opportunistically in order to influence and shape the competitive environment (Lumpkin and Dess, 1996). Finally, risk-taking, is defined as the degree to which managers are willing to make large and risky resource commitments” (Miller and Friesen, 1978, p. 923).

HRM practices

Generally, the intention of HRM practices is to influence employee behaviour in order to impact business performance (Wright and Nishii, 2007). A lot of effort has gone into

understanding the relationship between HRM practices and firm performance. Previous research clearly shows that if appropriate HRM practices are implemented, they represent one of the most crucial firm resources (Barney and Wright, 1998), and they also contribute to the accomplishment of firm objectives and the creation of value (Kaya, 2006). However, extant research has been criticized for only showing an association between systems and practices of HRM and firm performance, but leaving uncertainties about concrete causes and effects (Guest *et al.*, 2003).

Typically this type of research has included comprehensive employee recruitment and selection procedures, incentive compensation and performance management systems, and extensive employee involvement and training (Huselid, 1995, p. 635), and the general observation is that their use is related to firm turnover and productivity.

Scholars have also stressed the importance of HRM practices as the key factor in the context of EO (Schmelter *et al.*, 2010) and a still small but growing body of literature has emerged on this topic area (Montoro-Sánchez and Soriano, 2011).

In this paper, we use Lado and Wilson's (1994, p. 701) definition of HRM practices which says that practices are "a set of distinct but interrelated activities, functions, and processes that are directed at attracting, developing, and maintaining (or disposing of) a firm's human resources". The main reason for this choice is that it corresponds to how many other scholars see upon practices when defining specific HRM practices as a part of an overall system (e.g. Delery and Doty, 1996; Huselid, 1995; Macduffie, 1995).

More specifically, we draw upon the suggestion proposed by Schuler (1986) that certain relevant practices are crucial to foster and facilitate entrepreneurial activities; practices that have been adopted also by other scholars within this field of research (e.g. Macduffie, 1995; Morris and Jones, 1993; Twomey and Harris, 2000). Accordingly, this study therefore analyses the influence of staffing, appraising, rewards and training and development on EO. Further we hypothesize that an emphasis on entrepreneurial aspects when using the HR practices will correlate with a higher degree of EO. Therefore we measure if firms considering special aspects with a focus on entrepreneurial aspects when using the HR practices will load higher on EO.

In the following we review previous research on these practices as to develop the hypotheses that will guide our empirical investigation.

Staffing/recruitment practices

Staffing includes all activities – e.g. selection, promotion and placement – that are either related to external hiring of personnel or the internal movement of employees across positions (Tichy *et al.*, 1982). The main objective of staffing, in terms of promoting entrepreneurial behaviour within an organization, is to form an appropriate resource base of human capital that is in line with the respective dimensions of EO discussed above (Schmelter *et al.*, 2010).

Generally, staffing practices aim at enhancing a firm's stock of human capital by means of selective recruitment of employees (Snell and Dean, 1992). From previous research it can be assumed that firms in order to identify persons that can contribute to EO need to deploy sophisticated selection procedures to find the very best potential employees (Delaney and Huselid, 1996). More specifically, we expect firms that score high on EO to base their staffing practices on crucial sets of knowledge, skills and abilities with regard to EO to allow a better match between entrepreneurial requirements of the firm and the employee's characteristics (Morris and Jones, 1993; Schmelter *et al.*, 2010).

In searching for developing its EO, previous research indicates that during the selection process, the company should determine the employee's problem solving

abilities as well as his or her creative and innovative behaviour and risk-taking abilities (Kaya, 2006; Schmelter *et al.*, 2010; Schuler, 1986). Additionally, new recruits should show a certain drive for action as employees who can initiate and make appropriate decisions, enable the company to respond quickly to unexpected challenges or opportunities (Kaya, 2006).

Consequently, our first hypothesis is:

- H1.* An emphasis on entrepreneurial aspects when staffing is positively related to EO.

Appraising practices

Appraising is the second HRM practice that we assume will have an impact on EO. Performance appraisal has been investigated at length in previous research on HRM, and previous research indicates that appraisal is important to foster EO. Not only do firms need to consider the efforts of individuals, but also the performance of groups (Morris and Jones, 1993). The reason is that entrepreneurial projects require a certain degree of cooperation on both the department and company level when unexpected technical or financial complications occur.

So, appraisal practices should consider entrepreneurial aspects, including explicit measures, such as risk-taking abilities or creative behaviour (Morris and Jones, 1993; Schmelter *et al.*, 2010). 3M represents a good practical example: In their employee performance evaluation process also special managerial skills, such as “takes courageous decisions” or “involves others in decision-making”, are considered (Hannemann, 2011).

Consequently, we hypothesize that:

- H2.* An emphasis on entrepreneurial aspects when appraising is positively related to EO.

Reward practices

Previous research on reward systems has shown that rewards can change attitudes, motivate individuals and viewed as investments that are designed to induce individuals to join a company and make them perform well over time (Schmelter *et al.*, 2010; Snell and Dean, 1992). Therefore, in addition to performance appraisals, HRM practices concerning rewards – if aligned and executed correctly – are viewed as essential mechanisms to foster EO as they motivate employees to engage in innovative projects and to develop new ideas (Dal Zotto and Gustafsson, 2008; Jones *et al.*, 1995).

Buckley *et al.* (2008) found that a major concern of human resource managers in both domestic and multinational entrepreneurial organizations is the implementation of proper reward structures for employees. In line with this, Kuratko *et al.* (2005) noted in his review of relevant literature that the appropriate use of rewards in order to elicit and support entrepreneurial actions is viewed as a major dimension considered being an antecedent to EO (Kuratko *et al.*, 2005).

Due to the fact that reward and appraisal practices are closely connected to each other, and responsible for an adequate communication of performance expectations and a reinforcement of desired entrepreneurial behaviours (Jones *et al.*, 1995), both components need to be aligned with each other. Hence, as entrepreneurial activities usually take a long time to evolve, rewards should be based on the employee’s long-term performance (Morris and Jones, 1993) rather than focus on quick success and fast results.

With regard to EO, scholars stated that adequate reward systems can also increase entrepreneurial abilities and outcomes, such as individuals' risk propensity, motivation for innovations, reliability and cooperation (Marvel *et al.*, 2007; Schmelter *et al.*, 2010; Storey and Sisson, 1998). Hence, we expect that entrepreneurial behaviour should be taken into account when developing reward systems, and that such systems should explicitly recognize and reward such behaviour (Dal Zotto and Gustafsson, 2008; Jones *et al.*, 1995):

H3. An emphasis on entrepreneurial aspects when rewarding is positively related to EO.

Training and development

Beyond ensuring an EO through selective hiring of entrepreneurial employees, relevant abilities also can be acquired through training and development practices (Delaney and Huselid, 1996; Schmelter *et al.*, 2010). Previous research indicates that training and development is linked to innovation (e.g. Beugelsdijk, 2008; Lau and Ngo, 2004; Shipton *et al.*, 2006).

Hence, concerning EO and its dimensions, we expect that all employees also require a broad base of skills, knowledge and abilities to ensure the company's EO. This assumption is based on previous research that has investigated training-focused HRM practices with broad applications (Beugelsdijk, 2008; Schuler, 1986). More specifically, previous research has showed that training and development is a crucial mechanism to foster EO, such as innovativeness (Birdi *et al.*, 2008; Chen and Huang, 2009; Dizgah *et al.*, 2011; Laursen and Foss, 2003; Shipton *et al.*, 2006). Additionally, previous research has concluded that providing employees with additional experiences through extensive training practices helps to encourage creativity (Morris and Jones, 1993; Schmelter *et al.*, 2010; Schuler, 1986). Consequently, previous research indicates that firms should consider the promotion of entrepreneurial attitudes – such as innovativeness and proactiveness – within their training practices (Jones *et al.*, 1995).

Therefore, the following hypothesis seems relevant:

H4. An emphasis on entrepreneurial aspects during training and development is positively related to EO.

Method

Sample and data collection

The sample comprised Swedish and German manufacturing firms in high-tech and medium high-tech manufacturing industries, and firms in knowledge-intensive services sectors (see Table AI, Appendix), with more than 250 employees. This is based on the statistical classification of economic activities in the European Community, called NACE Rev. 2 (Eurostat, 2011). Swedish firms were identified using the database "Retriever Bolagsinfo" and German firms were identified using the "Hoppenstedt Firmendatenbank". All firms had a person assigned to the position of HR manager or equivalent that was selected as key respondent.

Data were collected between February and April 2012 by means of an e-mail survey. Based on former research on average response rates (Bourque and Fielder, 2003; Baruch, 1999), a response rate of 5-10 per cent was assumed for this survey. To increase this response rate, however, investigated companies and responsible human resource managers have been contacted by phone in the run-up to the survey. In the end of the

contact phase, more than 1,200 firms have been contacted by phone and 810 surveys – including 494 to German and 316 to Swedish companies – have been sent to the contact persons. After a first wave of posting, two reminders were sent with three weeks’ time span between. The response rate ended at 12.7 per cent (103 fully usable questionnaires). One reason for the quite low response rate could be the length of the total survey[1].

Measures

The measure of EO was adapted from Covin and Slevin (1989). In its original version, the dimensions are measured by nine items and assessed by using a seven point Likert scale (Covin and Wales, 2011), including questions and statements such as “In general, the top managers of our firm have a strong proclivity for high-risk projects”. However, in this study all items have been adapted down to a five point scale, due to consistency reasons. The measure includes the dimensions (sub-variables) of innovativeness, proactiveness and risk taking, which are analyzed separately as well in a summarized variable called EO.

The reliability was tested at the level of each dimension (innovativeness, proactiveness and risk taking) as well as at an aggregated level (see Table I). Cronbach’s α is acceptable and all variables are within significant levels.

The measure of emphasis on entrepreneurial aspects (in staffing, appraisal, rewarding, training and development, respectively) was measured in six items based on previous research (e.g. Schuler, 1986; Kaya, 2006; Beugelsdijk, 2008; Dal Zotto and Gustafsson, 2008; Schmelter *et al.*, 2010). The main question was put as “When it comes to staffing, besides general aspects, we also consider special aspects, such as: [...]” with the six items of teamwork attitudes, problem solving abilities, creative and innovative behaviour, drive for action, risk-taking abilities, and tolerance for failure. Clustering the individual items of HRM practices is viewed as appropriate, due to the fact that all individual items within those clusters are assumed to affect EO in a similar way, i.e. positively. It is also not assumed that individual items affect each other negatively, which would also be an argument not to combine single items.

The reliability was tested for the aggregated variables connected to staffing, appraisal, rewarding, and training and development (see Table I). Cronbach’s α is acceptable and all variables are within significant levels. The questions are available in the Appendix.

Control variables

Previous research shows that the relationship between EO and business performance depends on external environmental factors such as industry characteristics and the

Variable	Mean ($n = 102$)	SD	α	F
CoSle_Inno	2.59	0.76	0.565	24.047***
CoSle_Pro	2.55	0.63	0.564	16.778***
CoSle_Risk	2.89	0.71	0.651	5.316**
CoSle_Tot	2.68	0.56	0.774	15.592***
StaEntrAspects	2.10	0.52	0.762	74.154***
ApprEntrAspects	2.25	0.67	0.854	52.966***
RewEntrAspects	2.49	0.79	0.890	49.699***
TDEntrAspects	2.60	0.78	0.898	37.509***

Notes: * < 0.05; ** < 0.01; *** < 0.001

Table I.
Reliability of
dependent and
independent
variables

complexity of the environment, as well as on internal organizational characteristics, such as size, structure and strategy of the firm (Lumpkin and Dess, 1996). In this study two control variables were used in the analysis, namely organizational size and industry. These would support the model rigor as larger firms could have different approaches to the questions in the survey than smaller, and firms in some industries could have different preferences than firms in other industries. Size was measured as number of employees, as this was also a sampling variable. Industry was coded as a dummy variable where 1 = belong to the industry and 0 = not belong to the industry.

Analytical procedures

The correlation between emphasis on entrepreneurial aspects in the four HR practices areas and EO was analysed using linear regression analysis. The aggregated variables were entered in four models using innovativeness, proactiveness, risk-taking propensity, respectively as well as EO (aggregated variable).

Results

In the regression analyses, eight models have been tested. The models only including the control variables (1, 3, 5, 7) are not significant, while all models including the entrepreneurial aspects as well (2, 4, 6, 8) are significant and explain a considerable part of the variance in the dependent variables. The results indicate that the control variable of size is not significant, and this finding suggests that EO is not primarily determined by the size of a company. The results further indicate that the control variables of industry are not significantly affecting the relation mentioned above which suggests that EO is not primarily determined by the industry belonging.

The results indicate that emphasis on entrepreneurial aspects only has a major impact in relation to training and development (see Table II), thereby supporting *H4*. According to our data, none of the other situations are significantly related to the total EO variable.

On an overall level, our results suggest the following. The emphasis on entrepreneurial aspects for training and development is a determinant of EO, while the emphasis on entrepreneurial aspects for staffing, appraisal or rewarding is not.

Independent variable	Dependent variable							
	Innovativeness		Proactiveness		Risk-taking		Total EO	
	1	2	3	4	5	6	7	8
Size	-0.081	-0.073	-0.028	-0.027	-0.047	-0.045	-0.067	-0.061
Industry 1	-0.246	-0.106	-0.315	-0.233	-0.181	-0.121	-0.303	-0.185
Industry 2	0.474	0.140	-0.052	-0.060	0.077	0.047	0.076	0.060
Industry 3	-0.177	-0.057	-0.079	0.000	-0.121	-0.039	-0.160	-0.042
Industry 4	0.020	0.064	-0.134	-0.122	-0.053	-0.034	-0.063	-0.031
Staffing EntrAspects		0.163		0.059		-0.114		0.047
Appraisal EntrAspects		0.008		-0.012		0.341*		0.143
Rewards EntrAspects		-0.066		0.013		-0.206		-0.112
T&DEntrAspects		0.273*		0.273*		0.346**		0.369**
R ²	0.098	0.203	0.042	0.129	0.032	0.195	0.072	0.234
R ² adjusted	0.051	0.125	-0.007	0.043	-0.019	0.116	0.024	0.159
F (sign)	1.082	2.610**	0.851	1.509*	0.631	2.472**	1.496	3.126**

Notes: * < 0.05; ** < 0.01; *** < 0.001

Table II.
Regression analysis
of emphasis on
entrepreneurial
aspects when using
HR practices

Considering the results presented in Table II, it was relevant to continue with a more explorative analysis of data concerning training and development. In this context, two open questions in the survey were asked about how much money the firms spend on training and development activities, and how many hours of training per year each employee did receive in the last five fiscal years.

Results concerning these questions indicate that all firms (mean $n = 103$) on average provide 33 hours of training and spend 3.1 per cent of their turnover on training activities (see Table III). Focusing on the ten firms that show the highest and lowest EO, respectively, within the top ten entrepreneurial firms, employees received 32 hours of training and only 1.3 per cent of their annual turnover was spent for training practices. On the other side, employees in the bottom ten firms (in terms of corporate entrepreneurship) only received 24 training hours, while the companies spend three per cent of their annual turnover for such activities. Thus, both groups are below average concerning the amount of money and hours spend for training. However, while the group of top ten firms provides significantly more training hours to its employees than the bottom ten firms, they – at the same time – spend much less money for their training activities compared to this group.

This indicates that more money invested or more time spent in training does not automatically lead to higher degree of EO. Even if a certain amount of financial resources obviously are necessary, the amount of money spent for training practices does not seem to have a great influence on EO.

This result is further supported by two questions concerning the respondents' perceptions of whether sufficient resources (in terms of money and time) are allocated for training and development. This was measured using a five point Likert scale. Results show that the top ten group score a value of 2.9 for sufficient time allocation and 2.7 for sufficient money allocation. These values are above the average values of 2.5 for time and 2.6 for money allocation. In turn, with a mean value of 2.3 for both questions, results for the bottom ten group are below average. Thus, despite the fact that bottom ten firms (in terms of EO) spend more money, they believe that they do not allocate sufficient financial resources for training practices. In conclusion, firms also have to consider if the chosen training practices are effective and fruitful for fostering EO.

Conclusion and discussion

This study has explored the relationship between HRM practices and EO in large firms. More specifically, we have investigated the effects of emphasizing entrepreneurial aspects for staffing, appraisal, rewarding, and training and development staff on EO. The results suggest that it is only in the case of training and development practices including such considerations lead to increased EO. A conclusion from this research is therefore that it seems to be difficult to recruit personnel as to create EO on a firm level. Similarly, another conclusion is that the use of appraisal and rewards does not seem to lead to an increased EO on a firm level.

Table III.
Emphasis on training and development among top, middle and bottom firms

Variable	Top 10	Total mean	Bottom 10
Money spent on TD (%)	1.3	3.1	3.0
Hours TD	32	33	24
Sufficient money on TD	2.90	2.54	2.30
Sufficient time for TD	2.70	2.60	2.30

This might seem to be unexpected results that might be explained by differences between different types of firms. This would make sense from a contingency approach to HRM. However, in contrast with the contingency approach to HRM (e.g. Beugelsdijk, 2008), our findings indicate no differences in the effects of certain HRM practices when it comes to fostering EO in firms of different types: Neither organizational size nor industry context influences our results.

Two possible interpretations can be made to explain this finding. First, this finding might be due to methodological shortcomings of this investigation. Second, this can be taken as an indication of that the presence of a universal HRM practice – that is training and development – when it comes to fostering EO.

Regarding the first interpretation: although our survey includes firms of different sizes and from several industries, the sample is limited. This might fail us to capture size and/or industry effects on our results. Neither does our study include data on the strategic posture of the surveyed firms. One interpretation of our results is that the link between HRM practices and the EO of the firm is moderated by the strategic posture of the firm (e.g. Delery and Doty, 1996; Youndt *et al.*, 1996). This would mean that a firm that has innovation as an important part of its strategy has more to gain out of including entrepreneurial aspects when recruiting, appraising, rewarding, and training and development, than firms that do not. This should be further explored in future research.

We do, however, suggest that the second interpretation is valid: the interpretation of our findings as supporting the proposition of the existence of universal HRM practices is confirmed by the fact that we failed to find indications of congruence between the emphasis on entrepreneurial aspects in staffing, appraisal, rewarding, and training and development activities. The basic assumption behind the congruence hypothesis (Youndt, *et al.*, 1996) is that HRM practices used within the firm need to be aligned (and in congruence) with each other in order for them to make a difference. This goes against the proposition that there are some HRM practices that are of universal importance in all type of firms in any context/circumstance. Our results support the proposition that there are HRM practices that are of universal importance[2]. More specifically, an emphasis on entrepreneurial aspects during staff training and development seems to be of universal importance when it comes to fostering EO in large firms.

Hence, our results go against the widely spread opinion that that individual practices in isolation have a rather limited ability to exploit resources appropriately in order to generate a competitive advantage (cf. Kaya, 2006; Ahmad and Schroeder, 2003). Our results instead indicate that considering EO when deploying training and development activities alone are the most appropriate approach to create EO.

Notes

1. A reflection of the method of using e-mail survey is that responses tend to come in during the first three days after a posting/reminder, which is a different answering pattern compared to using a traditional paper/mail survey.
2. If the congruence hypothesis would have received support in our study, our results should have indicated co-existence of such EO considerations in at least more than two of the HRM practices in our sample. As we only found EO considerations only regarding training and development practices to be positively related to entrepreneurial orientation, this is not the case.

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(The Appendix follows overleaf.)

Section	Division	Industry	
<i>Manufacturing industries</i>			
Manufacturing	20	Manufacture of chemicals and chemical products	
	21	Manufacture of basic pharmaceutical products and pharmaceutical preparations	
	25	Manufacture of fabricated metal products, except machinery and equipment	
	26	Manufacture of computer, electronic and optical products	
	27	Manufacture of electrical equipment	
	28	Manufacture of machinery and equipment (not elsewhere classified)	
	29	Manufacture of motor vehicles, trailers and semi-trailers	
	30	Manufacture of other transport equipment	
	<i>Knowledge-based services</i>		
	Transportation and storage	50	Water transport
51		Air transport	
Information and communication	58	Publishing activities	
	59	Motion picture, video and television programme production, sound recording and music publishing activities	
	60	Programming and broadcasting activities	
	61	Telecommunications	
	62	Computer programming, consultancy and related activities	
	63	Information service activities	
Professional, scientific and technical activities	69	Legal and accounting activities	
	70	Activities of head offices; management consultancy activities	
	71	Architectural and engineering activities; technical testing and analysis	
	72	Scientific research and development	
	73	Advertising and market research	
Administrative and support service activities	74	Other professional, scientific and technical activities (i.e. translation and interpretation activities)	
	78	Employment activities	

Table A1.
High-tech industries
based on the NACE
Rev. 2 classification

Source: Own table based on Eurostat (2011, p. 1f)

Example of question: independent variable items

When the employee's performance is appraised, we consider special aspect, such as:

	Always	To large extent	To some extent	Very occasionally	Not at all
Teamwork attitudes	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Problem solving abilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Creative and innovative behaviour	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Drive for action	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Risk-taking abilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Tolerance for failure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ability to plan and follow rules	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Analytic abilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

« Previous page

Page 5 (13)

Next page »

Example of question: dependent variable items

Please take a stand to the following statement:

In general, the top managers of our firm favour a strong emphasis on R&D, technological leadership, and innovations.



In general, the top managers of our firm favour a strong emphasis on the marketing of tried-and-true products or services.

How many new lines of products or services has your firm marketed in the past five years?

Very many new lines of products or services.



No new lines of products or services.

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