Chapter 1

How Do Human Resource Practices Strengthen Open Innovation? An Exploratory Analysis

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How do human resource practices strengthen open innovation (OI) activities? This inductive study of six cases leads to propositions exploring this question, which has not been empirically investigated yet. We investigate the relation between human resource practices and an employee's willingness to embrace OI in six cases that include the perspectives of chief executive officers (CEOs), human resource managers, and experts from Belgium, the Netherlands, and the United Kingdom regarding human resource practices in both small and large companies actively pursuing OI. The findings reveal that when implementing OI, it is people's thinking and attitudes

towards this approach to innovation that can strengthen OI activities. Human resource practices can influence peoples' behaviours and attitudes towards OI by strategically selecting candidates, by rewarding employees, and by establishing a strategically focused climate in which employees are stimulated and feel comfortable being open, talking to others about their ideas, etc. Training practices were found to be negligible. The findings further reveal a number of human resource challenges that need to be overcome when organizing for OI.

1. Introduction

This chapter studies the role of human resource practices in stimulating open innovation (OI) activities. Ever since Chesbrough coined the term "Open Innovation" in 2003, numerous contributions have arisen studying the ways in which companies open up their innovation activities to take advantage of the abundant knowledge landscape outside their boundaries (Chesbrough, 2003). Despite the abundant research attention for OI related topics, little progress has been made in the area of the internal organization and management of OI (Vanhaverbeke and Roijakkers, 2012). Of particular interest is the role of human resource management in OI. Golightly *et al.* (2012) have found that OI is a people-driven process, concluding that individuals should be the focus of attention when implementing this particular approach to innovation. They point out that there is considerable potential for further research into the people side of OI, including organizational development, HR practices, and performance management. From a practitioner's perspective, Goers (2011) states that for institutionalizing OI at Kraft Foods, developing effective tools, processes, and operating models is not sufficient. More than that, employees' behaviours need to be addressed and a culture focused on OI needs to be built where all employees "live" the OI mindset. Likewise, Martino and Bartolone (2011), based on their experiences at Unilever, emphasize that ultimately OI is about

people, relationships, and trust. One of the first studies to *empirically* investigate the people side of OI is the dissertation on innovation cultures by Herzog (2011). His study provides evidence of cultural differences between open and closed innovation units where employees' personalities were studied and compared. He argues that in terms of personalities, being proactive, creative, and result-oriented is more relevant in OI settings than in closed innovation units. Furthermore, Du Chatenier *et al.* (2010), in their study on competencies for professionals in OI teams, have found that the three most important competencies that individuals within these teams need to possess are combinatory skills, social astuteness, and sociability. Despite this thin body of (mainly practitioner-oriented) research, a significant knowledge gap remains regarding the role of human resource practices, such as selection, training, and rewarding, in supporting OI activities. To the best of our knowledge, this is one of the first studies to empirically investigate human resource management in relation to OI.

Since empirical evidence concerning the role of human resource management in OI is scarce, the current study is of an exploratory nature, seeking to gain insights and to generate ideas regarding human resources practices in different types of OI settings. The aim is to build a theory based on cases, a method described by Eisenhardt (1989). To this end, we examine six case studies, including the perspectives of chief executive officers (CEOs), human resource managers, and experts from Belgium, the Netherlands, and the United Kingdom regarding human resource practices in both small and large companies actively pursuing OI. The diversity of cases allows for rich insights into the topic under investigation, bringing together various perspectives from different countries, industries, and firm sizes. Data were mainly collected through semi-structured, in-depth interviews.

The chapter is structured as follows. First, in Section 2, we review the scarce literature that is available on the topic while focusing both on the human resource management literature as well as contributions to the OI literature. In Section 3, the research methodology is described. Subsequently, the results of the case analyses

are presented in Section 4. Section 5 concludes with a discussion of the findings as well as important implications for both managers and academics.

2. Theoretical Background

While there are ample OI studies, only few researchers so far have paid attention to the premises underlying the effective internal organization and management of OI. Based on a study regarding the realization of value from OI, Golightly *et al.* (2012) have identified a number of building blocks that need to be considered when organizing for OI: OI strategy, organization, leadership, culture, tools/processes, metrics, ecosystem interaction, skills, and business models/intellectual property. They conclude that when developing OI, organizations need to “(...) focus first on getting individuals to realise the *potential* value of OI, so that they can then put in place practices that realise its *actual* value” (Golightly *et al.*, 2012, p. 62).

While it is important to get the technical part right, the quality of people’s thinking as they engage in this process will effectively make it work as they change their thinking, for example, from a “not-invented-here” mindset to a “proudly-found-elsewhere” attitude (Huston and Sakkab, 2007). Employees need to become open with regards to external ideas and recognize the benefits from OI. Especially in large organizations, this mindset change presents one of the biggest challenges when organizing for OI (Mortara *et al.*, 2009). Because human resource practices are seen as the primary means by which organizations can influence and shape the attributes and behaviours of employees in terms of a particular strategy (Wright and McMahan, 1992; Chen and Huang, 2009), it can be a valuable tool for strengthening OI activities.

According to Brockbank (1999), human resource practices can be divided into four broad categories, being either operational or strategic in nature. At the operational level, these practices include operationally reactive human resource activities, which focus on implementing human resource basics, and operationally proactive human resource

activities, which seek to improve these human resource basics. From a strategic perspective, they include strategically reactive human resource activities, which support the implementation of a given business strategy by giving tactical support and by establishing a strategically focused culture, and strategically proactive human resource activities, which focus on creating future strategic alternatives. Seeing OI as (part of) a given business strategy, the focus of this chapter is on strategic human resource practices. Strategic human resource management is defined as “the pattern of planned human resource deployments and activities intended to enable an organization to achieve its goals” (Wright and McMahan, 1992, p. 298). In this respect, human resource practices can be described as tools that are used to manage the skills, abilities, and behaviours of employees, whereby the skills and abilities affect the behaviours of employees, which in turn have a direct effect on firm-level outcomes (Wright and McMahan, 1992). While these relations have not been empirically investigated within an OI context yet, several scholars have investigated the relationship between the adoption of human resource practices and general innovation performance (Ceylan, 2013; Chen and Huang, 2009) and knowledge sharing (Cabrera and Cabrera, 2005; Collins and Smith, 2006). Ceylan (2013) has explored the relationship between a commitment-based human resource system, which is a bundle of commitment-oriented human resource practices, and product innovation activities. The items in the commitment-based human resource system include selection, incentives, and training and development. The findings show that a commitment-based human resource system has a positive effect on process, organizational and marketing innovation activities, which in turn relate positively to product innovation activities. In investigating the effects of strategic human resource practices on knowledge management capacity, Chen and Huang (2009) include staffing, training, participation, performance appraisal, and compensation. They have found a positive effect on knowledge management capacity, which in turn relates positively to innovation performance. Cabrera and Cabrera (2005) have identified specific human resource practices that facilitate and encourage knowledge sharing. They have done so along

the following seven categories: Work design, staffing, training and development, performance appraisal, compensation and rewards, culture, and technology. Examples include the creation of cross-functional teams, hiring of people for whom they are, not for what they can do, making knowledge-sharing criteria critical for one's career success, and creating a caring and fair culture. Collins and Smith (2006) have investigated the link between human resource practices, knowledge exchange and combination, and firm performance. They demonstrate that human resource practices affect the organizational social climate of trust, cooperation, and shared codes and languages, which in turn facilitates knowledge exchange. In Cabrera *et al.* (2006) study on the determinants of individual engagement in knowledge sharing, the authors have found that besides system-related variables, organizational and psychological variables predict the engagement level. For the latter, self-efficacy and openness to experience were the strongest predictors for engagement level. Among the organizational variables, perceived support from top management and co-workers significantly predicted engagement level, while rewards had a moderate direct effect on knowledge sharing. The authors go on by discussing that these findings may have implications for human resource practices such as screening, training, and rewarding employees. In this sense, they suggest that an organization that seeks to foster knowledge sharing may screen candidates for having a high cognitive aptitude, being intrinsically motivated, and open to experience. The reviewed studies suggest that there is a positive relationship between human resource practices and innovative performance. Furthermore, the *organizational climate* is, among other things, demonstrated to be a mediator between human resource practices and employees' behaviours in terms of knowledge sharing and innovative performance. Likewise, in the OI literature, Wallin and von Krogh (2010) have found a cooperative and positive organizational climate with shared values, norms, and attitudes to be supportive when organizing for OI. For establishing a framework relating human resource practices to OI, we propose to adapt the conceptual model that is used for studying strategic human resource management, as depicted in Fig. 1 and further described below.

Fig 1. Towards a framework relating strategic human resource practices to OI

Source: Adapted from Wright and McMahan (1992, p. 299)

Specific *human resource practices* differ across companies and studies, but they generally include selection, compensation, and training and development practices (Collins and Smith, 2006). From practical examples, it can be derived that these three human resource practices are also relevant when it comes to OI. Regarding selection, one of the main principles of OI in contrast to closed innovation is the realization that not all the smart people work for one's company (Chesbrough, 2003). Vanhaverbeke, in an interview with Starckx (2011), describes that within the process of OI, the traditional human resource department needs to become a "scouting division", not only looking for and hiring the best internal people, but going one step further by identifying the best people outside the company and cooperating with them. Kelley (2012) describes the process of attracting and managing talent outside the company as an "external talent strategy", whereby organizations move from a "talent ownership" mindset to a "talent attraction" mindset. A similar theory is that of the "long tail of expertise" explained by Bingham and Spradlin (2011). They put forward that besides hiring experts with the right skills to solve an immediate problem, human resource managers should also find ways of engaging experts from the outside who can work for the company without being employed by it, and tapping into "the long tail", consisting of all the smart people outside the company who can jointly solve any kind of problem that might arise in the future (Bingham and Spradlin, 2011). There is a link between the selection and training of people, as required attributes can either be found on the outside, or be trained on the inside.

If people need the right attributes to flourish in OI, then these could probably be learned.

However, among psychologists, openness is seen as a personality trait (Digman, 1990). More important than possessing the right attributes may thus be having the right personality, which is generally viewed as more difficult to train. Rewarding practices may be challenging in OI. Several managers have stated in interviews that it is essential to recognize openness to external ideas formally and informally, and to include it in evaluation and reward structures (e.g. Thoen, 2009; Byrum, 2012). Ultimately, people need to be moved when knowledge shall be moved (Chesbrough, 2003). This can influence rewarding practices as, for example, the pension scheme is given up when leaving a large company for a newly founded one.

Human resource skills and abilities, the next element in the model, are seen as one of the main issues that companies have to tackle when implementing OI, as the knowledge of the company and the right blend of skills of individuals can act as an OI enabler, while the lack of appropriate skills can act as an obstacle to OI (Mortara *et al.*, 2009). With the implementation of OI, traditional scientists need to take on a new role, integrating scientific knowledge, managerial expertise, and communication and coordination skills (Petroni *et al.*, 2012). A case study of Philips supports the notion that researchers spend less time in laboratories and more time with the business aspects of technology, including negotiating with partners and searching for external ideas (Hacievliyagil and Auger, 2010). Insights from a report on the pharmaceutical industry, one of the most advanced industries regarding OI, underline that today, skills in developing and managing partnerships are most important for people in the R&D department (PWC, 2013). Many managers in OI-driven companies stress the importance of soft skills like passion and optimism (e.g. Martino and Bartolone, 2011). Du Chatenier *et al.* (2010) have identified a list of competencies needed in order to manage the collaboration and innovation process, to create knowledge collaboratively, and to overcome challenges associated with OI. They have found that the three most important competencies that

individuals within an OI team need to possess are the ability to combine, social astuteness, and social competence.

The desired *employee behaviour* in OI is the openness of individuals, which as a group demonstrate the openness of the organization. As mentioned earlier on, employees need to be open for external ideas, recognize the benefits inherent to OI, and behave accordingly. The last element in the model, *firm-level outcomes*, in the current research setting is innovative performance based on the effectiveness of OI. While human resource practices are assumed to have an influence on the effectiveness of OI, they only partly explain OI success and many more variables have an effect on the outcome, which shall not be captured in the scope of this chapter. The focus thus lies on the individual level. While applied examples reveal the relevance of the topic, the question remains as to how human resource practices strengthen the OI activities of an organization. The established model shall guide our study. Of particular interest is the influence of human resource practices on the willingness of employees to embrace OI. To address this gap in the literature and to generate insights into the topic, a theory-building method based on case study research is applied.

3. Method

The current study attempts to explore how human resource practices strengthen OI activities, which is a contemporary and new topic. Following Eisenhardt (1989), we conduct a theory-building, case-based investigation, as this approach is particularly relevant in new topic areas leading to theories that are novel, testable, and empirically valid. The OI field has drawn to a great extent on case-based research in recent years as the complexity of the concept and the associated varying interpretations related to openness indicate the usefulness of this method (Dahlander and Gann, 2010). We have conducted our case-based research on the basis of the roadmap identified in Eisenhardt (1989). Making use of purposeful sampling (Perry, 1998), we have set up a multiple case study design involving six cases that were selected on the basis of their suitability for the purpose of the research (Eisenhardt and Graebner, 2007). Eisenhardt

(1989) advises to employ between four and ten cases, as with fewer than four cases it might be difficult to generate theories, whereas with more than ten cases it might be difficult to handle the complexity and amount of data. Other researchers have supported this range (Perry, 1998). Given the goal of the study, generating ideas and providing insights into the broader role of human resource practices in OI, we choose cases from different countries and industries. Furthermore, both perspectives on small and large companies, for which innovation is a priority and which actively pursue OI activities, were included. In that way, diversity through various perspectives is ensured. The final case compilation consists of three managers in small companies, one manager in a large company and two experts regarding both large and small companies (see Table 1).

Regarding data collection, several principles were applied to enhance the quality of the research. First, we have made use of

Table 1. An overview of the cases under study

Case	Company	Country	Perspective from	Perspective on
1	Brightstar Innovations	United Kingdom	Venture capitalist	Spin-outs, corporate incubators
2	New Venture Partners	United Kingdom	Venture capitalist	Spin-outs
3	DSM	The Netherlands	Human resource manager	Human resource issues in a large organization
4	Induct	Belgium	CEO/entrepreneur	Human resource issues when collaborating with a large organization
5	Devan Chemicals	Belgium	R&D manager	Human resource practices in a small company
6	Ridley Bikes	Belgium	Deputy CEO & human resource manager	Human resource practices in a small company

multiple sources of evidence (Eisenhardt, 1989; Yin, 2009), including semi-structured, in-depth interviews and publicly available company information drawn from websites and brochures/documents. Second, multiple investigators were used to enhance both creativity and the confidence in the findings through the convergence of different observations. Third, a case study database including interview transcripts and field notes was created, which increases the reliability of the study. Fourth, a case study protocol was created prior to data collection including the overview of the study, field procedures, case study questions, and the guide for the case study report. We have analyzed all cases individually and we have conducted a cross-case analysis, the results of which are reported in the next section.

4. Results

4.1. *Stimulating openness through climate*

The founder of Brightstar Innovations (initially the Corporate Incubator of British Telecom) and Partner at New Venture Partners (global venture capital firm dedicated to corporate technology spin-outs) puts forward that the people side of OI is often neglected. The lack of openness in people and organizations is one of the main reasons why OI fails. The key to OI is creativity, passion, social articulation and interaction, and teamwork. People need to be involved, brave, and believe in what they are doing to make it happen. These ingredients exist in many people but they are buried. One of the main challenges facing large organizations is to trigger these personal attributes in their employees. People can be trained to be more open, however, often company restrictions and rules imposed by the finance department and human resource management do not allow people to believe in their ideas, express their ideas, talk about their ideas to others, or build on their ideas: *They [finance and human resource management] built in all the rules which were there obviously to make the company work, but equally what they didn't realize, it was killing passion, emotion, and creativity ... they are*

almost the enemy of trying to be creative and open. Many useful ideas exist in large companies but they are never used, which leads to frustration among the people who came up with them. Frustration and passion are not far apart; both emotions are indicators of the potential that exists in people and of the number of ideas that can potentially be tapped into if the company can be unlocked, allowing employees to be more open. For people to be more open, it is crucial that top management supports the change. Large organizations can take two types of actions to stimulate openness and OI: setting up some projects outside the boundaries of the corporation and letting the creativity and resourceful people flow into these structures (1); allowing people time for creativity next to their daily jobs (2). When spinning out an idea, there are two phases that can be discerned, i.e. ideation and execution, where each phase requires a different type of manager. In ideation, openness, passion, and creativity are necessary whereas in execution, commercialization skills are crucial: *The trick is of course, can you bring the founder along, does the founder at this point recognize that he brought his child to a certain point, but he wants to see his child grow up and he is not in the position to do that ... the best way of doing that is bringing in a CEO who can.*

4.2. Rewards, training, and failure management

Another Partner at New Venture Partners identifies a number of human resource challenges when spinning out ideas. First, rewards need to be put in place for people who are spun out, people who are left behind but were involved in the development of the new technology, and people who manage the spin-out process. Usually, the team that is being spun out receives a share in the new start-up company (while giving up their pension plans). This can lead to tensions: *The perception was ... that anybody spinning out was going to make the company a success and become a millionaire, and that somehow we [the venture capitalists] had enriched these guys at the expense of everybody else.* One solution is to reward the ones left behind for an eventual success of the new company taking into account the fact

that they do not run the same risks as those within the venture. Also, middle managers need to be compensated for giving up their brightest engineers and most successful projects. Second, the engineers involved in spin-outs typically aspire to senior management positions and they need to be given the opportunity to acquire business skills (training) and the time to experiment with these new abilities. If they cannot make the switch from a technological orientation to a customer focus, an outside management team needs to be brought in, which has to be effectively managed: *You, the engineering team, the spin-out team, you have got to be passionate about doing this [spinning out], you got to be able to go through barriers; so here you are, this is your baby, that you are fighting to take it outside, you are granted permission to take it outside, and the first thing that happens is senior management takes it away from you by bringing in outside managers.* As such, the successful management of the (combined) team by a passionate, energetic project leader who is able to guide the start-up for the first couple of years and who is able to create closeness and mutual respect within the team is a key success factor. Third, only few ideas eventually get spun out successfully; the majority fails. The company needs to find a constructive way of dealing with this: Returning employees of a “failed” spin-out to the mother company immediately may, for example, not be the right tactic as it can lead to demotivation. People need to know that “failure” is a source of learning: (...) *the way we say ‘no’ is infinitely more important than the way we say ‘yes’ (...) we should appraise people for the number of ideas they put forward, not the number that succeeded, we should be able to give anybody who has given us an idea at least one good learning point to take away from that idea, that they can use to refine their next one.*

4.3. Creating an OI climate within a large company

The Vice President of human resources at the DSM Innovation Center mentions that the most important role of human resource

management in OI is to stimulate an effective culture/attitude and provide learning opportunities. In OI, people need to be curious, open, willing to listen and learn from others, respectful of others who are different. Openness can be trained but the effectiveness hinges on people's willingness to share and the company's appreciation of this type of behaviour: *We have to stimulate that [OI] also, and you can stimulate that by rewarding them in terms of remuneration and personal development, to give them budget to perform this, etc. So it's not only training ... you have to facilitate it also as an organization.* People should, for example, be stimulated to go to conferences, workshops, or universities to acquire new knowledge, to expand their own network, and to look for opportunities everywhere. Most people show willingness to do that, but it has to be organized. When people come back from a conference or a workshop, they have to share what they have learned with their colleagues. This can be done within the respective department or globally via innovation and/or science communities. While knowledge sharing needs to be stimulated (also in OI partners), people also need to know what they can and cannot share with OI partners. In contrast to openness, entrepreneurial behaviour is more difficult to train as the profile of an entrepreneur involves the willingness to take risks. In talent management programs, the willingness to take risks associated with OI is stimulated through, for example, business plan competitions. Employees who possess entrepreneurial qualities are difficult to retain, as they generally do not fit well with a corporate culture; specific remuneration plans for entrepreneurs may help in terms of retention. Large companies tend to select similar profiles, fitting the corporate culture, as similarity is easier to manage. However, for OI diversity may be more effective: *If you really want to make progress in OI, you need an inclusive and diverse team with different mindsets, different thoughts, different opinions and different backgrounds. And it's not only in terms of gender or nationality; it's also the way of thinking. It's a challenge to keep that working: To respect and appreciate different opinions and ways of working and to find diverse people.* As diversity in teams is stimulated, it may

be the case that certain skills are not needed anymore as projects enter new phases. These transitions need to be managed where new opportunities are found for people whose skills are not required anymore or for people who were part of a team that was terminated: *We have learned a lot from a project or venture, only it brings not what we thought or anticipated, but we learned also that we have to stop it now. It's not easy for the project manager to accept that, because they think in terms of a failure, not being successful. So it's a challenge to keep it positive and to find new opportunities for the team members.*

4.4. The importance of the entrepreneur/leader in creating an OI climate

The founder/entrepreneur of Induct mentions that skills in OI can be trained but some entrepreneurial traits, such as dealing with uncertainty and leadership, cannot be developed in people: *If your question is 'Can somebody be trained to function in an OI context?' the answer is yes, but if the question is 'Can somebody be trained to create an OI context?', then the answer is no. So you can create followers but you can't create leaders.* In a small company, the leader stimulates OI and tells people where to go. The leader is responsible for creating a structure that allows for openness where people are rewarded based on their OI inducing behaviour: *OI also means that part of your job is to make somebody else shine ... if you have a company where remuneration is still based on how many ideas you brought to the table, then that won't work.* Another important role of the entrepreneur is to communicate to employees as to how they should deal with external parties, what they can share with partners and what they cannot speak about, etc. Before meeting with a partner, it needs to be clear what will be done, how it is done, and on the basis of which mindset negotiations should be entered: *You can walk in and say the only thing that counts here is money ... or you can say what's important is that we get a good price ... [but] on the other hand we also want support.* To prepare employees for

that, there are no procedures written down, but it is the everyday case that counts and about giving examples. When a new employee comes in, he learns from the experiences of colleagues based on these cases.

4.5. Selection and rewards in a family-owned business

The CEO of Devan selects people who have an open mind, who can share ideas, recognize their limits, accept that they are not the only intelligent people, and are able to communicate well with both internal and external parties. An open mind is further stimulated by the company culture: *If you make training at a university or an evening school about that [OI], yes, I think if it is not in the culture of the company, there will be not much difference afterwards.* All employees should feel and see the support and trust coming from the top management. Examples need to be given and it needs to be shown that there is a certain risk to OI, but that the potential benefits are of much greater value. New employees should be evaluated by multiple interviewers and, as they commence their job, they should be given sufficient time to get familiar with the culture, the ways of working, and the people. Regarding reward structures, people are becoming less demanding in terms of money, but more demanding in terms of flexibility and freedom. By giving curious people the freedom to go to conferences or to publish a paper, OI can be fostered. Thus, there are financial rewards, time-related rewards, and intellectual rewards. Regarding failure management, the company does not talk of failures but of experiences that can be learned from. If somebody has a problem, he is encouraged to communicate it, so that jointly a solution can be found. Because of the size of the company, the approach to OI is focused. If ideas are not in line with the core business they are licensed-out or given to the incubation centre so that somebody else can make use of them. There are no tensions evolving from this practice, as people within the organization are rather happy about seeing their ideas not being archived. A risk of

people leaving the company together with their ideas is also negligible as a gap is seen between researchers who are risk-averse on the one side and entrepreneurs who are risk-taking on the other side.

4.6. Selection through collaboration and non-standard rewards in a fast-growing company

The deputy CEO and human resource manager of Ridley Bikes states: *You may have the best products in the world, in the hands of the wrong people, nothing will happen.* The company's climate is built on commitment, integrity, and entrepreneurship and all employees are stimulated to abide by these principles. In terms of selection, Ridley focuses on soft skills for OI such as proactivity, external awareness, flexibility, being a team player, being able to coordinate and identify relations, and having an open mind. OI is a means to attract/gain access to talents that are not employed internally. By pulling resources with OI partners, ambitious and highly skilled graduates can be attracted. These co-cultivated talents can grow, develop, and acquire/exchange knowledge faster than within an individual small company. Failure within Ridley is viewed as a learning experience and people are stimulated to see mistakes in this way. Managers let people experiment and take risks in an environment where they can make mistakes. By giving people space to experiment they can grow, which is seen as one of the best ways to retain the best people within the company. On the other hand, however, human resource management also involves letting people go: *Some managers in human resources say ... my job is only good when there is nobody who wants to go away. I say that's not correct, that's really not correct ... When people are developing much faster than the company, you have to let them go.* The same holds true if the company is developing in a different direction than its people. The fact that people know that they can leave the company if they cannot apply their talent within it is seen as a further point of attraction. As a manager, it is important to realize that you do not have to

be smarter than your best engineer and that you do not have to understand everything, but you do need to grasp the risk that is involved in projects. Trusting people and paying attention to their talents is important so that they have the energy to proceed. Regarding rewards, team-based and non-monetary rewards that integrate, for example, an employee's family are valued highly.

4.7. Cross-case analysis

Table 2 summarizes the cross-case analysis on the basis of the following themes: selection, training, rewarding, and climate.

With respect to the selection of people, different traits are identified. Being curious, open-minded, able to function in a team and to interact are the traits most frequently mentioned. Apart from that, creative, passionate, energetic, brave, and respectful people seem to be desirable in OI. Building a diverse team with different thoughts, backgrounds, opinions and mindsets was in one case stated as one of the biggest challenges relating to OI. The recruitment was in one case done by one manager himself, while in two other cases involving multiple persons was believed to be essential.

Regarding the question if openness can be trained, the majority of the managers states that it can be trained, but that it starts fundamentally where people need to be willing to be open. The finding that it is not only the employees who must be willing to share knowledge and be open to others' ideas, but also the organization that must facilitate and stimulate this behaviour was replicated across multiple cases. Especially in small companies, creating a culture of trust is seen as more important for openness in contrast to having a formal training. Entrepreneurial skills seem to be more difficult to train as they involve dealing with uncertainty and risk.

In terms of rewarding practices, several managers state that non-monetary rewards and being recognized are more relevant than monetary rewards. In large companies, it is seen as crucial especially when doing spin-outs. One case specifically addresses this issue by saying that incentives of different people need to be aligned and that when being spun out people give up pensions in exchange for shares

Table 2. Cross-case analysis based on themes

	Case 1 — Brightstar	Case 2 — NVP	Case 3 — DSM	Case 4 — Induct	Case 5 — Devan	Case 6 — Ridley
Selection						
Profiles/traits	Creativity, bravery, passion, involvement, open mind, functioning in a team, articulation, social interaction	Involvement, passion, energy, respect, trust	Always looking for opportunities, listening, respecting, sharing, technical expertise	Being able to collaborate in non-hierarchical contexts, technical expertise	Curiosity and communication skills → these people are expected to be open-minded and able to recognize their limits	Being able to change, functioning in a team, having an open mind, being able to coordinate and relate one thing to another
Recruiting process	n/a	n/a	n/a	Based on feeling, usage of multiple interviewers to quantify feeling, technical tests	Multiple interviewers, gut feeling, key question: Will person fit	Recruiting by human resource manager himself
Training						
Openness	It's in people but it's buried; it's all about thinking → you need to change people's thinking	n/a	Willingness to share and collaborate, openness must also be stimulated	OI context/mindset must already exist → you can train people to be followers	No formal training, but by establishing a culture → without culture, training does not help	By giving people freedom and trust they feel comfortable with being open

(Continued)

Table 2. (Continued)

	Case 1 — Brightstar	Case 2 — NVP	Case 3 — DSM	Case 4 — Induct	Case 5 — Devan	Case 6 — Ridley
Entrepreneurship	When people believe in what they are doing → passion and creativity is created	Right personality, attitude, drive and desire to believe that skills are necessary	It's difficult in a large corporation; it's an active word and a risky profile; in DSM they call it intrapreneur.	Some aspects can be trained, but things like dealing with uncertainty not	n/a	n/a
Rewarding						
How and why is it important	Rewarding is important but also recognition which means a rise in esteem; pensions are given up when you leave a large company	When spinning out incentives need to be aligned, perceived unfairness, pension is given up for stocks	Different remuneration plans are needed for entre/ intrapreneurs; to engage, to stimulate result orientation, and to commit	Rewarding is important, but for a small company, having a clear system is not so relevant as the focus is clear for everyone	Financial rewards become less important, time-related rewards and intellectual rewards become more important	Not only seen as money but also as free time; most rewards are team based

Culture

How and why is it important	OI is about culture and the thinking of people; support and belief has to be there from the top when mindset is changed, people need to talk to other people about their ideas	If you bring entrepreneurs in a large organization, culture will kill them; you should not create a safety net; you need to change people's thinking from technology to customer	Lots of attention has to be paid to soft issues, you need to stimulate openness, failure needs to be viewed positively, you can learn from it	OI is inspired by person, team leader much more important than systems	Crucial, what you demand from people you should allow and stimulate them to do	Crucial, you need to give people freedom, trust, space to grow, support
Critical human resource issues	Creativity, passion, articulation and social interaction, teamwork and shared vision	Recruiting the right management team, reward scheme, failure management	Inclusive and diverse team, changing a "winning team" in time	Getting the context right	Trust, culture	Trust, culture

in the newly founded company. This sometimes leads to a perceived unfairness between people who are left behind and people who are spun out. In another case, this issue was addressed by saying that entrepreneurs being employed by a large organization seek to be rewarded specifically. Furthermore, rewarding practices can be used to stimulate employees in embracing OI.

All in all, creating a strategically focused OI climate is seen as crucial. In particular, creating a climate in which people feel trust and support from the top, in which people respect and listen to each other and in which openness and knowledge sharing is facilitated and stimulated is seen as supportive for OI. Within the last row of Table 2, critical human resource issues for each case are highlighted, whereby trust and climate are replicated across several cases.

5. Discussion and Conclusions

This chapter has generated preliminary insights with regards to the question as to how human resource practices can strengthen OI. In this concluding section, we will generate a number of propositions based on the main findings as well as identify a number of challenges for human resource managers in OI.

In terms of the theoretical model put forward in Fig. 1, our exploratory case-based research indicates that the OI inducing behaviour in employees in terms of openness and sharing are more important for effective OI than “hard” skills and abilities. Managers mention that it is crucial for employees to be adept at both internal and external communication and information sharing as well as learning from others. This OI attitude is often buried in people and it is up to the organization to stimulate its explicitness. Through human resource practices, the OI behaviour of employees can be stimulated, which subsequently leads to stronger OI effectiveness. As such, our first proposition is as follows:

Proposition 1. *OI activities are more likely to be effective when employees exhibit a positive attitude towards OI.*

The results of this study also demonstrate that the organization must create an OI climate where people can be open, share knowledge, and feel comfortable to experiment and make mistakes. This climate is characterized by trust, mutual respect (recognizing other people's abilities and listening to others with different skills/knowledge/opinions), and the viewpoint that failure is a learning experience. Rather than focusing on controlling employees through rules and restrictions, thereby killing their creativity and passion, human resource management needs to stimulate and facilitate openness by allowing people time for exploration, sharing ideas, and visiting conferences. In relation to Fig. 1, we can state that human resource practices can influence employees' behaviour both directly and indirectly through the establishment of an OI climate:

Proposition 2. *Employees are more likely to embrace OI when the organizational climate is stimulating and facilitating openness.*

The cross-case analysis indicates that selecting people on the basis of their personalities and their willingness to be open, stimulating openness through rewarding practices, and creating a strategically focused OI culture are more relevant than training people to be open. Traits that are generally identified in our case studies as relevant for OI are open-mindedness, curiosity, adaptability to (tolerance of) change (i.e. particularly relevant in start-ups and spin-outs), and the ability to interact. Digman, in his 1990 paper, identifies five broad dimensions along which personalities can be described: Extraversion, agreeableness, conscientiousness, emotional stability, and openness to experience. The managers in our study describe desirable OI traits that coincide most with the traits associated with openness to experience: curiosity, intelligence, broad-mindedness, being tolerant of uncertainty, being able to cope with change, etc. (Barrick and Mount, 1991; Judge *et al.*, 1999; McCrae, 1990). The set of traits within the "openness to experience" category may be a good predictor of an employee's willingness to embrace OI and share knowledge (see also Cabrera *et al.*, 2006). Traits that are associated

with extraversion, i.e. being sociable, active, and talkative (Barrick and Mount, 1991), also coincide with the findings from the case studies in terms of interacting with others and functioning within teams. Being socially competent is also among the three most important competencies for individuals in OI teams according to a study by Du Chatenier *et al.* (2010). Further relevant traits relating to OI that can be derived from the case studies are being brave and passionate. These traits were mentioned for people pursuing one's own ideas through, for example, spinning out of a large organization. Herzog (2011) has found that in contrast to closed innovation units, being proactive and result-oriented are traits that are more relevant in OI units. These traits belong to the dimension of conscientiousness, also referred to as the will to achieve (Digman, 1990). As such, for the purpose of selection practices, we suggest the following:

Proposition 3. *The higher employees score on openness to experience, extraversion, and conscientiousness, the more likely they are to embrace OI.*

In our study, rewarding practices are found to be beneficial for stimulating an employee's willingness to be open (particularly in spin-outs, reward structures are viewed as important tools in showing appreciation for being proactive and taking on risks). For example, by giving curious people the freedom to go to conferences or to publish a paper, OI can be fostered. Several managers have stated that in relation to OI, non-monetary rewards, such as time-related or intellectual rewards, are more in demand than monetary rewards. One manager has pointed to the fact that rewarding employees for their success in other companies can lead to more collaborative and achievement-oriented behaviour. In relation to Fig. 1, we can put forward that rewarding practices can stimulate openness:

Proposition 4. *Employees are more likely to embrace OI when rewarding practices stimulate openness.*

Our research also identifies a number of challenges facing human resource managers involved in the implementation of OI and OI managers dealing with human resource challenges:

- *Finding employees with a positive attitude towards OI who are likely to embrace it.*
- *Building an inclusive and diverse team, while at the same time making sure that individuals fit within the organization.*
- *Determining what knowledge can and cannot be disseminated while stimulating people to share their ideas.*
- *Stimulating employees to embrace OI by unlocking the company and by creating an organizational climate that fosters OI behaviours.*
- *As a human resource manager to realize that in order to succeed, OI needs technology, business processes, and people and as an OI manager to pay attention to human resource management and to respective human resource practices.*
- *Managing the transition of teams along the OI process by on the one hand recognizing people for achieved results and on the other hand changing a “winning team” as new skills are required at a next stage.*
- *Supporting and stimulating OI while at the same time realizing business results.*
- *Making sure that “failure” is seen as a positive learning exercise.*
- *In the spin-out process, aligning incentives for people who are spun out, people who are left behind, middle managers, and people who manage the spin-out process.*
- *Realizing that sometimes it is better to let employees go.*

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