Peer-reviewed version available at Sustainability 2018, 10, 2538; doi:10.3390/su10072538

Article

How to avoid pigeonholing the environmental manager ?

Julien Boucher [1,2], Jenny Clotilde[1], Zara Plummer[2] and Gerhard Schneider[1,*]

[1] University of Applied Sciences and Arts Western Switzerland // HES-SO, HEIG-VD, Yverdon-les-Bains, Switzerland
[2] EA ECCO, Chemin de Vignes d'Argent, 1004 Lausanne, Switzerland
* Correspondence: julien.boucher@heig-vd.ch ; Tel.: +41 (0) 76 532 57 27

Abstract: The research investigates the role the environmental manager plays to ensure a successful (or not) implementation of environmental performance within an organization. It is based on interviews of 5-7 actors per company within a sample of 7 companies (42 interviews).
We build upon bias of perception of the various actors interviewed within each company to define 4 paradoxes related to the roles and mission of the environmental manager that hinder proper efficiency of environmental management at company level. Paradox 1 is that no one takes ownership of environmental performance within the organization. Paradox 2 is that the environmental manager is in an awkward situation vis-à-vis his boss. Paradox 3 is that the role of the environmental manager is ambiguous vis-à-vis employees. Paradox 4 is that corporate and product approaches are decoupled.
We suggest that these paradoxes interact and form a vicious cycle that may in part be responsible for the environmental decoupling phenomenon – the fact that companies often adopt a sustainability policy symbolically without implementing it substantively. Our research suggests that, by leveraging the leadership of the environmental manager through organizational and motivational measures, the vicious cycle can be transformed into a virtuous cycle and the human motivation can become a driver for green change within corporations. We proposed the SEA (Shaping Environmental Action) model based of 4 pillars: information, motivation, organization and strategy.

Keywords: environmental management, ecodesign, maturity, environmental decoupling

1. Introduction

Over the last 30 years, environmental management is slowly moving from a purely risk-driven to a more opportunity-driven approach. In early stages, ensuring compliance with environmental regulations and standards was the main concern of environmental managers (e.g. through the ISO14001 standard). More recently, companies are moving towards a more pro-active and innovative approach, driven by market competition and consumers. In parallel to their classical environmental management systems, companies have developed voluntary strategies to improve and communicate their environmental performance [1,2]. These approaches are often based on footprinting and coupled with reporting initiatives [3].

However, in the excitement around green and the rush to keep up with the crowd, it is easy to overlook small discrepancies in sustainability-related actions and messaging. Studies that scrutinize the integration of environmental strategies show that while many companies communicate proactively about their efforts [4], implementation lags behind - there is an implementation gap [5,6]. Most executives in practice treat the need to become sustainable as a Corporate Social Responsibility (CSR) approach, divorced from core business objectives and the very essence of the company activity, i.e. the products or services delivered. In this view, business firms often adopt a sustainability policy

symbolically without implementing it substantively – the organization "decouples" formal structure from actual work practices [7].

Obstacles to the implementation of sustainability are different, but interconnected, making this a complex organisational, psychological/behavioural and environmental issue [8]. The contribution of the environmental manager to this decoupling has not been studied extensively, with most research being rather theoretical [9] and not practitioner/actor oriented. In this research we seek to address this gap and open the "black box" of the organizational embedding of sustainability, with a specific focus on the role of the environmental manager. We more specifically address the research question: does the environmental manager constitute an alibi, a driver or an obstacle to environmental performance in the corporate world?

By analysing the cross-perception of environmental management from 42 actors' viewpoints within 7 Swiss and French companies, this research brings a substantial and novel insight into the form of 4 paradoxes that are strongly interconnected and generate a vicious cycle, hindering the change towards more environmentally friendly companies and products. We further build on these findings and discuss whether the environmental manager himself, given his status and role within the company could play a significant role in unlocking these obstacles.

2. Literature Review

Our research project draws upon two main streams of literature:

- The management and organization theory literature, with a focus on organizational decoupling, looking towards the potential role of the environmental manager in this decoupling.
- The sustainability practitioner-oriented literature, with a focus on the application of environmental management systems and of ecodesign, looking towards the role of the environmental manager in making these approaches a success both for environmental performance and business performance.

2.1 Decoupling theory

Past research has revealed that firms have severe difficulties in translating broad sustainability goals into concrete organizational practice (Olsen and Boxenbaum, 2009; Basu and Palazzo, 2008; Weick, 1995), a phenomenon often referred to as "decoupling". In a recent paper, Wijen (2014) discussed discrepancies of decoupling in the context of socio- environmental governance, drawing attention to the distinction between "policy–practice decoupling" and "means–ends decoupling". Policy–practice decoupling refers to the "classic" notion of decoupling (Meyer & Rowan, 1977), according to which organizations adopt a policy symbolically without implementing it substantively. In contrast, means–ends decoupling indicates that an organization complies with a policy, but fails to achieve the envisaged goals that the policy is meant to serve [10].

Regarding "means–ends decoupling", major problems are particularly related to cognitive and behavioural barriers to organizational change, such as "locked-in" mental schemes and occupational habits that are largely incongruent with novel and unfamiliar practices (Battilana and Dorado, 2010). In this view, a fundamental barrier to sustainability implementation relates to the dominant mind-sets of organizational actors, which deters them from embracing novel practices, especially when they are perceived as misaligned with existing business practice. Research on the integration of organizational practices (e.g. Fiss and Zajac, 2004) likewise supports the notion that the alignment with novel bodies of thought and practices is challenging if they don't "make sense", that is, if they lack cultural and political alignment with the already existing routines and accepted notions of "how things are done" (Ansari et al., 2010).

Research on policy–practice decoupling (MacLean and Behnam, 2010; Schneider et al., 2017) has shown that organizations often adopt policies symbolically without implementing them substantively. Decoupling policy from practice enables organizations to maintain their legitimacy in the face of conflicting institutional demands. For instance, an organization may try to please both

investors and environmental groups by being profitable, cutting costs, thus being legitimate for the first, and by reducing emissions or addressing other environmental concerns, thus being legitimate for the second

This decoupling is used to explain the gap between company environmental promises and real actions yielding real environmental impact savings. As reported in the literature, this decoupling may have different causes, but the role of the environmental manager in explaining this decoupling has not yet been specifically investigated.

2.2. Environmental management systems and ecodesign

Since the 1970's, environmental approaches have penetrated most companies at different depths and grounded on different motivations. State regulations were the first driver in the 1980s, leading to the deployment of rather expensive "end of pipe" solutions like filters, waste water treatment, and so on. In the 1990s, the focus switched to normative and industry-driven instruments like resource or energy efficiency and the development of Environmental Management Systems (EMS) based on a voluntary participation (ISO 14'001 in 1996). More recently, the market driver has become important, resulting from the consumer demand for more green companies and products. This has led to the widespread adoption of tools to measure environmental performance, such as footprinting companies, sites, products and technologies based on the Life Cycle Assessment (LCA) approach. Footprinting approaches are currently used for (a) providing a factual basis for the discussion between actors of the same supply chain, (b) reporting on products (e.g. environmental labelling) or corporations (e.g. carbon footprint or GHG protocol), (c) comparing the environmental performance of different products and (d) comparing alternatives during the design process (eco-design). On top of that, companies have increasingly disclosed their Corporate Social Responsibility (CSR) strategies and achievements.

The ISO14001 standard is one of the major tools used by companies to manage environmental issues, and its implementation is the prevalent task of most environmental managers worldwide. Until recently, ISO14001 was mostly a compliance and risk-management tool, as well as a system to manage environmental objectives at the company or industrial site level. As such, ISO14001 was often perceived by company actors as an administrative burden, not necessarily correlated with an increase of environmental performance, nor with economic performance for the firm [11–13]. Indeed, the literature on the benefits of such a standard is contrasting, some arguing that it is efficient in enhancing the environmental improvement of companies [14] and some not [15,16]. This probably reflects different interpretations of what is environmental improvement and different interpretations and implementation of the standard yielding different results [17]. Often adopting this standard leads to a ceremonial behaviour intended to superficially demonstrate that the certified organizations are compliant. Although rigorous compliance with the standard often results in real improvements, these improvements are primarily superficial and/or administrative in nature [18].

ISO14001 was fundamentally re-shaped in 2015, introducing major changes and closer alignment with ecodesign approaches. Not only did it introduce new key concepts, such as the "life cycle approach" and "performance" [19], but it also adopted the same high-level structure and wording as the quality management system ISO 9001:2015. This new feature offers a strategic opportunity to better integrate life cycle thinking, environmental management and quality management for companies and products, thus setting the basis for real progress of the company environmental performance, i.e. a reduction of environmental impacts generated throughout the life cycle of its operation and products. However, if this breakthrough in the philosophy of environmental management is a stepping stone for launching innovation and ecodesign projects, it may also radically change expected missions and roles of the environmental manager. Indeed, the job may switch from a rather peripheral monitoring activity to more strategic and change management-oriented missions.

Ecodesign is already implemented by pioneer companies in some pilot projects or, more rarely, fully embedded in the company processes and culture, most of the time tied to economic success [20]. The term ecodesign refers to a pro-active and anticipative approach embedded in the company

Peer-reviewed version available at Sustainability 2018, 10, 2538; doi:10.3390/su10072538

operation and strategy, to continuously improve its core environmental performance throughout the life cycle of its activities and products [19]. To be of benefit to the organization and to ensure that the organization achieves its environmental objectives, it is intended that ecodesign be carried out as an integral part of the business operations of the organization. Ecodesign might have implications for all functions of an organization. Current barriers and obstacles to the implementation of ecodesign stress the need for more structured processes and integration with management systems [21], and requires motivation of employees to be scalable [22].

Some of the decoupling described earlier may be related to the weak junction between management systems and product-oriented approaches such as ecodesign, which the new version of the ISO14001 norm may improve if properly implemented. The role of the environmental manager in this implementation is not specifically described in current scientific literature and will be further studied in the present research.

3. Materials and Methods

The research presented in this paper followed a hypothetic-deductive approach [23], which aimed to develop a conceptual and theoretical structure prior to its testing through empirical observation, i.e. falsifying hypotheses or finding new evidence to improve theory. In this context, the research was carried out in three main phases: theory development, theory testing and theory improvement.

3.1. Theory development through desktop research and conducting convergent interviews

Preliminary desktop research was carried out and complemented with interviews using a convergent interviewing technique [24,25]. Convergent interviewing is data-driven: the respondent does the talking and the interviewer lets the data guide the interview. Data analysis occurred after each interview and this data guided subsequent interviews. Over several interviews a few common themes emerged that the interviewer probed for disconfirming or confirming views. If there was disagreement, the interviewer asked for an explanation. From this first round of interviewing we derived ideal-types [26] and a theoretical model that was further tested in subsequent more structured interviews (#4.2). The interviews were conducted with 20 environmental managers from a list of companies that the research partners had had previous contact with regarding environmental management practice. These companies were Swiss or French based companies. The average face-to-face interviews lasted about 45 minutes.

3.2. Theory testing through conducting structured interviews with 42 employees in 7 companies

Seven companies were selected from the list of the 20 environmental managers interviewed. In these 7 companies, we performed multiple interviews with different actors within the company to investigate cross-perceptions and test our theory. The criteria for selection of companies were (i) the presence of at least one employee with formal responsibilities for supporting environmental management, (ii) the environmental management approach having been in place for at least two years in the company, and (iii) the environmental manager declaring facing difficulties during implementation.

Interviews were further conducted with the 7 environmental managers plus 35 employees or managers from the 7 selected companies (6 in Switzerland and 1 France, close to the Swiss border) (Table 1). These companies were different sizes and from very different fields of activities. Each company had 5 to 7 interviewees, including the environmental manager, the top manager, other intermediary managers and employees. The average face-to-face interview lasted about 90 minutes.

Peer-reviewed version available at Sustainability 2018, 10, 2538; doi:10.3390/su10072538

Table 1. Detailed description of the companies (anonymized) included in the study.

	Sector	Number of employees (FTE)	FTE dedicated to EM	% FTE dedicated to EM	14001 certified
Company A	Food	35	.2	0.57%	no
Company B	Health	10000	0.4	0.004%	yes
Company C	Construction	790	2	0.25%	yes
Company D	Tools manufacturing	142	1.5	1.1%	yes
Company E	Services / logistics	1000	8	0.8%	yes
Company F	Services / transport	800	0.4	0.05%	no
Company G	Electronics / Manufacturing	400	0.25	0.06%	yes

For the Information gathering step, a structured interview technique [27] was adopted by pre-establishing a set of specific questions in an interview guide: the pre-determined interview presupposes that the researcher knows what information will be relevant to the informant and there is little opportunity for the interviewer to improvise or exercise independent judgment. An observer would probably note that this is not unlike a survey except that the sample is smaller and purposive [24]. The interviews were structured as follows:

1. Introductory questions (Role and missions in the company, contribution to the environmental approach, personal motivations)
2. A first set of questions based on a limited number of answers or a 1 to 10 cursor
    a. Do you think environmental management is important for our company? (position a cursor from 1 to 10 and explain)
    b. Do you think your company is mature in term of environmental management? (position a cursor from 1 to 10 and explain)
    c. What represents environmental performance to you?
    d. Who takes ownership of the environmental performance?
    e. How do you consider the environmental manager?
3. A second set of questions consisted of collecting 3 keywords relative to the interviewee perception on (i) environmental management in general and more specifically on (ii) the environmental manager.
4. Some open-ended questions aiming at identifying the perceived drivers and obstacles for change.

3.3. Theory improvement through presentation and unstructured interviews

Once the data for each company was gathered and analysed, findings were presented in an anonymous way to the respondent representative for each company (environmental manager and/or top manager), asking for confirmation or rejection of our theory. The presentation was followed by a 45 min interview using unstructured interview techniques [27]. The use of unstructured interviews without a predetermined line of questioning enables collection of broad information and provides a greater depth of data than other types of interviews, as the attempt is to gain insight into the informant's understanding of a situation or process. The opening question targeted the identification of a set of possible actions and remediations in favour of better integration of environmental management and of the environmental manager within the company.

4. Results

4.1. Environmental managers feel like they are in a "silo"

The first series of convergent interviewing enabled us to highlight three ideal-types [26] amongst environmental managers. The first ideal type was named the "norm-driven environmental manager", who is mainly dedicated to ensuring compliance with given standards or regulations. Often in this case the environmental manager is also in charge of the compliance with other standards within the company e.g. quality management or health and safety. He is reluctant to change. We named the second ideal type the "innovation-driven environmental manager"; he/she is struggling to interact pro-actively with employees and managers in order to implement or trigger a change outside of any normative framework, most of the time based on a company commitment for sustainability. He/she is motivated to make a change. The third ideal type was named the "institution-driven environmental manager", who is in a questioning phase and in the process of proposing a strategy to the direction. He/she has in general not been in place for a long time, feels insecure and/or is looking for advice or consultants to support him/her in finding the appropriate course. These different ideal types are representative of the current evolution of environmental management from risk-driven to opportunity-driven behaviours, as described earlier with different environmental managers and companies having different levels of maturity in this respect.

Similar themes emerged for these three ideal types: all the environmental managers interviewed agreed to state that they feel like they are in a "Silo" within their company - somehow disconnected from core business activities and strategies. They report having difficulties connecting and mobilizing a large group of employees in the environmental approach. They most specifically struggle to interact with intermediary managers, who are driven by other corporate priorities, and with whom they have no legitimacy and even less authority to interact with. They must therefore convince others to act without having a clear mandate to do so.

4.2. A stong bias of perception amongst company actors

The next round of structured interviews allowed a cross analysis of the perception of different actors within each company and thus to step back from the sole vision of the environmental manager. In all companies we observed a strong bias in the perception of the importance of environmental management. The answers to the question *"According to you, how important is the environmental approach for your company in term of competitiveness _ place a cursor from 1 to 10?"* were contrasting, as shown on **figure 1**. Similar contrast of answers was observed when asking the question of the maturity: *"According to you, how mature is the environmental approach for your company _ place a cursor from 1 to 10?"*. These results suggest that environmental performance has not been objectivised and communicated at company level. The perception of actors is more based on personal mindset and beliefs than results from any corporate vision or communication. This contrasted perception of the environmental approach by company actors is further confirmed by the analysis of keywords as presented in **figure 2**, showing two distinctive and opposed opinions: on one hand some actors are positive and envision environmental management as bringing value. On the other hand, other actors are negative and envision environmental management as a constraint.

These findings also reflect the evolution of environmental management over the last decade from risk to opportunity driven, and with the two views coexisting in a somehow conflicting manner.

From these structured interviews, we broke down these biases of perception in the form of four paradoxes as described in the next sub-sections of this article.

Peer-reviewed version available at Sustainability 2018, 10, 2538; doi:10.3390/su10072538

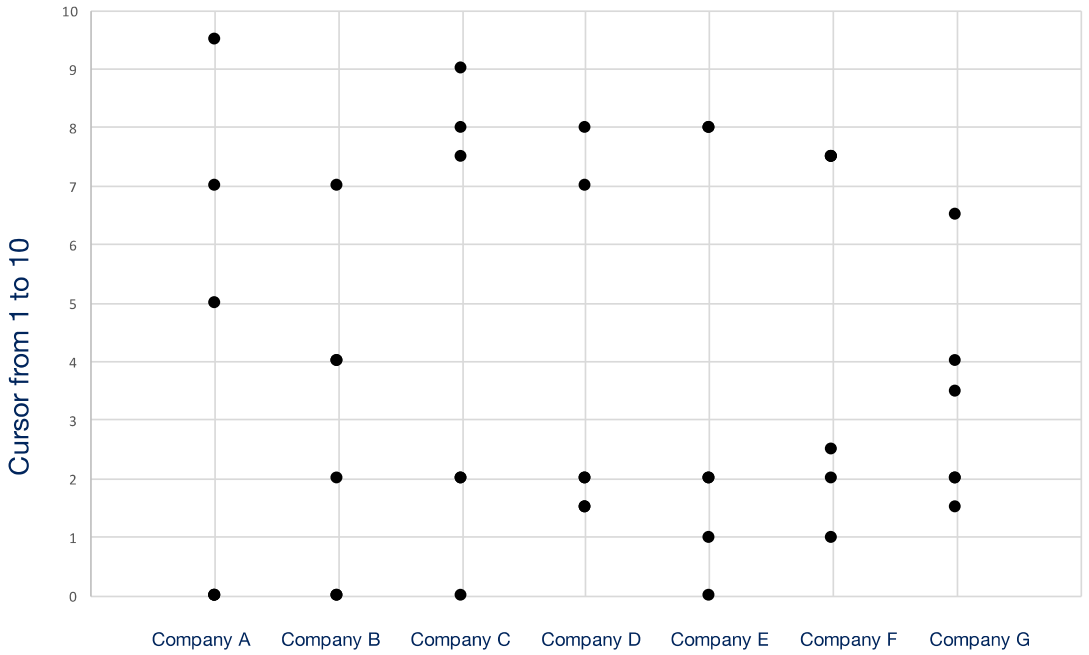

Figure 1. Contrasted perceptions of the importance of environmental management for 42 interviewees within 6 companies.

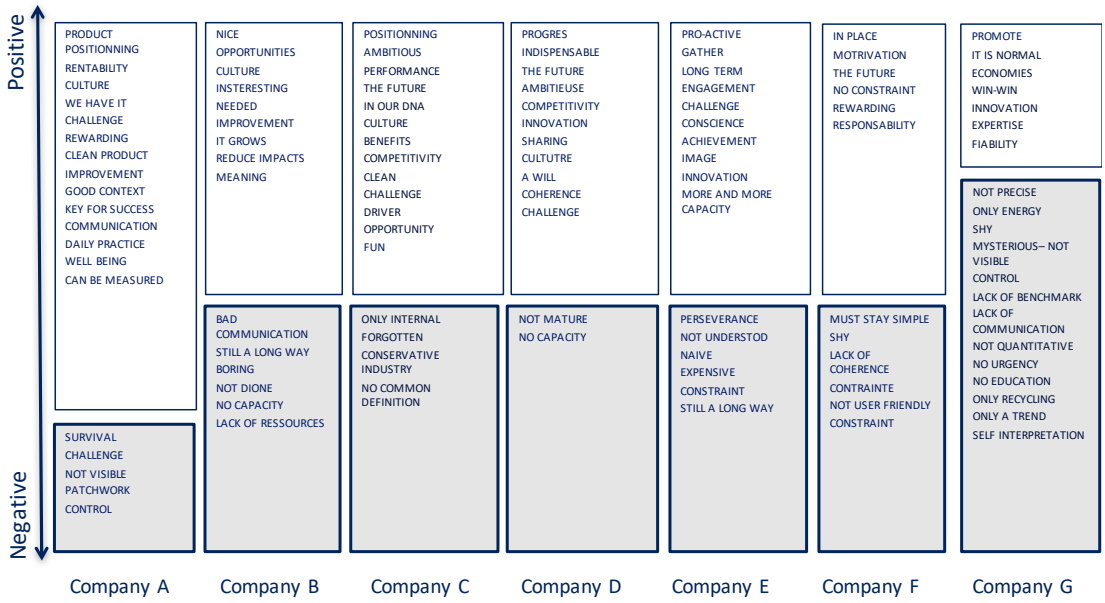

Figure 2. Keywords from the 42 interviewees related to environmental management within their company, classified between the positive and the negative perceptions.

4.3. Paradox 1: no one takes ownership of environmental performance

Many companies have sustainability teams, but not all employees know who is empowered to make decisions about sustainability and enforce them. Is it the CEO, the CMO, a strategy officer, the EH&S department, or perhaps the sustainability team itself? In the 7 companies of our panel we asked the following question to all interviewees: *"According to you, who takes ownership of the environmental performance within your company?"*.

Peer-reviewed version available at Sustainability 2018, 10, 2538; doi:10.3390/su10072538

The answers to this one simple question were very contrasting, as illustrated in **figure 3**. On one side, all environmental managers in our panel gave similar answers, saying unanimously that they do not hold this responsibility, arguing that ownership is taken by top management in most companies, or by a product manager in more product design-oriented companies. However, all other interviewees answered differently: about 2/3 said that the environmental manager obviously owns the responsibility of environmental performance, while the rest believed that this responsibility is owned by each employee. The answers from environmental managers versus other employees are thus paradoxical and denote a lack of organisation of responsibilities within the companies in our panel. Most actors don't have a vision of how the company is organised in terms of environmental performance, and no one takes ownership of it. Obviously, this misunderstanding in the company hinders action. Many actors have admitted that they do not act spontaneously for the very reason that the company already has an environmental manager in place, and that he/she is the one supposed to take action. This paradox is well illustrated by the following verbatim picked up through our interviews «*I am the owner of the project, I can support my colleagues, but I do not have ownership of the results* ». One could question whether this lack of ownership results from a lack of organisation/formalization in itself or from a lack of internal communication.

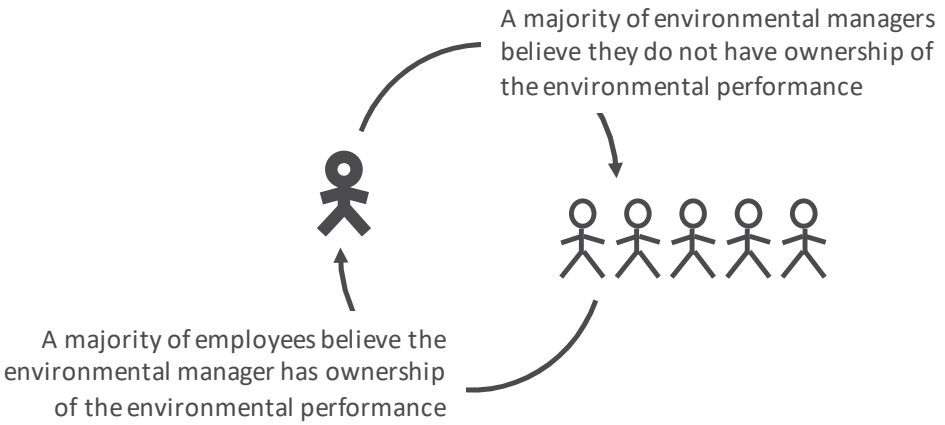

Figure 3. Environmental manager is in bold (other actors drawn with thinner line) answering the question of who takes ownership of environmental performance within the company.

If communication is lacking in the majority of cases, the lack of organisation and formalization of responsibilities is also obvious: none of the interviewed companies had environmental clauses. According to one employee « *there is a clear will from management, but we are not rewarded and assessed on these environmental aspects* ». Besides, the environmental manager has no responsibilities in core business or product related activities. They are laying in a metaphorical silo, disconnected from decision-making. One environmental manager even reported: *"I do not exist in the organigram"*, meaning that only his role of quality manager was recognised and not the environmental side of his duties.

Finally, another signal of this "silo effect" is that the embedding of the environmental management within the organization was very different and mostly resulted from non-rational historical reasons. Indeed, in our panel we had very different anchoring of environmental management: attached to the direction, to R&D or innovation, to quality management, or to the legal department.

4.4. Paradox 2: the environmental manager is in an awkward situation vis-à-vis his boss

The next paradox that was evidenced is related to the way companies define sustainability and sustainability objectives. The following question was raised to the 7 environmental managers "*Do you*

Peer-reviewed version available at Sustainability 2018, 10, 2538; doi:10.3390/su10072538

have a clear term of references and objectives?". To this question also, the environmental managers replied unanimously "No" (**figure 4**).

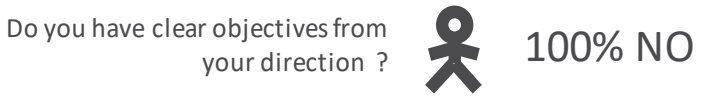

Figure 4. Environmental manager answering the question "Do you have a clear term of references and objectives?"

Not being a business-driven priority relayed by marketing departments, the senior management usually expects the environmental manager to propose their own roadmap. This obviously places the environmental manager in an awkward situation where he is the one who should "raise the bar" and make the effort to meet it. Some environmental managers confessed that they did not want to propose too ambitious plans for fear of not achieving expected results. *"I cannot be too ambitious, I do not want to shoot myself in the foot"*.

The ambition and effectiveness of the environmental approach thus relies on the motivation and beliefs of the environmental manager more than on targets set by top management. In two companies, we witnessed strong motivation from environmental managers. This remarkable engagement was key to the success of the environmental approach and congratulated by top management and other employees: *« He is clearly the one who sowed the seeds of the approach and made it alive in the company. He was a support and a motivation for all of us» «Thanks to our environmental manager, the CEO could himself understand and support the approach; he tried to turn it into a competitive advantage »* . In other cases, the environmental manager adopts a low-risk attitude without launching ambitious plans, and in doing so pleases the top management.

Integration of business strategy with environmental strategy is key to overcome this obstacle but implies strengthening role and leadership of the environmental manager to be part of a coherent strategy setting.

4.5. Paradox 3: the role of the environmental manager is ambiguous vis-à-vis employees

The next question asked to all interviewees except for the environmental mangers themselves was: "*Do you envision the environmental manager as a coach for you or someone who is controlling what you are doing?*". Again, as shown on **figure 5**, answers to this question were very contentious. About half of the interviewees (52%) perceived the environmental manager positively as a coach that adds value, while the remaining interviewees had a rather negative vision. 24% declared not perceiving the environmental manager at all and 24% had the image of a controller or a "*pain in the neck*" being more a burden in their work than a support.

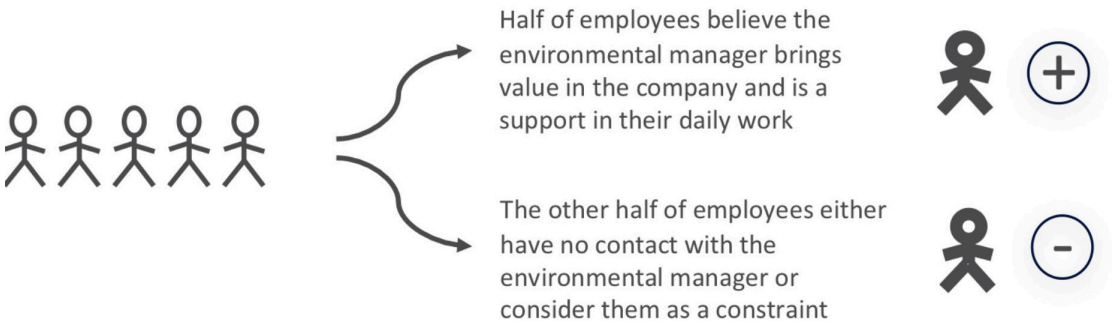

Figure 5. Responses to the question "Do you envision the environmental manager as a coach for you or someone who is controlling what you are doing?"

Peer-reviewed version available at Sustainability 2018, 10, 2538; doi:10.3390/su10072538

This is well illustrated by the keywords from all interviewees as presented in **figure 2**. A dichotomy clearly exists. We can question whether this dichotomy is the result of interviewees' perception (considering the environment as something important or not), or if this is something related to the role of the environmental manager within the company.

« *Someone should motivate others, otherwise no one acts* », but this is made difficult for environmental managers to take leadership if they are perceived as a controller within the company. *"We do not have enough resources in terms of coordination".*

From the perspective of the environmental manager this double role is a cause of difficulties and frustration at a personal level. Indeed, they have to constantly jump from the one role ("controller") to the other ("coach"). In one company, these roles where split and the environmental manager, who in this case was in charge of innovation, was much better perceived by other employees. This obviously requires more people involved. One striking fact is that the FTE ratio is varying greatly, from 0.05% to 1.1% within the sample of companies surveyed.

4.6. Paradox 4: corporate and product approaches are decoupled

Companies in our panel are currently lacking a system that incorporates sustainability into decision-making and a project gating system from marketing R&D, production, sales and purchasing. There is a gap between the corporate approach of environmental management and the product approach, meaning that most actors (including most environmental managers) envision the environmental approach as a primarily corporate approach. This is especially true for the norm-driven type of environmental manager who does not step aside from his industrial site management vision and pains to integrate a life cycle mindset or any type of ecodesign thinking. For the most mature environmental managers, corresponding to innovation-driven types of environmental managers (two in our panel), their action is hindered by a lack of adequate structure and connection with intermediary managers (e.g. marketing or innovation). These environmental managers lay in a silo and fail to significantly act at product level, while others do not even have these perspectives in their radar.

This decoupling between the corporate approach and the currently-lacking product approach is also visible at the level of other employees. Most employees envision environmental performance as related to employee behaviours, commuting or waste management. Most actors do not perceive that their daily work or decisions can have an impact on the environmental performance of company products or services. A reason for this is that even in project-based companies, the environmental manager is not integrated in the gating system of the project management. One direct consequence of this decoupling between the corporate approach and the product approach is that both employees and environmental managers lay discouraged as they feel that the environmental performance of products is a *status-quo* that cannot be influenced. Actors are not able to identify decisions or actions that they can take to enhance environmental performance. Even the environmental manager struggles to identify key actions to reduce the company footprint, and thus is discouraged because of lack of hope and action. Without clear action in mind, the project management does not evolve towards improved systematic integration of the environmental thinking. These two sentences picked up from the interviews illustrate the above analysis: *« I do not really see what could be done for the environment from here; there is not much room for innovation in our business » « If we had 10 obvious possible improvements, then I would set up a committee to have them implemented »*

4.7. Possible driver: the motication of employees

The interviews with all actors (except environmental managers) showed that most do not act because they are not incentivized and/or feel that someone else (the environmental manager) is in charge.

If at a personal level they are motivated to achieve sustainability, in the corporate context they are not mobilized. Being on the side of profit-driven routines, actors at many levels of the company implicitly receive the information that sustainability is not a key question to management and

Peer-reviewed version available at Sustainability 2018, 10, 2538; doi:10.3390/su10072538

sustainability does not easily become part of the corporate culture of companies, but rather is perceived as a burden.

However, all but one of the 42 people interviewed admitted an interest in better integrating environmental aspects into their jobs and a large proportion felt frustrated for not doing so. Indeed, all actors declared that environmental protection is part of their personal values, and they feel they behave better in their personal life than in their professional life. They currently do not act because they are not incentivized to do so, or feel they have no legitimacy for action. Most actors would happily be assessed for their contribution to environmental performance. Most are motivated but need to also be rewarded for taking decisions. The lack of communication has also been stressed by most employees; most do not know how to act in accordance with a company strategy if any *« communication towards employee is still missing to really raise awareness about sustainability»*

We conclude that there is room for bottom-up, employee-driven force to generate environmental change and leverage environmental management within companies. This driving force could complement or palliate the legal and market driving force for environmental change. *« What is really missing is listening to employees; having a sustainability committee would be positive ».*

5. Discussion

5.1. The silo effect as a consequence of a vicious circle

Our research highlights 4 paradoxes related to the way environmental managers do their job and interact with other employees. We can question whether these 4 paradoxes are consequentially connected with one another e.g. if the lack of responsibility setting could explain the lack of objective, which in turn could explain the lack of clarity of roles, etc. We advocate here that these 4 paradoxes are strongly interconnected, as illustrated in **figure 6**. The lack of responsibility-setting yields a situation where no one sets objectives. The absence of objectives creates a situation where no one takes ownership of the issue. For the employees the role of the environmental manager is not clear, and as such the environmental manager is not considered as having the legitimacy to set objectives. Because there is a decoupling between the corporate and the product approach, objectives are not set for products, which makes the approach a side-approach and reduces the legitimacy of the environmental manager to generate change.

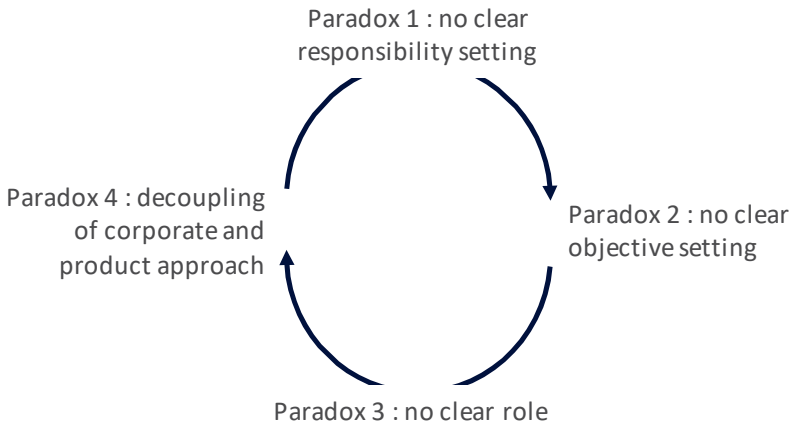

Figure 6. The 4 paradoxes throughout our research create a vicious circle that hinders actions towards more environmental performance.

This strong interconnection between the four paradoxes results in a vicious cycle, with each paradox reinforcing the other and the environmental manager laying in a “silo” on the side of core business routines, and most of the company actors not being mobilised for any sustainability action. We believe that these facts partly explain the decoupling described in literature as this vicious cycle yields an implementation gap between promises from the company and action on the field. To bring

Peer-reviewed version available at Sustainability 2018, 10, 2538; doi:10.3390/su10072538

environmental management to the next level and allow the environmental manager to gain back leadership and contribute to value creation in a more sustainable company, this vicious cycle must be interrupted and ideally converted into a virtuous cycle. This is required to ensure that all relevant decisions made across their business align with their green intentions.

5.2. Moving towards a virtuous cycle?

Moving towards a virtuous cycle, where each actor of the company would have ecodesign as a mindset requires each actor to have the right conditions as described in **figure 7**. If an actor has a clear and convincing answer to the 4 questions related to information, motivation, organisation and strategy, conditions are set for them to improve their own environmental performance as well as that of the company as a whole.

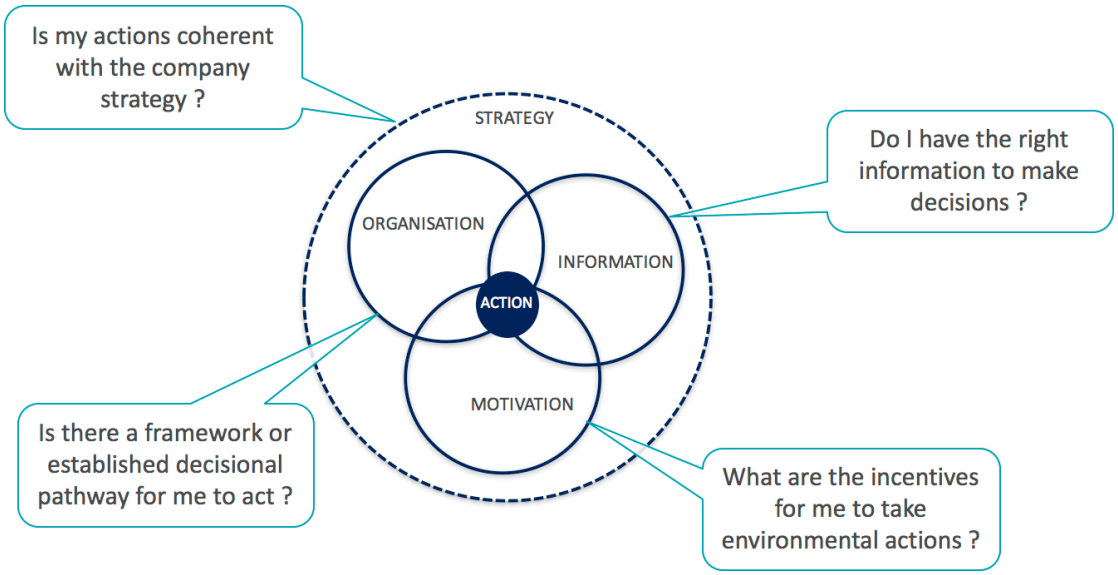

Figure 7: the 4 conditions for shaping environmental action. The SEA (Shaping Environmental Action) model

We have evidenced throughout interviews that if most employees are not mobilised, they would happily change their work practice towards a more sustainable model if they could or knew how to do it i.e. have an answer to the 4 questions of our model. The challenge of the environmental manager is thus to build capacity of employees so that each employee has these questions in mind as well as to support them in providing the specific answers.

The last series of unstructured interviews followed the presentation of the results of the survey as well as the propose SEA model to each company of the panel. It enabled the identification of a few tracks for change and ideas on how to support the environmental manager in his effort. These ideas are discussed below.

1. **Set up a sustainability committee (organizational approach)**

   In most companies, environmental aspects are not part of the core business and they are not considered in the same way as core business issues with respect to business processes, information management, capacity building and motivation drivers. The environmental manager alone is in a Silo (result from the vicious circle) and fails to permeate these processes. An adapted structure is obviously necessary in this case.

   In two of the companies of our panel, a sustainability committee was in place (or has been created after our survey) and has shown many benefits. The purpose of the committee is to link the different actors in a horizontal and vertical way i.e. actors from different departments both employees and managers are involved. The environmental manager becomes the manager of this

Peer-reviewed version available at *Sustainability* **2018**, *10*, 2538; doi:10.3390/su10072538

group and can provide some leadership. This group is then in charge of defining the strategy and monitoring the progress of sustainability projects. This way, responsibilities, objectives and roles of the different actors are better defined and the vicious cycle is interrupted. Amongst our panel, the most mature company was the one having experienced this type of committee for several years.

2. **The new (2015) version of the ISO14001 standard** (normative approach)
The 2015 version of the ISO14001 standard brings a significant change. In its previous version, ISO14001 primarily sought to manage risks, accidents and waste, rather than to improve the environmental performance of core activities or products. These systems are not substantively integrated within the rest of business and innovation processes and generally remain the prerogative of only one environmental manager who ends up being in a silo, loosely bound to some department or other. As a consequence, the environmental role is symbolical, mostly limited to monitoring activities, and very often not even visible to most employees in the firm. This lack of adapted structure, processes and clear responsibilities hinders implementation of any sustainability strategy or environmental innovation by top-down management approaches, as well as bottom-up innovations. The new version of the norm integrates drastic changes through the life-cycle approach, the requirement of a leadership from the top management and the notion of environmental performance replacing the improvement of the system.

3. **Bottom up innovation and gamification** (motivational approach)
Motivation of employees to get engaged in sustainability can come from organizational measures but also from motivational measures [28]. Gamification of sustainability would be in this respect an interesting way to explore as proposed by several interviewees: « *taking care of the environment should be more fun* ». Gamification, i.e. using game elements in non-game context, has proven successful to mobilize employees [29]. Outside the sustainability arena, gamification has been used for different objectives such as learning [30], crowdsourcing [31] and change management [32]. Gamification increases the motivation of employees, especially in bottom-up creative activities, collective tasks as well as for monotonous tasks and implementation [33]. Different game mechanics and dynamics may trigger different psychological intrinsic motivators (e.g. social connection, spirit of competition, feeling of achievement) and may be complemented by extrinsic rewards [34]. Whether the positive effects on motivation are durable over time, and more precisely whether intrinsic motivators are a sufficient driver of long-term participation in (even idealistic) projects are still in question. The scientific literature on the benefits of gamification for sustainability is still extremely limited but is attracting more and more attention. The gamification approach is described as a more promising approach than approaches based on more formalised job descriptions. The very nature of environmental challenges requires the company to innovate and change from usual operation and business processes. Unless clear disruptive technological innovation is available, the change requires incremental implementation of solutions that do not necessarily readily exist and most of the time need to be invented along the way. This requires a shift from environmental information (LCA) to environmental improvement which most of the time requires a bottom-up innovation approach i.e. capturing practical solutions from the field. Some authors argue that more initiative and self-organisation is better than rules : the *laissez-faire* context i.e. featuring a combination of a weak compliance HR configuration and a strong market and self-initiative drivers is better suited for fostering employee proactive behaviour than the nurturing context [35].

6. Conclusions

We have shown that current environmental management approach ends up as being in a silo, aside from core business processes and routines. This results in a gap between the company

Peer-reviewed version available at Sustainability 2018, 10, 2538; doi:10.3390/su10072538

environmental promises and the effective environmental improvements, a phenomenon often referred to as decoupling. We have demonstrated that organizational paradoxes exist within most companies and hinder effective action of the environmental manager. We discuss and exemplify that by overcoming theses paradoxes the vicious circle can become a virtuous circle thus enabling for a more efficient and human-based integration of sustainability within companies. Obviously, all actors must take ownership of their environmental responsibilities, but the leadership of the environmental manager certainly is a good catalyst and guidance for the success of the approach over time. We therefore conclude that providing more leadership to the environmental manager should allow for a better integration of environmental management within the core business of companies and a better understanding of its role and missions by other company actors, thus overcoming some of the decoupling situation described in the literature.

Acknowledgments: This research was funded through internal funding of the HES-SO ; we would like to acknowledge the HES-SO for the support as well as all contributing companies for sharing their time and data.

Author Contributions: Julien Boucher and Gerhard Schneider designed the research. Clotilde Jenny conducted interviews with the support of Gerhard Schneider and/r Julien Boucher. Data analysis and writing was performed in a collaborative manner by all authors.

Conflicts of Interest: The authors declare no conflict of interest.

References

1. Hojnik, J.; Ruzzier, M. What drives eco-innovation? A review of an emerging literature. *Environ. Innov. Soc. Transit.* **2016**, *19*, 31–41, doi:10.1016/j.eist.2015.09.006.
2. Clarkson, P. M.; Fang, X.; Li, Y.; Richardson, G. The relevance of environmental disclosures: Are such disclosures incrementally informative? *J. Account. Public Policy* **2013**, *32*, 410–431, doi:10.1016/j.jaccpubpol.2013.06.008.
3. Bonsón, E.; Bednárová, M. CSR reporting practices of Eurozone companies. *Rev. Contab.* **2015**, *18*, 182–193, doi:10.1016/j.rcsar.2014.06.002.
4. Du, S.; Bhattacharya, C. B.; Sen, S. Maximizing Business Returns to Corporate Social Responsibility (CSR): The Role of CSR Communication. *Int. J. Manag. Rev.* **2010**, *12*, 8–19, doi:10.1111/j.1468-2370.2009.00276.x.
5. Baumann-Pauly, D.; Wickert, C.; Spence, L. J.; Scherer, A. G. Organizing Corporate Social Responsibility in Small and Large Firms: Size Matters. *J. Bus. Ethics* **2013**, *115*, 693–705, doi:10.1007/s10551-013-1827-7.
6. Wickert, C.; Scherer, A. G.; Spence, L. J. *Walking and Talking Corporate Social Responsibility: Implications of Firm Size and Organizational Cost*; Social Science Research Network: Rochester, NY, 2016;
7. Meyer, J. W.; Rowan, B. Institutionalized Organizations: Formal Structure as Myth and Ceremony. *Am. J. Sociol.* **1977**, *83*, 340–363.
8. Hoffman, A. J.; Bazerman, M. H. Changing practice on sustainability: Understanding and overcoming the organizational and psychological barriers to action 2007.
9. Haack, P.; Schoeneborn, D. Exploring the Institutionalization of Corporate Responsibility: A Formal Modeling Approach Available online: https://www.researchgate.net/publication/291374505_Exploring_the_Institutionalization_of_Corporate_Responsibility_A_Formal_Modeling_Approach (accessed on Jun 14, 2017).
10. Haack, P.; Schoeneborn, D. Is Decoupling Becoming Decoupled from Institutional Theory? A Commentary on Wijen Available online: https://www.researchgate.net/publication/276890691_Is_Decoupling_Becoming_Decoupled_from_Institutional_Theory_A_Commentary_on_Wijen (accessed on Jun 14, 2017).
11. Clarkson, P. M.; Li, Y.; Richardson, G. D.; Vasvari, F. P. Does it really pay to be green? Determinants and consequences of proactive environmental strategies. *J. Account. Public Policy* **2011**, *30*, 122–144, doi:10.1016/j.jaccpubpol.2010.09.013.
12. Claver, E.; López, M. D.; Molina, J. F.; Tarí, J. J. Environmental management and firm performance: A case study. *J. Environ. Manage.* **2007**, *84*, 606–619, doi:10.1016/j.jenvman.2006.09.012.
13. Lundgren, T.; Zhou, W. Firm performance and the role of environmental management. *J. Environ. Manage.* **2017**, *203*, 330–341, doi:10.1016/j.jenvman.2017.07.053.
14. Hamschmidt, J.; Dyllick, T. ISO 14001: profitable? Yes! But is it eco-effective? *Greener Manag. Int.* **2001**, 43–55.
15. McManus, A. M. C. Overcoming EMS implementation obstacles to get results for your organization. *Fed. Facil. Environ. J.* **2005**, *16*, 73–78, doi:10.1002/ffej.20046.
16. Vasilenko, L.; Arbačiauskas, V. Obstacles and Drivers for Sustainable Innovation Development and Implementation in Small and Medium Sized Enterprises. *Environ. Res. Eng. Manag.* **2012**, *60*, doi:10.5755/j01.erem.60.2.1242.
17. BurdickP.E., D. American and European ISO 14001 accreditation requirements and their influences on registrar practice and environmental performance. *Corp. Environ. Strategy* **2001**, *8*, 65–74, doi:10.1016/S1066-7938(00)00088-9.

18. Boiral, O. Corporate Greening Through ISO 14001: A Rational Myth? *Organ. Sci.* **2007**, *18*, 127–146, doi:10.1287/orsc.1060.0224.
19. Boucher, J.; Evequoz, Pauline; Friot, D.; Mayer, Samuel; Van Lierde, N. Life Cycle Perspective in ISO14001 : a game changer - How to increase your performance with ecodesign ? In; 2017 ISBN 978-2-9537289-4-1.
20. Plouffe, S.; Lanoie, P.; Berneman, C.; Vernier, M.-F. Economic benefits tied to ecodesign. *J. Clean. Prod.* **2011**, *19*, 573–579, doi:10.1016/j.jclepro.2010.12.003.
21. Pigosso, D. C. A.; Rozenfeld, H.; McAloone, T. C. Ecodesign maturity model: a management framework to support ecodesign implementation into manufacturing companies. *J. Clean. Prod.* **2013**, *59*, 160–173, doi:10.1016/j.jclepro.2013.06.040.
22. van Hemel, C.; Cramer, J. Barriers and stimuli for ecodesign in SMEs. *J. Clean. Prod.* **2002**, *10*, 439–453, doi:10.1016/S0959-6526(02)00013-6.
23. Gill, J.; Johnson, P. *Research Methods for Managers*; SAGE, 2010; ISBN 978-0-85702-348-3.
24. Attwater, W.; Hase, S. Using convergent interviewing in grounded theory research. *18th Annu. Conf. Aust. N. Z. Acad. Manag. ANZAM Conf.* **2004**.
25. Jepsen, D. M.; Rodwell, J. J. Convergent interviewing : a qualitative diagnostic technique for researchers. *Manag. Res. News* **2008**, *31*, 650–658, doi:10.1108/01409170810898545.
26. Coenen-Huther, J. Le type idéal comme instrument de la recherche sociologique, El modelo ideal como instrumento de la investigación sociológica. *Rev. Fr. Sociol.* **2003**, *44*, 531–547.
27. Lancaster, G. *Research Methods in Management*; Routledge, 2007; ISBN 978-1-136-36854-7.
28. Nalini Govindarajulu; Bonnie F. Daily Motivating employees for environmental improvement. *Ind. Manag. Data Syst.* **2004**, *104*, 364–372, doi:10.1108/02635570410530775.
29. Robson, K.; Plangger, K.; Kietzmann, J. H.; McCarthy, I.; Pitt, L. Game on: Engaging customers and employees through gamification. *Bus. Horiz.* **2016**, *59*, 29–36, doi:10.1016/j.bushor.2015.08.002.
30. de-Marcos, L.; Garcia-Lopez, E.; Garcia-Cabot, A. On the effectiveness of game-like and social approaches in learning: Comparing educational gaming, gamification & social networking. *Comput. Educ.* **2016**, *95*, 99–113, doi:10.1016/j.compedu.2015.12.008.
31. Baruch, A.; May, A.; Yu, D. The motivations, enablers and barriers for voluntary participation in an online crowdsourcing platform. *Comput. Hum. Behav.* **2016**, *64*, 923–931, doi:10.1016/j.chb.2016.07.039.
32. Voit, T. Gamification als Change-Management-Methode im Prozessmanagement. *HMD Prax. Wirtsch.* **2015**, *52*, 903–914, doi:10.1365/s40702-015-0189-2.
33. Robson, K.; Plangger, K.; Kietzmann, J. H.; McCarthy, I.; Pitt, L. Is it all a game? Understanding the principles of gamification. *Bus. Horiz.* **2015**, *58*, 411–420, doi:10.1016/j.bushor.2015.03.006.
34. Hamari, J.; Koivisto, J.; Sarsa, H. Does Gamification Work? – A Literature Review of Empirical Studies on Gamification. In *2014 47th Hawaii International Conference on System Sciences*; 2014; pp. 3025–3034.
35. Batistič, S.; Černe, M.; Kaše, R.; Zupic, I. The role of organizational context in fostering employee proactive behavior: The interplay between HR system configurations and relational climates. *Eur. Manag. J.* **2016**, *34*, 579–588, doi:10.1016/j.emj.2016.01.008.