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Sustainability Practices in Companies:
Strategies | Business Process Management | ICT

Felicitas Loepp, Stefanie Betz

Abstract

Companies still need methods and tools that support them to reach sustainable development. The beginning of the discussion about sustainability can be dated back to 1732, but nowadays the expectation that companies are sustainable is more and more relevant to the companies. To develop the right methods, which are really helpful for the companies it is necessary to understand the current state of the art. What do companies already do, where do they have problems, and which barriers do they see when integrating sustainability. To investigate these questions we conducted an online-survey with German companies. Our study showed that companies are still at its beginning and that the level of sustainability integration in Germany is not very high. Especially the integration into business process management and the use of information and communication technology need more focus. The biggest problems companies see when trying to integrate sustainability are the missing resources and the missing methodological skills, which supports our assumption that companies still need support. The next step will be the development of these methods and tools.

Keywords: corporate sustainability, strategies, business process management, information and communication technology

Introduction

Hans Carl von Carlowitz was the first who talked about the idea of sustainability in the context of forestry in 1732. Nowadays, sustainability is not anymore just a forestry topic it is one of the most important business movements (vom Brocke, Seidel, & Recker, 2012, p. v) and it is one of the greatest challenge businesses have to face. The sustainability movement began not as proactive, coherent global movement, which it is now. It developed from ad-hoc responses of companies to environmental accidents, corruption scandals or accusation of child labor (EFQM, 2015, p. III).

To face these challenge organizations need methods that support them to become sustainable. Some methods do already exist like the Sustainability Balanced Scorecard, a strategy approach (Figge, Hahn, Schaltegger, & Wagner, 2002). But sustainability in businesses is still at its beginning and business also need methods to integrate sustainability into their business process management and into their information and communication technology.

Integration of Sustainability into Companies

Sustainability has two important aspects. The first one is embedded in the definition from the Brundtland Report 1987: “Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” (WCED, 1987, p. 41). This definition stresses the future orientation of sustainability. The second aspect, the three dimensions of sustainability is defined by the concept of the “triple-bottom-line” (amongst others). It covers the economic, the environmental and the social bottom line (Elkington, 1999). A company’s bottom line shows usually the profits. Here, the economic bottom line is about the economic capital, which covers the financial and the physical capital, as well as human and the intellectual capital. The social bottom line
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focuses on the social capital, in the sense of public health, skills and education, but also society’s health and wealth creation. The ultimate one is the environmental bottom line. It covers the natural capital, the critical natural capital and the renewable, replaceable, or substitutable natural capital. (Elkington, 1999)

Several different groups contribute to the goal of sustainable development. For example the governments which try to find a way to sustainable development using standards, laws or tax reduces, for example Germany legislate the EEG 2014\(^1\). The UN is going to pass Sustainable Development Goals, which are referring to the triple-bottom-line of Elkington (United Nations Department of Economic and Social Affairs, 2015).

Also, society starts to contribute because sustainability is becoming a new form of value within the society (Elkington, 1999). Additionally, companies are responsible, too and have to take their part to be “sustainable” (Fineman, 2002). Sustainability is and will be one of the competitive differentiators (Savitz, 2006) and will be important for the long-term profitability of companies (Epstein & Roy, 2003).

Corporate sustainability should not be relevant to businesses because it is expected by the society (Savitz, 2006). Businesses should be interested in corporate sustainability because it makes sense to the business. There are many positive effects to the business, i.e. cost savings, improved market access, improved public profile and image. This effect is also valid the other way around. Because if an organisations misses to integrate sustainability principles in their strategy and to achieve corporate sustainability the consequences could be a loss of competitive advantage and business opportunities (Seow, Robinson, Anumba, Carrillo, & Al-Ghassani, 2006). Epstein and Roy (2001) also name some benefits companies will achieve through sustainability actions, the customers will be loyal and will purchase over the long-term, the employees will commit to great service, innovations will be supported by that and the employees will be more reliable. At least the shareholders will provide capital over the long-term.

However, the companies still need support to conduct sustainable development (vom Brocke et al., 2012). Therefore, it is necessary to develop supporting concepts, methods, and information systems that help companies to be sustainable. The basis in organizations for value-generation are business processes (Seidel, Recker, & vom Brocke, 2012). Thus, sustainable development needs to be taken into account when modeling, analyzing, implementing, and monitoring business processes. However, before a method for integrating sustainable development into business processes can be developed it is necessary to understand what the current state of the art is within the companies with regard to sustainable development and business process management.

The following questions and hypothesis need to be answered.

1. Why is the integration of sustainability important, which are the reasons for it?
2. What are the barriers when integrating sustainability?
3. Which are possible “parts” of the organization to reach sustainability?
4. Which are the parts of the business process management that are used for the integration of sustainability?
5. Are there characteristics of organizations with a high degree of fulfilment regarding the integration of sustainability into the organization?

In the following part the method will be presented that was used to answer the questions and hypothesis.

Method

The study to investigate the current state of the art regarding the integration of sustainability into companies was conducted with an online-survey. Therefor we used self-administered questionnaires and developed a purpose-made questionnaire. The questionnaire covered the following aspects: the corporate

definition for sustainability, the implementation of sustainability within the corporate strategy, documentation of sustainability, sustainability key performance indicators, integration of sustainability into the business process management and the use of information systems to reach sustainability. The questionnaire also included questions about the company itself, like the branch or the annual turnover. For the validation of the questionnaire two professors of the University of Applied Sciences Munich were asked and an expert form the industry. The given feedback was used to revise the questionnaire. The feedback was mainly about comprehensibleness and to order of the questions. The answering of the final questionnaire takes about 10 minutes.

The online-survey took place from 7 July 2015 until 30 September 2015. First, it was planned until the 31 August 2015, but to receive more answers the survey was extended until the 30 September 2015. The participants are from the industry in the south of Germany. They were invited by email in a cold calling manner. This is a self-selection sample. Also because the non-returns were not handled specifically. The questionnaire was filled out by 54 participants, but 19 questionnaires could not be used for the analysis, due to too much missing answers. The remaining 35 questionnaires were used for the analysis.

To describe the sample we use the position within the company (Figure 1.), the industrial sector (Figure 2.) and the annual turnover (Figure 3.). Most of the participants are department manager, the second group, are the managing directors and the project manager. This is an indicator for the importance of the explored topic.

![Figure 1. Position within the company](image1)

![Figure 2. Industrial sector](image2)
Regarding the industrial sector the automobile industry and the machine building industry is represented most. The companies with an annual turnover of more than 1 billion € and companies with an annual turnover of 50 million to 250 million € make up the largest groups of our sample, with 28.57% each (Figure 3.).

The data was analyzed with IBM® SPSS® Statistics. First the answers needed to be coded. The answers were analyzed by exploring individual variables and applying statistics to test the hypothesis. The individual variables were explored with descriptive statistics. For the testing of the hypothesis first the descriptive analysis was made, including the median, the average and the standard deviation. Following the correlation between the two variables was tested, with the Pearson correlation coefficient.

**Figure 3. Annual turnover**

**Results**

The results will be presented in three parts. The first one is about individual questions and the general results of our study. In the second part the question about the characteristics of companies with a high degree of fulfilment regarding the integration of sustainability. In the last part of the results we will show the results of the analysis of the stated hypothesis.

We stated the following hypothesis:

1. Sustainability within the business process management can especially be found in big companies.
2. The strategic foundation of sustainability leads to an implementation of sustainability into the business process management.

**General Results**

The first question was about the reasons for organizations to integrate sustainability. The participants were allowed to tick more than one answer.
As can be seen in Figure 4, the most named reason is that sustainability is a factor of success for organizations, it was named 19 times. The second most named answer is that sustainable behavior is a social expectation. Only once named is that sustainability is a value of the organization, that it is a customer’s expectation and the cost of operation.
If we take a look on the answers to the question: What are the barriers when integration sustainability into the organization. The most named barrier is missing resources it was named 25 times. This is quite interesting if we take into account that the organization answered that the integration of sustainability is a factor of success. This poses the question, why organizations do not have the resources to support a factor.

**Figure 5. Which parts of the organization are used to reach sustainability?**
of success. Also as barrier for the integration of sustainability was named missing budget and missing methodological skills, both were named 13 times. This is an indicator that it is still necessary to support the organizations methodological. Beside the reasons for sustainability and the barriers for the integration of sustainability it is interesting to take a look on which parts of the organization are used to reach sustainability (Figure 5.). Multi answers were also allowed for this question. Organizations mainly try to reach sustainability through their employees. Also the resource management is used to reach sustainability, this is maybe due to the fact that sustainability is often meant in the sense of environmental sustainability. The management, the processes and the products are also used by the organizations to reach sustainability. These results show that sustainability is a topic that is relevant for nearly all parts of the organization. The part, which is underrepresented in the answers, are the information systems.

In detail we examined which parts of the business process management are already used to reach sustainability(Figure 6.). Most of the participants answered the sustainability is a strategy objective (66 %) for the business process management. The second most answer is that sustainability is realized within particular processes, 51,4 % of the participants gave this answer. 14 % of the participants answered that sustainability is not part of the business process management. These results can be interpreted as indicator that business process management is appropriate to integrate sustainability into an organization, 86 % organization already use this approach. But it has to be mentioned that until now most of the organizations integrate sustainability into the business process management on a strategy level.

**Characteristic of sustainable companies**

We examined if there are any characteristics that all companies have in common that have a high degree of fulfilment regarding the integration of sustainability. To determine the degree of fulfilment we aggregated variables to one. The new variable includes four different parts: strategy, management, review (considering key performance indicators and documentation) and the implementation into the business
process management. Of each variable the degree of fulfilment was calculated and then aggregated to one, with all variables assessed equal. The degree is percentagewise. The characteristics that were considered are the annual revenue, the corporate form and the number of employees. The degree of fulfilment regarding the integration of sustainability has a median of 44.11 % and an average of 47.54 %. The standard deviation is 20.29.

The annual revenue correlates with the integration of sustainability, but on a low level. The Pearson correlation coefficient is 0.382 on a level of significance of 0.05. The highest median of fulfilment in this group can be found in companies with an annual revenue of more than 1 billion €, they have a degree of 60 %, the second highest median (55 %) have organizations with an annual revenue of 50 to 250 million € (Table 1.).

<p>| Table 1. Annual revenue and the degree of fulfilment |
|-----------------------------------------|-------------|-------------|</p>
<table>
<thead>
<tr>
<th>N</th>
<th>Median</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 – 10 Mio €</td>
<td>4</td>
<td>36.83</td>
</tr>
<tr>
<td>10 – 50 Mio €</td>
<td>4</td>
<td>31.36</td>
</tr>
<tr>
<td>50 – 250 Mio €</td>
<td>10</td>
<td>54.92</td>
</tr>
<tr>
<td>250 Mio € - 1 bn €</td>
<td>7</td>
<td>44.11</td>
</tr>
<tr>
<td>More than 1 bn €</td>
<td>10</td>
<td>60.11</td>
</tr>
</tbody>
</table>

Between the corporate form and the degree of fulfilment is no significance. But the results show that especially stock companies have a high degree of fulfilment, with 60 %. The stakeholders and the publicity of stock companies can be an explanation for that. Also the number of employees does not correlate with the degree of fulfilment. But the median of the degree shows that companies with more than 5,000 employees have the highest degree of fulfilment, with 60 %. The second highest median have companies with 50 to 499 employees (Table 2.).

<p>| Table 2. Number of employees and the degree of fulfilment |
|---------------------------------|-------------|-------------|</p>
<table>
<thead>
<tr>
<th>N</th>
<th>Median</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 50</td>
<td>1</td>
<td>43.44</td>
</tr>
<tr>
<td>50 – 499</td>
<td>12</td>
<td>46.58</td>
</tr>
<tr>
<td>500 – 1,999</td>
<td>8</td>
<td>43.03</td>
</tr>
<tr>
<td>2,000 – 5,000</td>
<td>3</td>
<td>44.11</td>
</tr>
<tr>
<td>More than 5,000</td>
<td>11</td>
<td>60.00</td>
</tr>
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Summing up we could not find any characteristics of companies with a high degree of fulfilment regarding the integration of sustainability. The regression analysis supports these results. The analysis shows that only 29 % of the variance of the degree of fulfilment can be explained with our model, including the annual revenues, the industrial sector, the corporate form and the number of employees. This leads us to the assumption that there must be different factors that have an influence on the degree of fulfilment, which we do not know now.
Discussion and Conclusion

In summary we found out that there are no specific characteristics of companies that have implemented sustainability on a high level. Reasons for that might be the number of participants and the less number of companies that have a high degree of fulfilment. These numbers make it hard to find significant results. Also sustainability in companies is still at its beginning, which is shown by the median of the indicator of the degree of fulfilment, which is 44.11%. In future research it might be worth to analyze the correlation between the degree of sustainability integration and the profitability of a company. Because sustainability activities need some investments at the beginning. A hypothesis might be that companies with a high profitability have also a high degree of fulfilment regarding the integration of sustainability.

Our results also show that sustainability is still at its beginning, not only because of the missing resources but also because of the missing methodological skills. This supports are thoughts at the beginning that the companies still need additional methods and tools to support their sustainable development. Especially if you take a look at the business process management. Here our results show that most of the companies are actually using business process management to reach sustainability. But most of them integrate sustainability at a strategic level, but they are still missing and overall systematic approach. Also the use of ICT systems to reach sustainability needs to be more in focus. Only 34% of the asked companies are already using information systems to reach sustainability.

Anyway the study still has some potential for improvement. First of all the number of participants could have been higher. About 900 emails have been sent, but only 54 participants attended the survey. But no all of them could be used for the analyses, because 19 just filled out the questions at the beginning. In the end 35 questionnaires remained for the analysis. Beside the non-respondents and the incomplete questionnaires we had a great variance of participating companies. Which is good on the one side, because the analysis gave us an overall picture, but on the other side it was hard to find detailed significant results. A different point which is worth to mention is the self selecting sample. The self selecting sample premises that only companies attend the survey that are interested in the topic by themselves. This results in, in some way, filtered answers and results. This is on the one hand a disadvantage because the results are not valid for all companies, just for those how are interested in the topic. But it is also an advantage because the results are not influenced by companies that have the opinion that sustainability is not an important movement for companies. Another thing that should be improved when conducting the survey again is, that also a performance indicator of organizations should be surveyed. To have the possibility to analyze the correlation between the performance of an organization and its degree of fulfilment regarding the integration of sustainability.

The study also has some advantages. First of all, was it possible to get an overall impression of the current state of the art of sustainability within organizations. The results show quite clear what companies already do, where they still have problems and where they see the barriers when integrating sustainability. These results are a good starting point when developing new methods and tools that should support companies when trying to be more sustainable. The results of the study are not influenced by estimations of the participants. This gives us the opportunity to draw a objective picture of the current state of the art, and not a picture that points out the opinion of the asked companies.

In the next step the results of the online survey will be complemented by interviews, which will be conducted with some of the participants. These results will gave us the possibility to interpret the results of the quantitative study. And will make it possible by that to get a deeper understanding of the current state of the art.

Furthermore, the results of this study should be used to start with the development of methods, which support the companies integrating sustainability into their business process management and into their information systems.
References


