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Sustainability in Project Management: Reality Bites

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Abstract

The relationship between project management and sustainable development is rapidly gaining interest from both practitioners and academics. Studies on the integration of the concepts of sustainability into project management, approach this topic mostly from a conceptual, logical or moral point of view. Given the fact that the relationship between sustainability and project management is still an emerging field of study, these approaches make sense. However, they do not diminish the need for more empirical studies to understand how the concepts of sustainable development are implemented in practice.

This paper reports an analysis of 56 case studies on the integration of the concepts of sustainability in the way organizations initiate, develop and manage projects. The research question of the study was: To what extent, do organizations consider the concepts of sustainability in the initiation, development and management of projects? The study uses the maturity model for sustainability integration that was presented at the 2010 IPMA World Congress for the assessment of the level of sustainability consideration.

The study found an overall average level of sustainability consideration in the actual situation of 25.9%. For the desired situation, this score is almost 10 percent higher, showing an ambition to take sustainability more into consideration. The study also showed that the way sustainability currently is considered, shows the traditional 'less bad' approach to sustainability integration and not a more modern social responsibility approach.

1. Introduction

The relationship between project management and sustainable development is rapidly gaining interest from both practitioners and academics. Silvius (2012) reports over 85 publications and studies on the

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topic. The nature of these studies is mostly interpretive, giving meaning to how the concepts of sustainability *could* be interpreted in the context of projects (for example Barnard et al, 2011; Maltzman and Shirley, 2010; Gareis et al., 2011, Oehlmann, 2011). Some publications add a normative angle, prescribing how sustainability *should* be integrated into projects (for example, Silvius et al., 2012; Labuschagne and Brent, 2006). These studies approach the integration of the concepts of sustainability into project management from a conceptual, logical or moral point of view. Given the fact that the relationship between sustainability and project management is still an emerging field of study (Gareis et al. 2009), these approaches make sense. However, they do not diminish the need for more empirical studies to understand how the concepts of sustainable development are implemented in practice. The study reported in this paper aims to do just that. It reports an analysis of 56 case studies that were performed over the years 2010 and 2011. The study builds upon the maturity model for sustainability integration that was presented at the 2010 IPMA World Congress in Istanbul (Silvius and Schipper, 2010). Based on the concepts of sustainability, the maturity model assesses the level of consideration of sustainability in projects and project management, in terms of resources, business processes, business model and products/services. It thereby answers the following research question: *To what extent, do organizations consider the concepts of sustainability in the initiation, development and management of projects?*

The rest of this paper is organized as follows. First the reader will be introduced to the maturity model that was used in the study. In the following section, the design of the study will be revealed and an overview of the participating organizations will be provided. The section Findings presents the results of the study and a discussion of those results. The paper is concluded with a reflection on what the results tell us about the consideration of sustainability in projects and project management.

2. The maturity model

Maturity models are a practical way to 'translate' complex concepts into organizational capabilities and to raise awareness for potential development. They provide guidance for action plans and allow organizations to monitor their progress (Dinsmore, 1998). Most maturity models are derived from the Software Engineering Institute's Capability Maturity Model (Carnegie Mellon Software Engineering Institute, 2002) and thereby based on the maturity of processes. For example, project management maturity is in this context a measure for the organization's ability to perform project management and related processes in a controlled and optimized way. For the goals our sustainability maturity model, however, Silvius and Schipper (2010) developed a maturity model that addresses the consideration of sustainability aspects more specifically.

The model is based on two dimensions. The first dimension is that of the aspects, or criteria, of sustainability, the second that of the level or depth of considering sustainability.

2.1. Criteria of sustainability

Sustainability in the context of sustainable development is defined by the World Commission on Environment and Development (1987) as "forms of progress that meet the needs of the present without compromising the ability of future generations to meet their needs". This broad definition emphasizes the aspect of future orientation as a basic element of sustainability. This care for the future implies a wise use of natural resources and other aspects regarding the environmental footprint. However, sustainability requires not just an environmental "green" perspective, but also a social one. Elkington (1997), recognizes this in his 'triple bottom line' or 'Triple-P (People, Planet, Profit)' concept (Figure 1): Sustainability is

about the balance or harmony between economic sustainability, social sustainability and environmental sustainability (Elkington, 1997).
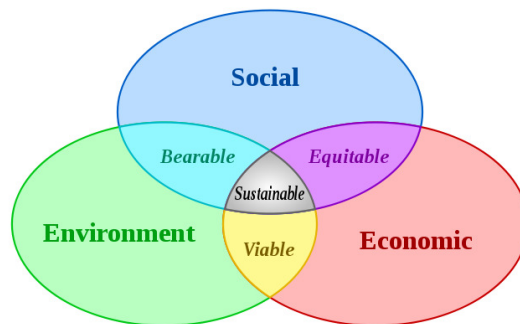

Figure 1. The Triple-P concept of sustainability

Elaborating on the three perspectives of the Triple-P concept, several organizations developed frameworks of indicators that would allow organizations to evaluate the sustainability aspects of different policies and projects, as well as to monitor progress. In fact, the literature on these models is a veritable jungle of different approaches and numerous case studies (Olsson et al, 2004). A widely used framework in (external) sustainability reporting is the Sustainability Reporting Guidelines by the Global Reporting Initiative (GRI). The GRI is a non-profit organization that pioneered the Sustainability Reporting Guidelines (SRG). Companies can use the SRG to indicate to shareholders and consumers their economic, social and environmental performance. GRI's objective is to facilitate sustainability reporting for companies and thereby stimulate them to operate more sustainably. The SRG framework consists of an extensive set of indicators, from which companies can select a set that is relevant to their operations or industry.

At the 2010 IPMA Expert Seminar 'Survival and Sustainability as Challenges for Project" (Knoepfel, 2010), one of the goals was to 'translate' the concepts of sustainability to practically applicable tools for project management professionals. Based on the SRG, the participants of the seminar developed a 'Sustainability Checklist' for projects and project managers. Table 1 provides this Sustainability Checklist. The maturity model by Silvius and Schipper adopted this checklist as operationalization of the criteria of sustainability.

Economic Sustainability	Return on Investment	- Direct financial benefits / Net Present Value
		- Strategic value
	Business Agility	- Flexibility / Optionality in the project
		- Increased business flexibility
Environmental Sustainability	Transport	- Local procurement / supplier selection
		- Digital communication
		- Travelling
		- Transport
	Energy	- Energy used
		- Emission / CO2 from energy used

	Water	- Water usage
		- Recycling
	Waste	- Recycling
		- Disposal
	Materials and resources	- Reusability
		- Incorporated energy
		- Supplier selection
Social Sustainability	Labour Practices and Decent Work	- Employment
		- Labour / Management relations
		- Health and Safety
		- Training and Education
		- Organizational learning
	Human Rights	- Non-discrimination
		- Diversity and Equal opportunity
		- Freedom of association
		- Child labour
		- Forced and compulsory labour
	Society and Customers	- Community support
		- Public policy / Compliance
		- Customer health and safety
		- Products and services labelling
		- Market communication and Advertising
		- Customer privacy
	Ethical behaviour	- Investment and Procurement practices
		- Bribery and corruption
		- Anti-competition behaviour

Table 1. A checklist for integrating sustainability in projects and project management (Knoepfel, 2010).

2.2. Level of consideration

The second dimension of the maturity model is that of level, or depth, of consideration of sustainability. This dimension is based on the observation that sustainability can be considered on different levels. A first logical level is the level of resources. For example using resources that provide the same functionality, but are less harmful for the environment, like using hybrid cars instead of normal fueled cars. These actions can reduce the less sustainable effects of operating the organization, but do not take away the cause of non-sustainability. A second level of consideration is therefore the business process in which the resources are used. A more sustainable business process takes away the cause of non-sustainable effects instead of just limiting or compensating them. For example optimizing a service management process in such a way that less travel is required.

A third level of consideration is looking at the way the products or services are delivered: the business model. For example changing from a strictly off-line business model to a combined on-line and off-line business model, may have favorable effects on sustainability because of the fact that on-line shoppers travel less than off-line shoppers. A fourth and final level of consideration takes into account not only the business process or model to deliver products and services, but also the products and services themselves.

How can products and services be innovated to contribute to a more sustainable society. For example a product that learns children to respect nature.

Figure 2 illustrates the four levels of consideration of the maturity model.
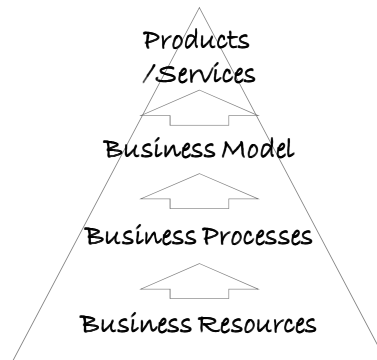

Figure 2. The levels of consideration.

The different levels of consideration reflect the more modern views on sustainability in which the challenge is not to make 'bad' products, services and processes 'less bad', but to make them good.

2.3. Assessing maturity

The maturity assessment uses a questionnaire consisting of four sections and in total 31 questions. The first three sections cover descriptive questions regarding the respondent, the project that is assessed and the organizational context of the project. The fourth section consist of the actual assessment questions. The model assesses the level (business resources, business process, business model, products/services) on which the different aspects of sustainability are considered in the project. The sustainability aspects are derived from the sustainability checklist and are grouped in economical aspects, environmental aspects and social aspects. Presenting the project's maturity separately on these three pillars of sustainability is a deliberate choice in order to address the regional differences mentioned earlier and the ambitions or values an organization may have. Figure 3 shows the conceptual model of the assessment.
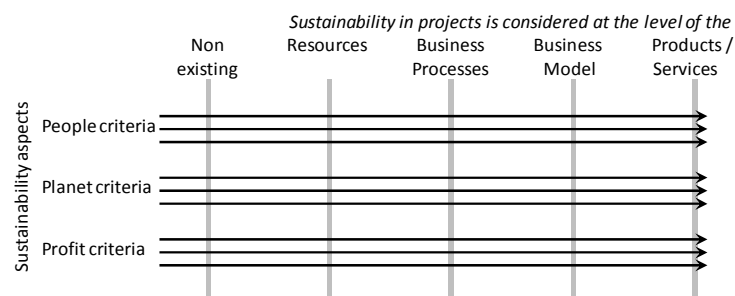

Figure 3. Conceptual model of the assessment (Silvius and Schipper, 2010).

For each sustainability aspect an assessment of the current situation and the desired situation is asked. This provides guidance for improvement. An example question from the assessment:

In which way does the project try to minimize its waste?

	Actual situation	Desired situation	
A.	[ ]	[ ]	No specific policies on this point.
B.	[ ]	[ ]	Waste in the project is separated in recyclable and non-recyclable and collected by the local waste handling companies.
C.	[ ]	[ ]	The project has policies (e.g. double sided printing) to minimize waste and waste in the project is separated.
D.	[ ]	[ ]	The project is designed to minimize waste and necessary waste is as much as possible recycled in the project itself.
E.	[ ]	[ ]	The project and the result it delivers are designed to minimize waste and necessary waste is as much as possible recycled in the project or result itself.

Answers B to E correspond to the earlier mentioned levels of consideration (B: business resources, C: business process, D: business model, E: products/services). Answers A correspond to 'non existing', meaning that this aspects of sustainability is not specifically taken into account. Answers B to E were formulated non cumulative, meaning that the respondents could 'tick' multiple answers. Answer A, the non existing answer, logically does not combine with any of the answers B to E.

The assessment is reported in a graphical way, showing both the actual levels and the desired levels of integration of the sustainability aspects. Based on the report, organizations can discuss their ambition levels (the desired situation) on the different perspectives, develop an action plan to bridge the gap between actual levels of maturity and desired levels and to monitor their progress.

3. Research design

Given the interpretive and normative nature of the available insights on the topic, we selected an exploratory approach to the empirical study, based on a quantitative analysis of the maturity assessments.

3.1. Participating organizations

Data was collected through a study that included maturity assessments of 56 projects in 46 organizations. Table 2 presents the details of the organizations in the study, showing that the study covered a broad range of industries and company sizes.

The maturity of the participating organizations was located in Europe (40). The non-European organizations were located in Asia (5) and the United States (1). 59% of the organizations operated internationally.

The maturity assessments were performed over the period October 2010 to December 2011 and followed the process suggested by Silvius and Schipper (2010) and included structured interviews with project managers, project sponsors and other key stakeholders. An important condition was that the respondent was in a position to give an informed answer to the questions of the assessment.

Industry/sector	Number of employees						Total
	<51	51-200	201-500	501-1000	1001-5000	>5000	
Agriculture				1			1
Building & Construction	3			1		1	5
Education		1		1	2		4
Energy					1		1
Engineering & Installation				1			1
Financial services						1	1
Health Care					2	1	3
ICT Services	2	2					4
Manufacturing					2	1	3
Professional services	5	1			2		8
Public		1			1		2
Real Estate	2	1	2		3		8
Retail	1					1	2
Tourism & Hospitality			1				1
Transport & Logistics						2	2
Total	*13*	*6*	*3*	*4*	*13*	*7*	*46*

Table 2. The organizations participating in the study.

3.2. Descriptives

The maturity assessments assessed the consideration of sustainability aspects in actual projects in the above mentioned organizations. In total 56 projects were assessed. 78% of the projects were characterized as building and/or construction projects, and 22% of the projects as organizational change or information technology projects. Approximately 73% of the projects were international projects.

Figure 4 provides an overview of the (financial) size of the projects in terms of project budget. This Figure shows that the majority of the projects in the sample had a budget of either < 1 Million € or between 10 and 100 Million €.
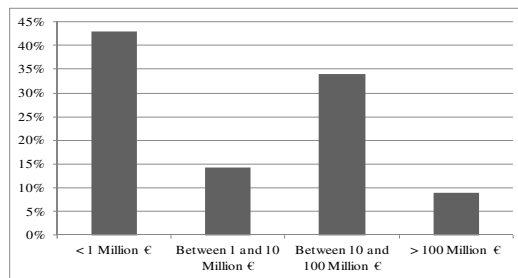

Figure 4. Overview of the financial size of the assessed projects.

4. Findings

4.1. People perspective

Figure 5 provides the findings of the study summarized for the People perspective. In the graph, a 100% score on a certain level of consideration indicates that all organizations in the study scored this level of consideration on all eight questions of the people perspective. A 100% score therefore suggests that the people perspective is fully considered on this level of consideration, by all participating organizations. A

50% score indicates that the people perspectives is only half taken into account on this level of consideration. The graph shows both the actual as the desired situation.
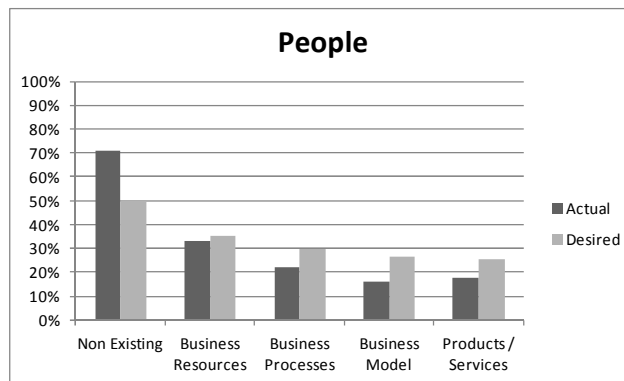

Figure 5. The results of the study for the People perspective

Figure 5 shows that the Desired scores are for all levels of consideration higher than the Actual scores, except for the 'non existing' category, indicating that there is clearly an ambition in the participating organizations to consider sustainability more substantially in their projects. Both Desired and Actual scores are strongest on the Business Resources level

4.2. Planet perspective

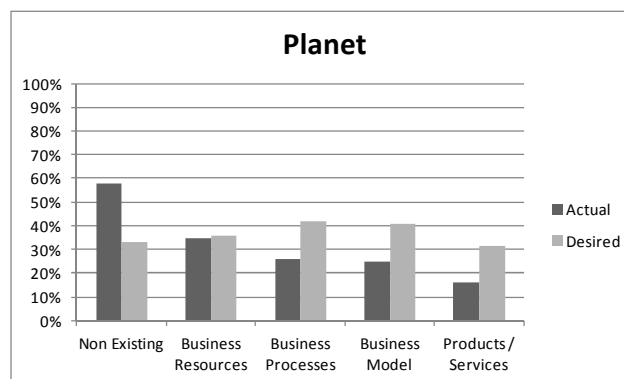Figure 6 shows the results for the Planet perspective

Figure 6. The results of the study for the Planet perspective

Also the results on the Planet perspectives show higher scores for the Desired situation than for the Actual situation, indicating an ambition to consider sustainability more than today. The pattern of the Actual scores over the four levels of consideration shows resemblance with the scores on the People profile. The Desired scores, however, shows highest scores on the business process and business model level.

4.3. Profit perspective

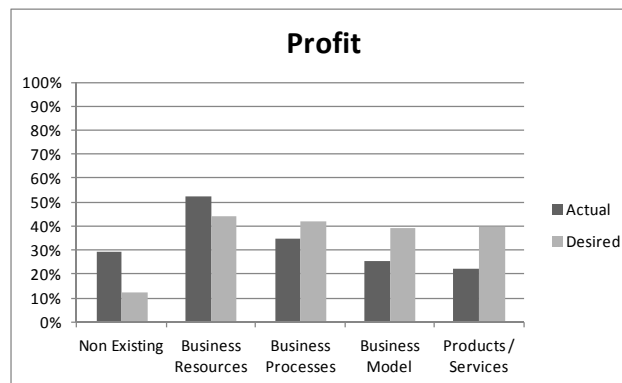And finally, Figure 7 shows the results for the Profit perspective

Figure 7. The results of the study for the Profit perspective

Not surprisingly, the Profit perspective shows the relatively highest scores on the consideration levels. Also on this perspective, the Desired scores are higher than the Actual scores, with exception of the business resources level, and of course the non existing level.

4.4. Discussion

Based on the findings on the three perspectives, a few observations can be made.

Overall level of consideration

A first observation should be that the highest scores recorded in the study are for the 'non existing' category. When considering the B to E answer categories, an overall average level of sustainability consideration, regardless of what consideration level or perspective, in the actual situation of 25.9% was found. For the desired situation, this score is almost 10 percent higher: 34.9%. These scores do not seem to be quite high.

The influence of the strategy of the organization with regards to sustainability is noticeable in this result. The organizations that do not mention the consideration of sustainability in their strategy, scored an overall level of sustainability consideration (Actual situation) that is considerably (more than 10%) lower than the organizations that include some mention of sustainability consideration in their strategy. However, for the Desired situation, both groups score approximately equal scores (32.2% and 31.6%), indicating that the ambition of the organizations on the consideration of sustainability in projects, seems to be independent of the mentioning of sustainability in the strategy.

Differences Actual situation and Desired situation

A visual inspection of Figures 5, 6 and 7 shows that the scores of the Desired situation are consistently higher than the Actual situation, on the four levels of consideration for all three perspectives, with the exception of the business resources level of the Profit perspective. Overall, the Desired situation scores 9 percent points higher than the Actual situation (35% versus 26%). This indicates a clear ambition of the

participating organizations to consider sustainability more in their projects. Table 3 illustrates this ambition, by presenting the Actual and Desired levels of sustainability consideration by perspective.

		Level of consideration					
		Non Existing	*Business Resources*	*Business Processes*	*Business Model*	*Products / Services*	*Total*
People perspective	Actual	71%	33%	22%	16%	18%	**22%**
	Desired	*49%*	*35%*	*30%*	*27%*	*25%*	*29%*
Planet perspective	Actual	58%	35%	26%	25%	16%	**25%**
	Desired	*33%*	*36%*	*42%*	*41%*	*31%*	*38%*
Profit perspective	Actual	29%	52%	35%	25%	22%	**34%**
	Desired	*12%*	*44%*	*42%*	*39%*	*40%*	*41%*
Overall	Actual		38%	26%	21%	18%	**26%**
	Desired		*37%*	*37%*	*35%*	*31%*	*35%*

Table 3. Actual and Desired levels of sustainability consideration.

From this table it shows that the largest 'gap' between Desired and Actual situation is for the planet perspective (13%). This result may indicate that in the Western world, sustainability, is very much associated with the environmental 'green' concerns.

Differences between the levels of consideration

The results shown in Figures 5, 6 and 7 more or less all show the same pattern over the different levels of consideration, in the sense that the consideration of sustainability aspects appears to be highest on the resources level and lowest on the products/services level. This pattern corresponds with the traditional 'less bad' view of considering sustainability. Table 3 shows more or less the same pattern when comparing actual and desired levels of consideration: the gaps on the business processes, business model and products/services levels, are more or less equal (11%, 12% and 13%), whereas the gap on the business resources is neglectable, indicating that in the current situation, most focus on considering sustainability aspects is on the resources level.

Differences between the three perspectives

Visually it appears from Figures 5, 6 and 7 that the profit perspective, scores the highest level of consideration, followed by the planet perspective and the people perspective. This dominant position of the profit perspective is not unexpected. Also the lowest scores for the people perspective is not entirely unexpected, given the fact the majority of the firms in the sample was European.

5. Conclusions

This paper reported an analysis of 56 case studies on the integration of the concepts of sustainability in the way organizations initiate, develop and manage projects. The research question of the study was: To what extent, do organizations consider the concepts of sustainability in the initiation, development and management of projects? The study uses the maturity model for sustainability integration that was presented at the 2010 IPMA World Congress for the assessment of the level of sustainability consideration.

The study found an overall average level of sustainability consideration in the Actual situation of 25.9%. For the Desired situation, this score is almost 10 percent higher, showing an ambition to take sustainability more into consideration. Given this ambition, it should be expected that the consideration of sustainability in projects will develop further in the future. The study also found that the mentioning of sustainability in the organization's strategy is related to a higher actual level of sustainability consideration in projects, but is not related to the desired level of consideration.

The results of the study indicated that sustainability is most of all considered on the level of the business resources, corresponding with a traditional 'less bad' approach to sustainability, and not on the level of the product or service, that would correspond with a more modern social responsibility approach. The results also indicate that the people perspective is least considered. Given the fact that the majority of firms in the sample was European, this is not entirely unexpected,. In Europe, the labor conditions and social aspects are relatively well taken care of, and 'sustainability' is often identified with 'green'. In other regions and cultures, the people perspective may score higher.

From the previous conclusion we can also conclude that in the near future the attention for sustainability in projects will grow. Sustainability is an emerging trend, now moving from reputational strategy towards business orientation. The personal values of individual project managers and sponsor and the formal attention from company strategy will drive this ambition.

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