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Sustainability as a competence of Project Managers

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Abstract

Sustainability is one of the most important challenges of our time. How can we develop prosperity, without compromising the life of future generations? Companies are integrating sustainability in their marketing, corporate communication, annual reports and in their actions.

The concept of sustainability has also been linked to project management. The recently published version 4 of IPMA's Individual Competence Baseline (ICB4) addresses this relationship explicitly and states that the project manager should be able to assess the impact of the project on the environment and society. This paper investigates the implications of this and aims to answer the question What sustainability competences does a project manager need to develop in order to fulfill the responsibility for sustainability that the ICB4 puts on him or her?

By studying the literature on Education for Sustainable Development, we will establish a framework of five key competences for sustainability. By specifying these key competences in relevant knowledge, skills and attitude elements, we aim to contributed to the interpretation of the sustainability conference included in the ICB4 and thereby by the further development of sustainability competency of project managers.

Keywords: *Project management, Sustainability, Competence, ICB4.*

Introduction

The relationship between sustainability, or sustainable development, and project management is being addressed in a growing number of publications (Silvius & Schipper, 2014).

Pasian and Silvius (2016) even identify sustainability as one of the evolving schools of thought in project management. The attention that is being given to the relation between sustainability and project management by the academic community, seems to be in contrast with the way the standards and best practices for project management address this relationship. Eid (2009) concludes in his study on sustainable development and project management that the standards for project management "*fail to seriously address the sustainability agenda*". And more recently, Silvius (2015) concludes that "*on the logical areas of impact, the standards of project management processes (PMBOK® Guide, PRINCE2® and ISO 21500) fail to refer convincingly to sustainability considerations*".

However, it might be argued that with the explicit reference to sustainability in the new IPMA Individual Competence Baseline version 4 (International Project Management Association, 2015), this situation is about to change. ICB4 competence element Perspective 3 "Compliance, regulations and standards', includes the indicator "*Identify, and ensure that the project complies*

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with relevant sustainability principles and objectives". And the description of this key competence indicator states that the project manager should be able to "*assess the impact of the project on the environment and society*" and that he/she "*researches, recommends and applies measures to limit or compensate negative consequences*"[1]. With the explicit reference to the effects of project's processes and products on the environment and society, the ICB4 acknowledges the relation between projects and sustainability, and establishes a role for the project manager in this relationship.

This should be considered a breakthrough for sustainability thinking in project management and a great recognition for the academics and practitioners that in the past years advocated the relationship between projects and sustainability in publications, presentations and consulting. However, with sustainability now "on the map" as a key competence indicator for project managers, the question comes up what this indicator actually requires in terms of competences. "*Being able to assess a project's environmental, economic and social impact*" is a clear statement, but what knowledge and skills are required for this? It is this question that this paper aims to address. What 'sustainability competences' does a project manager need to develop in order to fulfill the responsibility for sustainability that the ICB4 puts on him or her?

The remainder of this paper is structured as follows. First the role of the project manager regarding the sustainability effects or impact of a project will be discussed. After this paragraph, we will explore the concept of professional competences as prerequisite for adequate functioning in a profession. Following the establishment of a definition of competence, we will explore the competences related to sustainability and establish a framework of five key competences for sustainability. Based upon this framework, we will we then specify the key competences for sustainability in knowledge, skills and attitude elements that are relevant for the role of the project manager.

The role of the project manager in sustainability

The explicit inclusion of a sustainability related competence in the ICB4 implies that the project manager plays a role in the sustainability of or by a project. This implication is remarkable as defining aspects of the project, such as the requirements and specifications of the deliverable, the business case, and sometimes also the materials used, are logically regarded as primary the responsibility of the project's sponsor or client. Does this not release the project manager from the responsibility for the sustainability of the project?

Several authors, however, do conclude a central role of the project manager with regards to sustainability (e.g. Turner, 2010). Maltzman and Shirley (2013) even talk about "a pivotal role" of the project manager and also Goedknegt and Silvius (2012) conclude that the project manager has "a lot of" influence on the application of sustainability principles in or to the project. What these studies have in common is that they highlight the opportunity that the role of the project manager offers. The project manager has a central position in the project and that provides the opportunity to influence many aspects of the project. This influence is not limited to the process of executing the project but, by the 'power of agenda', extends to the deliverable and objectives of the project. The 'power of agenda' that the project manager has, provides him or her with the opportunity to discuss sustainability aspects, concerns or issues with the project sponsor, within the project team or with other stakeholders.

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[1] IPMA's Individual Competence Baseline 4th version adresses the required competences of several roles in the domain of project, program and portfolio management. In this paper, however, we focus on the role of the project manager and therefore refer tot he sections of the ICB4 that describe project management competences.

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Competence

Before discussing the sustainability competences that the project manager should need to develop, we first take a closer look at the term 'competence'. According to Weinert (2001), we know, in general, what the terms "competence", "competencies", "competent behavior" or "competent person" mean, without being able to precisely define or clearly differentiate them. Words given as synonyms or related terms are "skill", "ability", "capability", "capacity" and "proficiency". For example, "competence" is defined in Webster's dictionary as "fitness or ability". If one considers the Latin roots and historical variations in meanings ascribed to competence, it also is understood to mean "cognizance" or "responsibility".

Competence is generally defined as consisting of integrated pieces of knowledge, skills and attitudes (Lizzio & Wilson, 2004; Baartman & de Bruijn, 2011). Aligned with this 'KSA' definition, most standards for professional competence delineate cognitive, behavioral and emotional aspects of practice, including those that may not be measurable (Epstein & Hundert, 2002).

The KSA definition of competence is sometimes also defined as "knowledge, skills and abilities" (Quiñones & Ehrenstein, 1997). And although the term "ability" may be considered as a synonym of "competence" (Weinert, 2001), making its mentioning redundant, this interpretation of competence became popular in the context of education and training, as it refers to the outcomes of learning (Quiñones & Ehrenstein, 1997). Some consider the "ability" interpretation of the "A" in KSA also 'politically correct' as "it may be deemed incorrect to change someone's attitude if they behaved correctly" (Quiñones, 2012). However, it can be argued that in preparation of functioning as a professional, we need to look beyond present behavior, as a present correct behavior does not always equal a correct future behavior (Quiñones, 2012).

IPMA, in their ICB4, concur to the "abilities" interpretation of KSA, by defining competence as "*the application of knowledge, skills and abilities in order to achieve the desired result*" (International Project Management Association, 2015). By including the result orientation in this definition, IPMA emphasizes the functional approach (Weinert, 2001) to competence: competence is assumed to be prerequisite for adequate functioning on the job (Eraut, 1994; Hager et al., 1990). A potential explanation for IPMA's preference for the "abilities" interpretation could be that "attitude" is extremely difficult to measure or assess, as was indicated by past IPMA vice-president Stacy Goff (Goff, 2006). And, as the ICB4 is used as baseline for professional certification, the measurement or assessment of the competences and competence elements is an important goal of the ICB.

For the purpose of the analysis in this paper, we prefer the "knowledge, skills and attitudes" definition of competence, as it is the original definition of competence (dating back to Banathy, 1968), it relates to the well-known Bloom's taxonomy (Bloom, 1956) of cognitive (knowledge), affective (attitude) and psychomotor (skills) domains of learning (Laird, 1985) and it is the more complete definition. In fact, many consider "attitude" as the most influential component, thereby reformulating the "KSA" acronym to "ASK" (Attitude-Skills-Knowledge). Figure 1 illustrates this view.
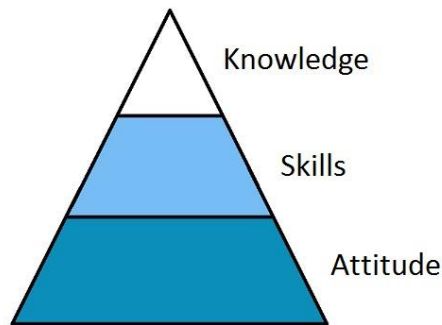
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Figure 1. **Competence as an integration of pieces of knowledge, skills and attitudes.**

Sustainability competencies

Taking a responsibility for sustainability requires adequate competencies. These 'sustainability competencies' have most explicitly been addressed in the extensive literature on 'Education for Sustainable Development' (ESD) (Kraker et al., 2007). A report on ESD in European higher education states: "*The competency required for Sustainable Development is manifold, but the basis of it is relevant knowledge and an ability to think, act and take responsibility out of a holistic understanding of the preconditions of life on earth in a global perspective. It includes the ability to continuous learning from others and the ability to cooperate over disciplinary and professional borders, to think and analyze critically and to solve problems seeing possibilities and limitations in ones processional role. An important ability is also that of complex thinking and using specialists for different areas Leaders need to have the ability to create enthusiasm and to think in new creative ways.*" (Wals, 2007).

A frequently cited concept in ESD literature is that of "*Gestaltungskompetenz*": 'shaping competence' (Haan, 2006). This *Gestaltungskompetenz* encompasses a set of key competencies which are expected to enable active, reflective and co-operative participation toward sustainable development. Learning processes which are based on this approach enable students to have the skills, competencies and knowledge to "modify and shape the future of society, and guide its social, economic, technological and ecological changes along the lines of sustainable development" (Haan, 2006: 22).

De Haan (2006) identified eight (sub-)competencies of the "Gestaltungskompetenz", that later developed into the following set of key competencies (Haan, 2010:320):

- Competence for perspective-taking:
  Being open-minded and creating knowledge from new perspectives.
- Competence for anticipation:
  Being forward-looking in analysis and evaluation of developments.
- Competence for interdisciplinary knowledge acquisition:
  Acquiring interdisciplinary knowledge and acting on it.
- Competence for dealing with incomplete and overly complicated information:
  Recognizing risks, dangers and uncertainties and being able to evaluate them.
- Competence for cooperation:
  Being able to plan together with others and take action.
- Competence to deal with individual decision-making dilemmas:
  Being able to handle conflicting goals when reflecting on action strategies.
- Competence for participation:

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Being able to take part in collective decision-making processes.
- Competence for motivation:
  Being able to motivate one's self and others to take action.
- Competence for reflecting on goals:
  Being able to reflect on one's own goals and those of others.
- Competence for moral action:
  Being able to use ideas of justice as a basis for making decisions and taking action.
- Competence for independent action:
  Being able to independently plan and act.
- Competence for supporting others:
  Being able to show empathy towards others.

The development of knowledge and understanding has both personal and shared elements to it. Social interaction allows one to relate or mirror his or her ideas, insights, experiences and feelings to those of others (Wals & Kieft, 2010).

Another component of sustainability competence, is the ability to cope with uncertainty (Wals & Kieft, 2010). The professional working on sustainable development applies his/her competencies in a context of uncertainty. And instead of denying this inherent nature of the context, by striving towards minimizing uncertainty and maximizing predictability, it might be more fruitful to accept uncertainty as an inescapable condition, and cope with it (Wals & Kieft, 2010).

A framework of key competencies of sustainability that integrates the elements mentioned above, is provided by Wiek et al. (2011). This framework identifies five groups of competences: Systems thinking competences. Anticipatory competences, Normative competences, Strategic competences and Interpersonal competences. This framework is illustrated in Figure 2.
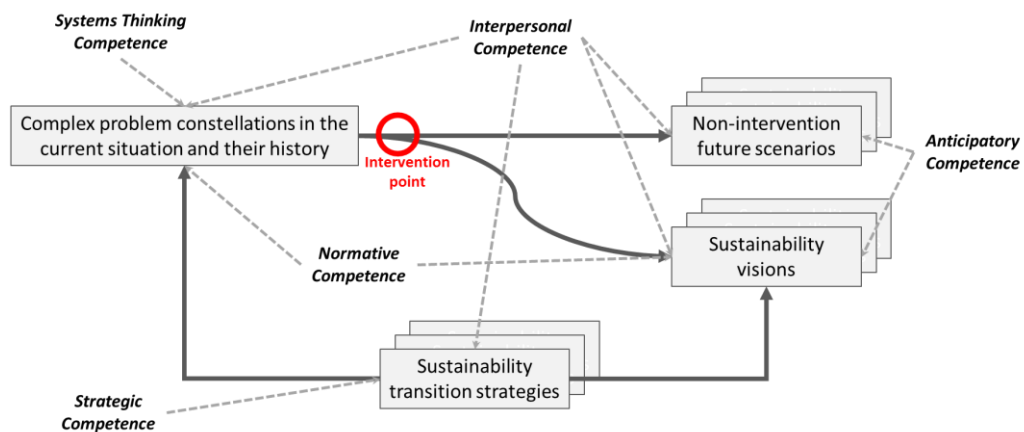

Figure 2. **A framework for key competences of sustainability (Wiek et al., 2011).**

The framework positions sustainability as an intervention and a change from the current situation. This perspective bears strong resemblance with the perspective of projects as temporary organizations that deliver (any kind of) change to organizations, products, services, business processes, policies or assets (Silvius et al., 2012). This paper therefore adopts the

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framework of key competences of sustainability by Wiek et al. (2011) as a suitable framework for consideration of sustainability competences in project management competencies.

The five key competences of the framework are described as follows (based on Wiek et al., 2011):

Systems thinking competence refers to the ability to understand the intermediate and root causes of complex (sustainability) problems. For example:

- How causes and effects relate to each other directly and indirectly.
- The actions, needs, motives, intentions, and mandates of key players in the problem constellation.
- The role technology plays in the constellation.
- What dynamics, cascading effects, feedback loops, and inertia occur in the constellation.

Anticipatory competence refers to the capacity to think systematically about the future and future generations. These require:

- The ability to discern which time scales are relevant to a problem and its possible solutions.
- Familiarity with different theories of how the future emerges, be it determined, accidental, or intentional.
- Understanding of the different types of futures, i.e., possible futures (based on notions of plausibility), probable futures (those determined "likely" to occur), and desirable futures (value-laden; based on sustainability principles).
- Understanding of the corresponding ways to build these different futures using methods like scenario construction, forecasting from statistical or simulation models, and sustainability visioning.

Normative competence refers to the understanding of concepts of justice, equity, social–ecological integrity, and ethics. And to the understanding how these concepts may vary across and within cultures. This requires:

- Being able to collaborate with stakeholders to specify, negotiate, and apply sustainability values, principles, objectives, and goals.
- Being able to assess the (un-)sustainability of current and future states of social-ecological systems, and to create and craft sustainability visions for these systems.

Strategic competence refers to the ability to collaboratively design and implement interventions and governance strategies with the sophistication necessary to address sustainability challenges. These competences include:

- Familiarity with concepts and methods for strategy building in real-world situations.
- Being able to understand intentionality, systemic inertia, path dependencies, barriers, carriers, and alliances.
- Being able to understand the viability, feasibility, efficiency, and efficacy of systemic interventions, and the potential of those interventions to produce unintended consequences.
- Being able to use methods for designing, testing, implementing, evaluating, and adapting policies, pro-grams, and action plans in collaboration with different societal actors.
- Being able to accommodate varying perspectives and act despite inconclusive or incomplete evidence.

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Interpersonal competence refers to the capacity to motivate and facilitate sustainability research and problem-solving. These require:

- Strong communication and negotiation skills.
- Expertise in participatory methods for collaborating with stakeholders.
- Being able to work in teams, and understand, embrace, and facilitate diversity among cultures and social groups.

These five groups of key competences provide a reference framework for breaking down the sustainability competences that the project manager should need to develop in knowledge, skills and attitude. This breakdown is provided in the following paragraph.

Sustainability competencies of the project manager

This paragraph specifies the five groups of key competences of our reference framework into elements of knowledge, skills and attitude. Table 1 provides this specification.

In this specification we focus on the role of the project manager, as this is the aim of this paper. However, the specification largely also applies to other roles in the project.

Table 1. **Specification of the sustainability competences of the project manager.**

	Systems thinking competence
Knowledge	- Know the key sustainability issues and the developments causing these sustainability issues. - Understand the relations between intermediate and root causes of complex (sustainability) problems. - Know the actions, interests and mandates of key stakeholders in the problem constellation. - Understand the role of technology in sustainability.
Skills	
Attitude	

	Anticipatory competence
Knowledge	- Be able to think systematically about the future. - Be familiar with different theories of how the future emerges, including desirable futures (value-laden; based on sustainability principles). - Understand life-cycle effects of the project's inputs, outputs and outcomes. - Understand which time scales are relevant to the project's problem and possible solutions. - Understand models and approaches for sustainability impact analysis of the project. - Be able to assess the relevant sustainability impact of the project, the project's output and the project's resources.
Skills	- Be able to structure uncertain information about the future into plausible future scenarios.
Attitude	- Accept responsibility for the (sustainability aspects) of the project's process and output/outcome.

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	Normative competence
Knowledge	- Know the applicable professional Codes of Ethics and Professional Conduct. - Understand the concepts of justice, equity, social–ecological integrity, and ethics. - Understand how these concepts may vary across and within cultures. - Be able to assess the (un-)sustainability of current and future states of social-ecological systems, and to create and craft sustainability visions for these systems.
Skills	- Be able to collaborate with stakeholders to specify, negotiate, and apply sustainability values, principles, objectives, and goals.
Attitude	- Be open to different cultures.

	Strategic competence
Knowledge	- Be familiar with concepts and methods for strategy building. - Be able to understand intentionality, systemic inertia, path dependencies, barriers, carriers, and alliances. - Understand the viability, feasibility, efficiency, and efficacy of systemic interventions, and the potential of those interventions to produce unintended consequences. - Know the most relevant insights and perspectives on organizational change.
Skills	- Be able to use methods for designing, testing, implementing, evaluating, and adapting policies, programs, and action plans in collaboration with different societal actors. - Be able to accommodate varying perspectives. - Be able to collaboratively design and implement interventions and governance strategies with the sophistication necessary to address sustainability challenges. - Be able to act despite inconclusive or incomplete information. - Be able to address relevant sustainability aspects with the project executive and stakeholders
Attitude	- Be committed to integrity and ethics. - Be open to varying perspectives. - Be willing to act despite inconclusive or incomplete information.

	Interpersonal competence
Knowledge	- Know the relevant insights on communication, motivation, leadership, negotiation and diversity, and be able to apply these insights effectively.
Skills	- Be able to motivate and facilitate sustainability assessment and problem-solving. - Be able to communicate and negotiate effectively. - Be able to apply participatory methods for collaborating with diverse stakeholders. - Be able to work in teams and understand diversity among cultures and social groups.
Attitude	- Embrace diversity among cultures and social groups.

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Reflection

The preceding paragraph analyzed and specified the knowledge, skills and attitudes a project manager needs to develop in order to fulfill the responsibility for sustainability that the ICB4 puts on him or her.

As knowledge elements, our analysis logically indicated that the project manager would need to understand more about the sustainability issues related to current business models, patterns of consumption and production and resource usage. The project manager also needs to be able to understand cause-effect relationships and long term effects of short term actions. Several authors conclude that integrating sustainability requires a scope shift in the management of projects; from managing time, budget and quality, to managing social, environmental and economic impact (Haugan, 2012; Silvius et al., 2012; Ebbesen & Hope, 2013).

However, considering the sustainability impact of projects does not just require knowledge. As skills elements, we found that the project manager needs to be able to engage with different and non-traditional groups of stakeholders, often with different interests and cultural backgrounds, using participatory methods. Huemann et al. (2016) elaborate on this aspect in their recently published study "Rethink! Project Stakeholder Management" in which a more holistic project stakeholder management approach is developed in the context of sustainable development. This approach includes innovative stakeholder management methods, such as focus groups and systemic constellation methods, to aid project teams in clarifying roles, visualizing relationships and identifying stakeholders and their interests. This approach prepares project managers and teams to better position themselves with diverse stakeholder groups in complex stakeholder situations, in order to support the creation of shared project benefits.

The third group of element of the required sustainability competences refers to the attitude that the project manager has with regards to sustainability and his/her role in considering sustainability in the project. We discussed this attitude element of 'sustainable project management' in our earlier works (Silvius & Schipper, 2014; Silvius et al., 2012) when we concluded that sustainable project management required a 'mind shift' of the project manager.

Traditionally project managers tend to serve their project sponsors and 'do what they are told' to do. They position themselves as subordinate to the project sponsor and manage their project team around scope, stakeholders, deliverables, budget, risks and resources as specified by the stakeholder's requirements.   However, project managers are well positioned to play a significant role in the implementation of the concepts of sustainability in organizations and business (Association for Project Management, 2006; Tharp, 2013). Taking up this responsibility changes the role of project managers and therefore changes the profession.

Integrating sustainability requires that project managers realizes their unique position in realizing (sustainable) change and act as partner of, and peer to, stakeholders (Crawford, 2013; Tam, 2010). In this mind shift, the change a project realizes is no longer a given fact, nor exclusively the responsibility of the project sponsor, but also the professional responsibility of the project manager, with sustainability, ethics, transparency and accountability as underlying values.

Conclusion

The role of the project manager in the realization of more sustainable business practices and sustainable development, requires adequate competencies. This article set out to answer the

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question "What sustainability competences does a project manager need to develop in order to fulfill the responsibility for sustainability that the ICB4 puts on him or her?" In our analysis, we defined competence as the integration of knowledge, skills and attitudes in order to achieve a desired result. For reasons that were explained, we prefer this "knowledge, skills and attitudes" definition above the "knowledge, skills and attitudes" definition that the ICB4 uses. An important reason being that the 'abilities' definition focuses on present behavior, whereas the 'attitudes' definition is also oriented towards future behavior.

Drawing on the literature from the 'Education for Sustainable Development' field, we derived five key competences for sustainability: systems thinking competences, anticipatory competences, normative competences, strategic competences and interpersonal competences. We consequently specified each of these five key competences in relevant knowledge, skills and attitude elements, for the role of the project manager. By specifying the required competence elements, we answered the research question of this paper: What sustainability competences does a project manager need to develop in order to fulfill the responsibility for sustainability that the ICB4 puts on him or her? We hope that our specification also contributes to the interpretation of the sustainability conference included in the ICB4 and thereby by the further development of sustainability competency of project managers.

Our specification and reflection further shows that developing sustainability competence requires all three elements: knowledge, skills and attitude. And as 'attitude' is often understood as the foundation on which skills and knowledge are developed, our analysis confirms the view that integrating sustainability in project management requires a 'mind shift' of the project manager. From will-lessly executing 'ordered' projects, to accepting a professional responsibility for contributing to a better society. Or as IPMA-Netherlands formulates it: "Better Projects for a Better World".

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