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Citation: Schoper, Y. 2018. Plea for a more sustainable definition of project success. *International Project Management Association Research Conference 2017*, UTS ePRESS, Sydney: NSW, pp. 1-8. <https://doi.org/10.5130/pmrp.ipmarc2017.5926>

Published by UTS ePRESS |
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CONFERENCE PAPER

Plea for a more sustainable definition of project success

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Name: International Project Management Association Research Conference 2017

Location: Incheon, Republic of Korea

Dates: 2nd to 4th November 2017

Host Organisation: IPMA-Korea

DOI: <https://doi.org/10.5130/pmrp.ipmarc2017.5926>

Published: 08/06/2018

Abstract

This paper aims to raise the awareness for the impact that project managers have for successful projects. The paper also aims to reflect if the current definition of success is sufficient. Five project examples show that projects need to fulfill sustainability requirements to be declared successful. This attitude towards project success by all project managers worldwide could have the potential to change current environmental developments worldwide.

Motivation and background

Many definitions of project success have been published in the last decades; however, none of them seem to be sufficient for today. Project success indicates that a project is contributing significantly to the future, both for an organization and society. Projects are omnipresent in all parts of society and all industrial sectors, both in public and private life. Projects are unique and complex, ranging from small single person endeavours with a duration of a few weeks to mega-projects with thousands of people involved and a budget of several billion euros.

The following commentary aims to raise awareness of the question whether the traditional project success definition is sufficient for today and the future.

DECLARATION OF CONFLICTING INTEREST The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article. **FUNDING** The author(s) received no financial support for the research, authorship, and/or publication of this article.

Definitions of project success

As per definition, “every project is a temporary endeavour undertaken to create a unique product or service” (PMI 2000). “Projects differ in size, uniqueness, and complexity; thus the criteria for measuring success vary from project to project” (Müller & Turner 2007).

“Project success is one of the most researched areas in project management” (Joslin & Müller 2015) as the meaning of “success” varies substantially (Judgev & Müller 2005). The understanding of project success has developed substantially in the last decades as Figure 1 shows. The project success definition went through four periods, as the project life cycle enlarged from the project implementation and handover (Period 1) to the critical success factors (CSF) discussion (Period 2) to the CSF framework analysis (Period 3) towards strategic project management (Period 4).

PROJECT LIFE CYCLE					
PROJECT LIFE CYCLE					
Conception	Planning	Production / Implementation	Handover	Utilization	Close Down
		Period 1: Project Implementation and Handover (1960s - 1980s)			
Period 2: CSF Lists (1980s - 1990s)					
Period 3: CSF Frameworks (1990s - 2000s)					
Period 4: Strategic Project Management (21st century)					

Figure 1 Evolving view of project success Source: Judgev & Müller (2005)

“Individuals and stakeholders interpret project success in different ways” (Cleland & Ireland 2006). The following definitions show that there is no unanimous definition of project success among the researchers.

Pinto and Slavin define project success as project implementation success, meaning technical and organizational validity and organizational effectiveness (Pinto & Slavin 1988). Watt defines project success as “a high level of satisfaction concerning the project outcome among the key stakeholders” (Watt 2014). McLeod et al. go further and found out that “project outcomes are interpreted differently from different stakeholder perspectives at different times, constructed through subjective processes of sense-making”. The criteria by the stakeholders for evaluating the project are “context- and perspective-dependent and reflect dimensions that variously focus on a project’s process, product, and organizational objectives” (McLeod et al. 2012). Shenhar and Dvir state that the assessment of success is based on the four “success dimensions” of project efficiency, consumer impact, business success and preparation for the future, and that the content of each dimension and its relative importance changes with time (Shenhar & Dvir 2001). The most often used definition comes from Cooke-Davies who defines project success as a measure against “the overall objectives of the project, accomplished through the use of the project’s output” (Cooke-Davies 2002).

All these definitions of project success cover different aspects of the project: the project implementation success, the level of satisfaction of the stakeholders on the project outcome, the context- and perspective-dependent interpretation of the stakeholders on the project

outcome, on the success dimensions project efficiency, consumer impact, business success and preparation for the future or use of the project's output. However, none of these definitions reflects on the phase after the usage of the project outcome, nor the sustainability of the endeavour, or the fit into the overall program or portfolio. This will be examined using five practical examples.

Critical analysis of project success based on five project examples

The first example is the building of a new school or hospital in a developing country in Sub-Saharan Africa. This development aid project is closed within scope, time and budget, but the local population does not expect much for specific reasons, either because of a lack of teachers, medical doctors, equipment, the supply of components, trained employees, active promotion among the parents or later mismanagement. Many well-meant humanitarian aid projects are left to rot after their opening and decay within a couple of years.

The same destiny happens to the second example, the sports stadiums built for football world championships and Olympic games. These phenomena are called "white elephants," and one famous example is the Arena da Amazônia in Manaus, in the middle of the Amazonas. The stadium cost was \$ 300 million, and it was finished in time for the football championship in Brazil in 2014 and used for four football games in total. Now it is left to rot in the humid climate of the rainforest.

The third example is the building of nuclear power stations, without knowing how and where the resulting nuclear waste can be stored safely or rendered harmless, leaving this assignment for future generations.

The fourth example of unsuccessful projects is newly built bridges that are constructed without road access. In Germany, these bridges even have a name "Soda-Brücke" or "ghost bridges" because they are not a one-off phenomenon. Wikipedia currently reports eleven of these bridges in Germany, one in Switzerland, one in the Netherlands and one in New Zealand.

The fifth example is the building of new wind power farms in the North Sea in 2013, without the installation of equipment to transfer power to the countryside. To prevent damage to the new wind power wheels, additional generators had to be installed to drive the wheels.

These five examples raise the question of whether these projects can be called successful. They were all completed on time, on budget and fulfill their scope.

But in comparison to the past, people increasingly do not accept unsustainable projects any more. As a consequence, the definition of project success must be adapted to fit these different sorts of challenges.

Proposal for an enlarged understanding of project success

Referring to the five project examples, the extended definition of project success including all product lifecycle phases would already declare all of the five projects as failures, as the projects did not consider the utilization or close-down phases.

The examples of rotting schools and football stadiums in the rainforest, the rotting bridges without road access, and the nuclear power stations show that project managers must not only plan and steer, but also plan for the time after the close-down of the projects. The recycling aspect is missing in many project success definitions and consequently a broader definition

is needed, with increased understanding of project success. The project and product lifecycle perspective should be extended to the complete recycling of the product into its original materials to enable reuse of the raw material. This enlarged perspective on the project and product lifecycle, including the recycling phase builds, the first axis of the new project success triangle.

People with good general education and a profound understanding of the conception of causal relations strive for a sustainable living, where sustainability is embedded into the lifestyle, including all products and services. More and more people demand sustainable, ethical leaders who strive for making this vision coming true to leave the planet as a healthy place to live for future generations. The Institute for Sustainable Development says “sustainable development is the development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” (International Institute for Sustainable Development 1992).

During the 4th IPMA Research Conference 2016 in Reykjavik, Iceland, with the theme “sustainability in project management”, 40 professionals and academics from five continents discussed the meaning of sustainability for project management. All agreed unanimously that the current short-term understanding of project success must be extended to a long-term definition, where the needs of the present are met “without compromising the ability of future generations to meet their own needs”. As a consequence, the second axis of the new project success triangle consists of the need for sustainability. This new sustainable understanding of project success puts a new light on projects like the building of a nuclear power station which lacks a concept of how to recycle the nuclear waste.

The examples show that original objectives but must always be evaluated concerning their contribution to the program. The examples of the deserted school, the football stadium, the host bridge or the wind power farm show that these projects are only successful if they fit into and are part of a wider strategy.

In case of the school building, this project should be part of a general education program, e.g., to reduce the rate of illiteracy in the population under 18 years by 25% in a specific area. A successful school project should also include an education program for the illiterate mothers of the school girls, to convince them that they can prevent their daughters from having the same destiny as themselves. In case of the football stadium in an area like the Amazonas, a successful long-term program would include the support of a local football club, in addition in addition to training facilities for the young generation. In case of the bridge project, the overall program would also include the financial coverage of the construction of the adjoining roads. In case of the wind power farm project, a successful program should include the timely preparation of the electric transfer mechanism to the land.

These examples show that projects may not only be assessed against their single objectives but should also be evaluated concerning their contribution to the program success. However, a program is not a single set of endeavours but belongs to a project portfolio. Therefore, the program success should be evaluated in the light of the overall project portfolio. As a consequence, the author suggests integrating a third axis named project/ program/ portfolio perspective. As a result, we receive a three-dimensional triangle that consists of the new three perspectives that must all be fulfilled at the same time to call a project successful. Figure 2 shows this new holistic understanding of project success:

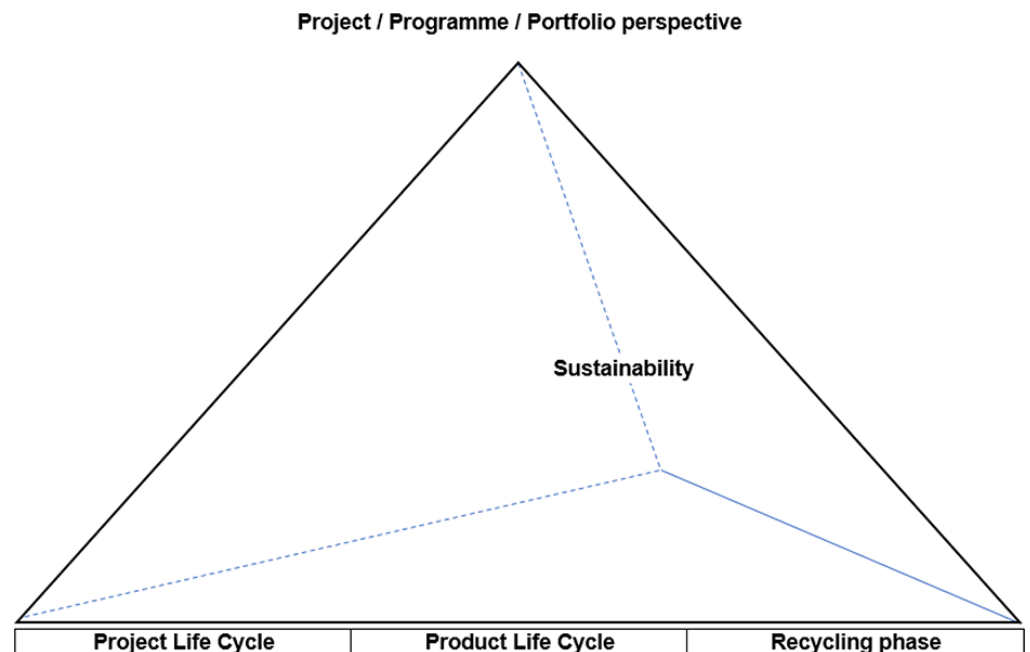


Figure 2 Enlarged, holistic understanding of project success Source: based on Jugdev & Müller (2005)

Setting of a new sustainable project success guideline

The International Project Management Association IPMA, as one of the two international project management standard-setting organizations, can have a relevant impact on its global influence on project managers worldwide.

IPMA's Individual Competence Baseline ICB4 launched in 2015 lacks a definition of project success. It defines in detail the critical success factors for project managers and highlights the importance of success, but a definition of project success is not included. In comparison, the previous version ICB3 launched in 2006 which defined project success as follows: "To assess competence is one thing, but the ultimate goal of a project or programme manager is to be successful". For that reason within IPMA, project success is defined as "the appreciation by the various interested parties of the project outcomes." This definition is more challenging than "to produce the project deliverables within time and budget."

One could state that the previous ICB3 definition of project success was good at its time, but this definition is not sufficient as the five examples showed.

In times of global warming, depleting natural resources, overpopulation, a daily decimation of animal and plant species, increase of epidemic diseases, environmental degradation and acidification of the oceans, the quality of life today, but particularly the lives of future generations is jeopardized. The causes of the symptoms described above are all human-made. Consequently, only human beings can stop and change this development. However single actions of few people do not lead to the impact that is needed. Common, distinct measures of all people are needed for a meaningful, relevant change.

Which role could the profession of project managers play in this change process? Projects are vehicles of change. In fact, project managers are change agents (PMI 2017) both in organizations and in society. Their task is to implement the strategies of the decision makers by realizing and accomplishing the objectives of projects. What is needed is a change of values

and behaviours of the community of project managers worldwide. If project managers would start to adopt the corporate business strategies in the way to protect, sustain and enhance the human and natural resources for the future, this could create a global change.

As a consequence, the current understanding of success must be critically reflected. A new understanding of project success is needed, aiming to accomplish the objectives of a maximum of profit and sustainability. This mindset includes understanding and managing of the short- and long-term economic, social and environmental impacts of all operations in projects, programs, and portfolios. The new definition of project success should be defined and agreed with all project stakeholders at the beginning of a project, and it should include not only the project but also the overall product life cycle perspective including the close down/ reassembly and the recycling of the product.

The following figures show the situation concerning project success in general and for some industries or countries:

- More than 90% of the world's infrastructure projects are either late or over-budget (Flyvbjerg 2011).
- For every \$1 billion invested in the United States, \$97 million are wasted due to bad project performance (PMI 2017).

The studies show that the majority of projects are not successfully completed within scope, time and budget, which leads to enormous financial waste worldwide. Let's consider a mind game: the world's Gross Domestic Product (GDP) in 2016 was \$75.8 trillion (World Bank, OECD). Research on the size of projects in Western economies shows that one-third of the national GDP in European countries is created by projects (Schoper et al. 2018). Let us assume that on average 20% of world's GDP is created by projects, then \$15.1 trillion would be created by projects. If we then take the statement that for every \$1 billion, \$97 million are wasted due to bad project performance (PMI 2017), an annual sum of \$1.4 trillion is wasted every year due to this cause. This sum corresponds to the annual GDP of Russia, with 144 million people. If this money could be saved and invested in humanitarian aid, infrastructure, education and agriculture projects in the developing countries, one can imagine that the world could be made a better place within a couple of years.

Outlook and conclusion

If all 250,000 IPMA certified project managers worldwide would agree to this new, sustainable understanding of project success and act accordingly, e.g., by refusing to manage unsustainable, unethical or resources-exploiting projects, the profession of project managers could contribute hugely to the change necessary to preserve the planet earth for future generations.

The future ICB5 by IPMA should contain a new, up-to-date definition of project success that corresponds to the requirements and needs of today's global world. This could set the baseline for implementing a change of thought worldwide.

As a consequence, the author suggests adding to the IPMA's Code of Ethics a Code of Conduct based on this new understanding of project success. All IPMA certified project managers should declare that they act following this ethical standard. This gives an ethical compass to all IPMA certified project managers worldwide. But also project principals would be assured that by hiring an IPMA project manager they will be provided with a sustainable long lasting successful project.

With this new understanding of project success, current projects will not only be built for a one-off event, but continue to be used, lasting for future generations. If project managers

would become more personally responsible for the success of their projects, financial waste could be dropped, and the money invested in humanitarian aid projects. The world could be made a better place within a short time-scale.

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Dr. Yvonne Schoper is Professor for International Project Management at HTW University of Applied Sciences Berlin. Dr. Schoper holds a BSc in Engineering Management, an MSc International Business and a Ph.D. in Industrial Engineering. She worked as a project manager for BMW where she was responsible for several international automotive development projects in USA and in Germany. Since 2009 she is associate Professor for Project Management at the Tongji University in Shanghai (China).

Her research interests are intercultural project management, future trends in project management, women in project management and the further development of the profession of project managers.

From 2012-2015 she was Executive Board member of GPM Germany where she was responsible for research. Since 2015 she is the delegate of Germany at IPMA's Council of Delegates. Since 2016 she is member of the Presidential Advisory Board of GPM.