



# Identifying perspectives of public project managers on project success: Comparing viewpoints of managers from five countries in North-West Europe

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## Abstract

Public and private project managers contribute to the success of Large Infrastructure Projects. Considering the public client, so far researchers have been looking at him in a passive role with respect to project success. The focus of this exploratory research is what public project managers who are actively involved in the project, consider project success. Using Q-methodology, we identify four viewpoints in the respondent group, consisting of managers from five North-Western European countries and the specific success criteria accompanying these viewpoints. Within each viewpoint, the managers have the same vision on the ranking of project success criteria. Next to the conventional project manager, we distinguish the product driven manager, the parent oriented manager and the manager with a stakeholder focus. In Large Infrastructure Projects, where public and private partners collaborate, awareness of these different perspectives will help to understand the motives of the public project manager. © 2016 Elsevier Ltd. APM and IPMA. All rights reserved.

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## 1. Introduction

Project success is widely discussed in the literature. Both the determination and the realization of project success are subject of worldwide research and many articles published (Ogunlana and Toor, 2010; Pinto and Slevin, 1988; de Wit, 1988). Research on the achievement of project success aims for the factors that contribute to, or enlarge, the chance of project success (Chan et al., 2004; Mir and Pinnington, 2014; Parfitt and Sanvido, 1993). Other studies try to gain insight in the criteria used to measure project success (Baccarini, 1999; Chan, 2001; Prakash Prabhakar, 2008; Shenhar and Wideman, 1996; Westerveld, 2003; de Wit, 1988). Researches in the field of project success

agree on the fact that the judgment of project success depends on the perspective taken (Bakker et al., 2010; Bryde and Robinson, 2005; Müller and Jugdev, 2012; Rashvand and Zaimi Abd Majid, 2014). The client is often mentioned as an important factor in achieving project success (Bresnen and Marshall, 2000; Phua and Rowlinson, 2004; Shenhar et al., 2001; Thompson, 1991), but most studies consider the client as an external factor and not so much in an active role towards the achievement of project success.

The initiators and clients of large infrastructural projects in Europe are governmental organizations. The government is a Project Oriented Organization (Arvidsson, 2009). In this type of organization, projects are external elements that prepare changes to the general work processes in the parent organization. The parent organization appoints a project manager to manage the project and the implementation of the new situation in the parent organization (Hertogh et al., 2008). For the governmental

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organization(s) this project manager is the representative of the project. Hertogh et al. (2008) distinguishes Client/Sponsor for the representatives of the parent organization(s) and labels the project management team responsible for the project the Project Delivery Organization (PDO). However from the contractor's point of view, the manager of the Project Delivery Organization serves as the client for the project. Hence from the viewpoint of the parent organization the contractor's client is considered as a part of the project organization. Because of that, the 'public project manager' can also be considered in an active role in achieving project success.

A number of studies have tried to gain insight in the key success criteria used by different parties (Bryde and Robinson, 2005; Frodell et al., 2008; Turner, 2007) but these studies only very limitedly relate to the public sector. Studies that do relate to the public sector report a difference in internal frame of reference in the public sector compared to the private sector (Thiel and van Leeuw, 2002). Therefore we are interested to know what project success is from the viewpoint of the public project manager. Recent research in the Netherlands (Koops et al., accepted for publication) revealed three different viewpoints on project success taken by Dutch public project managers: the holistic and cooperative leader, the socially engaged, ambiguous manager and the executor of a top-down assignment.

Within the European Union, large infrastructural projects are put up for tender in an international market, and can be cross-border projects. In this international context it is essential for private companies, consultants or contractors, to better understand their public client, in order to come up with internationally competitive bids and be able to successfully collaborate. However, the limited knowledge on which success criteria are considered essential by the public project manager can lead to a mismatch of expectations. Differences in business culture among countries might amplify the potential mismatch, so we need to incorporate cultural insights in this specific context (Jackson and Aycan, 2006).

In the earlier Dutch study (Koops et al., accepted for publication), the objective was to explore managerial viewpoints on project success and the specific success criteria accompanying these viewpoints. The nature of the distinguishing criteria in the Dutch study led to the assumption of cultural influence, especially the distinguishing criteria *the right process followed*, *satisfying needs of stakeholders/shareholders* and *profitability for the contractor*. Hence we expected preferences on specific success criteria and believed this could have influence on project success perspectives amongst international respondents. The research is limited to public project managers acting at the interface of their own public organization and the private partner. They are responsible for the preparation and execution of the project. The research is based on Q-methodology (Brown, 1980, 1993; van Exel and de Graaf, 2005) and includes the viewpoints of public project managers from Belgium, The Netherlands, Sweden, Denmark, Finland and the UK. The countries are selected from the NETLIPSE network: a network for the dissemination of knowledge on the management and organization of large infrastructure projects in Europe (www.netlipse.eu).

The performed research aimed at identifying the main success criteria in the perspective of public project managers of different Western European countries. The research in The Netherlands revealed that specific criteria outside the 'iron triangle' were distinguishing for differences in viewpoints. The nature of these criteria led to the assumption of possible influence of culture in ranking of success criteria. Both researches are performed in order to contribute to the understanding of the public side of public private collaboration in the increasingly international construction industry. Preliminary results of this international study were presented at the IPMA-world congress 2014 (Koops et al., 2015, accepted for publication) and were elaborated since then, resulting in this paper.

## 2. Literature overview

### 2.1. Public project success

Success criteria need to be separated from success factors, as both appear often in literature. Criteria are the measures by which projects can be judged in terms of failure or success (Cooke-Davis, 2002). It is often mentioned that projects are successful if the iron triangle criteria are met: delivered on time, within budget and meeting the preset quality measures (Atkinson, 1999; Jha, 2011; Lim and Mohamed, 1999; Mantel and Meredith, 2009; Morris et al., 2010). De Wit (1988) showed that these measures alone are not sufficient to determine the project's success. The increase in scope and complexity of contracts and projects lead to an increase in criteria (Bryde and Robinson, 2005), like safety, quality of the set requirements, the effect on the contracting organization, amongst others (Cox et al., 2003; Mantel and Meredith, 2009; Winch, 2010). Several authors have grouped criteria to create overview (Baccarini, 1999; Westerveld, 2003). Al-Tmeemy et al. (2011) introduced a categorization scheme including criteria related to product success, market success and project management success. The categorization of criteria Shenhar and Wideman (1996) developed, refers to the timeline of a project: pre-completion, short term, medium term and long term. Sometimes a distinction is made between project success, as to the success of the outcome or benefits of the project (Shenhar et al., 2001) and project management success, related to the controllability of the process up to project delivery and handover (Munns and Bjeirmi, 1996). In this paper, the notion of 'project success' includes 'project management success'.

Although some studies approached project success from different perspectives (Bryde and Robinson, 2005; Frodell et al., 2008; Lim and Mohamed, 1999; McLeod et al., 2012; Turner, 2007), most studies focus on the success criteria relevant for the executing party, represented by the commercial project manager (Cooke-Davis, 2002; Mir and Pinnington, 2014; Munns and Bjeirmi, 1996; Pinto et al., 2009; de Wit, 1988). Davis (2014) noted a lack of research on the perception of project success of the more senior roles in an organization. She included the owner in the senior management group. If encountered, the 'client organization' means usually a private sector client (Shenhar et al., 2001; Thompson, 1991) and not the public (governmental) party that is commissioning the large

infrastructure works. The client is often viewed from an external perspective and his main task seems the involvement and provision of management support. Literature was found on relationship, cooperation and information exchange between private managers and clients (Chan et al., 2006; Pinto et al., 2009; Thompson, 1991; Turner and Müller, 2004; Webber and Klimoski, 2004), but with little emphasis on the clients' view on success criteria. Even if some public success criteria are mentioned, supposedly important aspects for the public side, like political influence or sustainability, are left unmentioned (Bryde and Robinson, 2005; Toor and Ogunlana, 2010). Public actors tend to copy the well-developed private success indicators, with the risk of inadequacy (Thiel and van Leeuw, 2002). Müller and Jugdev (2012) identified the relationship between the perception of project success and the specifics of the role and relationship to the project of the individual as an important issue to be further understood. There is a lack of project management literature with relation to the goals and success criteria, as perceived by the public project manager, who is situated between the influence of his own political oriented organization and the commercial contractors. The knowledge gap on the success criteria of this public project manager adds to the incomprehension and lack of communication between public and private parties when executing a project together.

## 2.2. Cultural dimensions

Among all its various definitions, culture is seen as the representation of the shared values of a community. Cross-cultural studies seek to extract these shared values. The shared values reveal parts of the mental programming of a person, which defines attitude and behavior. Values are seen as “*broad tendency to prefer certain states of affairs over others*” (Hofstede, Hofstede, & Minkov, 2005, p. 10). Kluckhohn (1951), cited by Hofstede (2001, p.5), defined culture as “*patterned ways of thinking, feeling and reacting, acquired and transmitted mainly by symbols, constituting the distinctive achievements of human groups, including their embodiments in artefacts; the essential core of culture consist of traditional ideas and especially their attached values.*” Following this definition national culture influences the perspective on a subject and the value attached to certain criteria that can be used in measuring the dimensions of the subject. Differences in valuing project success can result from different definitions and perception of project success by respondents from different countries (Chou et al., 2013; Pereira et al., 2008). The possible influence of national culture on the perception of project success is recently addressed as an interesting topic for research (Mir and Pinnington, 2014). National cultures were distinguished and described throughout the literature based on the measurement and classification of values. Cultural dimensions (Hofstede, 2001) are clusters of interdependent values bound by some similarity, or aspects of culture that can be measured along different cultures, as ways to respond to universal problems of society. This paradigm was founded by Hofstede in the 1980s, based on a large empirical study via a questionnaire, performed on IBM employees from 50

countries. He conceptualized the results of factor analysis by defining initially four cultural dimensions: Power distance (linked to inequality), Uncertainty avoidance (linked to dealing with uncertainty), Masculinity/Femininity (emotional gender roles) and Individualism/Collectivism (linked to interpersonal relations). In later versions, he added Pragmatism (linked to long or short term orientation), and, based on Minkov's study, he recently integrated Indulgence/Restraint. Succeeding his work, other scientists either introduced new cultural dimensions, or described the same reality using different paradigms (Minkov, 2007). Many of these are strongly related to Hofstede's dimensions (Inglehart and Baker, 2000; Minkov, 2007; Schwartz, 1999; Stumpf, 2011). Although Hofstede's data can be criticized on its age and lack of national representativeness (only IBM employees), the contribution to cross-cultural studies is acknowledged widely in this field of research. Hofstede's theory is widely spread and acknowledged, there are rich literature sources and, over time, the validity of these dimensions has been confirmed by many studies (Van Oudenhoven et al., 2007).

## 3. Research

### 3.1. Q-methodology

To close the gap in literature on success views of the public project manager, a first step was taken by Koops et al. (2015, accepted for publication) who conducted a research using Q-methodology on public project success in The Netherlands. Q-methodology is a method that can be used for studying subjectivity (Brown, 1980; van Exel and de Graaf, 2005; Schmolck, 2012; Webler et al., 2009). Respondents are asked to rank a number of success criteria in the Q-sort — the main tool in Q-methodology. Researchers present respondents who match pre-set conditions, a list of elements on the topic and ask them to rank these elements in a ranking sheet provided by the researcher. The ranking sheet is ordered from ‘very relevant’ to ‘not relevant’. This prioritization brings about their subjective view on the subject. During and after the Q-sorting process respondents are asked to explain their choices, especially related to the highest and lowest ranked criteria. The answers are used for the qualitative interpretation of the perspectives.

To frame the success criteria of public project managers we used a Q-sample of 19 criteria as shown in Table 1. This set is based on extensive literature and some test interviews (Koops et al., accepted for publication). This set of criteria was used in The Netherlands and is now used to frame the views on public project success in Sweden, Finland, Denmark, Belgium and the United Kingdom.

Researchers provided the criteria on cards and the ranking sheet (Fig. 1). Respondents were asked to rank these criteria from –3 (least important to determining project success) to +3 (most important to determining project success).

### 3.2. The assumed influence of culture

When people are asked to give their view on a subject, their culture penetrates into the process as it shapes their internal

Table 1  
Q-sample of success criteria extracted from Koops et al. (2015, accepted for publication).

No.	Criterion
1	Delivered on time
2	Efficient use of available resources
3	Fit for purpose
4	Learning opportunities for client organization
5	Personal growth and development
6	Profitability for contractor
7	Quality
8	Safety
9	Satisfies needs of project team
10	Satisfies needs of stakeholders
11	Satisfies needs of users
12	Within budget
13	Effect on the professional image of client organization
14	Good working relationship with contracting partners
15	Impact on the environment, sustainability
16	Right process is followed
17	Continuation of client organization
18	Project specific political or social factors
19	Satisfies needs of shareholders

frame of reference. Q-methodology is, as mentioned, a method for studying subjectivity. In this research we presumed that cultural factors can influence the ranking made during the sorting. Four dimensions of Hofstede’s theory are assumed to be of influence in valuing project success criteria: power distance, masculinity, uncertainty avoidance and pragmatism (long term orientation). These four dimensions show large variations among the target countries (Fig. 2).

The respondents originate from countries from the same region, North West Europe, but the cultural scores of the countries in the research are not as comparable as might be expected from their geographical position. Comparing the county scores of Spain, Italy, Canada and South Africa with the countries in our research we see that the scores of these

countries are between the scores of our countries on the dimensions *Power Distance*, *Masculinity* and *Uncertainty avoidance* (geert-hofstede.com). Also in *Pragmatism* that is the case, except for Argentina. But the difference in score between Argentina and Denmark is on this dimension is much smaller than the difference between Belgium and Denmark.

Based on the identified success criteria and Hofstede’s cultural dimensions differences are expected in the ranking of the success criteria by the respondents originating from their national value frame. In general – without looking at a specific criterion or dimension – difference can be expected between project managers from Denmark and project managers from Belgium. As Fig. 2 shows, the scores on all dimensions are far apart. The dimensions are briefly explained (geert-hofstede.com), including their possible influence on the success criteria:

- *Power distance* “The fundamental issue here is how a society handles inequalities among people. People in societies exhibiting a large degree of power distance accept a hierarchical order in which everybody has a place and which needs no further justification.” In the ranking, differences can be expected for instance for the criterion good working relationship with the contractor. Based on the country scores of Denmark and Belgium it could be expected that the Danish project managers value this criterion higher than the Belgians.
- *Masculinity* “The masculinity side of this dimension represents a preference in society for achievement, heroism, assertiveness and material rewards for success (competitive oriented). Its opposite, femininity, stands for a preference for cooperation, modesty, caring for the weak and quality of life (consensus-oriented).” According to Hofstede Belgium and UK have more masculine oriented societies, where Sweden and The Netherlands are more feminine oriented. Project managers from feminine countries are expected to rank criteria that refer to the satisfaction of other groups (stakeholders, shareholders, users and even their team) higher than project

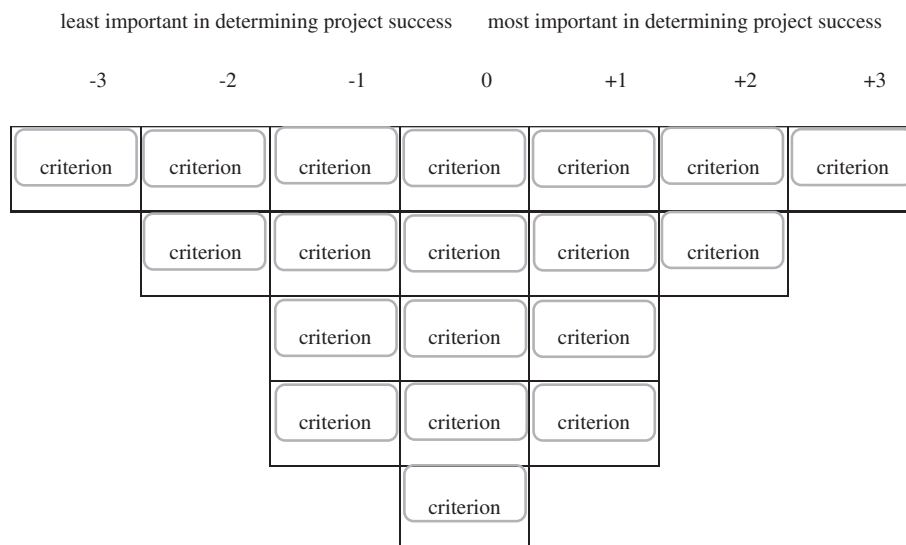


Fig. 1. Ranking sheet.

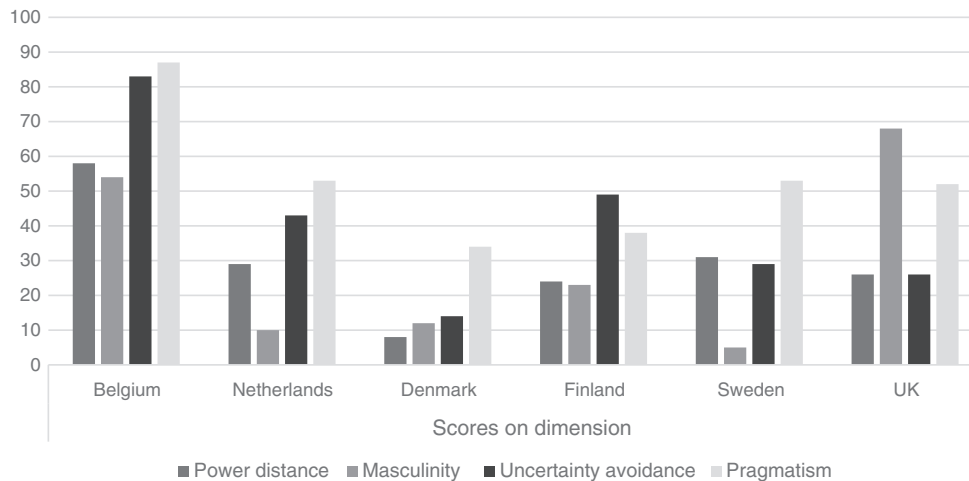


Fig. 2. Target country scores on cultural dimensions of Hofstede ([geert-hofstede.com](http://geert-hofstede.com)).

managers from more masculine countries. So considering this dimension, Belgian and British project managers might respond similar, whereas the Swedish, Danish and Dutch project managers are expected to score at the opposite side of this dimension.

- *Uncertainty avoidance* “The fundamental issue here is how a society deals with the fact that the future can never be known: should we try to control the future or just let it happen? Countries exhibiting strong UA-index maintain rigid codes of belief and behavior and are intolerant of unorthodox behavior and ideas.” Again, Denmark scores low on this dimension, compared to Belgium and in this case Finland. Based on these differences we expect Belgian and Finish project managers to highly appreciate the right process followed and rank this higher than project managers from Denmark.
- *Pragmatism* “In societies with a normative orientation most people have a strong desire to explain as much as possible. In societies with a pragmatic orientation, most people believe that it is impossible to understand fully the complexity of life.” In this dimension project managers of pragmatic countries (long term oriented), like Finland and Denmark, are expected to highly appreciate criteria like learning opportunities for the client organization and personal growth and development. The value of these elements goes beyond the delivery of the project.

On three dimensions Sweden and the UK are very similar, but on the dimension *Masculinity* their scores differ considerably. The way project managers from these countries value meeting constraints and long term effects, can reflect the similarity in *Uncertainty avoidance* and their *Pragmatic* orientation. On the other hand, the difference in the dimension *Masculinity* can drive these project managers apart because they value relationships differently.

This research is set up to explore different views on project success held by public project managers in different countries, but due to the personal approach, it also contributes to the clarification of individual links to societal cultures (indicated as direction for further research by [Peterson, 2007](#)). Hofstede’s

dimensions are characteristics of societies, not of individuals. According to Peterson (2007) these “*characteristics mostly shape what people (...) find normal, but will have only a looser link to personal attitudes about what they typically experience*” (p. 373–374).

### 3.3. Research setup

To gain insight in the project success perception of public project managers in European countries, the Dutch research with 28 respondents ([Koops et al., accepted for publication](#)) was extended to Finland, Sweden, Belgium, Denmark and the United Kingdom. The public organizations that are responsible for infrastructure in these countries participate in the NETLIPSE network. In total 50 new respondents were interviewed: 9 from Belgium, 10 from Finland, 11 from Sweden, 10 from Denmark and 10 from United Kingdom. Details about the respondents are given in [Appendix III](#). Most of the interviews were held face to face, some of them were setup by a video connection.

For those interviews which were held using the internet (Skype, Lync), an Excel-sheet was developed to sort the criteria by digital ‘cards’. After the sorting was finished and the respondent was satisfied that the Q-sort represents his perspective, he was interviewed about the decisions made — the respondent was asked to explain the statements that scored high and those that scored low. After the actual Q-sorting process additional questions were asked to collect information that was used to explain similarities or dissimilarities between respondents. The answers to the additional questions also provided a check: was the real opinion of the respondent revealed or was a merely socially desirable answer obtained? Results of the respondents were treated anonymously anyway.

## 4. Results

### 4.1. Quantitative results

A part of the respondents (8) did not end up in the final analyses because they actually did not meet the initial conditions

of the P-set. The position of these respondents turned out to be another than the public project manager of the project, like the future owner (asset manager) or the portfolio manager. In analysing the results with these respondents in the set we noticed that their point of view did make a difference in the ranking of the criteria. We excluded these from the final set because the differences were explainable from the deviation from the initial conditions and thereby following Brown who stated that “*experimental design principles are drawn upon for purposes of comparing a P set or set of persons who are theoretically relevant to the problem under consideration: the P-set is therefore more nearly theoretical or dimensional than random or accidental.*” (Brown, 1980, p. 192).

To analyse the data the PQmethod (version 2.35, March 2014) was used. The new data were added to the existing Dutch database and we analysed the possible number of factors (groupings). “*There is no one objectively correct number of factors to use, and any number of factors will give you some insight into how people think about the issue. Nevertheless, there are several criteria that you can use to decide between different numbers of factors*” (Webler et al. p. 31). These criteria are simplicity (fewer is better, but keep interesting nuances), clarity (minimize number of confounders – loading on multiple factors- and non-loaders – not loading on any factor), distinctness (low correlation) and stability (certain groups of people tend to cluster). Based on these criteria we choose to proceed with four factors — representing four groups of public project managers with similar ranking of project success criteria. Before a factor and its loadings can be accepted it has to meet criteria related to the significance of the loadings of the Q-sort and we needed to check the significance of the factors itself. To accept a factor it has to have at least two significant loadings and the cross-product of the two highest loadings on the factor has to exceed  $2(SE)$  (Brown, 1980) All four factors were accepted (as elaborated in Appendix I).

From the complete set of 78 respondents, 26 respondents load on the first factor, 10 on the second, 5 on the third and 14 on the fourth. Two respondents did not load on any of the factors (non-loaders) and 6 respondents are so-called ‘con-founders’, which means they load on two factors without a clear preference for one of them (Table 2).

Based on the national value frames as derived from Hofstede, these sets of respondents are expected to consist of project managers of countries with similar cultural characteristics. The majority of the respondents are loading on the first factor or ‘perspective’ (P1). For Finland (8 out of 10), UK (6 out of 8) and Sweden (6 out of 11) it is the majority of project managers that load on this perspective. The cultural country scores of Finland and the UK are almost similar on the dimension *Power distance* (24 resp. 31). Furthermore 6 out of 11 respondents from Sweden load on this factor. Sweden has also a similar cultural score on *Power distance* (31). Based on this dimension the small number of Dutch managers in this group is surprising, The Netherlands score on the dimension *Power distance* between the UK and Sweden (29). The grouping of Swedish and British project managers is also explained by their similar cultural scores on the dimensions *Pragmatism* (53 resp. 52) and *Uncertainty avoidance* (29 resp. 26). Again, if the cultural value frame is the binding factor, based on the dimension *Pragmatism* we should have found more Dutch project managers in this group as the country score is similar to Sweden.

The fourth perspective (P4) binds 14 public project managers. In this group five nationalities can be found. The majority of the respondents from Belgium is in this perspective and also the majority of the respondents from Denmark. Due to the small number of respondents in these groups, no thorough conclusion can be derived. Yet we remark that the Belgian and Danish project managers were not expected in the same group, because of their different scores on all cultural dimensions.

The second and third perspectives only contain project managers from The Netherlands — one exception in P2 from Finland. This was not an expected result; the Dutch cultural scores are not extreme on any of the dimensions. Next to the nationality of the respondents, some other characteristics of the respondents and their projects were gathered: educational background, previous work experience, governmental level, contract type, budget, experienced complexity of the project and political sensitivity. We analysed the spread of these features over the perspectives to see if there is an explaining variable for the found groups of public project managers. We performed the Kruskal–Wallis test to assess the significance of

Table 2  
Characteristics of the data processing.

	Initial respondents	Excluded from P-set	Respondents loading on a factor	P1	P2	P3	P4	Number of non-loaders	Number of confounders
Belgium	9	4	3	1	0	0	2	1	1
Denmark	10	1	7	3	0	0	4	1	1
Finland	10	1	9	8	0	0	1	0	0
Sweden	11	0	9	6	1	0	2	1	1
United Kingdom	10	2	6	6	0	0	0	1	1
Netherlands	28	2	21	2	9	5	5	3	2
Former results									
<i>Perspective A</i>				1	0	0	2	0	1
<i>Perspective B</i>				0	8	1	1	2	2
<i>Perspective C</i>				0	0	4	0	0	0
<i>Non-loaders</i>				1	1	0	2	0	0
Total	78	10	55	26	10	5	14	7	6

Table 3  
Significant outcomes from Kruskal–Wallis.

Characteristic	Pairwise comparison	Sig.	Adj. sig.
Governmental level	P1–P2	0.000	0.000
Budget	P1–P2	0.005	0.029
Educational background	P1–P2	0.008	0.045
Educational background	P1–P3	0.002	0.011
Governmental level	P2–P3	0.019	0.115
Governmental level	P2–P4	0.011	0.064
Budget	P1–P3	0.029	0.175
Educational background	P3–P4	0.013	0.081
Technical complexity	P1–P2	0.035	0.212
Technical complexity	P1–P4	0.012	0.070

Each row test the null hypothesis that the 'sample 1' and 'sample 2' distribution are the same. The significance level is .05.

the observed distribution of features over the perspectives. The Kruskal–Wallis test is a non-parametric analysis of variance and can be performed on subgroups from the same sample (Field, 2013). Based on the Kruskal–Wallis test, governmental level, budget, educational background and level of technical complexity are identified as a significant explanation for the groups found. The number of respondents in some subgroups was too small to draw valid conclusions. Taking the number of respondents in each group into account, there are four remaining statistical relevant characteristics (Table 3, grey scaled values).

The majority of the first group (P1) is educated as civil engineer (85%) and has been working for both public and private organizations (58%). Most of these managers are in charge of a national project in execution phase with a relatively large amount of managers managing a project with a budget larger than 500 million euros (46% in this group compared with 32% of the total number of respondents).

The majority of the project managers in the second perspective have always been public servants (60%) and are not civil engineers

but have some other educational backgrounds (for instance economics, urban planning or law). These managers are employed by regional or local government and their projects have a relatively small budget (<50M EUR). All project managers have contact with the responsible politician(s) and classify their project 'high' on external complexity (60%). Respondent\_N15: “Political pressure makes the project difficult. (...) It has been started up as a solution to a social problem.”. The governmental level can be an explaining variable for this group, since the distribution is not the same compared to all other groups. Taking into account the number of respondents per group, only the differences in spread between this group and the first group can be judged as significant.

Most of the project managers in the third group (P3) have always been in public service and none of them has an engineering education. Three (out of 5) are employed at national level, four have no contact with the responsible politician. The project manager, who did have contact with his politician, was still in the tendering or pre-design phase.

Of the complete dataset 24 projects were in the Front End Development phase (either designing, preparing permits or waiting for a decision), while 39 projects were in the execution phase or completed. In the fourth group (P4) the number of projects in the Front End Development phase seems an exceptional high percentage. In this group the distribution between projects in the Font End Development phase and projects in the execution or completion phase is 5 to 14.

#### 4.2. Qualitative results

The derived four factors or perspectives can be given meaning by analysing the results of the sorting of the criteria (quantitative) and the comments of the respondents during the sorting and the follow-up interviews (qualitative). To support the analysis we divided the success criteria into four groups

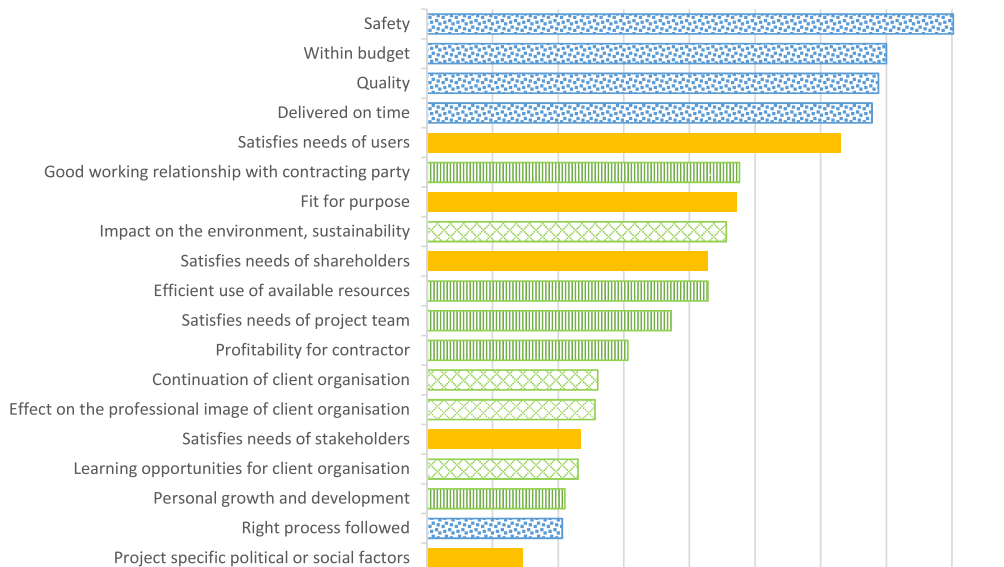


Fig. 3. Factor scores of the conventional project manager (perspective 1).

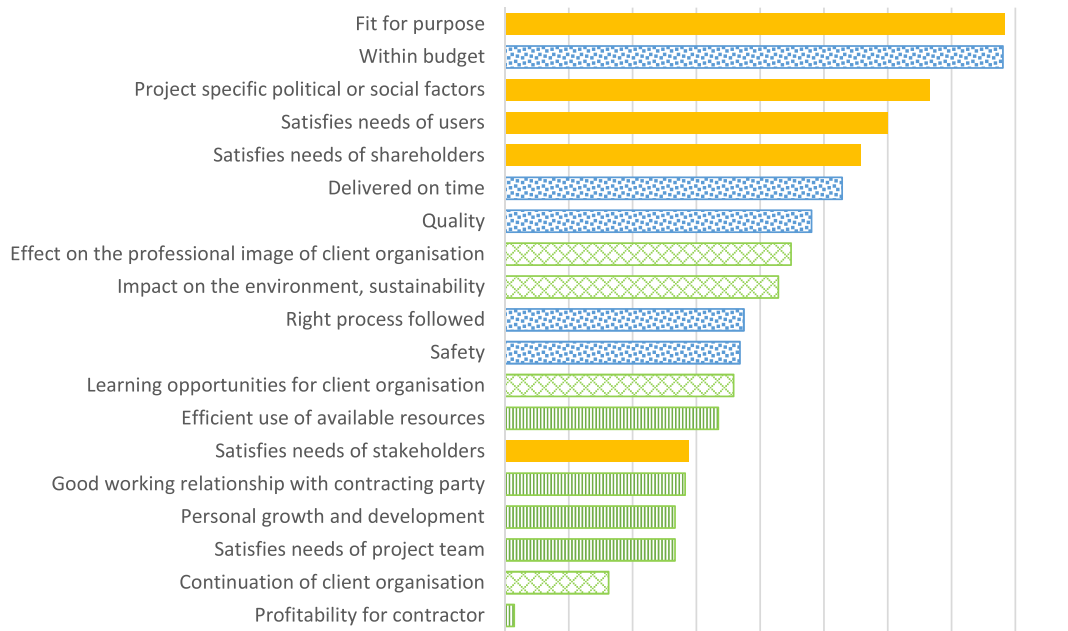


Fig. 4. Factor scores of the product driven manager (perspective 2).

(see colours in Figs. 3 to 6), inspired by existing models (Al-Tmeemy et al., 2011; Baccarini, 1999; Howsawi et al., 2011; Shenhar et al., 2001; Shenhar and Wideman, 1996): project management success (blue), product success (yellow) and organizational success (for project organization: dark green, for parent organization: light green).

4.2.1. Perspective 1: the conventional project manager

This perspective binds 40% of the respondents (of the valid Q-sorts), corresponding with 26 respondents. They rank the ‘iron triangle’ – *in time, within budget, according to quality requirements* – at the top of the chart, supplemented by *safety*, see Fig. 3. In the words of Respondent\_S09: “Safety first! Project

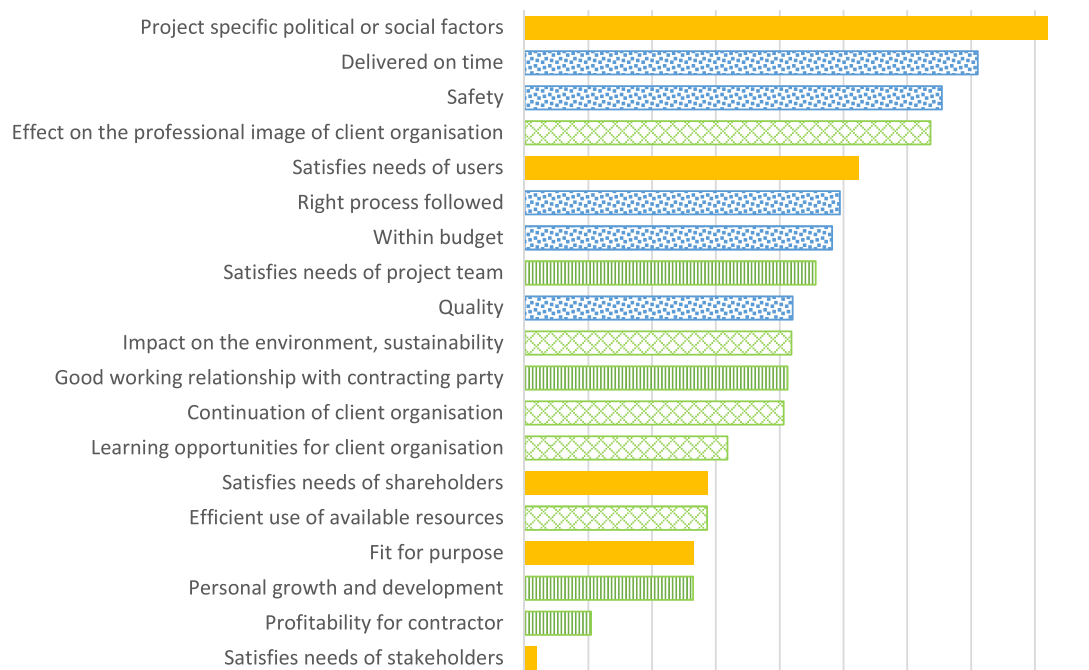


Fig. 5. Factor scores of the parent oriented manager (perspective 3).



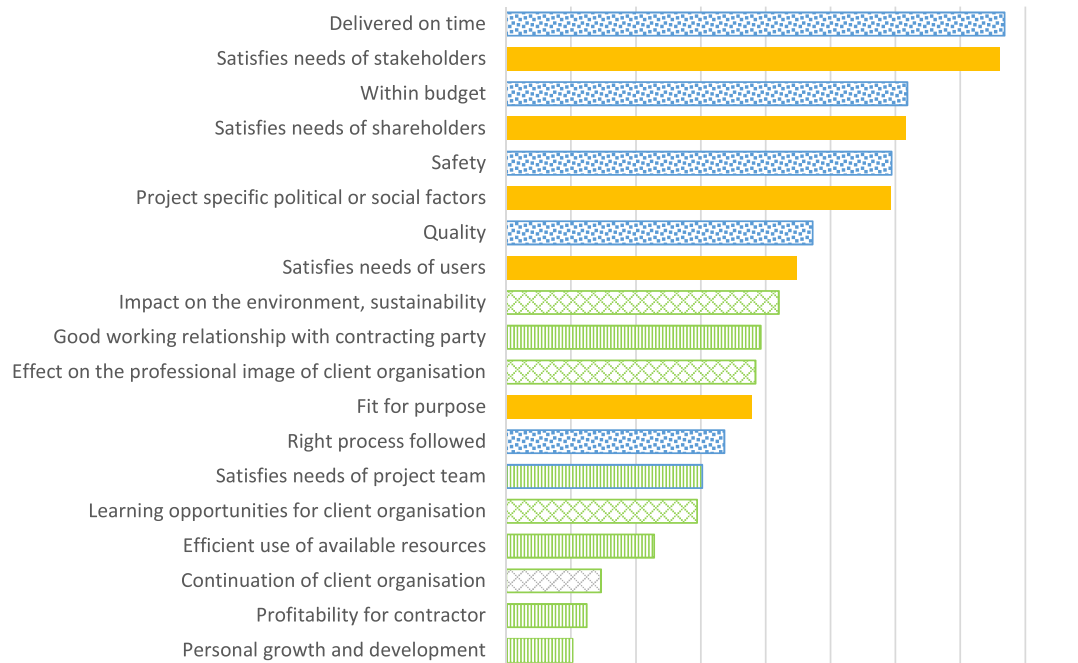


Fig. 6. Factor scores of the manager with a focus on stakeholders (perspective 4).

has no legitimacy if we can perform on time and budget, but at the cost of employees' health or lives". Project managers of all countries load on this factor. These managers conceive the triple constraint as an important part of their assignment. Respondent\_S08: "it is important to strengthen the organization's image – but we do that by time-cost-quality"; Respondent\_B02: "the government, as shareholder, only cares about within budget delivery; if we manage that, they are happy"; Respondent\_D06: "shareholders should be satisfied if time-cost-quality are fine".

According to these project managers *project specific political or social factors* are the least important criteria to determine the success of their project. Respondent\_F08: "Political factors are important before the decision is made". Interesting is that most of these project managers do have contact with their political client (78%) but seem to manage this without trouble. Respondent\_UK10: "politics are a tick in a box, as long as you deliver first rank items, it is ok". These managers also don't emphasize the importance of *following the right process*. Their attitude towards rules is pragmatic. Respondent\_N17: "The process needs to be lawful and efficient, but you have to be careful that you do not focus too much on accountability." Respondent\_S09: "processes are schemes, a hygiene factor, but if there are better different solutions, why not go for it?"

#### 4.2.2. Perspective 2: the product-driven manager

According to the managers in this perspective, project success is determined mostly by the end result of a project. They are very product-oriented: the value if the project is *fit for purpose*, measures up to *project specific political or social factors* and *satisfies the needs of users* and *shareholders* (Fig. 4). They strive to accomplish that *within budget* (most important), *on time* and

*according to the quality requirements*. Respondent\_N12: "It is all about public support – you aim at improving the city, not just building a bridge.". The ranking of the criteria that connect project success to product success is in this perspective very different than in the first perspective: *fit for purpose* was ranked no\_7 in perspective 1 and *project specific political or social factors* was ranked no\_19 in perspective 1. This group contains 10 project managers. The vast majority of this group (9) are project managers from The Netherlands.

Respondent\_N26 noted that the criterion *delivered on time* is actually of no interest to him as a public project manager. He stated that there are two important points in the project for the public project manager: the moment when execution starts and the moment of the project's implementation. "The criterion *delivered on time* is merely important for the contractor. For the public project manager, the moment when the construction is brought into use is much more important – delivery is just the moment when the contractor gets the money."

These project managers rank *profitability for the contractor* least important in determining the success of their project. This is in line with perspectives 3 and 4 but very different with the ranking in the first perspective where this criterion ranks relatively high (no\_12). The criterion *safety*, which was the first criterion in perspective 1, is ranked no\_11 by these project managers. Respondent\_N12 about *safety*: "Responsibility of the contractor".

#### 4.2.3. Perspective 3: the parent oriented manager

This perspective is represented by the smallest group: 5 managers from The Netherlands load on this factor. The most striking criterion in the ranking of these managers is *effect on the professional image of the client organization*. Together with

the high rank of *specific political or social factors* and *the right process followed* these are the most obvious distinguishing criteria (Fig. 5). Respondent\_N06 about *the right process followed*: “It is the basis (...). Especially important if something goes wrong or legal procedures are started up: you win them if you have done everything by the book.”. Respondent\_N21 about *continuation of the client organization*: “Important, especially in relation to the bearers of knowledge that you want to hold on to as an organisation.”.

From the iron triangle criteria *delivered on time* was ranked the highest (no\_2). Only in perspective 4, this criterion was ranked higher, the previous two perspectives ranked this criterion relatively low. From the other criteria the low ranking of *satisfaction of shareholders* and *satisfaction of stakeholders* is worth mentioning. Respondent\_N21 remarks: “The stakeholders did have a sounding board [to express their wishes], but this was mostly to let them say their bit.” On the other hand, the *satisfaction of the needs of users* is ranked equally high as in perspectives 1 and 2.

#### 4.2.4. Perspective 4: manager with a focus on stakeholders

The second large group can be found in this perspective: 14 public project managers from all countries except UK — in total 22% of all Q-sorts. These project managers value both the iron triangle and the criteria that refer to the *satisfaction of stakeholders, shareholders, political or social factors* and *users* (Fig. 6). In the words of respondent\_N07: “I have ranged the criteria of the iron triangle equally, all score +1: they are important, but if you steer performance towards those, you will forget important matters like stakeholders, shareholders, safety.”. The importance of a timely delivery of the project also seems to come from a client oriented attitude. Respondent\_D04: “shareholder/government needs prevail; it is the first project that this minister opens” and Respondent\_S03: “this project comes 20 years late for the area’s development; we need to finish on time for the community”.

#### 4.3. Similarities and differences amongst the perspectives

In order to analyse the similarities and differences amongst the perspectives, the factor scores (z-scores) and the corresponding position in the ranking sheet were compared, see Table 3 and Appendix II. Looking at the overall dataset, respondents from all

four perspectives agree on the lowest ranked criteria, *personal growth and development* and *profitability for the contractor*. Especially the last criterion was generously commented by the respondents. Respondent\_D02: “profits are not our issue – when you cut to the bone, we have a business relations with contractors.”. Respondent\_N08: “Is its own responsibility, unimportant to us, but it seems that the contractor will not be making a profit here.”. Respondent\_N12: “If necessary, they are allowed to make a profit.”. Respondent\_S10: “Profit makes the journey more easy, but is not crucial.”. A lot of project managers expressed their awareness of the fact that they were spending taxpayers’ money. Respondent\_F05: “There were discussions with contractors, regarding the money needed for extra works – we are talking about taxpayer’s money.” The public project managers value this responsibility very high, which explains their restraining attitude towards *profitability for the contractor*. Interesting is the rank this criterion gets from the ‘conventional project managers’ (perspective 1); they ranked this criterion not very important for project success but also not very unimportant for project success. Compared to the other three perspectives this is a distinguishing rank.

The criteria *Safety* is distinguishing for the first and the second perspective (Table 4). The ‘conventional project manager’ ranks this criterion much higher than the others where the ‘product driven project manager’ ranks it much lower than the others. An explanation of this can be given by Respondent\_N12 who stated that safety is the “responsibility of the contractor.” The difference in opinion about this criterion can be well illustrated by comparing this statement with a statement of Respondent\_UK02: “We need to make sure everyone gets home safe every day.”. The latter indicates a more leading, proactive attitude towards safety.

The criterion that is most disagreed on is *project specific political or social factors*. This is ranked least important by the ‘conventional project manager’ (P1) and most important by the ‘parent oriented project manager’ (P3). The ‘product driven manager’ also considers this an important criterion and ranks it very high. Respondent\_N06 demonstrated clear awareness of the specific factors: “When the project was started up, the organisation objectives (from the agenda 2012) were translated to project objectives.”. But the disagreement might not be as big as it seems if we listen to Respondent\_F08 who is a representative of the first perspective and stated: “Political

Table 4  
Most disagreed upon criteria, with corresponding factor scores.

Criterion	P1	P2	P3	P4
Personal growth and development	-1.05 (-2)	-.077 (-2)	-0.78 (-2)	-1.59 (-3)*
Profitability for contractor	-0.57 (0)*	-2.03 (-3)	-1.58 (-2)	-1.48 (-2)
Safety	1.91 (3)*	-0.26 (0)*	1.17 (2)	0.87 (1)
Continuation of the client organization	-0.80 (-1)*	-1.29 (-2)	-0.07 (0)	-1.37 (-2)
Needs of stakeholders	-0.93 (-1)	-0.66 (-1)	-2.00 (-3)	1.70 (2)*
Fit for purpose	0.26 (1)*	1.81 (3)*	-0.77 (-1)	-0.21 (0)
Project specific political or social factors	-1.37 (-3)	1.23 (2)	2.00 (3)*	0.86 (1)
Influence on the professional image	-0.82 (-1)*	0.14 (0)	1.08 (1)*	-0.18 (0)
Needs of shareholders	0.04 (0)*	0.69 (1)	-0.66 (-1)*	0.98 (1)

Corresponding position in the ranking sheet per perspective between brackets.

\* Distinguishing at  $P < 0.1$ .

factors are important before the decision is made". So it might be a criterion that loses its importance in the execution phase.

#### 4.4. The iron triangle

From the literature, we know the importance (although outdated as well) of the iron triangle (Atkinson, 1999; Chan et al., 2002; Shenhar and Wideman, 1996)). How do the criteria related to the iron triangle score in this research? None of the perspectives rank the iron triangle criteria "most important in determining project success" (ranks '3' and '2' on the ranking sheet). In fact, considering project success, the four perspectives disagree on the importance of all three criteria. The criterion *within budget* is most valued by the public project managers. But for the 'parent oriented manager' this is not as important for project success as for the other perspectives. This criterion is ranked '1' by these managers with a distinguishing low factor score (Table 5). For the 'project manager with focus on stakeholders' the criterion *delivered on time* is ranked highest. This criterion is less important for the 'product driven manager': although at an average rank '1', the factor score is distinguishing low for this perspective. On the third criterion of the iron triangle, *quality*, the 'conventional project manager' values this criterion distinguishing higher than the other perspectives. These managers rank this criterion '2' with an extreme high factor-score of 1.34. In the words of respondent\_F05: "Quality is crucial, the project will be there for the next 100 years". The others rank this criterion more in the middle of the spectrum (rank '1' or '0').

#### 4.5. Relation of specific criteria to culture

This research is set up to explore different views on project success held by public project managers in different countries. Based on the country scores on Hofstede's dimensions, differences were expected in the ranking of success criteria (Section 3.2). The results of the q-sort show that the public project managers are spread over the derived perspectives. We also analysed the positioning of certain criteria by the public project managers. Based on the country scores of Denmark and Belgium on the power distance index it was expected that the Danish project managers value *good working relationship with the contractor* higher than the Belgians. The individual rankings of this criterion do not show a difference between Belgian and Danish managers. In both groups this criterion is placed in the ranking sheet at position -1, 0 or 1. The country scores of Sweden and The Netherlands are more feminine where Belgium and UK have masculine oriented societies. Project managers

from feminine countries are expected to rank the criteria that refer to the satisfaction of other groups (stakeholders, shareholders, users and even their team) higher than project managers from more masculine countries. This is not supported by the ranking of the project managers. The *satisfaction of users* is even ranked highest (+3) by four managers from masculine countries. On the Uncertainty Avoidance index again Denmark scores low compared to Belgium and in this case Finland. The criterion *the right process followed*, which can be linked to the Uncertainty avoidance index, is positioned 0 or 1 in the ranking sheet by the Belgian managers. Danish managers mostly position this criterion at -2 or -1. The managers from the UK rank this criterion even lower (-3, -2). This is not supported by the Uncertainty Avoidance index of the UK. Project managers of pragmatic countries (long term oriented), like Finland and Denmark, are expected to highly appreciate the criteria like *learning opportunities for the client organization* and *impact on the environment*. The value of these elements goes beyond the delivery of the project. Indeed *impact on the environment* is ranked on the positive site of the ranking sheet by the Danish and Finnish project managers (0, 1) where the others also rank this criterion at the negative site. *Learning opportunities* is valued equally by all managers (-2, -1, 0 — with 4 exceptions).

#### 4.6. Implications of the results

The results of the Q-methodology show us that within a group of people from different countries, with the same position in the project, multiple perspectives exist. We've shown that researchers on the subject of project success and project success factors have to be very specific about the perception their objects of research have on project success. The perspectives seem to arrive from an internal motivation rather than external expectations or cultural influences and the results show that there are big differences on what a person is striving for. The results give reason to assume a change in priorities entering a new project phase, as we've analyzed that the fourth perspective (the manager with a focus on stakeholders) is mostly held by managers in the front end developing phase. The absence of influence of the country culture on the prioritization of criteria, is supporting Peterson (2007) that the country characteristics of Hofstede have a looser link to personal attitudes.

## 5. Discussion

With Q-methodology the aim is to gain insight in the range of viewpoints, so the sample of persons that participate in the research can be small. No claims are made about the frequency of their occurrence amongst the general population. A respondent group of 20 to 40 people is very reasonable and provides a good foundation for factor analysis (Brown, 1980). The total of respondents in our study reaches this number (total of respondents in the dataset: 68), but the number of respondents per country is much lower. "As a general rule, the Q sort is administered to persons who, on a priori grounds are expected to define a factor. Whether they in fact do so or not is an empirical matter brought to light by factor analysis." (Brown, 1980, p. 193–194). Because the

Table 5  
The iron triangle's factor scores.

Criterion	P1	P2	P3	P4
Within budget	1.40 (2)	1.80 (2)	0.31 (1)*	0.99 (2)
Delivered on time	1.29 (1)	0.54 (1)*	1.45 (2)	1.74 (3)
Quality	1.34 (2)*	0.30 (1)	0.00 (0)	0.26 (1)

Corresponding position in the ranking sheet per perspective between brackets.

\* Distinguishing at  $P < 0.1$ .

participants per country do meet the preset conditions (organizational position, number of years in this position, contract type) their results are valid. “*What is of interest ultimately are the factors with at least four or five persons defining each; beyond that, additional subjects add very little.*” (Brown, 1980, p. 260). Since at least 55 respondents loaded on our perspectives, these perspectives seem valid as well. Additional research could confirm the perspectives found.

The ranking of criteria forces respondents to choose between criteria, but the criteria can be related to each other. Respondents might value some criteria higher, but ranked them lower, simply because they ranked a related criterion already high and they had to make choices. A few quotes that illustrate this mechanism: Respondent\_S08: “*It is important to strengthen the organization’s image – but we do that by time-cost-quality.*”, Respondent\_UK10 “*Quality and safety drive performance and put project on track with time and costs.*” and Respondent\_B02: “*The government, as shareholder, only cares about within budget delivery; if we manage that, they are happy.*”.

We used Hofstede’s theory to explore cultural influences in the management of public infrastructural projects. Though Hofstede did not suit as an explaining factor, other cultural theories or a historical analysis of the usage of project management methods might be helpful to explain and predict differences in the perception of project success. Further research is recommended. The explanatory variables as indicated in Section 4.1, such as educational background, project budget and former experience, should be taken into account when composing new research.

The aim of this research was to identify the main success criteria in the perception of public project managers. We took particular interest in this role because the public project manager functions on a crucial position at which he can actively influence the actual project result. We explored what the public project manager is striving for, but we did not include measuring if he succeeds. We recommend further research on the relationship between the criteria and the project results.

## 6. Conclusion

The performed research aimed at indicating the most important success criteria in the general perspective of public project managers in different Western European countries. We identified four different perspectives on project success, each with their specific set of most and least important success criteria. We named the perspectives after the characteristics found by analysing the sorting and the comments respondents gave during the sorting. Though all public project managers consider the iron triangle criteria important, in none of the perspectives they are all ranked top 3. In one perspective *delivered on time* is considered most important, in another perspective *within budget* scores high. Several other criteria illustrate the differences of opinion within the four groups. Especially *safety*, *profitability for the contractor*, *needs of shareholders* and *specific political or social factors* are valued differently between the perspectives.

The first perspective focusses on the controllability of the process up to project delivery and handover as introduced by

Munns and Bjeirmi (1996). These managers were found in all participating countries. In the opinion of the second perspective project success is when the project is *fit for purpose* and meets *specific political or social factors* within the given budget. These managers are found in The Netherlands and Sweden. A small group of Dutch project managers represent the third perspective. These managers favour *project specific political or social factors* above all, followed by *delivered on time*. The last perspective is that of managers who are balancing between *the needs of stakeholders, shareholders, users* and *specific political or social factors* and the iron triangle criteria. The majority of the Belgian and Danish managers load in this factor.

Perspectives 2, 3 and 4 are in line with the findings of Baccarini and Collins (2004) where 42% of the respondents considered project success both project management success and product success (as in the result of the project). The results of our research show the diversity in this group — project managers emphasise specific elements of product success. In public private collaborative relationships in Large Infrastructural Projects, partners agree on project management success. The challenge is to understand each other’s point of view on the importance of the specific elements of product success: *satisfies needs of shareholders and stakeholders*, *fit for purpose* and *specific political and social factors*.

The expected influence of national culture on preferences for certain criteria was not found. For 26 project managers with origin in all participating countries, who are united in the conventional project management perspective (P1) the most important criteria for success are *within budget*, *delivered on time*, *quality* and *safety*. Project managers from countries with a more feminine culture, Denmark, Sweden and The Netherlands are also found in the perspective with a focus on stakeholders. Although this is as we expected, the group of respondents loading on this perspective is too small to draw conclusions. The identified perspectives (groups) did not consist of project managers of countries with comparable scores on Hofstede’s dimensions, thereby our findings support the statement of Peterson (2007) that the Hofstede dimensions only loosely link to personal attitudes. The results indicate the existence of a managerial culture (perspectives 1 and 2) or an organizational culture that can be of influence (perspectives 3 and 4). Common values in the environment in which the project managers perform their daily activities can be an external factor of influence. Another explanation can be the influence of internal, personal values and the possibility that people with certain values tend to work for governmental organizations.

## Acknowledgements

Researchers are very thankful to all respondents who participated and the NETLIPSE network for providing the initial contacts in the different countries. Despite the busyness in the daily job of a public project manager they took time to give us insight into their way of looking at project success. It was interesting and inspirational, as illustrated by the words of Respondent\_UK04: “*Processes are there to be challenged – else there is no growth or innovation*”.

Appendix I

Respondent	Factor 1	Factor 2	Factor 3	Factor 4	Significance
N01	0.112	0.441	0.719 **	0.123	P>0.01
N02	0.009	-0.003	0.024	0.510 **	P>0.05
N03	0.518 **	-0.145	0.167	0.035	P>0.05
N04	0.384	0.031	0.325	0.551 **	P>0.05
N05	0.065	0.116	0.648 **	-0.075	P>0.01
N06	0.137	-0.028	0.810 **	0.112	P>0.01
N07	0.253	0.178	0.199	0.751 **	P>0.01
N08	0.111	0.632 **	0.513 *	-0.084	P>0.01
N09	0.274	0.314	-0.168	0.639 **	P>0.01
N10	-0.096	0.441	0.420	0.245	non-loader
N11	-0.022	0.267	0.652 **	0.429	P>0.01
N12	0.022	0.721 **	0.299	0.369	P>0.01
N13	0.219	0.579 **	0.190	0.013	P>0.05
N14	0.416	0.617 **	0.119	0.421	P>0.01
N15	0.210	0.642 **	0.143	0.466 *	P>0.01
N16	0.266	0.240	0.111	0.606 **	P>0.01
N17	0.752 **	0.281	-0.095	0.254	P>0.01
N18	-0.347	0.356	0.512 *	0.217	non-loader
N19	-0.254	0.563 **	0.081	0.458 *	P>0.05
N20	0.294	0.535 *	0.000	0.607 *	confounder
N21	0.308	0.103	0.640 **	0.066	P>0.01
N22	-0.125	0.672 **	0.088	0.271	P>0.01
N23	0.199	0.654 **	0.215	-0.058	P>0.01
N24	0.471 *	0.405	0.127	0.563 *	confounder
N25	0.419	0.261	-0.052	0.154	non-loader
N26	-0.036	0.733 **	0.110	0.316	P>0.01
B02	0.584 **	0.191	0.289	-0.004	P>0.05
B04	0.383	0.428	0.115	0.352	non-loader
B05	0.185	0.520 *	-0.012	0.605 **	P>0.01
B06	0.437	0.597 *	0.086	0.486 *	confounder
B07	-0.003	0.191	0.119	0.691 **	P>0.01
D01	0.615 **	0.086	0.127	0.045	P>0.01
D02	0.157	0.127	0.005	0.724 **	P>0.01
D03	0.432	0.167	0.485 *	0.335	P>0.05
D04	0.206	0.157	-0.307	0.728 **	P>0.01
D05	-0.079	0.320	0.118	0.726 **	P>0.01
D06	0.791 **	0.348	0.102	0.038	P>0.01
D07	0.153	0.152	0.204	0.785 **	P>0.01
D08	0.618 **	0.003	-0.019	0.403	P>0.01
D10	0.455 *	0.514 *	-0.163	0.205	confounder
F01	0.616 **	0.379	0.343	-0.003	P>0.01
F02	-0.016	-0.420	0.359	0.684 **	P>0.01
F03	0.728 **	0.041	0.177	-0.096	P>0.01
F04	0.794 **	0.018	-0.123	0.472 *	P>0.01
F05	0.745 **	0.446	0.255	-0.184	P>0.01
F06	0.765 **	0.011	0.012	-0.146	P>0.01
F07	0.840 **	0.129	0.274	-0.045	P>0.01
F08	0.675 **	0.239	0.028	0.095	P>0.01
F10	0.686 **	0.063	-0.144	0.286	P>0.01
S01	0.530 **	-0.220	0.429	0.070	P>0.05
S02	0.284	0.093	0.328	0.047	non-loader
S03	0.094	0.557 *	0.273	0.682 **	P>0.01
S04	0.214	0.321	-0.050	0.643 **	P>0.01
S05	0.597 *	0.394	-0.211	0.464 *	confounder
S06	0.490 **	0.021	0.286	0.348	P>0.05
S07	0.670 **	0.094	-0.373	0.399	P>0.01
S08	0.718 **	0.301	-0.063	0.370	P>0.01
S09	0.754 **	-0.074	0.179	0.424	P>0.01
S10	0.548 *	0.608 **	-0.056	0.050	P>0.01
S11	0.733 **	-0.026	0.179	-0.022	P>0.01
UK02	0.667 **	0.005	0.111	0.545 *	P>0.01
UK03	0.100	0.021	-0.257	-0.311	non-loader
UK04	0.717 **	-0.166	0.116	0.398	P>0.01
UK05	0.813 **	-0.073	-0.022	0.244	P>0.01
UK06	0.653 **	0.411	-0.403	0.244	P>0.01
UK07	0.771 **	0.357	0.075	0.301	P>0.01
UK08	0.476 *	0.543 *	-0.082	0.327	confounder
UK10	0.795 **	0.335	0.107	-0.029	P>0.01

\* meets condition 1 (significant loading at p < 0.05)

\*\* meet condition 1 and condition 2 (the highest loading<sup>2</sup> > h<sup>2</sup>/2)

## Appendix II

Factor score (score) with corresponding position (pos.) in the ranking sheet per perspective.

Perspective	1		2		3		4	
	Score	Pos.	Score	Pos.	Score	Pos.	Score	Pos.
Continuation of client organization	-0.80	-1	-1.29	-2	-0.07	0	-1.37	-2
Delivered on time	1.29	1	0.54	1	1.45	2	1.74	3
Effect on the professional image of client organization	-0.82	-1	0.14	0	1.08	1	-0.18	0
Efficient use of available resources	0.04	0	-0.43	-1	-0.67	-1	-0.96	-1
Fit for purpose	0.26	1	1.81	3	-0.77	-1	-0.21	0
Good working relationship with contracting partners	0.28	1	-0.69	-1	-0.04	0	-0.14	0
Impact on the environment, sustainability	0.18	0	0.04	0	-0.01	0	-0.00	0
Learning opportunities for client organization	-0.95	-1	-0.31	0	-0.51	-1	-0.63	-1
Personal growth and development	-1.05	-2	-0.77	-2	-0.78	-2	-1.59	-3
Profitability for contractor	-0.57	0	-2.03	-3	-1.58	-2	-1.48	-2
Project specific political or social factors	-1.37	-3	1.23	2	2.00	3	0.86	1
Quality	1.34	2	0.30	1	0.00	0	0.26	1
Right process followed	-1.07	-2	-0.23	0	0.37	1	-0.42	-1
Safety	1.91	3	-0.26	0	1.17	2	0.87	1
Satisfies needs of project team	-0.24	0	-0.77	-1	0.18	0	-0.59	-1
Satisfies needs of shareholders	0.04	0	0.69	1	-0.66	-1	0.98	1
Satisfies needs of stakeholders	-0.93	-1	-0.66	-1	-2.00	-3	1.70	2
Satisfies needs of users	1.05	1	0.90	1	0.52	1	0.14	0
Within budget	1.40	2	1.80	2	0.31	1	0.99	2

## Appendix III

Features of respondents and their projects.

Resp.	Governmental level	Civil engineer	Previous experience	Contract	Budget [EUR]
B02	Regional	Yes	Public	Other	<50 M
B04	Regional	Yes	Army	Design and construct	50–100 M
B05	Local	Yes	Both	Engineering and construct	<50 M
B06	Local	Yes	Both	Engineering and construct	>1 B
B07	Local	Yes	Both	Engineering and construct	>1 B
D01	National	Yes	Public	Design and construct	500 M–1B
D02	National	Yes	Public	Design and construct	500 M–1B
D03	National	Yes	Public	None yet	100–500 M
D04	National	No	Public	Bid and build	50–100 M
D05	National	Yes	Public	Bid and build	100–500 M
D06	National	Yes	Public	Design and construct	100–500 M
D07	National	Yes	Both	Bid and build	100–500 M
D08	National	Yes	Public	Bid and build	100–500 M
D10	National	Yes	Public	Design and construct	500 M–1B
F01	National	Yes	Public	None yet	<50 M
F02	National	Yes	Public	Design and construct	<50 M
F03	National	Yes	Both	Design and construct	100–500 M
F04	National	Yes	Both	Design and construct	100–500 M
F05	National	Yes	Public	Other	50–100 M
F06	National	Yes	Public	Design and construct	<50 M
F07	National	Yes	Both	Differs	500 M–1 B
F08	National	Yes	Both	Bid and build	100–500 M
F10	National	Yes	Both	Bid and build	<50 M
N01	National	No	Public	Design and construct	100–500 M
N02	National	No	Public	Design and construct	50–100 M
N03	National	No	Private	Design and construct	50–100 M
N04	National	Yes	Private	Design and construct	<50 M
N05	National	No	Public	Differs	50–100 M
N06	National	No	Private	Design and construct	100–500 M
N07	Local	Yes	Public	Bid and build	50–100 M
N08	Local	No	Public	Design and construct	100–500 M
N09	Local	Yes	Both	Bid and build	100–500 M

(continued on next page)

## Appendix III (continued)

Resp.	Governmental level	Civil engineer	Previous experience	Contract	Budget [EUR]
N10	Local	No	Semi-public	Design and construct	<50 M
N11	Local	No	Public	Engineering and construct	<50 M
N12	Local	No	Public	Bid and build	<50 M
N13	Local	Yes	Public	Bid and build	<50 M
N14	Local	No	Public	Bid and build	<50 M
N15	Local	Yes	Public	Design and construct	<50 M
N16	National	No	Private	Engineering and construct	<50 M
N17	National	Yes	Semi-public	Design and construct	100–500 M
N18	Regional	Yes	Both	Bid and build	<50 M
N19	Regional	No	Private	Bid and build	<50 M
N20	Regional	No	Public	Differs	100–500 M
N21	Regional	No	Private	Bid and build	<50 M
N22	Regional	No	Both	Engineering and construct	<50 M
N23	Regional	No	Semi-public	None yet	<50 M
N24	Regional	Yes	Both	Engineering and construct	50–100 M
N25	Regional	Yes	Public	Design and construct	100–500 M
N26	Regional	Yes	Public	Differs	100–500 M
S01	National	Yes	Both	Design and construct	100–500 M
S02	National	Yes	Both	Design and construct	500 M–1 B
S03	National	Yes	Both	Design and construct	>1 B
S04	National	Yes	Both	None yet	>1 B
S05	National	Yes	Both	Design and construct	500 M–1 B
S06	National	Yes	Both	None yet	100–500 M
S07	National	Yes	Both	Differs	>1 B
S08	National	Yes	Both	Bid and build	>1 B
S09	National	Yes	Both	Bid and build	>1 B
S10	National	Yes	Both	Differs	100–500 M
S11	National	Yes	Both	Design and construct	500 M–1 B
UK02	National	No	Both	Design and construct	500 M–1 B
UK03	National	Yes	Public	Other	>1 B
UK04	National	Yes	Both	Design and construct	500 M–1 B
UK05	National	Yes	Army	Bid and build	>1 B
UK06	National	No	Both	Bid and build	>1 B
UK07	National	Yes	Army	Design and construct	>1 B
UK08	National	Yes	Both	Other	500 M–1 B
UK10	National	No	Both	Design and construct	>1 B

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