

Critical success factors for World Bank projects: An empirical investigation

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Abstract

This paper analyzes the results of a survey that aims to explore World Bank project success factors and specifically the relationship between critical success factors (CSFs) and project success as perceived by World Bank Task Team Leaders (project supervisors). The exploratory factor analysis highlights a specific set of five CSFs: monitoring, coordination, design, training, and institutional environment. The regression analysis shows that there is a statistically significant and positive relationship between each of the five CSFs and project success. Consistent with theory and practice, the most prominent CSFs for project supervisors are design and monitoring. The findings contribute to the project CSF literature by conceptualizing project supervision as a multidimensional construct and by confirming supervision as a generic CSF for World Bank projects. The World Bank project supervisors and managers should strengthen project design and monitoring and thus improve project implementation as well as the chances for project success.

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1. Introduction

Projects remain the instruments of choice for policy makers in international development. Yet, paradoxically, the poor performance of projects and the disappointment of project stakeholders and beneficiaries seem to have become the rule and not the exception in contemporary reality. Dissatisfaction with project results and performance dates back to the 1950s (see, for example, John F. Kennedy's speech to Congress in 1961). The project failure rate at the World Bank was over 50% in Africa until 2000 (see the 2000 Meltzer Commission). The World Bank's private arm, the International Finance Corporation has discovered that only half of its African projects succeed. In an independent rating, the Independent Evaluation Group (IEG)

claimed that 39% of World Bank projects were unsuccessful in 2010 (e.g. Chauvet et al., 2010). World Bank projects all too frequently fail to achieve their goals due to a number of problems that could be termed "managerial" and "organizational" (Kwak, 2002): imperfect project design, poor stakeholder management, delays between project identification and start-up, delays during project implementation, cost overruns, coordination failure, etc. (Youker, 1999; Kilby, 2000; Ahsan and Gunawan, 2010).

Surprisingly, the focus of most international development research to date has been very narrow, examining projects and Project Management in general, despite the size of this industry sector (\$120 billion U.S. a year in 2009), project proliferation, and the questionable outcomes of projects (Crawford and Bryce, 2003; Roodman, 2006; Ahsan and Gunawan, 2010). Further, the Project Management literature has focused little on international development projects, or typically, World Bank projects (Crawford and Bryce, 2003; Ahsan and Gunawan, 2010; Ika et al., 2010). In particular, very little has been written on international development project success, success criteria and critical success factors (Diallo and Thuillier, 2004, 2005; Khang and Moe, 2008; Ika et al., 2010).

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However, World Bank projects are very specific because of their unique environment. They are characterized by a rare complexity, the high delicacy and the relative intangibility of their ultimate objective of poverty reduction, their large number of heterogeneous stakeholders,⁴ the divergent perspectives among these stakeholders, the need for compromise, their charm in the eyes of politicians, the profound cultural and geographical gap between project designers and their beneficiaries, and the prevalence of rather bureaucratic rules and procedures (Honadle and Rosengard, 1983; Rondinelli, 1983; Gow and Morss, 1988; Youker, 1999; Kwak, 2002; Crawford and Bryce, 2003; Diallo and Thuillier, 2004, 2005; Khang and Moe, 2008; Ika et al., 2010).

Consequently, the Project Management literature on project success falls short in addressing their specificity (Diallo and Thuillier, 2004, 2005; Khang and Moe, 2008; Ika et al., 2010). Very few authors have attempted to provide conceptual sets of critical success factors (CSFs) and even fewer empirical studies have attempted to explore the relationship between CSFs and project success in international development (e.g. Khang and Moe, 2008). This paper examines the empirical relationship between a specific set of World Bank project CSFs and project success as regarded from the perspective of World Bank project supervisors (Task Managers or Task Team Leaders).

This research is significant for both researchers and practitioners because it has the potential to shed light on CSFs for international development projects. It also contributes more generally to the evolving understanding of CSFs in the specific and non-traditional mode of project management, used in International Development Project Management (IDPM) (Ika et al., 2010). The research is significant for project supervisors and for national project coordinators and their project teams in that its findings, if incorporated into training programs, may lead to better understanding and use of CSFs. If the supervision of World Bank projects does in fact improve project success (e.g. Kilby, 2000; Chauvet et al., 2007, 2010), then there is a lack of knowledge on supervision CSFs and their relationship to project success, especially with the program approach, which can be seen as a framework to help make World Bank projects effective.

The paper begins with a description of World Bank project supervision and a review of the pertinent literature, followed by a justification of the research model. Next, it presents the research design and methodology. It then presents the questionnaire data and illustrates how it relates to the CSFs and project success variables. The following section looks at the results of principal component factor analysis and regressions. The paper concludes with a discussion of the study's findings, their implications for World Bank projects, and suggestions for further research on the relationship between CSFs and project success.

2. Literature review

2.1. World Bank project supervision

The World Bank undertakes international development projects in most developing countries but does not implement projects itself. Instead it relies on partners on the ground and the title of *Project Manager* does not apply to the World Bank. The cycle of each project consists of different phases. Projects go from the preparation phase, through the implementation phase, and to the evaluation phase. In the preparation phase, agreement is reached with the recipient government on both the content and design of the project. Once approved by the World Bank's Board, the project enters its implementation phase, undertaken by the government or more specifically the national project coordinator. The implementation phase is broken down into different phases as determined by the preparation phase. The project is financed in parts provided by the World Bank. Each part is released, aborted, or scaled down by World Bank management depending on the conclusions of the supervision report designed to inform the management review. Therefore, two key participants are involved in projects funded by the World Bank: the World Bank project supervisor (Task Manager or Task Team Leader) – who supervises project implementation and ensures the agency's guidelines are strictly followed by the national Project Management unit – and the national project coordinator, the head of the national Project Management unit, who is considered the *true* project manager, i.e. the one in charge of project operations (see footnote 1). World Bank project supervisors are not involved in day-to-day IDPM, although they are updated on each step of the project and may not grant a “no objection” to the national project coordinator when he proceeds with important transactions, such as terms of reference, short lists, contract awards, etc. The World Bank project supervisor could reject the national project coordinator's request but such a decision is not made without good reason. Note that a rejection means that the project team has strayed too far from the guidelines or that the project management includes a poorly planned activity or simply does not conform to the project plan. Task Team Leaders supervise at least four or five projects at the same time generally in the same field, but not necessarily in the same country (e.g. Diallo and Thuillier, 2004, 2005; Chauvet et al., 2010). Once completed or aborted, the project is evaluated by an independent institution, the Independent Evaluation Group, after 2 years. The Independent Evaluation Group database provides information on project success (relevance, efficiency, and effectiveness) and on project characteristics (fields, investment project or not, quality of the World Bank's supervision efforts and the recipient government's preparation efforts). Not surprisingly, this database has been used to study World Bank project success.

If supervision is a generic CSF that has thus been shown to improve project implementation and impact project success (e.g. Kilby, 2000; Chauvet et al., 2007, 2010), then the analysis of the World Bank project supervision critical success factors has yet to be done.

⁴ Diallo and Thuillier (2004, 2005) have distinguished eight project stakeholders: the national project coordinator (NPC), who is the true project manager, the Task Manager of the World Bank (here the Task Team Leaders or project supervisors), the national supervisor (a high-ranking civil servant or the minister himself), a steering committee, subcontractors, suppliers of goods and services, beneficiaries, and the population at large.

2.2. World Bank project success criteria

Much has been written and said about project success. Still, Project Management authors are yet to exhaust its meaning and measure. There is consensus however that project success entails both efficiency and effectiveness, that it is a matter of perspective, that there are project success criteria, a set of principles or standards used to determine project success, and critical success factors that refer more specifically to conditions, events and circumstances contributing to project success (e.g. Pinto and Slevin, 1988; Jugdev and Müller, 2005; Ika, 2009). The most well-known list of CSFs include project-mission, top-management support, project schedule, client-consultation, personnel, technical tasks, client-acceptance, monitoring and feedback, communication, and finally, troubleshooting (Pinto and Slevin, 1988). Other lists of CSFs do exist (e.g. Cooke-Davies, 2002) but we cannot account for all of them (for a good review of the research conducted over the last decades on CSFs, see Jugdev and Müller, 2005; Ika, 2009). Although it is impossible for CSFs to be suitable for all projects, Project Management literature on project success, criteria, and CSFs is insightful in IDPM (Diallo and Thuillier, 2004, 2005; Khang and Moe, 2008; Ika et al., 2010).

Project success in IDPM is also characterized by ambiguity but there is agreement that international development project success criteria include relevance, efficiency, effectiveness, impact, and sustainability. Relevance refers to the extent to which the project suits the priorities of the target group, the recipient and the donor. Efficiency refers to the extent to which the project uses the least costly resources possible to achieve the desired results. Effectiveness refers to the extent to which the project meets its objectives. Impact refers to the positive and negative changes produced by the project, directly or indirectly, intentionally or not. Sustainability refers to whether the benefits of the project are likely to continue after donor funding has been withdrawn.

Diallo and Thuillier (2004) surveyed African national project coordinators in 26 countries (French-speaking and English-speaking) and suggested ten success criteria that can be grouped into three broader categories: project *management* success (objectives, time, and budget), project success or impact (satisfaction of beneficiaries with goods and services delivered, impact on beneficiaries, and institutional capacity for the country), and profile (conformity of the goods and services delivered to the project plan, national visibility of the project, project reputation among donors, and probability of additional funding, if necessary). Building on the work of Diallo and Thuillier (2004), Khang and Moe (2008) added some success criteria for international development projects carried out by NGO in Vietnam and Myanmar, including relevance of project needs, choice of the project implementing agency, and an alignment between key stakeholder priorities and interests.

2.3. World Bank project critical success factors

Besides the seminal empirical study by Diallo and Thuillier (2005) and subsequent work by Khang and Moe (2008), none

of the research on international development projects specifically addresses CSFs. There is also no survey research on CSFs for World Bank projects. However, there is secondary data analysis of CSFs using the Independent Evaluation Group's database on World Bank projects. Many authors therefore analyze the respective importance of the donor's effort and the recipient's macro-economic and institutional characteristics for project success. "From this literature, no consensus has emerged as to whether the success or failure of World Bank projects primarily depends upon countries' political economy or on project characteristics, notably the supervision of projects" (Chauvet et al., 2010, p. 2). Table 1 summarizes the research on critical success factors for international development projects.

Kwak (2002) outlined 10 internal, external, visible, and invisible CSFs in IDPM and only the managerial/organizational factor is specific to Project Management (see Kwak, 2002, Table 1).

Some research has been conducted on CSFs for public policy implementation projects funded by international development agencies (Khan et al., 2003; Vickland and Nieuwenhujis, 2005; Struyk, 2007) (see Table 1 for a summary of the CSFs resulting from those few studies). However, these studies – most of them being case studies – fall short of empirically analyzing CSFs and their relationships to project success.

Diallo and Thuillier (2005) found that communication and trust between the World Bank project supervisor and the national project coordinator influence project success. Ika et al. (2010) have shown that while project success is not significantly affected by the level of project planning efforts (the investment of the national project coordinator and his or her team in project planning tools and techniques), a significant correlation does exist between the use of monitoring and evaluation tools and project "profile," an early indicator of the project's long term impact.⁵ However, both studies take into account *only* the perspective of African national project coordinators.

The most comparable research study is the one by Khang and Moe (2008), whose 53-item questionnaire was answered by key stakeholders, i.e. project managers, team members, funding and implementing agencies, target beneficiaries, and the general public. More specifically, they suggest a conceptual framework of CSFs (see Table 1). The authors confirm the international development community consensus that most problems emerge in the project implementation phase but they fail to find significant links between CSFs and the success of each phase of the project life cycle. However, they have shown that the success of each phase has a carry-over effect on the next one and that effective consultation with stakeholders proves to be the most influential factor on project management success and more important than the competency of project supervisors and managers.

⁵ Please note here that "profile" stands for a group of project success criteria that include conformity of the goods and services, national visibility of the project, project reputation with international development agencies, and probability of additional funding for the project (Diallo and Thuillier, 2004).

3. Research model and design

3.1. Research model: the relationship between critical success factors for World Bank projects and project success

Overall, the above literature review has shown that project success is a matter of perspective, that there seems to be a positive relationship between CSFs and project success (Khang and Moe, 2008), and that World Bank project supervision is a generic CSF (Kilby, 2000; Chauvet et al., 2007, 2010). Furthermore, it has been assumed that strong project design (e.g. Canadian International Development Agency (CIDA), 2001, p. 19; Khang and Moe, 2008), monitoring (Canadian International Development Agency (CIDA), 2001, p. 20; Crawford and Bryce, 2003; Ika et al., 2010), and training (e.g. Kealey et al., 2005; Vickland and Nieuwenhuijs, 2005) would increase the likelihood of project success. Also, project coordination, i.e. strong project management by the national project coordinator, has also been identified in the literature as a CSF (Diallo and Thuillier, 2004, 2005; Vickland and Nieuwenhuijs, 2005). Institutional environment (Brinkerhoff,

1994), including local environment (Struyk, 2007), adequate local capacities, and clear policies by donors and recipients (Khang and Moe, 2008) or history of conflict or war (Chauvet et al., 2010) appears to be a determinant of project success. Therefore, consistent with extant theory and previous research, we expected to see a significant positive relationship between each of the CSFs and project success. Fig. 1 depicts the research model, i.e. the relationship between the set of CSFs and project success. Thus, the specific research question that we seek to answer is the following: What is the relationship between critical success factors (CSFs) for World Bank projects and project success? Our research is “quantitative” in the field of IDPM, as the project success equation relates Likert scale measures of critical success factors (independent variables) to Likert scale measures of project success (dependent variable).

3.2. Research design: data collection

For the empirical study, a Web questionnaire was prepared with respect to the success criteria and CSFs of World Bank projects. Considering that this study hinges on self-report

Table 1
Summary of the research on critical success factors for international development projects.

Kwak (2002)	Khan et al. (2003)	Vickland and Nieuwenhuijs (2005)	Struyk (2007)	Khang and Moe (2008)	Diallo and Thuillier (2005)
Political (inconsistency, instability, war, revolution, import restriction)	Flexible project planning	Integrated solutions vs. “Best of breed”	Degree and consistency of local leadership	Clear understanding of project environment	Trust
Legal (changes in laws, currency conversion, lack of appropriate regulatory systems, role of local courts in arbitration)	Implementation approach	Big Bang vs. incremental implementation	Policy characteristics	Competencies of designers, planners and team members	Communication
Cultural (differing socio-cultural backgrounds and thought process of actors)	Awareness and sense of urgency for change	Strong project management	Availability of resources	Effective consultations with stakeholders	
Technical (use of technology and standards incompatible with project)	Publication of success stories	Extensive training	Number of implementing actors	Adequate resources	
Managerial/organizational (bad project management, lack of appropriate processes and resources)	Creation of a powerful group of “champions” of change	Use of the appropriate individuals from each functional area	Attitude of implementing personnel	Continuing support of stakeholders	
Economical (changes in economic conditions, competition, regulatory changes)	Networking and team building	Senior manager’s understanding of project	Alignment of clients	Commitment to goals and objectives	
Environmental (pollution—noise, air, water, visual, unsustainable use of natural resources)	Anchoring changes in the organization’s culture	Top-down implementation approach	Learning opportunity among implementers and between projects	Compatible rules and procedures for project management	
Social (ethnic hostility, religious fragmentation, security of stakeholders, resistance of beneficiaries to new social values)	Project management structure		Past experience of implementers	Clear policies by donors and recipients to support sustainability	
Corruption (political participation in investment decision making, lack of regulatory institutions)	Selecting the right project team		Local environment	Adequate local capacities	
Physical (uncontrollable circumstances - natural disasters, wars, coups, acts of terrorism)				Strong local ownership of the project	

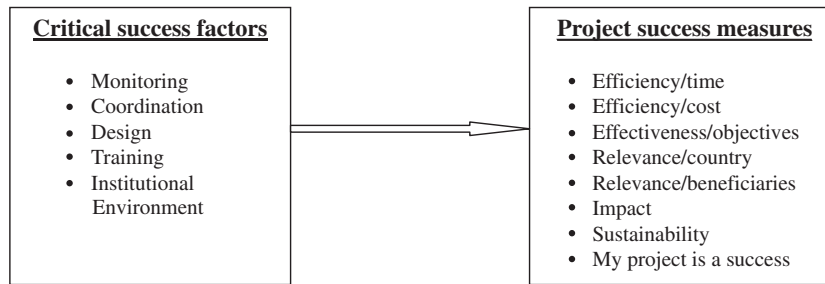


Fig. 1. Relationship between critical success factors and project success.

measures of CSFs and project success as perceived by the respondents, its results depend heavily on the quality of their mental model. As such, the research results are subject to common method bias or common method variance. We recognize that the perception versus reality debate (Kleinschmidt and Cooper, 1995) exposes authors to a methodological dilemma: they must choose between studies of self-perceptions (e.g. Diallo and Thuillier, 2004, 2005; Schmid and Adams, 2008) and the perceptions of others, which are also biased, although not in the same way (e.g. Fowler and Walsh, 1998; Khang and Moe, 2008) (see Ika et al., 2010 for a good discussion on this issue). Also, if the validity of such research designs has been subject to an unresolved methodological debate, common method variance seems to be less problematic in organizational research (Crompton and Wagner, 1994) and specifically for disciplines that deal with relatively concrete targets and products and services, such as information systems and marketing (Malhotra et al., 2006). We contend that Project Management is no exception. However, some important precautions have been taken to reduce the self-perception bias and common method variance. The overall assessment of project success had to be made on a separate page of the Web questionnaire. Only the respondents who skim through the entire questionnaire before answering will know about the subsequent success items available on different pages. In the introduction, we ask them to keep in mind that they are not being judged but rather the overall perceived performance of their project is being evaluated. The survey is based on a sample of convenience. The target population is the World Bank project supervisors but only a list of 1421 World Bank Task Team Leaders, including respondents who were strictly project supervisors, was available at the time of the study. Since World Bank project supervisors may supervise many projects simultaneously, respondents were asked to randomly choose a single project – i.e. completed or nearly completed – to complete the survey. Hence, the overall data collection effort resulted in a sample of 178 projects and a response rate of 12.5%. This response rate was of interest because not all the Task Team Leaders are project supervisors, as they may be assigned to research projects or non-projects such as structural adjustment loans. They are very busy, they travel extensively, they are often bombarded with questionnaires, and the World Bank blocks or filters many mass emails for security reasons. Therefore, many only received our email invitation after the second or third and final attempt. For the above reasons, we believe the real response rate to be near 30%.

4. Measures

As mentioned above, the Web survey design used self-report measures of critical success factors (CSFs) and project success. The questionnaire consisted of 41 questions for CSFs and 8 for success criteria. Each question was assessed on a 7-point Likert scale from *strongly disagree* to *strongly agree*.

4.1. Critical success factors

The 41 questions about success factors come from many research works cited above in the literature review (see Section 2), including insights from Pinto and Slevin (1988) and the Canadian International Development Agency (CIDA)'s framework of results and CSFs (although CIDA is a bilateral agency that works with implementing agencies, private firms or NGOs, a way of organizing project delivery that is rather different from that of the multilateral agencies).

4.2. Project success variable

Project success measures (questions) come from different sources: country relevance, beneficiary relevance (Khang and Moe, 2008), efficiency/time, efficiency/cost, effectiveness/objectives, overall project success, and sustainability (Diallo and Thuillier, 2004, 2005). A principal component factor analysis yielded a single component accounting for about 60% of the extracted variance.

4.3. Control variables

We chose to measure a number of relevant demographic and contextual variables: characteristics of projects (project field, project duration, project budget or total amount of donor contributions and specific amount of the World Bank's funding) and characteristics of project supervisors (language, gender, level of education, and previous experience with aid agencies). (See Table 2 for the descriptive statistics of control variables.)

5. Data and statistical strategy

Before analyzing the principal component factor analysis with the SPSS software, all variables were carefully examined according to the precision of data entry, incomplete observations (about 3% to 7% missing values), outliers (using SPSS

Table 2
Descriptive characteristics of World Bank project supervisors (TTL) and their projects.

Project fields: (N=147)	%		%		%
Education	12.2	Transport	9.5	Social development	7.5
Energy	2.7	Agriculture	14.3	Reform and governance	18.4
Environment	11.6	Urban development	2.7	Health, nutrition, and population	9.5
Mines	.7	Water, electricity, and sanitation	10.2	Communication and telecom	.7
Donors contributions: (millions of US \$)	N	Mean	Min	Max	Range
Financing amount	167	88.2	.5	1700.0	1699.5
WB contribution	144	75.0	.3	750.0	749.7
Project supervisors (TTL)					
Gender (N=152)			Male: 75%		Female: 25%
Language of the questionnaire (N=178)			English: 95%		French: 5%
Level of education (N=148)			Master degree: 60%		Ph.D.: 40%
Professional status (N=152)			Permanent 85%		Contractual: 15%
Type of questionnaire (N=178)			Web: 97%		Email: 3%
Academic background (N=145)	%				%
Economics	41%		Business administration/commerce		11%
Social sciences and humanities	10%		Education sciences		3%
Engineering and natural sciences	29%		Law		2%
Health sciences	4%				
Age and experience (TTL)	N	Mean	Min	Max	Range
Age	144	49	30	70	40
Longevity to the position	146	7.2	1	30	29
Experience managing NGO projects	154	2.4	0	20	20
Experience implementing agencies	119	8.5	0	27	27
Experience of bilateral and multilateral institutions	154	11.3	0	27	27

Mahalanobis distance, no multivariate outliers have been detected, $p < 0.001$, but 13 outliers were deleted for the regression analyses⁶, and the distribution of variables (no significant skewness or kurtosis but an often negative skewness and often positive kurtosis, suggesting a moderated departure from normality; however, the reverse and logarithmic transformations did not increase normality) in order to verify their conformity with dimensions of the multivariate analyses.

A preliminary analysis of the data revealed that the sample was fairly balanced regarding the different fields of the projects and provided a fairly representative cross-sectoral distribution of projects funded by the World Bank (see Table 2 for the descriptive characteristics of the projects and the World Bank project supervisors). Around 25% of the projects in the sample were from the areas of social development, reform, and governance. The fields of agriculture, water, electricity, and sewage accounted for another 25%. Around 20% of the projects

were from the fields of education, health, nutrition, and population. Transport and environment accounted for another 20%. All projects in the sample were either complete or under ongoing implementation with a 4-year mean and 2-year standard deviation. Their average cost is around 88 million U.S. dollars for all donors and 75 million U.S. dollars for the World Bank. Three-quarters of the respondents in the sample were men. There were five permanent employees for one contractual. Around 40% were economists and 30% were engineers. Other academic backgrounds, including business administration, humanities, and social sciences, accounted for another 30%. On average, respondents were 49 years old and had held their position for 7 years.

Roughly 17% of the projects in the sample were considered more or less a failure by their supervisor. This is possibly below the *true* failure rate for World Bank projects⁷. Although this may suggest a non-respondent bias, a simple comparison between means and standard deviations of the project success and critical success factor variables between early and late respondents (*t*-test) does not demonstrate any significance.

⁶ Although some authors might argue that statistical analysis of Likert scale data is not rigorously tractable with classical multiple regression, owing to the violation of usual assumptions, and that multinomial logistic regression is a better alternative (e.g. Diallo and Thuillier, 2004, 2005, for the particular case of CSF research for international development projects), regression analysis is also a common approach in CSF research in general (Pinto and Slevin, 1988) and in CSF research for international development projects in particular (Khang and Moe, 2008). Khang and Moe (2008) even cross-check the results of regression analysis and logistic regression and arrive at essentially consistent results.

⁷ This is actually better than the 12% rate that Diallo and Thuillier (2004, 2005) came up with in their study. Khang and Moe (2008) didn't reveal the perceived failure rate in theirs. As suggested in the introduction, the Independent Evaluation Group claims that 39% of World Bank projects are not successful.

All the projects in this study are international development projects funded by the World Bank. They are similar in terms of finality, objectives, processes, and guidelines. However, the limited number of respondents prevents analysis of success and success factors field by field.

6. Results

6.1. Principal component factor analysis of success factors

In order to reduce the data table on the success factor questions and to check the integrity of the success factors scale, an exploratory principal component factor analysis was performed on the success factors scale, specifying ten, nine, eight, seven, or six components (Tabachnick and Fidell, 2001). This yielded some components with one or two success factors and a component structure that was not clean: “Interpretation of factors defined by only one or two variables is hazardous, however, under even the most exploratory factor analysis” (Tabachnick and Fidell, 2001, p. 623). Finally, five components accounting for 64% of the variance were extracted. When extracted using principal component analysis and rotated to simple structure using a Varimax rotation, five “clean” components (CSFs) corresponding to monitoring, coordination, design, training, and institutional environment were apparent from the matrix of loadings.

The five CSFs describe and define the critical success factors for World Bank projects, a multidimensional and formative construct. However, the relationship between the success factor questions and each of the five CSFs is assumed to be reflective. Consequently, the CSF model is part formative and part reflective. Hence, it makes sense to exclude some success factor questions if they are instable and to provide internal consistency for each of the five CSFs but *not* for the whole set of five CSFs (Petter et al., 2006). All of the resulting five CSFs achieve a Cronbach’s alpha > 0.7.

In order to avoid confounded measures of the CSF construct, we retained only success factor questions with a fair loading of .45 or higher (20% of overlapping variance) and a cross-loading of less than .35 on other included components or CSFs to begin with (Tabachnick and Fidell, 2001, p. 625). As a result, 18 success factor questions out of 41 did not load on any of the five CSFs, as they showed undesired cross-loadings on other components (CSFs) and were removed from the data set. Therefore, we retained loadings in excess of .55 (30% overlapping variance), as this latter rule of thumb is considered very good and we could interpret the components with this latter cutoff but not with the former (Tabachnick and Fidell, 2001, p. 625). With the cutoff of .55, no cross-loading was apparent in the final factor structure. “Choice of the cutoff for size of loading to be interpreted is a matter of researcher preference” (Tabachnick and Fidell, 2001, p. 625).

The final CSF variables in the questionnaire relevant to this study are listed in Table 3. Note however that the theoretical assumptions embedded in the model may have been affected by the number of success factor questions removed following our stringent rules of thumb. However, this procedure was deemed

Table 3

Factor analysis of the critical success factors (CSF) and their Cronbach alpha and their common variance share.

Items	Principal components (CSF)				
	1	2	3	4	5
<i>1. Monitoring CSF</i> ($\alpha = .90$; var: 18%)					
Project team respected financial accounting policies	.789				
Project team controlled contracting processes	.756				
Resource utilization was appropriate	.753				
Project team anticipated project challenges	.730				
Project team responded quickly to problems	.700				
<i>2. Coordination CSF</i> ($\alpha = .83$; var: 13%)					
NPC ^a showed leadership		.795			
NPC had the appropriate interpersonal skills		.767			
NPC had the required knowledge for the project		.735			
NPC remained the same throughout the project		.657			
Good communication between NPC and Agency		.648			
<i>3. Design CSF</i> ($\alpha = .86$; var: 12%)					
Project was well designed			.774		
Objectives based on understanding of local context			.765		
Risk identification was done well			.711		
Design was innovative			.686		
Project stakeholders agreed on strategic issues			.591		
<i>4. Training CSF</i> ($\alpha = .84$; var: 11%)					
Project team received appropriate PM training				.790	
Project team received appropriate training in contracting				.781	
The design included training				.747	
Project team received appropriate tech training				.724	
<i>5. Institutional environment</i> ($\alpha = .75$; var: 10%)					
Project did not require political activity in the country					.729
Institutional frameworks were favorable					.664
Other donors wanted the project to succeed					.658
Favorable political, eco, social, and cultural conditions					.628

N = 178. Kaiser–Meyer–Olkin (KMO) = .913; Orthogonal rotation: VARIMAX; 64% of the common variance.

^a NPC (national project coordinator).

necessary to establish evidence for convergent and discriminant validity of the CSF model, especially for its reflective part (Petter et al., 2006).

6.2. Descriptive statistics of composite measures of CSFs and project success

For further use of the results of principal component factor analyses of project success and critical success factors (CSFs) in regression analysis, we chose to create summated scales and not to compute factor scores. Therefore, we determined the composite measures of CSFs and project success, i.e. the average composite scores of the CSFs on the initial variables, and used them as replacement variables in our regression analysis (see Table 4 for these descriptive statistics). The preference among researchers today is to use summated scales over factor scores, notably when multicollinearity is not an issue; the summated scales represent the many facets of concepts; and the summated scales are valid and reliable (Hair et al., 2006). Furthermore, while the summated scales include only the initial variables that load highly on the factor, the factor scores represent *all* variables loading on the factor and interpretation tends to be more difficult with factor scores because all variables contribute through loadings (Hair et al., 2006). World Bank project supervisors seemed to be optimistic about project success and CSFs (more than five on a scale of seven).⁸ The only notable exception was the Institutional Environment CSF with an average score of 3.72.

The standard deviation was generally low. Hence, there is some kind of consensus among the World Bank project supervisors on the assessment of project success and CSFs. Further, project success tended to be rated higher in fields such as social development, reform, governance, environment, water, electricity, sewage, transport, and energy. Conversely, project success tended to be rated lower in the education, urban development, agriculture, health, nutrition, and population fields.

6.3. Correlation and regression analysis

To begin, we performed simple regression analysis on the five CSFs to measure their capacity to individually contribute to project success (see Table 5). Results show that all five CSFs are positively related to project success if we rely on the beta coefficient and *t*-test. Further, the first four CSFs and the Institutional Environment CSF that is external and beyond the control of the project supervisors and managers are statistically significant in their relation to project success.

The values of the standardized beta coefficients, the *t*-statistic, and the determination coefficient R^2 underline the strong relationship that exists between each CSF and project success.

Lastly, the most important CSF among the five was the Design CSF followed by the Monitoring CSF. In fact, both CSFs held the strongest correlations (over 60%) with project success and the strongest correlations among the CSFs. This is consistent with theory and practice in that it is in the design phase that the monitoring procedures are planned. Genuinely, correlations between the five CSFs and project success were

moderated. However, correlations between project success and the characteristics of projects and project supervisors were all weak and statistically insignificant (see Table 2 for these characteristics). Thus, we did not present them here and did not look for any mediating effect of the characteristics of projects and project supervisors.

A standard multiple regression analysis (method, *Enter*) was then applied to measure the highest possible multiple correlation between these variables, considered simultaneously (Table 6). Only the Design CSF significantly contributed to the explanation of project success, as it was the only CSF under the control of the World Bank project supervisors.

Finally, a stepwise regression analysis was estimated to establish which CSF contributes the most to project success (see Table 7). Results showed that only the Design CSF and the Monitoring CSF significantly contributed to the explanation of project success. As mentioned above, the five CSFs describe and define the critical success factors' multidimensional and formative construct. Consequently, multicollinearity does not seem to be a concern for the results of the multiple standard and stepwise regressions. In fact, the Variance Inflation Factor (VIF) statistic is less than 3 for all CSFs (Petter et al., 2006).

7. Discussion

7.1. Research contribution

The results of the survey and of the principal component factor analysis in particular provide support for the proposition that the concept of critical success factors (CSFs) for World Bank projects is a multidimensional one. We find support for a set of five CSFs of World Bank projects: monitoring, coordination (national), design, training, and institutional environment. In fact, the monitoring CSF is known in IDPM. Coordination is a determinant of project success, as national project coordinators with their privileged role, invaluable competence, and communicational ability do carry out projects in developing countries. Also, the project supervisors would agree that ineffective design leads to project failure. A project could fail in spite of the quality of its design and implementation simply due to a poor institutional environment. Training has also been recognized as a CSF for international development projects. The five CSFs seem to be well known, notably in the standard Project Management literature. In fact, if design, training, monitoring, and environment are well documented, coordination would refer to the leadership of the project manager, a CSF that is also well documented. As such, this study, which offers insights into the relationship between these CSFs and project success in the specific international development industry sector, contributes to the standard Project Management literature.

Furthermore, Project Management literature has proposed different lists and taxonomies of CSFs (see Pinto and Slevin, 1988; Cooke-Davies, 2002; Jugdev and Müller, 2005; Ika, 2009). In particular, some authors have suggested four groups of CSFs: those related to the project; those related to the project manager and team; those related to the organization; and those

⁸ This figure is actually somewhat better than the overall judgment of project success and CSFs in the Khang and Moe study (over 4 on a scale of 5).

Table 4
Descriptive statistics for the composite project success and CSF scores.

Variables	N	Min	Max	Mean	Std. dev
Project success	152	1.13	7	5.54	1.00
Monitoring	150	1.60	7	5.50	1.03
Coordination	150	1.00	7	5.39	1.26
Design	156	1.40	7	5.38	1.08
Training	151	1.75	7	5.42	1.07
Institutional environment	153	.94	5.69	3.72	1.03

N=138.

related to the external environment (Belassi and Tukel, 1996). Likewise, the first four CSFs (monitoring, coordination, design, and training) relate to the World Bank project supervisor, the national project coordinator, and the project team (i.e. project supervision and management), and the last CSF is somewhat beyond the control of project supervisors and managers (i.e. external environment). Altogether, the five CSFs attest to the importance of World Bank project supervision. Indeed, project supervision is a combination of design, high-level monitoring through assessment of project reports from national project coordinators, assistance to national project coordinators, and a way in which the World Bank attempts to combat IDPM problems, such as poor project design, imperfect plans, delays, cost overruns, coordination failure, scope changes, poor institutional environment in developing countries, etc. (Kilby, 2000; Khang and Moe, 2008; Ahsan and Gunawan, 2010). Since World Bank project supervision is a generic project CSF in IDPM (Kilby, 2000; Chauvet et al., 2007, 2010), the very way project sponsorship is a generic CSF (Bryde, 2008) in Project Management literature, the five CSFs lead to the supervision CSF and thus contribute to the generic project CSF literature.

What are the critical success factors for World Bank projects and what is their relationship to project success? The answer to this question is a matter of perspective. The set of CSFs would be different should we study the point of view of project managers instead of that of project supervisors. In fact, the five CSFs are the ones that make sense to the project supervisors who have a specific perspective regarding World Bank projects. Clearly, they have to examine the project design in detail and pay attention to both the institutional environment of the project and the training given to project teams on World Bank procedures or guidelines. In contrast to project design, which is clearly under the control of project supervisors, project

Table 5
Simple regression analysis of the CSF and their capacity to contribute to project success.

Variable	Beta	t	Sig t	Adjusted R square	Rank
Monitoring	.65	9.42	p<.001	.42	2
Coordination	.58	7.90	p<.001	.34	3
Design	.79	14.16	p<.001	.62	1
Training	.45	5.58	p<.001	.20	5
Institutional environment	.52	6.70	p<.001	.26	4

N=123–126.

Table 6
Multiple regression analysis results, Enter method (five CSF).

Variable	Beta	t	Sig. t	Tol.
Monitoring	.12	1.38	p=N.S.	.41
Coordination	.10	1.41	p=N.S.	.53
Design	.57	6.45	p<.001	.38
Training	.08	1.11	p=N.S.	.61
Institutional environment	.10	1.60	p=N.S.	.68

N. S. = non significant.

General multiple regression equation: $F=47.01$, $p<.001$; $R=.83$; $R^2=.69$ and R^2 adjusted=.68, $p<.001$.

implementation and monitoring are undertaken by project teams led by national project coordinators. Hence, project supervisors appreciate only project coordination, *but at a high-level*, and supervise monitoring through assessment of project reports from national project coordinators. Consequently, the five CSFs are specifically high-level CSFs that apply more to the level of supervision and less to the level of implementation. Therefore, they are different from the CSFs of Khang and Moe (2008), the only list available from prior work on international development projects. Furthermore, our study finds support for the proposition that there is a significant positive relationship between each of the five CSFs and project success. More specifically, the results of the multiple regression analysis show that the significant CSFs are design and monitoring. This suggests that for World Bank project supervisors, design and monitoring are the most prominent CSFs. In line with the orthodoxy of IDPM, which requires increasingly rigorous project plans as a basis for contracting, the emphasis on results-based management, its accountability-for-results principle, and the strong procedures or guidelines orientation in IDPM, this research result is consistent with theory and practice (Crawford and Bryce, 2003; Ika et al., 2010). Given the very particular context of World Bank projects where World Bank project supervisors *only* design and supervise (and provide support to) the national project coordinators, who are the “true” project managers, through high-level monitoring and advising, it is no surprise that for the former, design and monitoring are most important. Although the World Bank project supervisors acknowledge the importance of coordination, training, and institutional environment – especially in the cases of instability, post-disaster, or post-conflict (Chauvet et al., 2010) – these are not that much under their control. However, design and monitoring definitely are. Again, World Bank project supervisors usually design projects but they do not implement them; the

Table 7
Stepwise multiple regression analysis, five CSF.

Variable	B	ΔBeta	t	Sig. t
	1.98		7.51	p<.001
Monitoring	.17	.19	2.42	p<.05
Design	.57	.68	8.94	p<.001

General multiple regression equation: $F=109.34$, $p<.001$.

$R=.82$; $R^2=.67$ and R^2 adjusted=.67, $p<.001$.

national project coordinators do. The latter are truly the eyes of the former in developing countries. It is through high-level monitoring and by advising national project coordinators that World Bank project supervisors may influence the coordination or implementation of their projects.

An unexpected outcome of this study was the lack of a statistically significant relationship between project success and characteristics of projects and project supervisors. Experience has shown, for example, that strategic or large projects tend to be supervised by senior project managers or supervisors and it has been claimed that project size variables such as duration, budget, etc., could affect project success. Perhaps, this is because the World Bank project supervisors are not involved in day-to-day project operations, which are entirely in the hands of the national project coordinators, who, as mentioned, are the “true” project managers. Also, this outcome may suggest that a “one-size-fits-all” approach is still dominant in IDPM (Ika et al., 2010).

7.2. Implications

This study sheds light on critical success factors (CSFs) in IDPM and contributes to the generic project CSF literature in three aspects. It explores the CSFs in IDPM, a specific and non-traditional mode of Project Management. It then shows that there is a significant and positive relationship between each of the five CSFs – design, monitoring, training, coordination and institutional environment – and project success. Finally, it suggests that design and monitoring are the most prominent CSFs in IDPM. Successful implementation is a somewhat difficult, complex, and sometimes daunting task. “The term ‘implementation’ understates the complexity of the carrying out of projects that are affected by a high degree of initial ignorance and uncertainty. Here, ‘project implementation’ may often mean ‘a long voyage of discovery in the most varied domains, from technology to politics’” (Hirschman, 1967, p. 35). In this Hirschman journey of discovery, confronted with the “notorious critical implementation problems” (Gow and Morss, 1988), project supervisors and managers should not begin the voyage “empty headed and empty handed” (Rondinelli, 1983, p. 325). Although our experience enables us to suspect that this is not the case for project supervisors, project managers with their project teams, particularly in the fields of education, health, capacity building, reform, and governance, often lack project management knowledge and skills. Therefore, they need tools, and the five CSFs we have suggested have important practical implications.

As a first practical implication, the World Bank can use the CSF scale as an assessment tool for the quality of project supervision efforts.

As a second practical implication, this paper highlights the all-important role of project design and monitoring in the context of the program approach in international development. In fact, the World Bank project supervisors have to define projects with regard to the missions and visions of the recipient country as described in its national development plan or poverty reduction strategy paper. In so doing,

policies, strategies, programs, and project objectives should be aligned. Hence, the design process starts from an abstract level of concepts (conceptual design), where the project strategy and its strategic alignment with the program are envisaged, go through a standard design phase where needs, problems, stakeholders, constraints, options, feasibility, and risks are analyzed, and reach a detailed design phase, i.e. a planning phase where the detailed project plan is created with estimates of duration and cost, along with the monitoring measures (JICA, 2006; Ika et al., 2010). Once the World Bank projects are properly designed and approved by the World Bank’s Board, they enter the implementation phase as suggested in the literature review. Then, they are subject to stringent reporting, monitoring and evaluation requirements and strong procedures or guidelines orientation (JICA, 2006; Ika et al., 2010). It is through supervising and advising the project managers that the World Bank project supervisors ensure that these guidelines and procedures are followed. Hence, the importance they place on monitoring projects and their implementation. Design being the most prominent CSF followed by monitoring, these research results suggest that demonstrating *and* managing for results is important. Accordingly, this paper calls for refocusing of project supervision, from demonstrating results – with its over-emphasis on performance indicators to meet the demand for data – to much needed managing of objectives for results in order to meet project, program, and development goals (e.g. Ika and Lytvynov, 2009).

It is hoped that this research will spark interest in the search for critical success factors in IDPM and that eventually there will be a large enough number of factors circulating in the literature (as in Project Management and policy implementation) for an analyst to note, “I propose... any new scholar who adds a new variable or interaction should be required to eliminate two existing variables” (Meier, 1999, p. 5–6). Until then, we could guide ourselves by the principles of the “hiding hand” of Hirschman (1967), which suggest that projects survive difficulties because without fully knowing what they are confronted with, implementers tend to underestimate project difficulties and by the same token, they underestimate their creativity to overcome project problems. However, the “hiding hand” is over-optimistic and has little support due to disappointing project results (Cracknell, 1988) and therefore cannot be relied on (Gasper, 1986). Now, we shall move on to the limitations of this present research.

The first limiting factor of the research scope is that it fails to consider such factors as project types (apart from the fields they belong to), geographical region of project implementation, ownership, local leadership, number of implementing actors, local capacity, attitude of implementing personnel, and project characteristics such as clarity, consistency, specificity, flexibility, alignment of clientele, opportunity for learning among implementers, flexibility of the project planning approach, and the project life cycle. Though, they are to some extent related to the five critical success factors identified in our research.

The second limiting factor is that the research does not emphasize the relationship among the five critical success

factors other than considering the bivariate correlations. It is only by investigating the interactions among the five CSFs separately using structural equation modeling, instead of multivariate regression analysis, that we may expect to shed more light on the complex relationships among them. This, however, goes beyond the purpose of this research.

The third limiting factor is that this research does not single out economic or political CSFs but CSFs related mostly (at least four out of the five) to project processes. As such, it fails to explicitly account for the all-important micro/macro-political context for World Bank projects and does not consider power and influence issues without which it is not entirely possible to understand CSFs.

8. Outlook

Our study opens up opportunities for further research. First, future research might examine the relationships among the five critical success factors and the relationships between the characteristics of projects, project supervisors, and project success (ideally of a non-self-report nature) using structural equation modeling instead of multivariate regression analysis. Further research could use a qualitative approach to understand the CSFs for World Bank projects. Also, widening the sample to incorporate the project managers will not only lead to the project implementation and supervision CSFs but will also help avoid a common variance bias. An interesting research path will be to determine the relative importance of the five CSFs according to the project lifecycle. Another one will be to investigate the set of CSFs with the perspectives of project supervisors from other multilateral agencies (such as the United Nations Development Program, the European Union, and the Multilateral Development Banks).

Finally, despite the criticism leveled against the project approach, many project implementation problems (such as the inaccurate assessments of local conditions and absorptive capacity and the virtual neglect of important social, cultural, and political factors) are not at all unique to projects and some of these are unpredictable “no matter how well or comprehensively the projects are planned” (Gow and Morss, 1988, p. 1415). Indeed, they affect any type of development activity in low development countries. For that reason, a quarter of a century ago, Honadle and Rosengard (1983), while asking for program approach, warned against the rush to condemn projects and “to throw out the baby with the bath water.” The demise of the project approach that was predicted more than 40 years ago by Phillip Combs (1968, as cited in Honadle and Rosengard, 1983) has yet to happen despite the clear preference for program approach. And as Project Management is still important in program approach (e.g. European Commission, 2007), a new research agenda should be called that will concern the management of projects under this new management orthodoxy.

9. Conclusion

This paper analyzes the results of a survey that aims to explore the success factors of the World Bank projects and

offers insights into the relationship between critical success factors (CSFs) and project success as perceived by World Bank project supervisors. This research holds a global view of World Bank project supervision, conceptualizing the critical success factors as a multidimensional concept. As a result, this research contributes to the generic CSF literature in Project Management. It highlights a specific set of five CSFs: monitoring, coordination, design, training, and institutional environment. These could be termed World Bank project supervision CSFs. While the first four are more or less under the control of World Bank project supervisors, the last is beyond their control. The research then shows that there is a statistically significant and positive relationship between each of the five CSFs and project success. Second, it emphasizes the importance of design and monitoring for World Bank project supervisors in the context of program approach and calls for refocusing of project supervision from demonstrating results to much needed managing of objectives for results in order to meet project, program, and development goals.

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