
FACTORS OF THE MID-TERM PERFORMANCE AND DEVELOPMENT PROJECTS: AN EVIDENCE FROM DEVELOPING COUNTRIES

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Abstract

This research aims to analyze the factors of performance at mid-term development projects in developing countries in general and in particular in the context of Burkina Faso. This is to identify the internal and external factors that explain the level of performance at mid-term development projects in Burkina Faso context. The methodology used is essentially based on the hypothetico-deductive approach. The overall sample size is 60 respondents, but because of technical issues and professional issues only 35 respondents have been able to participate actively on the quantitative aspect of the study. The research results show, first, that there are two internal factors to project management that positively and significantly influence performance at mid-term development projects in Burkina Faso. These are the planning variable and the Human resources management variable, respectively. Second, concerning the identified external factors, only the variable environment or area of project intervention influences positively and significantly the mid-term performance at development projects in Burkina Faso. Nevertheless, recommendations are formulated for more efficiency in the implementation of development projects.

Keywords: Mid-term Performance, Development Projects, World Bank.

INTRODUCTION

The challenge of performance in the projects located in developing countries is emphasized by some researchers such as Nassè (2015), Bande and Nassè (2020) and Carbonell et al. (2020). Nassè (2015) shows that fair practices have some effects on economic performance. Bande and Nassè (2020) underline the links between development communication and performance, and Carbonell et al. (2020) find some relationships between recruitment methods and performance. In the Western context, Bourguignon (2000) also underlines the links between performance and management control; but for Cohanier, Lafarge, and Loiseau (2010), there is a relationship between management and performance. However, in the context of Burkina Faso, there is no study that brings out the factors of the mid-term performance and development projects. The present research aims to bring out the factors of the mid-term performance of development projects in developing countries.

The main research question is: What are mid-term performance factors for development projects in Burkina Faso?

Based on a real observation on the research ground, the general objective of this study is to contribute to the mid-term performance of development projects in developing countries in general, and in particular in Burkina Faso. To achieve this, it sets specific objectives.

The specific objectives of this research are:

- to identify the factors that significantly influence the mid-term performance of development projects in Burkina Faso;
- to establish the degree of influence of these factors on the mid-term performance of development projects;
- to offer managerial approaches to stakeholders for better performance management of development projects.

LITERATURE REVIEW

Conceptual framework

The concept of performance of a project: In the same order of difficulty as the definition of the concept of general performance, the concept of “project performance” is also much more used than defined by professionals and theorists in project management. It seems to be an acquired notion that the actors of the field do not dwell enough on its definition. By way of illustration, the concept of performance is used by the PMBOK hundreds of times without it giving a definition. From the literature review, we have identified some analyzes and definitions of the concept of “project performance”. For the project management dictionary (AFITEP and AFNOR, 2010), the performance of a project comes down to the search for efficiency (optimization of project activities according to available resources) and effectiveness (degree of fulfillment of project requirements), including content, cost and timeframe. Efficiency is understood as the extent to which resources (inputs) are transformed into results (outputs) in an economical manner. Effectiveness is the extent to which the results have contributed to the achievement of the predefined objectives in the project. Also, it should be noted that the same dictionary adds to the definition of project performance, the criterion of relevance and consistency. Relevance includes the notion of the adequacy of the objectives of the project in relation to its environment. It is the concordance between the objectives, the expectations of the beneficiaries, users and the priorities displayed by the project. Coherence relates to the consistency of the objectives of the project with the means implemented. In the same vein, Chebil, Castonguay and Miller (2006) note that the perception of what a successful project is not the same for all players. However, they note that there are two perspectives of project performance: efficiency and effectiveness. The efficiency related to cost, time and to the quality of the deliverable. As a matter of fact, Nassè (2016) shows that quality is an has an effect on performance. Effectiveness relating to social and environmental acceptability, their structuring impact and the development of knowledge. These authors also add that for project management professionals, performance comes down to respecting costs, deadlines and quality: the triple constraint triangle. Ika (2006) also maintains that the performance of a project is measured by the “full respect” of the triangle “time, cost, quality”, the “holy trinity” for Hazebroucq and Badot,

(1996), “The *Iron Triangle*” for Atkinson (1999), “golden triangle” for Westerveld (2003) and “the eternal triangle” according to Newcombe (2000). Also, for Infrastructure Québec (2013), the performance of a project is measured by compliance with the three recognized objectives in project management, namely costs (respect for budgets), deadlines (respect of deadlines) and content (satisfaction requirements, compliance with technical requirements).

The performance of a business project is also, according to Panneton (2010), the satisfaction of customer expectations by the realization of the product taking into account deadlines, costs and quality. Finally, in the same logic, Descheemaekere (2013) defines a high-performance project as one that is completed over time, respecting the budget and the initial scope. The constant e s previous definitions of performance are: cost-quality- and time.

An evolution of the definition comes from Prudhomme (2006) for whom the performance of a project always takes into account the three factors such as respect for costs, completion in the allotted time, and in the expected quality. The techniques and skills of project management can also be important explanatory factors. Popaitoon and Siengthai (2013) also argue that beyond to the triple constraint triangle, project management researchers should broaden the evaluation of the performance of the project to include human factors and behavioral. Pinto (2013) adds the need to also take into account change and intercultural perceptions.

For the purposes of this research, compliance with the triple constraint triangle is an important factor in project performance. Since it is interested in development projects, the results generated (outputs) by the project must be much greater than the resources committed to its implementation (inputs). We also draw a line between project success and project performance. The success of a project refers to the achievement of objectives by the project manager and his team, even without observing the performance triangle (quality, cost and time). While performance refers to the technical appreciation of senior management or stakeholders in relation to cost, time and quality (Kientore, 2016). It is a technical assessment of the project from the point of view not only of effectiveness, but also of efficiency.

However, in the logic of our postulate, it is imperative to consider managerial factors (management of individuals, teams, etc.) as determining factors in the search for the performance of development projects. The performance of the project is, in other words, the respect of the constraints of cost, time, and quality by the effective implementation of an adequate managerial strategy.

The concept of development project:

Development project refers for sustainable project that are built for the social well being of a given community (Bessette, 2004; Mc Call, 2010). For Bande and Nassè (2020) development projects are project that achieve better results that could influence sustainable development, profitable for different type of generations such as the present generations and future generations.

Research hypothesis

For Caplowth (1970), the working assumption is to keep as affirmation for empirical verification. The development of the hypothesis is a work of thinking. It is the anticipated interpretation of the phenomena that we are studying. This advance means that the hypothesis is in a creation of mind and a provisional design up to that a careful verification of the facts takes

away the anticipation character and to level its provisional status for "definitively accept as scientific truth. Based on the literature review, we state the following hypotheses:

- **H₁**: *project planning is an internal factor in the mid-term performance of development projects in Burkina Faso ;*
- **H₂**: *human resources management within the projects is one of the internal factors of mid-term performance of development projects;*
- **H₃**: *variables linked to the project environment influence the mid-term performance of development projects in Burkina Faso;*
- **H₄**: *the influence of factors on the performance at mid-term performance of development projects varies depending on the field of project intervention.*

Choice and presentation of the analysis model

We present in this part of the analysis model that will allow us to assess the performance at mid-term projects implemented with funding from the World Bank in Burkina Faso. This model is largely inspired by the systemic model as well as the very definition of project management given by *Standard ISO 10006*. The model relates three types of variables:

- 1) *the explained variable;*
- 2) *the explanatory variables;*
- 3) *the intermediate or moderating variable.*

The explained variable or dependent variable

The explained variable of our study is "the performance of development projects executed with World Bank financing in Burkina Faso". It does not require any particular justification, but rather to be explained. Hence the interest in moving to the choice of explanatory variables.

Explanatory variables or independent variables

These are the variables that explain the performance of development projects. The literature review allowed us to identify several variables. It is:

- **The Project Planning variable** (project *schedule/map*): The research devoted to the relationship between planning and corporate performance have multiplied since the first empirical study by Thune and House (1970) and that led to observation of better economic performance for planning companies compared to non-planning ones. In fact, the question of the relationship between planning and business performance has been a topic of increasing interest to strategic management researchers over the past three decades (Glaister et al. 2008). The results obtained turned out to be inconclusive and often contradictory. For example, Pearce et al. (1987) conducted a meta-analysis of 18 studies and found that the empirical evidence for the effect of planning on performance was inconclusive and conflicting and that only a "very weak association" was identified.
- **The Human Resources Management variable of the project**: The theoreticians and practitioners of organizational management agree, in fact, to maintain that HR (human resources), when they are managed adequately and in a strategic manner, would contribute to the 'improvement of organizational performance. However, in the midst of this generalized trend, defending the strategic role and the growing importance of HRM (Human Resources Management) in the performance of organizations, the results of certain

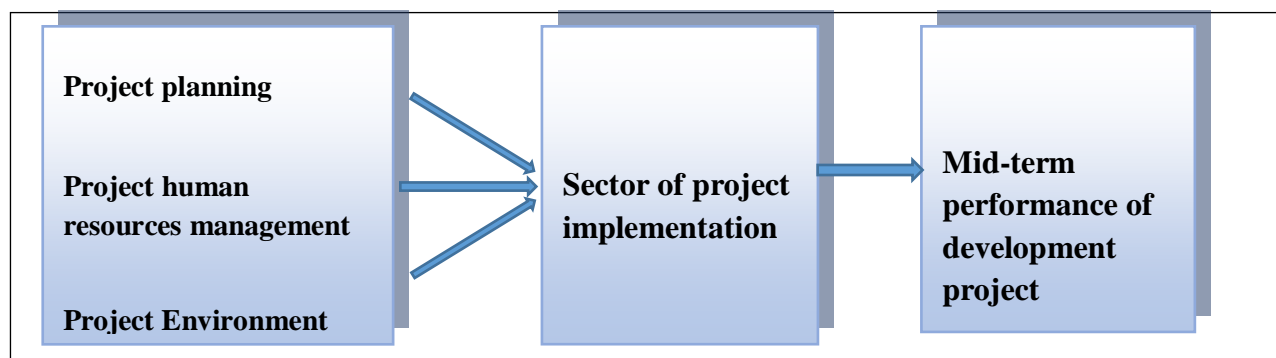
studies in the context of project management, in particular those of Pinto and Prescott (1988) and Belout and Gauvreau (2004), gave rise to much controversy vis-to -vis the importance of the Human Resources Management, in concluding that it had no significant impact on project success. This variable refers to the need to ensure adequate staffing and training of human resources for the project. The project manager must ensure that these human resources have the skills and motivation to carry on their functions within the team.

- **The Project environment variable:** It takes into account the conditions and characteristics of the environment in which the projects are implemented. The definition of this variable is necessary because in several cases, the same project carried out in different regions has different performance scores.

Moderating or intermediate variable

It is a variable that influences the impact of the explanatory variables (performance factors) on the explained variable (project performance). In our research, we retained *the area of intervention*. Pinto and Covin (1989) examined the effect of project characteristics, including area of intervention, on project success. A comparison between the projects in the field of construction and in the field of R & D was therefore carried out. The results of their study showed that, although some critical success factors seem to be common to the two types of projects studied (construction projects and R & D projects), there are significant differences in the importance of these factors. They suggested that it is important to take into account the industry, among other project characteristics, in future research. Belout and Gauvreau (2004), for their part, concluded that the activity sector plays a moderating role in the relationship between the success factors and the success of the project.

Figure 1: Analysis model



Source: Authors' construct

METHODOLOGY

Choice of measuring instruments: According to Perrien et al (1984) “measuring instruments can be defined as the material supports necessary for data collection; in most cases, this will be the questionnaire”. As part of our study, the questionnaire was chosen as a measuring instrument. The questionnaire is an adaptation of the PIP proposed in the study by Slevin and Pinto (1986). The questionnaire is made up of the following four sections:

- *Sociodemographic characteristics of the respondent:* sex, age, seniority, education.
- *Descriptive data on the project:* organizational structure, area of intervention, budget.
- *Parameters of performance at mid-term projects:* the questions in this section refer to indicators to measure the presence or absence of activities or practices related to the performance parameters at mid-term of the model.
- *Performance at mid-term of the project:* the questions in this section to verify the presence or absence of performance criteria for mid-term of the project (which is not the dependent variable in our model).

The independent variables and the dependent variable, in sections 3 and 4, are made up of 3 to 5 indicators (formulated in terms of questions) that are measured on a Likert scale in 5 levels. A scale of Likert is an interval scale which "suggests respondents to express their opinion in through a level of agreement with a proposal" (Gavard -Perret et al. 2008). In our questionnaire, the answer is 1 to the notice "not at all agree" then the answer 5 refers to the opinion "all to agree," 3 being a neutral opinion (neither agree nor at variance). 0 The answer as to it is selected when the question does not apply to the respondent. The use of a questionnaire has the advantage of being able to reach a large number of respondents which makes it possible to constitute a fairly large sample. In addition, it has the great advantage of being able to measure a large number of variables using the same questionnaire.

Moreover, the use of a questionnaire has the advantage of being able to compile the data collected in statistical software such as SPSS, thus making it possible to facilitate statistical analyzes (Gavard -Perret et al. 2008; Gauthier (2003). It also makes it possible to limit biases linked to the researcher since the respondent cannot be influenced by the presence of the researcher when filling out the questionnaire. Similarly, it makes it possible to limit the biases linked to the variability of recording responses since the response methods are invariant from one respondent to another and from one interviewer to another. Another advantage of the self-administered questionnaire lies in the fact that the responses are directly comparable from one respondent to another, which is a necessary condition for any statistical processing (Gavard -Perret et al. 2008). The administration of the questionnaires, used to collect the data for our study, was carried out according to two methods of distribution that is, sending the digital version to resource persons and distributing it in person.

The sampling plan: Due to the absence of a sampling frame allowing to constitute a probability sample and because of the difficulty in finding the individuals being the subject of the study, we chose a non-probability sample of sixty (60) individuals. From the list offered to us by the World Bank, in addition to our own knowledge. But given the professional difficulties and the techniques used to administer the questionnaire, thirty-five (35) individuals actually participated in the survey. For the sake of representativeness, we ensured that those responsible for development projects in the fields of agriculture, infrastructure construction and health were represented in our sample.

Table 1

Distribution of the sample according to the position held in the project and the execution sector

Position in the project	Project execution sector			TOTAL
	Education and Health	Infrastructure and transport	Rural development	
Project coordinator	02	02	04	08
Responsible for internal control in the project	00	02	01	03
Responsible for monitoring and evaluation in the project	02	02	04	08
Responsible for contracts in the project	02	02	04	08
Responsible for socio-environmental affairs in the project	02	02	04	08
TOTAL	08	10	17	35

Source: Fieldwork data, 2018

Reliability analysis: This section presents the internal consistency for each of the variables included in our model. The reliability analysis makes it possible to study the properties of measurement scales and of the elements that constitute them. It helps determine how closely the items in a questionnaire relate to each other and provides a general index of the consistency or internal consistency of the scale as a whole. It is measured using the **Alpha coefficient of Cronbach** (Gauthier, 2003; Nassè, 2018). This coefficient makes it possible to check the homogeneity of each of the constructs based on the average correlation between the indicators of the construct. This measure is recommended for analyzes using Likert Kaplan and Saccuzzo scales (1993). The reliability analysis procedure on SPSS calculates several frequently used measures of the reliability of the scale. The table below presents the measurements of the **Cronbach's Alpha coefficient** for each of the constructs of our model.

Table 2

Cronbach's Alpha coefficients

Variables	Combrach's Alpha	Number of Valid cases (n)	Number of Items
<i>Project planning</i>	.635	30	5
<i>Human Resource Management</i>	.721	30	5
<i>Environment or condition</i>	.672	30	4
<i>Midterm performance of project</i>	.617	30	4

Source: Fieldwork data, 2018

Before interpreting these results, it is necessary to specify that the value of the alpha coefficient is between 0 and 1. The higher the value of **Alpha Cronbach** more items represent the same phenomenon. Nunnally (1978) recommends an Alpha greater than .60 to comment on the

reliability of the measurements. The **Cronbach's alpha coefficients** are satisfactory for all of our variables since they are all greater than .60 which indicates good homogeneity of our constructs.

Factor analysis: Factor analysis attempts to identify the factors that explain correlations in the interior items. Before starting the factor analysis, it is advisable to measure the sampling adequacy by the Kaiser-Meyer- Olkin coefficient (KMO) which assesses the extent of the psychometric relation of the items. Items can be factorized as soon as the value of the KMO exceeds .50 Kaiser and Rice (1974).

Table 3
Kaiser-Meyer- Olkin coefficients (KMO)

Variables	Coefficient of KMO	Meaning of Bartlett	Number of Items
<i>Project planning</i>	.605	.000	5
<i>Human resources management</i>	.565	.000	4
<i>Environment</i>	.665	.001	4
<i>The performance midterm projects</i>	.573	.000	4

Source: Fieldwork data, 2018

The KMO coefficients are satisfactory for all of our variables since they are all greater than 0.50, so factorial analysis is possible.

Verification of research hypotheses

The verification of our research hypotheses was carried out by performing at first an analysis of correlations between the independent variables and the dependent variable (for three first hypothesis), and secondly by performing correlation analyzes in control (for the fourth hypothesis).

Checking the first and second hypotheses: Our first hypothesis assumed the existence of a relationship between each of the performance factors linked to the internal management of the project on the one hand and the performance of development projects in Burkina Faso on the other. To test this hypothesis, we proceeded to an analysis of correlations bivariate to using the **Pearson correlation coefficient** given the reasonable sample size ($n > 30$) and the normal distribution of our variables. This test is also the most suitable method when it comes to measuring the linear relationship between two variables measured with metric scales (Plaisent et al. 2009; Kaplan and Saccuzzo, 1993; McClave et al. 1998; Freedman et al. al. 1998). The analysis of the bivariate correlations (Table 3) shows us that at the 5% level, the two independent variables are positively and significantly correlated with the performance of development projects. These are respectively the “*Project planning*” variable and the “*Human resources management*” variable. The independent variable that has the strongest correlation with the performance at mid-term project is the variable “*Project Planning*” ($r = .565, p < .021$). In

addition, the “*Human Resources Management*” variable shows significant correlations with all the other independent variables.

Table 4
Correlation matrix (Pearson)

		REGR factor score 1 for analysis 1	REGR factor score 1 for analysis 2	REGR factor score 1 for analysis 4
REGR factor score 1 for analysis 1	Pearson Correlation	1	.379 *	.565 *
	Sig. (2-tailed)		.042	.021
	NOT	30	30	30
REGR factor score 1 for analysis 2	Pearson Correlation	.379 *	1	.345 *
	Sig. (2-tailed)	.042		.043
	NOT	30	30	30
REGR factor score 1 for analysis 4	Pearson Correlation	.565 *	.345 *	1
	Sig. (2-tailed)	.021	.043	
	NOT	30	30	30
*. Correlation is significant at the 0.05 level (2-tailed).				
**. Correlation is significant at the 0.01 level (2-tailed).				

Source: Fieldwork data, 2018

Verification of the third hypothesis

Our second hypothesis assumed the existence of a relationship between the project environment on the one hand and the performance of development projects in Burkina Faso on the other. A like checking the first hypothesis, we proceeded to an analysis of correlations bivariate to using the correlation coefficient of Pearson, to check the third hypothesis; It appears that the 5% threshold, the variable has a positive and significant influence on the performance in development projects ($r = .195, p < .024$). See Table n ° 5.

Table 5
Correlation matrix (Pearson)

Correlations		REGR factor score 1 for analysis 3	REGR factor score 1 for analysis 4
REGR factor score 1 for analysis 3	Pearson Correlation	1	.195 *
	Sig. (2-tailed)		.024
	NOT	30	30
REGR factor score 1 for analysis 4	Pearson Correlation	.195 *	1
	Sig. (2-tailed)	.024	
	NOT	30	30
*. Correlation is significant at the .05 level (2-tailed).			
**. Correlation is significant at the .01 level (2-tailed).			

Source: Fieldwork data, 2018

Checking the fourth hypothesis

In order to verify the relationship between the performance factors and the performance mid-term development projects in Burkina Faso varies depending on the type of focus area of the project, we conducted a correlation analysis between independent variables and the dependent variable for each of the areas of intervention. We used **Spearman's correlation** since this method is most appropriate when the number of cases is very small ($n < 30$). The control of each project organizational structures was achieved in using the function *Select boxes-if*, permitted by SPSS software, choosing to each organizational structure to control. The results of these analyzes are presented in the table below.

Table 6
Correlations (Spearman) under control of the intervention domain

Variables	REGR factor score 1 for analysis 1	REGR factor score 1 for analysis 2	REGR factor score 1 for analysis 3
Rural development			
REGR factor score 1 for analysis 4	.372 .211 12	.163 .595 9	.490 .089 11
Infrastructure and transport			
REGR factor score 1 for analysis 4	.286 (**) .003 12	.771 .442 9	.857 (*) .014 11
Education and health			
REGR factor score 1 for analysis 4	.168 (**) .002 12	.171 (*) .045 9	.578 (*) .012 11
*. Correlation is significant at the .05 level (2-tailed).			
**. Correlation is significant at the .01 level (2-tailed).			

Source: Fieldwork data, 2018

The results of correlation analyzes under the control of the areas of intervention have shown that in the field of rural development, no factor significantly influences the mid-term performance of projects. In the area of infrastructure and transport, HRM is the only factor that has no significant correlation with the mid-term performance of projects. The other factors all have a moderate to strong correlation with the mid-term performance of the projects. The strongest correlation in this domain is in particular the “environment” variable ($r = 57.8$; $p < .001$). Regarding the field of education and health, all independent variables are significantly correlated with the performance at mid-term development projects in Burkina Faso.

DISCUSSION OF RESULTS

The influence of the project planning variable

This variable has the expected sign. Project planning is positively correlated with the level of project performance. These results are in accordance with several previous works (Ansoff et al. 1970; Robinson et al. 1984; Capon et al. 1994; Hopkins and Hopkins, 1997; Peel and Bridge, 1998). On the other hand, they contradict the thesis of researchers who had concluded that planning generally did not promote performance (Bresser & Bishop, 1983; Fredrickso & Mitchell, 1984; Whitehead & Gup, 1985). In this regard, it is often suggested that methodological differences between studies may have been largely responsible for the conflicting results reported in the literature, as well as for the debate regarding the value of planning (Atuahene -Gima &Li, 2004; Brock & Barry, 2003; Dean & Sharfman, 1996; Powell, 1992). The results of our research strongly support the usefulness of project planning as a process of gathering relevant information for creating and maintaining project alignment with its internal and external environments (Miller & Cardinal, 1994). Project planning thus appears to be a process that effectively makes it possible to rationally determine a favorable strategic direction for the organization and to facilitate the company's adaptation to changes in its environment (Porter, 1996). Given the turbulence of the environment, planning can help companies to avoid costly mistakes and to survive in environ highly competitive costs (Aram and Cowan, 1990).

According to researchers Trow, Najjar and Robinson, it is evident that there is a positive relationship between the planning that is done in a business and the results that that business is capable of achieving. Other authors such as Wyant, Mayer and Goldstein have concluded that the lack of planning in a business is a major cause of bankruptcy. Some authors such as Chicha and Bracker have even gone much further in asserting that there is a positive link between the level of planning sophistication and the performance achieved by a company. The authors Robinson and Pearce even go so far as to assert that planning is so important to an organization that its absence is very likely to jeopardize its survival. At least three reasons could explain the positive impact of planning on performance:

- First, the rational process helps decision makers to effectively manage the complexity inherent in strategic decisions makers must address in a number of important issues related to opportunities and to threats facing such a situation, a comprehensive decision-making is likely to lead to better decisions and outcomes Dean and Sharfman (1996).
- Second, the comprehensive process helps decision makers to reduce some effects of cognitive biases. Beyond a general difficulty in understanding a complex situation, these biases are often the source of problems, for example, policymakers seeking information in the wrong places, focus on erroneous information, and ignore some important information (Ben-Shakher et al. 1998).
- Third, the comprehensiveness of the decision-making process strengthens the motivation and involvement of decision-makers in the implementation of the strategy (Miller, 2008).

The study results correspond to the research results of Brown et al. (2003), according to which, projects carried out according to clearly defined and planned processes have a better chance of success. According to these authors, prior and rigorous planning of the objectives to be achieved,

as well as good procedures for adapting to any changes during the project, promote the performance of development projects. This finding is supported by the findings of the study by Lee et al (1996), in which the feasibility of forecasting was also cited as a determinant of the performance of an R & D project. The results of Clarke (1998) also support the same logic that clarity of project scope and objectives are otherwise the guiding principles that guide the results of the project team and will determine the success or otherwise of the project. Planning is of utmost importance to the manager of a project, which emphasized during the interview.

“Despite the uncertainties in the field, adherence to plans is essential to achieve time-to-market objectives. But the norm is that a project moves over time and the various contingencies that can arise at any time”.

In addition, the efficient use of project resources remains very decisive in relation to its performance. This finding is consistent with the results of the study by Barragán-Ocaña and Zubieta -García (2013) which demonstrates that the assurance and rational use of resources are positive factors for the realization and performance of an R project and D. This result is consistent with Smith's (2008) analysis of the factors influencing the capacity of organizations to innovate. On this point, a project manager insists on the role of the availability of material and budgetary resources by affirming:

" That we must have the necessary budgetary resources because of the normal existence of deviations. Budget variances cause development projects to fail, so adjustment mechanisms and flexibility are needed”.

The influence of the Human Resources Management variable

The Human Resources Management variable is positively correlated with the level of performance of development projects. This result is in accordance with various studies, in particular those of Gary Walker et al. (1997), Jaselskis and Ashley (1988) and Yeamkong et al. (2010) which resulted in a positive relationship between performance and experience level of the project team. Geoghegan and Dulewicz (2008) confirm this thesis and affirm the existence of an indirect relationship between the human dimension of project management and project performance. These authors argue that the project manager's skills in managing the project team are a key factor in staying within budget and resolving problems during project delivery. In other words, the most proficient problem-solving project managers are those who are able to delegate authority, motivate, develop the skills of their team members and manage resources in an effective and efficient manner.

In addition, our results support studies carried out in developing countries which confirm the existence of a positive effect of HRM on project performance, at least by confirming the positive and significant relationship that exists between these two variables (Tabassi and Abu Bakar, 2009; Long et al. 2004; Youker, 1999; Khang and Moe, 2008; Diallo and Thuillier, 2005). We can thus conclude that, in a context as specific as that of developing countries, the relationship between HRM and project performance does not differ from that observed in the more global context analyzed in the framework of the studies by Belout and Gauvreau (2004), and Pinto and Prescott (1988). Our results thus reinforce the results of the various studies affirming the role of

HRM in the success or failure of projects, both in the specific context of developing countries and in a more global context. On this point, a project manager insisted on the role of Human Resources Management in these terms:

" The leadership skills of the project manager would play an essential role in his ability to manage resources, to delegate some of these powers and responsibilities, to develop and motivate the members of his team, etc. "

In a study on the basic conditions necessary for an R & D organization, Jain et al. (2010) confirmed the rule for a team R & D to receive a good academic training, intelligent and creative ability to put to use the knowledge generated by the ecosystem for innovation. Therefore, the capacity of the project team to integrate knowledge from the outside helps to stimulate the internal innovation process of companies. Indeed, the manager of a project pointed out during the interview.

" In our team, we have doctors, engineers in fields as diverse as sociology, project management, technicians of the environment. All these internal human resources allow us to benefit from university knowledge".

It is important to remember that our conclusions, relating to the existence of a relationship between HRM and the performance of projects in developing countries, are based solely on the results of correlation analyzes. However, the studies of Belout and Gauvreau (2004) and of Pinto and Prescott (1988), who took the analysis further by performing regression analyzes, revealed that, despite the existence of a significant correlation between HRM and project success, the "Staff" or HRM factor does not have a significant impact on project success. It is of course recognized that regression analyzes are more robust than correlation analyzes, from an inferential point of view, when it comes to studying the effect of an explanatory variable on a variable to be explained. As part of our research, we were not able to proceed to the regression analyzes to because of the size of our sample. Thus, it will not be possible to make a comparison with the results of studies by Belout and Gauvreau (2004) and Pinto and Prescott (1988) nor to confirm or deny the existence of an impact of HRM practices on performance. It is to be noted also that these authors recognize the existence of certain methodological limitations that explain the results obtained in their regression analyzes. Indeed, according to Pinto and Prescott (1988), the results of their study, which reported that HRM does not have a significant impact on project performance, could be explained by the indicators used to measure the construct "HRM ". This explanation was also put forward in the framework of the study by Belout and Gauvreau (2000-2004) who recognize that the construct developed to measure the impact of HRM on the performance of projects is not sufficiently developed to provide irrefutable results. In addition, the size of the sample used in their study (compared to the relatively large number of independent variables and moderator variables involved in the regression analyzes) could also explain the surprising results of the regression analyzes relative to the impact of HRM on project performance. They add as an explanation the difficulty, encountered by all the studies carried out in this field of research, of measuring the impact of HRM on the performance of organizations.

The influence of the environment variable

Regarding the environment or project condition variable, it emerges that at a threshold of 5%, the variable has a positive and significant influence on the performance of each project in said zone. This result is consistent with the work of Deere and Medeiros (2007) on agricultural projects in Brazil, who succeeded to the conclusion that project performance increases with the number of partners. The projects between them constitute real partners at the local level. This situation could be explained by the spillover effects and complementarity between projects and learning in the beneficiary community. The environment is considered of paramount importance by the project manager, who underlined during the interview:

"The more a locality of the country receives projects, the more they are efficient in this locality".

Indeed, for some time, especially in starting the implementation of the Paris Declaration in 2005 and the Partnership **Bussan** in 2012, the Government of Burkina Faso is working for a division of labor among development partners, focusing on complementarity. Pooled funds and joint evaluations which have become increasingly important nowadays encourage the implementation of complementary projects. The learning effects relate to the acquisition of skills by the local community in relation to the experienced projects. Thus, the more projects a region receives, the more the local population learns from experience, and the better the execution of local projects improves. In Burkina Faso, this reality can be seen through the fact that the capacity of communities to the base to support the project as a criterion of choice for its implementation. This result is also in line with the conclusions of several studies.

Finsterbusch and Van Wicklin (1989), Lorena Alcazar and Erik Wachtenheim (2000) have demonstrated the benefits of community participation in the success of development projects. In Burkina Faso, this result could be explained by the fact that the associations constitute a channel for carrying out certain activities essential for the project. These activities which mainly aim to reach communities relate to communication, mobilization and awareness. Given the comparative advantage of organizations in these activities, their presence in a place is beneficial for projects, including those that do not focus on awareness and community mobilization.

"As part of the implementation of our activity planning, In addition to our team, we benefit from the support of associations which facilitate our actions in the field".

Sector of execution: The performance sector (or area of intervention) was used in the study by Belout and Gauvreau (2004) as a moderating variable that intervenes in the relationship between HRM (as well as the other factors of their model) and the success of the projects. Based on this study and on other studies that suggest the importance of considering the moderating effect of the intervention area to better understand the relationship between performance drivers and performance at mid-term project, we hypothesized that the relationship between the factors and performance to mid-term development projects in the P E D will be different depending on the area of intervention. The results of our research confirm this hypothesis since the factors that showed significant association with the performance at mid-term projects vary from one sector to another.

Indeed, in the field of rural development, all factors showed a significant correlation with the performance at mid-term projects with the exception of "HRM". On the other hand, in the area of infrastructure and transport, the "Planning" factor is the only one that shows a significant association with the performance of development projects. Finally, in the field of education and health, only the environment variable is significantly correlated with the performance of development projects. Our results corroborate those of Belout and Gauvreau (2004) and Pinto and Covin (1989) who suggested the importance of taking into account the moderating effect of the field of intervention in the study of the success factors of projects. Surprisingly, and contrary to the results of Belout and Gauvreau (2004), HRM showed significant correlation with the performance at mid-term development projects in any of the areas as part of our sample. This result is different from that found in the study by Belout and Gauvreau (2004). Also, the study carried out as part of Dolan's thesis (2005), led to the same result as that of Belout and Gauvreau (2004) with regard to the field of computer science. Our result, which differs from that of previous studies, could be explained by the insufficient number of projects included in the sub-samples relating to each of the sectors studied. It would be appropriate in future research to repeat the exercise by involving a much larger sample for the different sectors of activity. Also, it would be interesting to conduct studies by industry, to like studying Dolan (2005), involving large enough samples to get more valid results.

CONCLUSION AND RECOMMENDATIONS

These recommendations will focus on the explanatory variables. Indeed, it is these variables which are the levers on which we can act to improve performance at mid-term development projects.

The implementation of projects under favorable conditions: The study showed that the environment plays a determining role in the performance of the project. The presence of associations, projects and educational attainment of the locality have a significant impact on performance at mid-term development projects. In order to strengthen performance, a double action can then be recommended to the Government and to the Technical and Financial Partner.

First of all, it is important to direct new development projects towards localities that meet favorable environmental conditions. These are the areas already exist in the projects, associations and groups or communities with strong enrollment.

Then, we must create the environmental conditions in disadvantaged localities. This action will consist among other things in strengthening local literacy in collaboration with local authorities, promoting the emergence of associations and village groups in said localities.

For Lavagnon (2007), the direct and responsible participation of partners in the development effort and the adequacy of the project to the local context represent, for some aid agencies, the success factors of their projects. However, this principle remains difficult to apply and constitutes a significant challenge. These results highlight a third challenge to the success of an international development project: how, in a favorable context and for innovative projects, to reconcile the approach based on the predominance of donor models with better change strategies adapted to the capacities of the environment?

On the technical organization of projects: Project Managers must use Procurement Plans which are dashboards for monitoring deadlines and execution monitoring dashboards. This will allow them to be able to react in time to take the necessary corrective measures. In addition, for a good quality of studies, project managers should strengthen their control system before launching calls for tenders. The improved performance in midterm project also involves training in project management and technical staff on public procurement reforms in anticipation of the new environment of support to project management.

On Human Resources Management: Theoretically, organizational performance specialists are all of the opinion that project-based management offers a wide range of advantages to organizations that evolve in an environment marked by rapid and perpetual change, by increasing fierce competition and by increasingly demanding customers. Project-based management thus provides organizations with the flexibility they need to respond "just- in- time" to the changes that characterize their environment in order to seize business opportunities and respond effectively to customer needs, without being hampered by the bureaucratic structures and procedures that mark traditional organizations.

In such a perspective, industrial relations will have to intensify research in the direction of the management of project teams and the performance factors of these teams in order to meet the needs of organizations which will be more and more numerous to adopt this mode of management. The management of human resources in this project context remains an embryonic object and requires increasingly deep investigations to understand and develop the HRM practices specific to this context, as well as the role played by these practices in the performance of management project and in the overall success of any project.

Limitations of our research: The first limitation of our research is related to the sample size. In fact, the small number of cases included in our sample, which does not exceed 50 respondents, prevented us from carrying out more sophisticated statistical analyzes in order to properly verify our hypotheses. This limitation had consequences on several aspects of our methodology and our results. Although we adopted the Spearman coefficient which is recommended in the case of small samples ($n < 35$), some of the results obtained following bivariate analyzes under the control of moderating variables (sector of activity and organizational structure) remain inconsistent with the results of previous studies and with the available literature, as the number of cases included in the sample was very small. This prompts us to question the validity of these results, and to recommend the need to redo these analyzes with a sufficiently large and representative sample for each of the variables. The too small size of the sample also prevented us from measuring the impact of each of the factors of our model on the success of the projects by performing regression analyzes, and constrained us to limit ourselves to the verification of the existence of relationships between these variables at through analysis bi varied unable to push the analysis further.

The second limitation to underline in the context of this study, as it was also raised in the context of the study by Dolan (2005), is that the majority of our respondents agree that management practices have properly placed and administered (with an average score of 4.75 on a scale of 1 to 5). Likewise, the majority of these respondents agree that the criteria for the success of their projects have been met (with an average score of 4.96 on a scale of 1 to 5). It would be

interesting to redo the bi-varied analysis based on a composite sample of projects have been realized with failure. This exercise will make it possible to verify whether in such projects, project management practices are not administered in an adequate manner and to test the existence or not of a relationship between the failure of these projects and the inadequate project management practices.

REFERENCES

- Abbasi, G.Y., Al-Mharmah, H.A. (2000). Project management practice by the public sector in a developing country. *International Journal of Project Management*, 18(2), 105-109
- AFITEP (1991). *Le management de projet : Principes et pratiques*. AFNOR. Gestion.
- AFITEP (2004). *Guide du mémoire en gestion de projet, CGP*.
- AFITEP (2010). Pilotage de la performance de l'entreprise: Management intégré qualité-Sécurité-Environnement. *Revue Francophone du Management de projet*, n°109.
- Bande, R. S. & Nassè, T. B. (2020). Development communication and performance in the projects of low-income countries: the case of the regional support project for pastoralism in the sahel (PRAPS) in Niger. *International Journal of Management & Entrepreneurship Research*, 2 (5), 380-390.
- Belout, A., & Gauvreau C. (2004). Factors influencing project success: the impact of human resource management. *International Journal of Project Management*, 22 (1), 1-11;
- Bessette, G. (2004). *Communication et participation communautaire: Guide pratique de communication participative pour le développement*. Les Presses de l'Université Laval
- Bouckaert, G. (2005). Un nouvel examen de la mesure de la performance dans le secteur public La gestion par les résultats dans le secteur public. *Télescope, Revue comparée en administration publique*, 12(3), 12-25.
- Bouckaert, G. & Halligan, J. (2008). *Managing performance. International comparisons*. London, LO: Routledge.
- Bourguignon A. (2000). *Performance et contrôle de gestion*. Encyclopédie de Comptabilité, Contrôle de gestion et Audit, Ed. Economica.
- Carbonell, N., Nassè, T. N., Ouédraogo, A., Kafimbou, B. H., Ampofo, J. A, & Kinda, M. (2020). Recruitment methods and performance: an evidence from businesses in Burkina Faso. *International Journal of Management & Entrepreneurship Research*, 2 (4), 262-272.
- Charreire, S. & Durieux, F. (2003). *Explorer et tester : deux voies pour la Recherche*, in R.-A. Thiétart (éd.), *Méthodes de recherche en management*. Paris, PA : Dunod.
- Cohanier, B., Lafarge, P. & Loiseau, A. (2010). *Management de la performance : des représentations à la mesure*. Rouen, RO: Rouen Business School.
- Dichter, T. W. (2003). *Despite good intentions, why development assistance to the third world has failed?* Massachussetts, MA: University of Massachussetts Press.

- Dolan, K. (2005). *Critical success factors in information technology project management*. Montréal, MO: Mémoire de M. Sc., Université de Montréal.
- Duby, C., & Robin, S. (2006). *Analyse en composantes principales*. Paris, PA : Institut National Agronomique, Paris-Grignon.
- Deschamps, I. (2011). *Accompagner les PME dans leurs collaborations universitaires: rôle des intermédiaires et outils de gestion de la propriété intellectuelle*. Montréal, MO: Rapport synthétique présenté au CST, École de Technologie Supérieure, Montréal.
- Descheemaekere, C. (2013). *La méthode PRINCE 2: réussir les certifications fondamentale et praticien*. Paris, PA: Dunod.
- Diallo, A., & Thuillier, D. (2005). *The success of international development projects, trust and communication: An African perspective*. *International Journal of Project Management*, 23 (3), 237-252.
- Dolan, K. (2005). *Critical success factors in information technology project management*. Montréal, MO: Mémoire de M. Sc., Université de Montréal.
- Fitzgerald, L., Johnston, R., Brignall, S., Silvestro, R. & Voss, C. (1991). *Performance measurement in service businesses*. London, LO: Cima.
- Fernandez, A. (2014). *Le chef de projet efficace, 4^{ème} Ed*. Paris, PA: Edition Eyrolles, Fernez-Walch
- Gauthier, B. (2005). Problèmes d'incitations et aide au développement: une perspective institutionnelle. *Management International*, 9(3), 33-50;
- Gauzente, C. (2000). Mesurer la performance des entreprises en l'absence d'indicateurs objectifs: quelle validité ? Analyse de la pertinence de certains indicateurs. *Finance Contrôle Stratégie, Finance Contrôle et Stratégie*, 3 (1), 145-165.
- Gavard-Perret, M. L., Gotteland, D., Haon, C., & Jolibert, A. (2008). *Méthodologie de la recherche: réussir son mémoire ou sa thèse en science de gestion*. Paris, PA: Édition Pearson Education
- Hazebroucq, J-M., & Badot, O. (1996). *Le management de projet*. Paris, PA: Presses Universitaires de France.
- Heppell, N. (2011). *Le roulement du personnel et la performance organisationnelle: l'effet modérateur des pratiques de gestion des ressources humaines*. Montréal, MO : Mémoire de maîtrise, Université de Montréal.
- Infrastructure Québec (2013). *La gestion des risques dans les mégaprojets d'infrastructure publique : Guide méthodologique*.
- Jacquet, S. (2011). *Management de la performance: des concepts aux outils*. CREG.
- Khang, D. B., & Moe, T. L. (2008). Success criteria and factors for international development projects: a life-cycle-based framework. *Project Management Journal*, 39 (1), 72-84.

- Kiemtore, M. (2016). *Développement d'une approche de management des mégaprojets d'investissement favorisant la performance: intégration des facteurs négligés*. Québec QU : Thèse de doctorat, Université de Chicoutimi.
- Loosemore, M., Dainty, A., Lingard, H. (2003). *Human resource management in construction projects: strategic and operational approaches*. London, LO: Editions Spon Press.
- Lorino, P. (2003). *Méthodes et pratiques de la performance: le pilotage par les processus et les compétences, 3^{ème} éd.* Paris, PA: Éditions d'Organisation.
- Malhaire, F. & Dunant, H. (2013). *Vers un leadership créatif, efficace et humain*. Gereso.
- Mc Call, E. (2010). *La communication pour le développement: accroître l'efficacité des nations unies*. New York, NY: United Nations Development Program.
- Nassè, B. T. (2018). *Pratiques religieuses et comportement de consommation dans un contexte africain: une étude exploratoire sur les consommateurs au Burkina Faso. Thèse de Doctorat en sciences de Gestion, spécialité marketing*. Ouagadougou, OU: Université Aube Nouvelle et Université Cheikh Anta Diop.
- Nassè, B. T. (2016). L'équité interne dans la gestion de la relation client : une étude comparative quantitative de trois entreprises privées du Burkina Faso. *Journal Ouest-Africain des Sciences de Gestion, 1* (1), 38-54.
- Nassè, T. B. (2015). *Internal equity as a factor of companies' economic profitability: A comparative study of three private companies in Burkina Faso through a qualitative approach*. Saarbrücken, SA: Lambert Academic Publishing.
- Prudhomme, A. (2006). *Les bureaux de projets au Québec : Une étude descriptive*. Rimouski, RI : Mémoire de maîtrise, Université du Québec A Rimouski.
- Youker, R. (1999). Managing international development projects-lessons learned. *Project Management Journal, 30* (2) 6-7.

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Conflicts of Interests

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