

# The Connection between Individual Characteristics of Small Enterprise Leader and the Use of Performance Measurement Systems (PMS): A Gabonese Case

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## Abstract

We theorize about Enterprises Performance Measurement systems. 2001 Gabonese Small Enterprises were surveyed for the analysis. The first aim of this research is to examine how the enterprise leader's individual characteristics can impact on Performance Measure Systems. The second aim is to identify the relationship between performance measure systems and the enterprise management performance. The results of this research highlight that in the Gabonese context there is a significant connection between self-esteem, locus control and Performance measure systems. This paper also demonstrates that there is a relationship between Performance Measure Systems and Enterprise Management Performance.

**Keywords:** Small enterprises, Gabon performance Measurement systems, Enterprise performance, Self-esteem, Locus control, Intolerance, Ambiguity, Leader's individual characteristics

## 1. Introduction and Research problematic

Small Enterprises (SEs) play an important role in Gabonese economic development. Among the benefits of SEs, are the stabilization of the economy and the creation of employment. Study conducted by Franklin Assoumou Ndong (2003) and the Fund for the development and the expansion of SMEs in GABON (FODEX, 2009) indicates that until 2008, there were 6000 private sector Small Enterprises representing 78% of all Gabonese enterprises. In term of employment, the Small Enterprises employ 35.5% of the Gabonese labor (Ministry of Economy and Finance of GABON, IMF, 2002). This demonstrates that the vitality of the Gabonese economy also depends on Small Enterprises incentive.

Therefore, since many Small Enterprises lack knowledge about designing and using performance measures in SEs, it becomes critical to question how SEs design and for which purpose they use them also, the impact of the design and the use of PMS on enterprise management performance, the impact of SEs leader's individual characteristics on the choice of PMS and their using. How can the enterprise leader's individual characteristics impact on PMS? What are the relationship between performance measurement systems and the enterprise management performance? Those questions constitute the purpose of this paper.

## 2. Literature Review

### 2.1 The situation of Gabonese Small Enterprises

Small Enterprises form the majority of private sector companies in GABON. They employ 35.5% of the GABON's labor (Ministry of Economy and Finance of GABON, IMF, 2002). The survey conducted in 2001 by the United Nations on employment in GABON, confirms this trend: 35% of Gabonese's labor work in Small Enterprises employing fewer than 60 employees and the remaining 65% work in medium-sized enterprises and in the public institution (United Nations, 2001).

The Republic of GABON, which has a GDP of USD 3,860 per capita, is classed in the category of middle-income economies. This per capita income level is due mainly to the country's raw material exportation revenues. These raw materials attract important FDI. Although it's high level of per capita income, the country's economy levels remain low. "Standard & Poor's and Fitch Ratings" rated GABON Bond ratings Below (M. Willy ONTSIA, 2007). In 2009, the Human Development Index ranked GABON 103rd out of 182 countries (ADB, GABON, Study on the Diversification of Sources of Economic Growth, ADB/BD/IF/2009/57, 2009). The country's Growth and Poverty Reduction Strategy Paper (GPRSP) found the private sector as the engine and the way of diversify economic growth, especially by promoting the development of SEs (Republic of GABON, Growth and Poverty Reduction Strategy Paper, 2006).

In the survey conducted by Panapress-GABON and published in February 2008, 52% of Gabonese Small Enterprises leaders have indicated that freelance work is the most rewarding career (Panapress, 2008).

## 2.2 Gabonese Small Enterprises business management

The study conducted by the OECD in 2005 highlights that operation of Gabonese SEs is closely packed by the management style of its main executive.

This view points is confirmed by several authors (Lynch, R & Cross, K., 1991; Bescos P.L. et Cauvin E., 2004; Marchesnay & Julien, 1996; Lipe. G.M et Salterio S.E, 2000; Levy & Powell, 1998; Robson, Ian, 2005) who agree that the operation of SEs is closely packed by the management style of its principal executive officer or management team. For Tangen, Stefan (2004), the management control systems, in Gabonese Small Enterprises context, consist of a set of procedures and tools usually built into the system information officer of the enterprise and often used informally by an enterprise executive who is both the designer and facilitator analyst. Its point of view reinforces Denton, D. Keith (1995)'s view point. Dupuy (1987) observed that some leaders of small businesses manage successfully without some other information that accounting data basis. Moreover, Riggs & Bracker (1986) show that U.S. Small Enterprises which implement the forecasting activities (including sales) and integrated planning generate higher financial performance. Overall findings indicate that management controls are much more sophisticated if SEs are larger than average, have a shareholding consisting of internal and external shareholders and have accountants who hold a university degree.

## 2.3 The importance of Performance Measure Systems in Gabonese Small Enterprises

Small Enterprises predominate in the Gabonese economic sector. These units provide employment for a significant portion of the population, but their contribution to the economy remains weak (Amadou BA, 2009).

According to Ducheneaut (1995), Wisner, J.D., and S.E. Fawcett (1991), Small Enterprise (SE) is an elusive concept because there is no universal definition of it. They have different definitions in developed countries than developing countries. Therefore SE poses a small problem with its definition and identification. For example, a Small Enterprise can employ more labor in one country and employ less in another country.

Other criteria may be taken into account to refine the definition. This is mainly the type of property and the degree of independence. SEs considered as companies that are independent in relation to groups or large companies that are in most cases run in families. We can use two criteria to define SEs. The first concerns the size. The second criterion concerns the degree of independence (Doha Abdelhamid & Alia El Mahdi, 2003). Some data show an increase in the number of these SEs in GABON and other developing countries. Management tools will enable SEs survival and sustainability and contribute to their development. In this context we must seek to understand how SEs can improve their chances of survival and development through the use of management tools. Performance measurement systems can help to provide solutions for corporate performance (Mostafa Abakouy, 2006).

## 2.4 Gabonese Small Enterprises and Performance Measures

The literature proposes different theories and different tools for enterprise management, for example the configuration and the use of performance measures. It is certainly possible to apply some performance measures developed for large enterprises on SEs. However, we should not consider SEs as "small" large enterprises (Grepme, 1997). A different management approach is therefore required (Boyd, Lynn H., and James F. Cox, 1997) because SMEs face particular situations that not necessarily occur in large enterprises. SEs, therefore, won't necessarily use performance measures in the same purpose and in the same way as large enterprises. For example, the composition of the management team will be sometimes limited and by extension, the omnipresence of the leader is a factor that greatly influences the management of SEs (Julien P-A; Marchesnay M., 1988).

Researches on the configuration and the use of performance measures are growing in management accounting literature (Kaplan, R.S. & Norton, D.P., 1992; Hudson, M. Smart, A. & Bourne, M., 2001; Fitzgerald, L. Johnson, R., Brignall, S., et al., 2002; Bititci, U., 1994.; Gerdin, J., & Grève, J., 2007; Chow, C, W. Haddad, K.M. & Williamson, J.E., 1997).

These studies were conducted by analyzing majority of large enterprises. In addition, various studies have been conducted mainly at an organizational level, especially by discussing about the organizational performance of enterprises. Until nowadays, few studies have tested the relationship between the individual characteristic's characteristics of enterprises leader and the performance measures, in a contingency perspective (Chong, 1998).

In conclusion, considering the importance of SEs in Gabonese economic activity, the specific characteristics of Gabonese SEs and the undeveloped knowledge about the configuration and the use of performance measures in SEs, it becomes relevant to conduct a study about Gabonese Small Enterprises and Performance Measures Systems

## 2.5 Individual characteristics of Small Enterprises Leaders

In this section we will analyze the main individual characteristics of SEs leaders that have been measured by several researchers. The main individual characteristics tested are:

### 2.5.1 Preference for Innovation

Germain C. (2004) defines innovation in terms introduction of new products, new production methods, opening new markets or new sources of supply and the reorganization of the business, market and industry.

#### 2.5.2 Rigidity

Kalika M. (1987) defines the rigidity as a lack of adaptability and variability. Kounin (1948) extends the definition of rigidity as the degree of differentiation of individuals. An individual whose individual characteristics are relatively undifferentiated tends to be more rigid due to stereotyped behaviors learned and little opportunity to take action. Rokeach (1960) combines rigidity with resistance to change.

#### 2.5.3 Need for achievement, power and affiliation

Mc Clelland (1961) identifies three needs from an individual for his motivation: achievement, power and affiliation. The need for achievement is linked to individual desires to be fulfilled, of master a skill, control and establish high standards. The power one is divided into two parts, social power and personal power, the power is the ability to influence its environment through its commitment. The affiliation need is defined as the need to belong to a group, to establish harmonious relations with its environment and the need to feel accepted by others.

#### 2.5.4 Intolerance of ambiguity

Budner (1962) defines the ambiguity as the lack of sufficient evidence to properly structure a situation. The ambiguity may come from the novelty, complexity, or insolubility. Budner defines Intolerance for ambiguity as the tendency to perceive ambiguous situations as a threat while the tolerance for ambiguity is the result of collecting these situations as desirable.

#### 2.5.5 Locus control

Rotter (1966) defines locus control as the ability of individuals to perceive the influence of events in his life. Individuals internal believe in their own ability to influence their lives and their behaviors give little attention to external events while those outside reject the rule that personal efforts are the primary determinant of their results.

#### 2.5.6 Tendency to take risks

Brockhaus (1980) defines the tendency to take risks as the perception of the probability of receiving rewards associated with success in the situation given by the individual and the consequences associated with the failure of this situation, comparatively to a situation that would cause less rewards and less impact than the proposed situation.

### 2.6 Performance Measure Systems

For enterprises, a measure of performance can be financial or non-financial. The financial measures are used for a very long time. However, the literature criticizes this kind of measure of performance because it is often outdated (Fisher, 1992; Ittner & Larcker, 1998a). The non-financial measures are then emerged as an alternative, these measures are however not free from critical, because non-financial measures as far as financials are lead to dysfunctional behaviors that employees are acting in their own interests rather than the interests of the company (Fisher, 1992; Ittner & Larcker, 1998a). The design of a performance measure help to assist leaders to make progress necessary to achieve goals and objectives desired by the company. (Chenhall, 2003). According to Malina & Selto (2004), the design is the most important step of implementing a performance measure because the use is fairly simple when the right measures have been designed. Malina & Selto continue in identifying characteristics of a good performance measure. These should be diverse and complementary, objective and verifiable, informative, a communication tool for the strategy, a tool to reward, and be useful for decision-making. Regarding the use of performance measures, they help to track results, directing attention to assist in decision-making (Simon & al. 1954; Burchell et al. 1980) provide a new possible use of performance measures in the case of the legitimization. Simon (1990) established two possible uses of performance measures; it develops the theory of using "diagnostic" and "interactive" of performance measures. The use of diagnostic is widely used and serves to coordinate and communicate the priorities of the organization, all associated with a reward system that focuses on cooperation of managers towards the priorities the organization. Grau, Micah E. (2008) studied the relationship between performance measures and approach based on resources. He concludes that the use of interactive performance measures has a positive influence on the capacity market orientation, entrepreneurship, innovation and learning organizational diagnosis and the use has the opposite effect.

This view point is confirmed by Naranjo-Gil & Hartmann (2006); they indicated that the introduction of cost strategy is positively related to the use of diagnostic performance measure while the flexibility of the implementation of the strategy is positively affected by the interactive use of performance measures combined with the use of non-financial allocation resources. Finally Ittner et.al (2003) measured the implications for performance relating to the use of performance measures. They conclude that an organization which uses more comprehensive non-financial performance measures will experience higher return on investment.

## 2.7 Connection between individual characteristics, performance measure systems and enterprise management performance

### 2.7.1 Intolerance for ambiguity, the diversity and the use of performance measures

According to Begley & Boyd (1987), a leader who shows a greater intolerance for ambiguity would like to get more information than a leader with less intolerance for ambiguity to properly structured situations in order to improve enterprise performance but also its own performance. The leader will therefore use a greater variety of information, including performance measures (McGhee et al., 1978). To reduce the threat caused by the complexity of a situation (Budner, 1962), the leader wants to use all of these measures to ensure that the situation isn't out of control for him and the threat of uncertainty and lack of sufficient evidence to control the situation. This begs the following assumptions:

H<sub>1</sub>-The level of intolerance for ambiguity is positively associated with the diversity of performance measures

H<sub>2</sub>-When a leader shows a higher degree of intolerance ambiguity, the effect of performance measures diversity on enterprises management performance is higher.

The uncertainty created by the gap between information desired and information obtained (Galbraith, 1973) will ensure that the leader wants to use intensively performance measures not only for monitoring results, but also to direct attention, because in this case, the system put in place may be seen as an opportunity for learning and understanding the situation development (Chapman, 1997).

This begs the following assumptions:

H<sub>3</sub>-The level of intolerance for ambiguity is positively associated with the use of performance measures.

H<sub>4</sub>-When a leader demonstrates a higher degree of intolerance ambiguity, the effect of the use of performance measures on enterprise management performance is higher.

### 2.7.2 Locus control and the diversity of performance measures and Locus control and the use of performance measures

An internal locus control is a processor that is not enough efficient to help a leader to perform well. The leader would like to get additional information that are linked to results (Fisher, 1996). The leader with an internal locus control is able to know if the information is relevant or not, especially in situations of uncertainty. In situations where uncertainty is high, the leader will perceive the diversity of performance measures as more useful and relevant (Fisher, 1996). Leader with an internal locus control wants to use more different performance measures than a leader with an external locus control. This begs the following assumptions:

H<sub>5</sub>-An internal locus control is positively associated with performance measures' diversity.

H<sub>6</sub>-When a leader demonstrates an internal locus control, the effect of diversity of performance measures on enterprise management performance is higher.

The leader with internal locus control will tend to use performance measures more intensively. He would like to do more than simply measure results. He will be also more receptive to all performance measures but a leader with external locus control will not see the usefulness of performance measures.

The leader with an internal locus control will not only measuring results but also directs the attention of his employees to increase its own performance and the enterprise performance company.

We believe that the discussion takes the following assumptions:

H<sub>7</sub>-An internal locus control is positively associated with the use of performance measures.

H<sub>8</sub>-When a leader shows an internal locus control, the effect of the use of performance measures on enterprise management performance is higher.

### 2.7.3 Self-esteem and the diversity of performance measures and Self-esteem and the use of performance measures

Finally, the leader with lower self-esteem wants positive and regular confirmations to improve its performance. He will therefore likely to use more diversified performance measures in order to maintain its ability to reinforce in desirable situations. This begs the following assumptions:

H<sub>9</sub>-A low self-esteem is positively associated with the diversity performance measures.

H<sub>10</sub>-When a leader shows a low degree of self-esteem, the effect the diversity of performance measures on enterprise management performance is higher. In their study, Gregory B. Northcraft and Susan J. Ashford (1990) tested two types of feedback on individual characteristics, neutral feedback and reinforcement feedback. The neutral feedback consists simply to transmit results to the person without further comment. We can associate this type of feedback monitoring to the use of results while the use of reinforcement is used to communicate to the person the commented results that will support the assessment. We associate this kind of feedback to the use of performance measures in order to direct attention.

The leader who shows a low self-esteem should also use performance measures to direct the attention. The leader showing a high degree of self-esteem, only use PMS for monitoring results is necessary because he believes in its capacity as leader and doesn't believe that he needs to direct attention to achieve his objectives.

This discussion begs the following assumptions:

H<sub>11</sub>-A low self-esteem is positively associated with the use of performance measures.

H<sub>12</sub>-When a leader demonstrates a degree of low self-esteem, the effect of the use of performance measures on enterprise management performance is higher.

### *2.8 Relationship between performance measurement systems and enterprise management performance*

Performance measures systems are important for increasing enterprises performance (Epstein & Manzoni, 1998 Said et al 2003.; Atkinson & Epstein, 2000; Widener, 2007). Indeed, various authors studied the impact of performance measures on enterprises performance and demonstrate the positive impact of these various measures. (Epstein & Manzoni 1998, Said et al 2005; Atkinson & Epstein, 2000; Widener, 2007) Investigations confirm a connection between performance measures and enterprise performance. Widener (2007), in his study, indicates that the performance measures act as a mediating agent between strategic resources and organizational performance. The results obtained in this research demonstrate that the belief systems of the enterprise influence and complete each other control systems, this in order to increase organizational performance.

What is consistent with results from Widener (2007) is: given that the manager is the leader of the enterprise, all the control systems and belief systems of the enterprise will be tinged with his individual characteristics, because all future decisions for the company will be influenced by its experiences, his will and his academic training. Other researchers have studied the enterprise management performance. Chong (1998) examined the moderating effect that can have the individual characteristics of the leader, the link between the configuration of performance measures and enterprise management performance. He concludes that alignment between individual characteristics and greater use of performance measures increases enterprise management performance.

Webb (2004)'s research discusses the importance of leaders engagement for performance measures systems to be effective. Webb (2004) also discussed the importance of establishing a causal link between performance measures and performance of the enterprise and that when leaders see the causal link, they will tend to adhere to new performance measures.

Hall (2008) also indicates that performance measures can have an effect on enterprise management performance in clarifying the expectations from the manager and clarifying its role and providing feedback to improve the intrinsic motivation of the manager. In the context of a Small Enterprise, a leader who will get the desired results with performance measures will tend to continue to improve behavior as personal and organizational to maintain the performance of the enterprise.

The use of performance measures examined in this study are those of performance monitoring and management of attention, which may be the reflect that the leader wants but cannot regularly follow (Monitoring) and he needs to validate regularly.

All these studies will allow us to conclude that performance measures are seen as increasing organizational performance, the performance measures chosen are such to attract the attention of employees on what is measured, resulting in a change in their behavior and in the case of SEs, organizational performance is lead by the performance of the leader. These results lead to the following assumptions:

H<sub>13</sub>-The diversity of performance measures is positively associated with enterprise management performance.

H<sub>14</sub>-The use of performance measures is positively associated with enterprise management performance.

## **3. Methodology**

### *3.1 Sampling and Data Collection*

The population of this paper was constructed using the database "*Répertoire des Petites et Moyennes Entreprises Gabonaises: Annuaire: Ministère des Petites et Moyennes Entreprises du GABON, 2010*".

We identified a sample of 3000 Gabonese Small Enterprises, chosen randomly, but only 2001 showed interest in the research.

To be part of the sample, enterprises had to match the definition of SEs: (1) be a Gabonese enterprises; (2) employ fewer than 60 persons .The enterprise also must be a manufacturing company registered in the ministry of Small and Medium enterprises of Gabon.

It was also necessary that enterprises provide a valid address and the name of the leader as contact in the database. Only small enterprises have been selected.

Our survey was conducted in two stages: (1) first questionnaire mailing, (2) followed with 50% of enterprises that did not respond to the first mailing. The mailing consisted of sending a cover letter, a questionnaire and

return “prepaid freight” envelope by post (1700 enterprises) or by email (301 enterprises). The surveys were conducted at an interval of five weeks between the first and second mailing. Among the “237 questionnaires” for this survey, “116” were received after the first mailing, “121” were received after the second mailing (see the table 1).

It is important to note that the “237 questionnaires” received give a response rate of 11,84%, by taking into account the number of questionnaire sent minus the questionnaires returned for various reasons :enterprise closed, wrong addresses. This rate of answer, although not very high, was already recognized as significant by Widener (2007) on his study about the levers of control. It is also important to consider the fact that the rate of answer is calculated on a sample of 2001 enterprises.

### 3.2 Nonresponse bias analysis

In order to validate the nonresponse bias, we compared available data in the “*Repertoire des Petites et Moyennes Entreprises Gabonaises: Annuaire: Ministère des Petites et Moyennes Entreprises du GABON, 2010*” database for respondents and non-respondents of the survey in respect to age and size of enterprises. Using the T-test, we found no significant difference to a threshold of 0.05 between the averages of two groups (0 being the group which did not respond and 1 being the group that responded to the survey). The test results are presented in Table 2 and Table 3. In regard to the different industries represented in the sample; we can say that there is no non response bias. Indeed, the test performed (chi-square) is not significant at a threshold of 0.05 as shown in Table 4.

### 3.3 Descriptive statistics of respondents

The enterprise size of respondents was calculated according to the number of enterprises employees. Respondents employ between 1 and 348 employees. (Table 5a). The experience of respondents in their current position ranged from 1 year to 66 years old. The frequency distributions of years of experience are presented in Table 5b. Over 30 percent of enterprises which responded are family businesses (Table 5c). Respondents have turnovers ranging from \$ 80.000 to 30 million (Table 5d). Enterprises ages are ranging from 2 to 80 years (Table 5e).

Regarding the specialization of respondents, 31.13% are specialized in business administration; while 62.87% are specialized in sales and marketing (Table 5f.). Regarding the education background, 53.60% of respondents hold high a school degree, and 46.41% obtained a university degree (Table 5g.). Respondents come from two principal cities of GABON: Libreville (60%) and Port-Gentil (40%). (Table 5h.). The sector in which respondents operate is presented in table 5i.

### 3.4 Measuring constructs

The different constructs were measured using a questionnaire. The first section of the questionnaire evaluates the individual characteristics of SEs leaders using statements from different tests. The leaders were asked to indicate on a scale of 1 to 7 if they agree or not with the statements: 1 indicating that they strongly disagree and 7 indicating they strongly agree. Intolerance for ambiguity is tested on a scale that includes twenty items (AT-twenty scale, originally developed by Budner, 1962 and updated by Mac Donald Jr., 1970). Self-esteem is tested on a scale of fourteen items and Locus control is tested with a scale of twelve items that are included in the Entrepreneurial Attitude Orientation (Developed by Robinson et al., 1991). The average of different characteristics was used. A high average indicates that the characteristic is present on the leader. The section of performance measures includes twenty items on the diversity and eleven items on the use of performance measures. Among the twenty items on the diversity of performance measures, eleven items are financial measures and nine items are non-financial measures. Among the eleven items concerning the use of performance measures, five items measure performance monitoring while the other six items measure the use in order to direct attention. The leader was invited to declare if he/she uses much or less performance measures on a scale of 1(not at all) to 7(very much).

We used the average of each item in our constructs. A high average indicates a high use of performance measures. Enterprise management performance is evaluated through a series of eight recurring tasks of an enterprise manager (Mahoney, 1967). The leader must indicate on a scale of 1 to 7 if he is below average or above for accomplishing various tasks. A ninth item is also present to assess the overall performance of the leader. This item is used as a control variable in our study.

Various variables were added to the questionnaire in order to be able to control the variation of the enterprise management performance. The variables of controls are present at two levels: (1) the organizational level: size of the company, the age of the company, the influence of recipients and the type of SE and (2) the individual level: formation of the leader, his experience in the company and its specialization. The descriptive statistics and the matrix of correlation of different constructs are presented in table 5b.

For the data analysis, we used SPSS 15.

## 4. Results

### 4.1 Connection between individual characteristics and performance measures

First at all statistical analysis of mean comparison was performed to compare the use and the diversity of performance measures according to different individual characteristics. The results are presented in Table 6. Indeed leaders demonstrating a high degree of self-esteem use performance measures much more intensively in order to monitoring the results than direct the attention. These leaders are regular users of more diverse performance measures, because they use more measures (Financial and nonfinancial) than leaders showing a low degree of self-esteem.

Concerning the locus control, leaders showing external locus control use much performance measures for monitoring the results than to direct attention. Leaders showing external locus control use many financial and nonfinancial measures than leaders showing internal control. All tests are significant at 0.05 ( $p < 0.05$ ). The individual characteristic of intolerance for ambiguity has no difference, the use and the diversity as well.

Secondly, we conducted a regression analysis to evaluate the influence of individual characteristics on the diversity and the use of performance measures.

The goal is to identify the characteristics that influence the diversity and the use of performance measures. The first regression equation is:

$$Y = \alpha + \beta_1 + \beta_2 + \beta_3 + \epsilon$$

$Y$ =Diversity;  $\alpha$ = Constant;  $\beta_1$ =Self-esteem;  $\beta_2$ =Locus control;  $\beta_3$ =Intolerance for ambiguity. In the table 7, the regression ( $r^2=0.123$ ) explains that the variation of the dependent variable (diversity) is significant ( $p < 0.05$ ). The only variable significant at the 0.05 level is the locus control. This indicates that the locus control has an influence on the diversity of performance measures (see details in table 7).

The second regression equation is:

$$Y = \alpha + \beta_1 + \beta_2 + \beta_3 + \epsilon$$

$Y$ =The use;  $\alpha$ = Constant;  $\beta_1$ =Self-esteem;  $\beta_2$ =Locus control;  $\beta_3$ =Intolerance for ambiguity. In the table 8, the regression ( $r^2=0.130$ ) explains that the variation of the dependent variable (the use) is significant ( $p < 0.05$ ). This indicates that the locus control has an influence on the use of performance measures (see details in table 8).

### 4.2 Connection between Performance measures and enterprise management performance

To test the connection between performance measures and enterprise management performance, we conducted a comparison of means between groups that more use and less use performance measures (diversity and the use). The tests are significant at 0.05 and show that there is a difference between leaders' management performance and the diversity of performance measures, as shown in table 9 and table 10.

Regarding the enterprise management performance and the use of performance measures, the differences are also significant (see the result details in table 11).

Secondly we performed linear regressions to evaluate the influence of the diversity of performance measures, the influence of the use of performance measures including various control variables on enterprises management performance. The control variables used are specialization of the leader, the level of education, enterprise size, the number of years of experience of the leader and the type of SEs.

The regression equation is:

$$Y = \alpha + \beta_1 + \beta_2 + \beta_3 + \beta_4 + \beta_5 + \beta_6 + \beta_7 + \epsilon$$

$Y$ =Enterprise management performance;  $\alpha$ = Constant;  $\beta_1$ =Diversity of performance measures;  $\beta_2$ =The use of performance measure;  $\beta_3$ =Education of the leader;  $\beta_4$ =Specialization of the leader;  $\beta_5$ =Size of the enterprise (number of employees);  $\beta_6$ =annual sale;  $\beta_7$ =Type of Small Enterprise;  $\beta_7$ =experience of the leader. In the table 12, the regression ( $r^2=0.195$ ) explains that the variation of the dependent variable (enterprise management performance) is significant ( $p < 0.05$ ). Variables explaining enterprise management performance ( $p < 0.05$ ) are the diversity of performance measures and the use of performance measures. None of control variables is significant to explain changes in enterprise management performance (see details in table 12).

### 4.3 Connection between individual characteristics, the use, the diversity of performance measures and enterprise management performance

To validate the relationship between individual characteristics, the use, the diversity of performance measures to explain the performance of the enterprise management, we tested several regression equations. The hypotheses were tested using the model regression moderated regression analysis, as well as with the method of comparison of means to test the connection between different variables. With the comparison tests of mean, the only significant interaction is the one combining self-esteem and the diversity of performance measures (Table 13).

The only significant relationship according to regression testing is performed to intolerance for ambiguity and the diversity of performance measures (Table 16). This discrepancy between the results from the comparison of means and regressions is due to the fact that comparison of mean tests performed as first analysis and is less accurate because we put variables into two categories variables while the regression takes into account several level of variables, which can confirm or deny the conclusions obtained by comparisons between average groups.

#### 4.3.1 The use of performance measures according to individual characteristics

The first formulation is for the use of performance measures mainly for monitoring results or direct attention. This variable is not only included in the regression but we add an interaction variable between the individual characteristics and use of performance measures, we add the variables of locus control in the regression

The formulation of the regression is:  $Y = \alpha + \beta_1 X + \beta_2 S_1 + \beta_3 (X * S_1) + S_2 + S_3 + S_4 + S_5 + S_6 + S_7 + S_8 + \epsilon$

Y=Enterprise management performance; a=Constant; X=individual characteristics of the leader; S1=The use; S2=specialization of the leader; S3=Education of the leader; S4=Size of the enterprise (employees); S5=Size of the enterprise(sales); S6=Age of the SE; S7=type of the SE; S8= experience of the leader

##### 4.3.1.1 Intolerance for ambiguity

In regard to the characteristic of intolerance for ambiguity and the use of performance measures, the regression is significant at  $R^2 = 0.177$ . However, when we analyze each explanatory variable included in the regression (table 14) we note that the only explanatory variable is the use of performance measures ( $p < 0.05$ ).

##### 4.3.1.2 Self-esteem

Self-esteem, as individual characteristic was also tested in regression. The regression is also significant at  $R^2 = 0.242$ . However in this regression the only two explanatory significant variables are self-esteem characteristic and the use of performance measures ( $P < 0.05$ ). Control variables and interaction term are not significant (see table 15)

##### 4.3.1.3 Locus Control

The locus control was finally tested in a regression. The regression is also significant at  $R^2 = 0.289$  (table 18). However, in this regression, the same scenario as self-esteem occurs and the only significant variables are locus and the use of performance measures ( $P < 0.05$ ).

#### 4.3.2 The diversity of performance measures according to individual characteristics

The second formulation concerns the diversity of performance measures. We have also included the interaction term and the variables controls in the regression.

The formulation of the regression is:  $Y = \alpha + \beta_1 X + \beta_2 S_1 + \beta_3 (X * S_1) + S_2 + S_3 + S_4 + S_5 + S_6 + S_7 + S_8 + \epsilon$

Y=Enterprise management performance; a=Constant; X= individual characteristics of the leader; S1=The diversity; S2= specialization of the leader; S3= Education of the leader; S4= Size of the enterprise (employees); S5= Size of the enterprise(sales); S6=Age of the SE; S7= type of Small Enterprise; S8=experience of the leader

##### 4.3.2.1 Intolerance for ambiguity

The regression results involving intolerance of ambiguity and diversity performance measures are shown in Table 16. The regression is significant at  $R^2 = 0.291$ . The variables diversity of performance measures and the interaction between diversity and intolerance of ambiguity are significant. No other predictor is significant at 0.05 level.

##### 4.3.2.2 Self-esteem

The same regression model was also used, taking into account the individual characteristic of self-esteem (see table 17). The regression is significant at  $R^2 = 0.219$ . The only explanatory variable in this case is the diversity of performance measures ( $P < 0.05$ )

##### 4.3.2.3 Locus control

The locus control's characteristic was also included in a regression including the diversity of performance measures (see table 18). The regression is significant at  $R^2 = 0.289$ . The locus control characteristic and the diversity of performance measures are significant ( $P < 0.05$ ).

#### 4.4 Discussion

##### 4.4.1 Connection between individual characteristics and Performance measures

The first hypothesis ( $H_1$ ) in this research tested the association between intolerance for ambiguity and the diversity of performance measures. The comparison of means between groups leader shows that intolerance for ambiguity is not a factor explaining the diversity of performance measures used. Moreover, the regression performed on this characteristic indicates that the intolerance for ambiguity is not a predictor of the diversity of performance measures (table 12)

The result is the same for the hypothesis ( $H_3$ ) that attempted to demonstrate a connection between intolerance for ambiguity and the use of performance measures

This study shows that there is no significant difference between tolerant leaders and intolerant leaders for ambiguity. The Table 8 demonstrates that the intolerance for ambiguity is not an explanatory variable of the use of performance measures.

This lack of difference between tolerant and intolerant leaders for ambiguity can be linked to the measuring



instrument used to characterize leaders but also by the fact that the leaders of Small enterprises must, according to the type of Small Enterprise, demonstrate higher tolerance for ambiguity than leaders of large enterprises.

Regarding the positive relationship between internal locus control and the diversity of performance measures ( $H_6$ ), the results indicate an inverse relationship to the result we had predicted. Indeed leaders showing an external locus control tend to use more diverse performance measures. The Regression for the locus control is a significant predictor  $p < 0.05$  (table 8).

Regarding the assumption about the internal locus control and the use of performance measures ( $H_5$ ), the result of the regression presented in table 8 indicates that the characteristic of locus control is significant at  $P < 0.05$  and can explain the use of performance measures.

These results seem to confirm the findings of Fisher (1996) who came to the same conclusion. His research results indicates that the fact that a leader present an internal locus control demonstrate that he believes that he has everything he needs to perform well and develop his enterprise; which is different for the leader presenting an external locus control.

Assumptions about the characteristic of self-esteem indicated that leaders with a low degree of self-esteem were positively associated with the diversity of performance measures ( $H_9$ ) and the use of performance measures ( $H_{10}$ ). Regarding the comparisons of means, the results indicate that a leader (contrary to our expectations) showing a high degree of self-esteem use more intensively diverse performance measures than a leader showing low degree of self-esteem. Regressions performed on these assumptions and presented in table 7 and table 8 shows, however, the self-esteem is not a predictor of diversity and the use of performance measures.

No explanation was found in the literature about self-esteem assumptions. However, we can attempt explanation of the fact that a leader showing high self-esteem would like to have confirmation that he succeeds in enterprise management, so more performance measures are used more confirmations will come and thereby the gratitude to the leader.

This need for self-esteem may explain the establishment of more measurement and how the leader uses these measures, while the leader showing low self-esteem would not be tempted to use many performance measures and would not use them in order to direct attention but only to monitoring results.

#### 4.4.2 Connection between performance measures and enterprise management performance

The second objective of this study is to attempt to demonstrate positive association between the diversity and the use of performance measures on enterprise management performance. The hypothesis 13 tested the positive relationship between the diversity of performance measures and enterprise management performance. The linear regression explaining enterprise management performance is presented in table 12.

There is then a positive connection between the diversity of performance measures and enterprise management performance. The hypothesis 14 is also confirmed. This hypothesis tested the positive relationship between the use of performance measures and enterprise management performance (see table 12).

This regression explained  $R^2 = 0.195$  of the variation in the dependent variable (enterprise management performance) and is significant at  $P < 0.05$ . Talking about different explanatory variables, variables explaining enterprise management performance ( $p < 0.05$ ) are the diversity of performance measures and the use of performance measures. None of the control variables is significant for explaining changes in enterprise management performance (see table 12).

## 5. Conclusion

The aim of this research was to provide an explanation of individual characteristics of Gabonese Small Enterprise leader in connection with the use and the diversity of performance measures. The problematic of this research was: how can the enterprise leader's individual characteristics impact on the Performance Measures Systems? What are the relationship between Performance Measures Systems and the enterprise management performance? In other words these research objectives were: first to demonstrate the connection between SEs leaders' characteristics and PMS; secondly to analyze the relationship between PMS and enterprise management performance.

The research results prove that there is a link between the individual characteristic of locus control and self-esteem and performance measures (the diversity and the use). In other words, they demonstrate that leaders showing an external locus control and a high level of self-esteem use more diverse performance measures.

This research also demonstrates the relationship between PMS (diversity and use) and enterprise management performance.

This study has implications for Gabonese Small Enterprises management practices. We cannot separate SEs leaders' individual characteristics from enterprise management. This research questions about the use and the diversity of PMS according to the individual characteristics present in enterprise leaders.

This study presents several limitations which must be mentioned. The first is the validity of measurement instruments for leaders' individual characteristics. All measurement instruments that we used are valid. However,

previous studies used several years old instruments, so we can't ensure the validity of their old instruments.

Secondly, enterprise leaders when responding to a survey often make a difference between their individual characteristics and their role as enterprise leader. Moreover, enterprise management performance is evaluated using a subjective method, this measure is then perceptual. It represents the eight tasks of an enterprise leader; however, these tasks are not necessarily representative for all Gabonese leaders who responded to the survey. We hope that this study will contribute to the progress of management performance of Small Enterprises in GABON.

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Table 1. Steps for questionnaires mailing

Survey	Questionnaire number	Percentage
First mailing	116	48,94%
Second mailing	121	51,05%
Total	237	100%

Description for table 1: Among the 237 questionnaires for the survey, 116 were received after the first mailing, 121 were received after the second mailing

Table 2. T-test for non response bias by age of enterprise

	Test for equality of variances		Test for equality of means						
	F	Sig	t	df	Sig	Mean difference	Standard error of difference	95% Confidence interval	
								Low	High
Age Equal variances assumed	1,235	,250	,757	1908	,451	,725	,957	-1,154	2,601
Variances not assumed			,674	280,3	,502	,725	1,075	-1,391	2,838

Description for table 2: We found no significant difference at  $P < 0.05$  between the averages of two groups (0 being the group which did not respond and 1 being the group that responded to the survey). In regard to the different industries represented in the sample; we can say that there is no nonresponse bias.

Table 3. T test for nonresponse bias by enterprise size

	Test for equality of variances		Test for equality of means						
	F	Sig	t	df	Sig	Mean difference	Standard error of difference	95% Confidence interval	
								Low	High
Emp.Equal variances assumed	2,391	,123	-,1556	1999	,121	-,2578	1,668	-6,828	,674
Equal variances not assumed			1,454	291,60	,148	-2578	1,774	-6,068	,915

Description for table 3: We found no significant difference at  $P < 0.05$  between the averages of two groups (0 being the group which did not respond and 1 being the group that responded to the survey). In regard to the different industries represented in the sample; we can say that there is no nonresponse bias.

Table 4. Test for nonresponse bias by enterprise respondents

Chi-Square Test			
Pearson Chi-Square	Value	Df	Signification(bilateral)
	10,871	13	,541
Pobability ratio	12,591	13	,401
Linear association	,102	1	,751
Number of valid box	2000		

Description for table 4: Chi-square is not significant at  $P < 0.05$

Table 5a. Number of employees per enterprise

Number of Employees	Number of Enterprises	%	Number of Employees	Number of Enterprises	%	Number of Employees	Number of Enterprises	%
1 to 6	17	7.17	7 to 10	56	23.62	11 to14	33	13.92
15 to19	24	10.12	20 to25	16	6.75	26 to32	14	5.90
33 to 36	12	5.06	37 to 41	11	4.64	42 to47	3	1.26
48 to 50	5	2.10	51 to57	3	1.26	58 to 65	6	2.53
66 to 67	2	0.84	68 to 72	2	0.84	73 to 83	2	0.84
84 to 88	7	2.95	89 to 90	5	2.10	91 to 120	6	2.53
121 to 151	4	1.68	152 to 203	4	1.68	202 to 348	5	2.10

Description for table 5a: Respondents employ between 1 and 348 employees

Table 5b. Experience of the respondents

Number of Employees	Number of Enterprises	%	Number of Employees	Number of Enterprises	%	Number of Employees	Number of Enterprises	%
1 to 6	25	10.55	7 to 10	44	18.56	11 to14	70	29.53
15 to19	33	13.92	20 to 25	24	10.12	26 to32	22	9.28
33 to 36	8	3.37	37 to 41	4	1.68	42 to47	1	0.42
48 to50	1	0.42	51 to 57	1	0.42	58 to 65	3	1.26
66	1	0.42						

Description for table 5b: The experience of respondents in their current position ranged from 1 year to 66 years old

Table 5c. Type of enterprise

	Family	Non-family	Total
Frequency	89	148	237
Percentage	37.55%	62.44%	100%

Description for table 5c: Over 30 percent of enterprises which responded are family businesses

Table 5d. Turnovers of respondents

Turnovers (Millions \$)	Number of Enterprises	%	Turnovers (Millions \$)	Number of Enterprises	%	Turnovers (Millions \$)	Number of Enterprises	%
8	42	17.72	9 to 10	12	5.06	11 to 12	12	5.06
13 to 14	20	8.44	15 to 16	36	15.19	17 to 18	12	5.06
19 to 20	34	14.34	21 to 22	11	4.64	23 to 24	8	3.37
25 to 26	15	6.33	27 to 28	21	8.86	29 to 30	14	5.9

Description for table 5d: Respondents have turnovers are ranging from \$ 80,000 to 30 million

Table 5e. Age of enterprises

Age of enterprises	Number of enterprises	%	Age of enterprises	Number of enterprises	%	Age of enterprises	Number of enterprises	%
2 to 6	9	3.79	6 to 10	9	3.79	11 to 16	95	40.08
17 to 21	35	17.76	22 to 26	10	4.22	27 to 31	22	9.28
32 to 36	11	4.64	36 to 40	8	3.37	41 to 45	1	0.42
46 to 50	1	0.42	51 to 55	6	2.53	56 to 60	1	0.42
61 to 65	6	2.53	66 to 70	8	3.37	71 to 75	1	0.42
76 to 80	14	5.9						

Description for table 5e: Enterprises ages are ranging from 2 to 80 years

Table 5f. Frequency of respondents 'diplomas

	Business Admin	Sales and Marketing
Frequency	88	149
Percentage	31.13%	62.87%

Table 5g. Respondents' education background

	Business Admin	Sales and Marketing
Frequency	110	127
Percentage	46.41%	53.60%

Table 5h. Provenance of the respondents

	original sample	%	Respondents	%
Libreville	1200	60	150	63.29
Port-Gentil	801	40	87	36.71
Total	2001	100	237	100

Table 5i. Respondents' industries

Sector of activity of Enterprises	Samples			
Food & Beverage Manufacturing	400	99.99	50	21.09
Textile products	425	21.23	6	2.53
Crafts	334	16.69	20	8.44
Plastic products manufacturing	300	14.99	88	37.13
Petroleum products manufacturing	200	9.99	56	23.63
Mineral products manufacturing	342	17.09	17	7.17
Total	2001	100%	237	100%

Description for table 5i: Food & Beverage manufacturing and Textile products business constitute the favorite business for some Small Enterprises.

Table 5g. The descriptive statistics and the matrix of correlation of different constructs

Correlation matrix (Pearson)						
	Diversity	The use	Intolerance for ambiguity	Self-esteem	Locus control	Enterprise management performance
Diversity	1					
The use	,573**	1				
Intolerance	-0,12	-,104	1			
Esteem	,262**	,266**	,066	1		
Locus control	,339**	,352**	-,228**	,588**	1	
Enterprise management performance	,373**	,414**	,009	,363**	,503**	1

Description for table 5b: \*p<0.05

\*\*p<0.05

	Diversity	The use	Intolerance for ambiguity	Self-esteem	Locus control	Enterprise management performance
Original items	20	11	20	13	12	8
Used items	20	11	14	13	10	8
Scale	1-7	1-7	1-7	1-7	1-7	1-7
Minimum	1,40	1,36	1,71	2,08	1,10	2,25
Maximum	6,90	7,00	6,00	6,77	7,00	7,00
Mean	4,349	5,110	3,648	5,306	5,356	5,218
Standard deviation	1,186	1,239	,731	,658	,794	,747
Median	4,450	5,183	3,571	5,309	5,400	5,250
Cronbach's alpha	,899	,928	,633	,630	,731	,790

Table 6. Comparison of the diversity and the use according to individual characteristics

	Diversity				The use			
	Financial Measures		Nonfinancial Measures		Performance Measures		Direct attention	
Self-esteem	4,5363*	5,0093*	3,6034*	4,3372*	5,0775*	5,6561*	4,68137*	5,2021*
Locus control	4,4512*	5,5012*	5,1033*	4,2897	5,0649*	5,6611*	4,6232*	5,3095*
Intolerance for ambiguity	4,8031	4,7620	40,0811	3,9775	5,4934	5,2502	5,0847	4,8517

**Description for table 6:** \* Significant at 0.05. All tests are significant at 0.05 (p < 0.05). The individual characteristic of intolerance for ambiguity has no difference, the use and the diversity as well.

Table 7. Regression results explaining the diversity of Performance measures

Mode	Coefficients <sup>a</sup>				t	Sig.
	Non-standardized Coefficients		Standardized Coefficients			
	B	Std error	Beta			
1 (Constant)	4,350	0.75		58,678	,000	
Self-esteem	,144	,145	.08c	,993	,323	
Locus control	,456	,123	.305	3,713	,000	
Intolerance for ambiguity	0.85	,108	.053	,776	,440	

a. Dependent variable: Diversity

Model	R	Squared R	Adjusted Squared R	Estimation of standard error
1	,351	,123	,112	1,11661

a. Predicators: (constant), self-esteem, locus control, intolerance for ambiguity

**Description for table 7:** The regression ( $r^2=0.123$ ) explains that the variation of the dependent variable (diversity) is significant ( $<0.05$ ). The only variable significant at the 0.05 level is the locus control. This indicates that the locus control has an influence on the diversity of performance measures.

Table 8. Regression results explaining the use of Performance measures

Mode	Coefficients <sup>a</sup>				t	Sig.
	Non-standardized Coefficients		Standardized Coefficients			
	B	Std error	Beta			
1 (Constant)	5,111	0,78		66,235	,000	
Self-esteem	,199	,151	,106	1,319	,190	
Locus control	,435	,128	,279	3,408	,002	
Intolerance for ambiguity	-0,82	,113	-,049	-,718	,475	

Model	R	Squared R	Adjusted Squared R	Estimation of standard error
1	,361 <sup>a</sup>	,130	,119	1,16245

a. Predicators: (constant), self-esteem, locus control, intolerance for ambiguity

**Description for table 8:** the regression ( $r^2=0.130$ ) explains that the variation of the dependent variable (the use) is significant ( $p<0.05$ ). This indicates that the locus control has an influence on the use of performance measures.

Table 9. Division to the median according to the diversity of performance measures

Diversity		Group statistics			
		N	Mean	Standard deviation	Standard error of mean
Enterprise management performance	$\geq 4,46$	113	5,3896	,68605	,06483
	$< 4,46$	116	5,0517	,76953	,07177

**Description for table 9:** the tests are significant at 0.05 and show that there is a difference between leaders' management performance and the diversity of performance measures



Table 10. Comparison test of means between groups of leaders on the diversity of performance measures

		Test for equality of variances		Test for equality of means						
		F	Sig.	t	df	Sig.	Mean difference	Standard Error of difference	95% Confidence interval	
									Low	High
Enterprise Management performance	Equality of variances assumed	,800	,373	3,490	226	,002	,33791	,09686	,14706	5,2875
	Equality of Variances not assumed			3,495	223,2	,002	,33791	,09671	,14734	,52846

**Note for table 10:** the tests are significant at 0.05 and show that there is a difference between leaders' management performance and the diversity of performance

Table 11. Comparison test of means between groups of leaders regarding the use of performance measures

		Test for equality of variances		Test for equality of means						
		F	Sig.	t	df	Sig.	Mean difference	Standard Error of difference	95% Confidence interval	
									Low	High
Enterprise Management performance	Equality of variances assumed	3,126	,080	5,704	226	,000	,53276	,09343	,34868	,71684
	Equality of Variances not assumed			5,506	195,5	,000	,53276	,09523	,34496	,72055

**Note for table 11:** Regarding the enterprise management performance and the use of performance measures, the difference is significant

Table 12. Regression results explaining the enterprise management performance

Model	Non-standardized coefficients		Standardized coefficients	t	Sig.
	B	Std error	Beta		
1 (Constant)	3,935	2,79		14,159	,000
Diversity	,120	,057	,193	2,141	,035
The use	,157	,053	,270	3,006	,004
Study level	-,188	,111	-,127	-1,705	,091
Specialization	,001	,092	,002	,017	,989
Employees	-,003	,004	-,089	-,793	,430
Annual sales	,011	,011	,119	1,054	,295
Private enterp.	-,064	,115	-,042	-,553	,583
Leader's exper.	,003	,007	,039	,528	,600

a. Dependent variable: Enterprise management performance

Model	R	Squared R	Adjusted squared R	Estimation of standard error
1	,442 <sup>a</sup>	,195	,155	,68563

a. Predicators: (constant),diversity, the use, study level, employees, annual sales, private enterp., leader's exper.

**Note for table 12:** the regression ( $r^2=0.195$ ) explains that the variation of the dependent variable (enterprise management performance) is significant ( $p<0.05$ ). Variables explaining enterprise management performance ( $p<0.05$ ) are the diversity of performance measures and the use of performance measures. None of control variables is significant to explain changes in enterprise management performance

Table 13. Comparison of the enterprise management performance according to different individual characteristics, the use and the diversity of performance measures

Enterprise management Performance		
Diversity(-)	4,695	5,406
Diversity(+)	5,288	5,481
0,025*	Esteem(-)	Esteem(+)
Enterprise management Performance		
Diversity(-)	4,723	5,407
Diversity(+)	5,204	5,512
0,136*	Locus(-)	Locus(+)
Enterprise management Performance		
Diversity(-)	5,040	5,058
Diversity(+)	5,320	5,320
0,623	Intoler(-)	Intoler(+)
Enterprise management Performance		
The use(-)	4,777	5,175
The use(+)	5,291	5,588
0,625	Esteem(-)	Esteem(+)
Enterprise management Performance		
The use(-)	4,750	5,201
The use(+)	5,242	5,615
0,708	Locus(-)	Locus(+)
Enterprise management Performance		
The use(-)	4,984	4,880
The use(+)	5,432	5,485
0,401	Intoler(-)	Inter(+)

**Note for table 13:** the only significant interaction is the one combining self-esteem and the diversity of performance measures.

Table 14. Regression with interaction term for intolerance for ambiguity and the use of performance measures

Coefficients<sup>a</sup>

Model	Non-standardized coefficients		Standardized coefficients	t	Sig.
	B	Std error	Beta		
1 (Constant)	4,134	,276		15,016	,000
Intol.for ambig.	-,174	,273	-,168	-,638	,526
The use	,218	,044	,375	4,999	,000
Interaction	,043	,053	,211	,807	,423
Specialization	-,027	,093	-,022	-,278	,784
Study level	-,189	,113	-,128	-1,684	,095
Employees	-,003	,004	-,099	-,870	,387
Annual sales	,013	,011	,142	1,250	,214
Private enterp.	-,055	116	-,037	-,469	,641
Leader's exper.	,005	,007	,054	,724	,472

a. Dependent variable: Enterprise management performance

Model	R	Squared R	Adjusted squared R	Estimation of standard error
1	,420 <sup>a</sup>	,177	,130	,69568

a. Predicators: (constant), intol.for ambig., the use, interaction, study level, employees, annual sales, private enterp., leader's exper.

**Note for table 14:** the regression is significant at  $R^2=0.177$ . However, when we analyze each explanatory variable included in the regression, we note that the only explanatory variable is the use of performance measures ( $p<0.05$ ).

Table 15. Regression with interaction term for self-esteem and the use of performance measures

		Coefficients <sup>a</sup>				
Model		Non-standardized coefficients		Standardized coefficients	t	Sig.
		B	Std error	Beta		
1	(Constant)	4,347	,274		15,867	,000
	Self-esteem	,527	,264	,485	2,005	,048
	The use	,175	,044	,304	4,200	,000
	Interaction	-,054	,055	-,240	-,999	,320
	Specialization	-,047	,091	-,039	-,514	,610
	Study level	-,168	,110	-,114	-1,536	,128
	Employees	-,003	,004	,068	-,607	,546
	Annual sales	,008	,114	-,095	,851	,397
	Age of enterp.	,004	,005	-,065	,851	,397
	Type of enterp.	-,022	,114	-,015	-,192	,850
	Leader's exper.	,002	,007	0,09	,123	,904

a. Dependent variable: Enterprise management performance

Model	R	Squared R	Adjusted squared R	Estimation of standard error
1	,492 <sup>a</sup>	,242	,194	,66581

a. Predicators: (constant),self-esteem, the use, interaction, Specialization, study level, employees, annual sales, age of enterp., type of enterp., leader's exper.

**Note for table 15:** The regression is also significant at  $R^2= 0.242$  .However in this regression the only two explanatory significant variables are the self-esteem characteristic and the use of performance measures ( $P<0.05$ ). Control variables and interaction term are not significant.

Table 16. Regression with interaction term for intolerance for ambiguity and the diversity performance measures

		Coefficients <sup>a</sup>				
Model		Non-standardized coefficients		Standardized coefficients	t	Sig.
		B	Std error	Beta		
1	(Constant)	4,551	,253		18,063	,000
	Intolerance	,082	,072	,080	1,130	,262
	Diversity	,127	,047	,205	2,748	,008
	Interaction	,092	,017	,407	5,451	,000
	Specialization	-,024	,087	-,019	-,262	,795
	Study level	-,094	,106	-,064	-,885	,379
	Employees	-7,8E-006	,003	-,004	-,033	,975
	Annual sales	,007	,010	,065	,608	,546
	Age of enterp.	,005	,005	,084	1,132	,261
	Type of enterp.	-,005	,108	-,004	-,050	,961
	Leader's exper.	-,005	,007	-,015	-,197	,845

a. Dependent variable: Enterprise management performance

Model	R	Squared R	Adjusted squared R	Estimation of standard error
1	,539 <sup>a</sup>	,291	,245	,64417

a. Predicators: (constant), intolerance, diversity, interaction, specialization, study level, employees, annual sales, age of enterp., type of enterp., leader's exper.

**Note for table 16:** The regression is significant at  $R^2=0.291$ .The variables diversity of performance measures and the interaction between diversity and intolerance of ambiguity are significant. No other predictor is significant at 0.05.

Table 17. Regression with interaction term for self-esteem and the diversity of performance measures

Coefficients<sup>a</sup>

Model	Non-standardized coefficients		Standardized coefficients	t	Sig.
	B	Std error	Beta		
1 (Constant)	4,488	,270		16,711	,000
Self-esteem	,453	,259	,417	1,756	,082
Diversity	,174	,048	,280	3,693	,000
Interaction	-,043	,062	-,165	-,691	,492
Specialization	-,036	,093	-,029	-,380	,706
Study level	-,171	,110	-,115	-1,558	,122
Employees	-,002	,004	-,029	-,263	,796
Annual sales	,006	,011	,054	,477	,636
Age of enterp.	,005	,005	,081	1,031	,306
Type of enterp.	,037	,114	-,025	-,320	,751
Leader's exper.	-,002	,007	-,018	-,226	,823

a. Dependent variable: Enterprise management performance

Model	R	Squared R	Adjusted squared R	Estimation of standard error
1	,468 <sup>a</sup>	,219	,169	,67584

a. Predictors: (constant), self-esteem, diversity, interaction, specialization, study level, employees, annual sales, age of enterp., type of enterp., leader's exper.

**Note for table 17:** The regression is significant at  $R^2=0.219$ . The only explanatory variable in this case is the diversity of performance measures ( $P<0.05$ )

Table 18. Regression with interaction term for the locus control and the diversity performance measures

Coefficients<sup>a</sup>

Model	Non-standardized coefficients		Standardized coefficients	t	Sig.
	B	Std error	Beta		
1 (Constant)	4,574	,255		17,994	,000
Locus control	,184	,193	,192	,955	,343
Diversity	,128	,047	,206	2,758	,008
Interaction	,049	,045	,214	1,073	,286
Specialization	-,024	,087	-,019	-,263	,795
Study level	-,102	,106	-,069	-,969	,336
Employees	-,002	,003	-,022	-,211	,835
Annual sales	,008	,010	,083	,772	,443
Age of enterp.	,005	,005	,080	1,074	,286
Type of enterp.	,015	,110	,010	,130	,898
Leader's exper.	-,003	,007	-,022	-,287	,776

a. Dependent variable: Enterprise management performance

Model	R	Squared R	Adjusted squared R	Estimation of standard error
1	,538 <sup>a</sup>	,289	,243	,64491

a. Predictors: (constant), locus control, diversity, interaction, specialization, study level, employees, annual sales, age of enterp., type of enterp., leader's exper.

**Note for table 18:** The regression is also significant at  $R^2= 0.289$ . The locus control and the diversity of PM are significant ( $P<0.005$ ).