

## SMEs Project Management in African Context: Moroccan Quantitative Approach

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### Abstract

*Project management becomes a key instrument and a strategic factor impacting all types of enterprises including the SMEs. Small to Medium-sized enterprises (SMEs) are a very important component of the economy. They contribute strongly in all the industries all over the world. They are considered as the engine for future growth in the economy. Application of project management in this type of enterprises fostered a forum of discussions.*

*This paper will focus on the Moroccan SMEs. By employing quantitative mode of enquiry, we will attempt to discover several aspects of projects and project management in Moroccan SMEs. There are five primary aims of this study 1-To light on the correlation between enterprises characteristics especially age, size and projects. 2-To investigate the level of using project management. 3-To discover the tools and techniques used by Moroccan SMEs. 4-To define the success and failure factors for the projects in Moroccan SMEs.5-And finally to describe the project management methodology required by Moroccan SMEs.*

*50 enterprises, from different sizes and industries, filled a web-based questionnaire. Moroccan enterprises age and size strongly impacts projects characteristics. Projects are more important in younger companies. The percentage of enterprises using project management as an official process is correlated with the size of the enterprise. The large enterprises use formal techniques while the small companies use informal ones. The top management gives more support to projects when the structure is bigger. The most used techniques are requirement management, project roadmap and milestone schedule. Excel and the messaging are the tools the most used for the whole enterprises. As for success and failure factors: all the enterprises think that cost and time management, Stakeholders coordination and top management support are the most important parameters. As for the required methodology of project management, the most important element for all the enterprises is time management.*

**Keywords:** project management; SMEs; Morocco; Africa; quantitative; turnover.

### 1. Introduction

The Small to Medium-sized enterprise (SME) is a complex concept (Zinovieva et al., 2016) with different definitions (McAdam et al., 2017). Many criteria are used to define an SME. It can be the staff count or the annual turnover or both of them (Garg et al., 2010). In Morocco, an SME is defined as an enterprise with a permanent staff count fewer than 200 persons and having achieved over the last two years, a turnover not exceeding 75 million Moroccan dirhams (Bulletin officiel Maroc, 2002). The General Confederation of Enterprises of Morocco" La CGEM (CGEM, 2018) made an SME classification as described below:

- ❑ The self-entrepreneur: less than 500,000.00 MAD (The Moroccan Dirham), for commercial, industrial and craft activities and less than 200,000.00 MAD, for services;
- ❑ The very small enterprise "La TPE: Turnover ≤ 10 MDHS;
- ❑ SME (Small and Medium Enterprise)" La PME: 10 ≤ Turnover ≤ 200 MDHS;
- ❑ GE (large companies) La GE: Turnover > 200 MDHS;
- ❑ These enterprises represent around 90% of the industrial companies. They contribute up to 40% of the Moroccan

industrial turn over and employ more than 50% of the workforce (CAISSE CENTRALE DE GARANTIE, 2009). They also represent 99 per cent of all businesses in developed economies, with around half of all employment and turnover (Anderson and Ullah, 2014). In 2005, in European Union more than half of the employees were working for the enterprises with a staff count less than 50 (Forsman and Rantanen, 2011).

These statistics and many articles of research (Antony et al., 2005; CUMENAL, 2015; Pollack and Adler, 2014) prove the importance of the SMEs. They were considered as the catalyst of the future economy (Forsman, 2008), vital and significant contributor to economic development, job creation, and the general health and welfare of economies (Morrison et al., 2003).

On the other hand, project management became one of the strongest used tools (Morris, 2010). Its use has increased greatly in recent years (Meister, Walter, 2006). Thanks to many international studies, It has demonstrated that well used project management practices have positive effects on projects (Meister, Walter, 2006; Rwelamila and Purushottam, 2012; Thomas, 2008; Wells, 2012). Applying practices for SMEs leads to the achievement of their organizational objectives and

increases their productivity (Pollack and Adler, 2014). Besides to that, one of the reasons for product development delays is poor project management (Owens, 2007).

Unfortunately, many of project management practices were considered complex especially for SMEs (Meister, Walter, 2006), (Ganesh and Mehta, 2010; Lazim and Azizan, 2010; O'Sheedy et al., 2010). This pushed SMEs to manage projects relying on informal procedures (DSI\_CIGREF, 2009; Meister, Walter, 2006). To resolve this contradiction, researchers emphasize the importance of focusing on project management required by SMEs (J. Rodney Turner et al., 2009).

While many researchers insisted on large enterprises project management and did little studies about SMEs project management (Kim and Vonortas, 2014; Turner et al., 2012), (Turner et al., 2012), some researchers tried to fill in the gap and did concentrated studies about small companies [6], [24]. One of them is Rodney Turner who tried to describe the project management required by SMEs in a detailed way (J. Rodney Turner et al., 2009; Payne and Turner, 1999; Turner, 2018; Turner et al., 2012, 2010).

In our study, we were inspired from Turner study and decided to combine the quantitative and qualitative approaches, researcher and practitioner (Walker et al., 2008) in order to discover Moroccan SME. Our primary aim is:

1. To determine the extent to using projects in Moroccan SMEs;
2. To identify the characteristics of the project management used in the Moroccan SMEs;
3. To discover the tools and technics used by Moroccan SMEs;
4. To define the success and failure factors for the projects in Moroccan SMEs;

5. To describe the project management methodology required by Moroccan SMEs.

The paper is structured as follows. First, the literature on SMEs characteristics and project management will be reviewed. Following this, the methodology will be presented (data collection and tools). The results will be discussed with the aim of answering the proposed research questions. The last section contains the conclusions of the study.

## 2. Literature Review

### 2.1. SMEs characteristics

SMEs as a distinct type of enterprises has many special characteristics, advantages and disadvantages (Murphy and Ledwith, 2007). Researchers proved that they are different from large firms (Anderson and Ullah, 2014). They have generally a potential of flexibility and closeness to the customer (Audretsch et al., 1999). They have effective and open communication channels, low resistance to change and people orientation company-wide awareness [35], [36]. They are also unfettered by bureaucracy and hierarchical thinking (Liao and Welsch, 2003).

In an other hand, SMEs suffer from many problems: lack of material and technological resources (Murphy and Ledwith, 2007), limited resources, limited finance and managerial expertise (Anderson and Ullah, 2014), the lack of information to analyze the market, with little capital and less technology (Suliantoro et al., 2019).

Antony and all made a recapitulation of the SMEs strengths and weaknesses (Antony et al., 2008). The table is a summary of this comparison.

SMEs strengths	SMEs weaknesses
Flexible and hence change can be introduced quickly Flat with few layers of management and fewer departmental interfaces Top management highly visible and hence provide leadership by example Absence of bureaucracy in management teams Tend to have high employee loyalty Managers and operatives are more likely to be directly involved with the customers Rapid execution and implementation of decisions Training likely to be focused Culture of learning and change rather than control People oriented More responsive to market needs and more innovative in their ability to meet customers' demand Likely to deploy improvements quickly and gain rapid benefits Loose and informal working relationships and absence of standardization	Low degree of standardization and formalization Focus is on operational matters rather than planning There are chances that management lay off employees when the work becomes superfluous Limited investment in IT No incentive or reward programs in many cases due to budget and resources constraints Lack of strategic planning and inspiring vision Responsible for many facets of the business and many decisions. Decisions are generally made for short-term profitability Lack of skills, time and resources; no specified training budget Incidence of 'gut feeling' decisions more prevalent; often operate in a fire-fighting mode for survival Not systems oriented Extent of training and staff development in SMEs is limited and informal Adamant and dictatorial nature of owner can damage new initiatives Formation of strategy process is intuitive rather than analytical

Table 2.1. SMEs strengths and weaknesses

### 2.2. Projects and project management

The Project Management Institute defines the project as: "A temporary endeavor undertaken to create a unique product, service, or result" (Institute, 2013) and the project management as: "the application of knowledge, skills, tools and techniques to project activities to meet the project requirements" (Institute, 2013).

Due to its importance, this discipline was approached by many organisms: IPMA International Project Management Association (IPMA, n.d.), the International Organization for Standardization ("International Organization for Standardization," n.d.) and more others.

It has demonstrated that project management has many advantages for all the enterprises especially SMEs: linking project objectives to strategic goals and increasing the communication across the organization (Sousa et al., 2018), impacting positively the performance of SMEs (Turner and Ledwith, 2018).

### 2.3. SMEs project management

Because of the lack of studies focused on SMEs, some researchers recommended detailed studies about SMEs (Zach et al., 2014). Many studied the subject component by component: communication management (Ahuja et al., 2010), stakeholder management (Albats et al., 2019), performance (Belhadi et al., 2018), risk management (Oláh et al., 2019) and knowledge management (Cahyadi, 2019; Gil-Pechuán et al., 2013).

Others compared SMEs characteristics to the large organizations (Ghobadian and Gallear, 1997)). They found that SMEs require simple and informal processes with multi-tasking (Ghobadian and Gallear, 1997). That they have limited use of project management techniques and were not benefiting from project management in terms of increased new product success (Murphy and Ledwith, 2007).

Turner and al studied SMEs for a long period. One of their studies was spread over 3 stages:

□ **The first phase:** They conduct an investigation about project management in Irish SMEs (J. Rodney Turner et al., 2009).

It was based on a questionnaire destined to Irish companies.

The objective of the study was to measure the level of use of projects in small firms, the resources they employ, how they measure the success of projects, and the tools and techniques they use. Results indicate that all enterprises of any size spend an average of one third of their turnover on projects. That the smaller the company is, the smaller the projects are, less it uses project management and its tools. The study also concluded that SMEs need "lite" versions of project management, with simplified tools. Different versions may also be required for different industries. This means for a practitioner to choose the project management process implemented according to the size of the project and the sector from which it comes (J. Rodney Turner et al., 2009).

□ **The second phase:** They interviewed 18 companies from Ireland, Sweden, Austria and Romania (Turner et al., 2010).

This study was conducted on 18 companies from Ireland, Sweden, Austria and Romania. Its purpose was to identify the nature of project management required by SMEs (micro, small and medium enterprises) from various sectors. Results indicate that the main differences between SME project management approaches are the size of the firm and the country.

The researchers came up with results for all three types of businesses. Small and micro enterprises have a preference for more person-centered project management approaches in the sense of working in a family. Employees are multi-tasking, with a principle of *laissez-faire* on the part of top management. Medium-sized companies rely on specialists and their work requires much more formal coordination. In this case, it is the most autocratic management approaches that are most favored.

By comparing the four countries, the researchers noted that employees in South-East European countries seem willing to follow pre-established plans by others in an autocratic management style. The people of the countries of North-West Europe want to be part of the planning process and therefore to be more in a more democratic management style, or even *laissez-faire*. The Swedish employees recognize the need for coordination and are willing to adhere to established plans, even if they wish to participate in their development. The Irish are the participants who showed a reluctance towards management control.

Turner's study concludes that micro and small businesses need a "very light" version of project management to support the work of small project teams, with a preference for *laissez-faire* management styles. Medium-sized companies, on the other hand, need a "lighter" version, which is always less bureaucratic than for large companies, but more able to coordinate the work of specialists.

Turner et al believe that all these lighter versions of project management must:

- Have "requirement management" as the main component;
- Be simple to use;
- Clearly show the interest of project management to convince those who doubt, especially the top management, who must be convinced (Turner et al., 2010).

□ **The third phase:** Turner et al used a web-based questionnaire to undertake a quantitative study of a large range of countries (Turner et al., 2012).

Based on the results of the previous two stages of their research, the authors formulated three hypotheses concerning the use of project management in SMEs, which they test using a web-based questionnaire. The questionnaire has been distributed in Ireland, the United Kingdom and Australia. He has also been sent to professional contacts in Europe and the Far East.

They received 123 responses: 57 from Ireland, 27 from Great Britain, 6 from the rest of Europe, 31 from Australia and 5 from the Far East. The authors suggested three hypothesis, they verified:

- *Use of projects in SMEs*

SMEs use a lot of projects. The younger companies are the least likely to use dedicated project managers, which means that during this very critical period of their existence, microenterprises have projects run by amateurs. These project managers will need simplified, people-oriented forms of project management.

- *Use of project management*

Project management is widely used for internal and external projects. Smaller, younger firms tend to use less formal project management processes than larger ones. Micro and small enterprises need less bureaucratic forms of project management to facilitate their work. Medium and large companies need more formal project approaches to coordinate the work of teams of specialists. But medium-sized companies need simpler forms of project management than large companies.

- *Practices adopted*

Among the most commonly used project management tools for SMEs, researchers have found that requirement management is the most important practice. The next two most important practices are the use of milestones and the work schedule or milestones.

The project management procedures used by all SMEs also include reports on the status of costs and deadlines, risk and problem management, and the work breakdown structure. Those used by small and micro enterprises are based on team building, where tasks are shared. Those used by medium and large enterprises use responsibility attribution matrices, in which the tasks are assigned to specialists (Turner et al., 2012).

As project management characteristics can change depending the country or the culture (Bredillet et al., 2010) and history (Petrovskaya et al., 2017). We adopted an equivalent approach in the Moroccan context.

## 3. Material and methods

The methodological approach taken in our whole study is a mixed methodology based on qualitative and quantitative approaches. We started with a literature review included Turner studies. Then we performed a qualitative study. We interviewed 18 Moroccan companies. The results of this study were combined with the literature review to formulate propositions. By a quantitative approach we conducted a web based survey to assess our propositions. We analyzed the data from 50 companies.

The results presented in this paper concern the quantitative study.

### 3.1. Questionnaire

The questionnaire is divided to five parts:

**Part 1:** Enterprise information and project dimensions

We tried to have general information about companies. We asked about the turnover, the number of employees and the age.

To determine the project dimensions, we asked two main questions: about the percentage of turnover spent on projects and the projects duration. We added another parameter to Turner analysis: The percentage of turnover generated by projects.

We did not ask about projects types. We considered it not very important in this step. We found as a result, in a former study (Oukennou et al., 2017), that Moroccan SMEs do not use a lot internal projects as a type cited by (Turner et al., 2012). They act with projects as one general type.

**Part 2:** We asked about some the characteristics of the project management used in the Moroccan SMEs: The use of project management as an official process, The existence of a



dedicated entity to manage projects.

**Part 3:** We asked about the tools and technics used by Moroccan SMEs to manage their projects.

**Part 4:** We asked about the most important success and failure factors for the projects in Moroccan SMEs.

**Part 5:** finally we asked people to describe the project management methodology required by Moroccan SMEs.

## 3.2. Analysis Tools

### 3.2.1. Statistical method

We have non-parametric data, therefore we used Spearman's rank order correlation coefficient to measure the relationships for some variables and descriptive statistics in others. We used SPSS Statistics tool.

### 3.2.2. SPSS Tool

The IBM SPSS® is a software platform. It offers advanced statistical analysis, a vast library of machine-learning algorithms and text analysis (International Business Machines Corporation (IBM), 2018) It was produced by SPSS Inc. and then acquired by IBM in 2009. The software name originally stood for Statistical Package for the Social Sciences (SPSS), reflecting the original market, although the software is now popular in other fields as well, including the health sciences and marketing (Wikipedia and Wikipedia, The Free Encyclopedia, 2018).

## 4. Results and discussion

### 4.1. Companies Samples

To distribute the form, we used mailing lists and we contacted people directly. We do not have the exact number of Moroccan SMEs so we cannot calculate the response rate. We had 50 enterprise replies. The Table 4.1.1 presents a summary of these enterprises. We classified enterprises by turnover (as defined in the introduction).

Table 4.1.1. Enterprises by size

Size	Number	Percentage
AE	4	8%
TPE	12	24%
PME	9	18%
GE	25	50%

Table 4.1.2 shows the repartition of enterprises by age and size (the size is based on turnover). We have more responses from older companies. It can be due to that when an enterprise is older, she gets bigger with more staff and so the probability to have one contact inside become easier.

ESize/EAge	2-3 years	3-5 years	5-10 years	> 10 years	Total
AE	0	0	3	1	4
TPE	1	1	3	7	12
PME	0	0	3	6	9
GE	0	2	4	19	25

Table 4.1.2. The repartition of enterprises by age and size

### 4.2. Project dimension

To analyze the project dimension in the Moroccan SMEs, we utilized a list of parameters inspired from Turner study (Turner et al., 2012):

- No Of Employees: Number of permanent employees in the enterprise;
- Enterprise Age: Number of years since the creation of the enterprise;
- Enterprise Turnover: The annual turnover of the enterprise in MAD;
- Project Spent: The percentage of turnover spent on projects;
- Project Duration: The projects duration mean;

- Project Turnover: The percentage of turnover generated by projects.

#### 4.2.1. Enterprise Size

The two Moroccan definitions are based on enterprises' turnover. Table 4.2.5.2 shows a strong correlation ( $r_s=0.814$ ;  $p<0.01$ ) between the Number Of Employees and the Enterprise Turnover. That means that higher turnover means higher number of employees. It means also that companies size can be defined either by their turnover or their permanent employees number.

#### 4.2.2. Age Effect on the Enterprise Size

The Table 4.2.5.2 shows a positive correlation ( $r_s=0.302$ ;  $p<0.01$ ) between the Enterprise Age and the Enterprise Turnover. The result means that the old enterprises are bigger than the youngest ones. Time is a significant factor for the enterprises expansion.

Enterprise Age parameter has a positive correlation ( $r_s=0.467$ ;  $p<0.01$ ) with the number of employees. That means that older companies have a higher number of employees and that the young companies start their activities with a reduced number of employees.

It seems logical to have the same result for the two parameters: Enterprise Turnover and the Number Of Employees because of the strong positive correlation between them. It is clear that age is more correlated with the number of employees due to reasons:

- It is easier to increase the turnover than the number of employees: Employees are continuous charges;
- Moroccan law offers to the enterprises simple methods to increase their turnover;
- Moroccan employees prefer to join large companies than small ones.

#### 4.2.3. Project Spent and Project Turnover vs Project Duration

There is a strong correlation ( $r_s=0.693$ ;  $p<0.05$ ) between the Project Spent and the Project Turnover. This means that when the Enterprise spends more in projects, these projects become more beneficial.

The two parameters Project Spent and Project Turnover have respective positive correlations ( $r_s=0.286$ ;  $p<0.01$ ) ( $r_s=0.339$ ;  $p<0.01$ ) with the Project Duration. This indicates that the longest projects are the most expensive and the most beneficial.

#### 4.2.4 Enterprise size effect on Project Spent, Project Turnover and Project Duration

The three project parameters: Project Spent, Project Turnover and Project Duration have no correlation with the enterprise size. This is can be due to:

- Projects have the same level of importance regardless of the size of the enterprise;
- Moroccan enterprises do not have global projects policy; all the projects decisions are made by individuals, that is why we cannot notice differences between large and small ones.

Table 4.2.4. The mean Project Spent by enterprise size

		Project Spent Mean, (%)
Enterprise Size	AE	35
	GE	47
	PME	50
	TPE	51

Even if there is no direct correlation between the Project Spent and the enterprise size, we can notice that generally Project Spent gets higher when the enterprise size gets smaller (Table 4.2.4).

## 4.2.5. Age effect on Projects Spent and Project Turnover

The Project Spent and the Enterprise Age are negatively correlated ( $r_s = -0.284$ ;  $p < 0.01$ ). That means that there is an inverse relationship between the two variables. The youngest enterprises spend more on projects.

The Project Turnover has a negative correlation with the Enterprise Age ( $r_s = -0.476$ ;  $p < 0.05$ ). This indicates that projects are more important in younger companies. They contribute higher in the enterprise turnover.

The Table 4.2.5.1 shows the turnover percentage dedicated to Project Spent by enterprise age. The youngest enterprises (less than 3 years) spend more; the oldest ones (more than 10 years) spend the smallest percentage.

The youngest enterprises (less than 3 years) spend almost their turnover on projects. Enterprises between 3 and 5 years spend 48% of their turnover on projects. The oldest enterprises (more than 10 years) spend 43%. All companies included spend 48% on average. This value is little larger than the average found by Turner. "Turner et al. (2009) showed projects account on average for one third of the turnover of SMEs in Ireland" (J. Rodney Turner et al., 2009).

% Project Spent	Enterprise Age (years)			
	2 <= ... < 3	3 <= ... < 5	5 <= ... < 10	> 10
	100	87	45	43

Table 4.2.5.1.

The turnover percentage dedicated to project spent

	No Of Employees	Enterprise Age	Enterprise Turnover	Project Spend	Project Duration	Project Turnover
No Of Employees	1					
Enterprise Age	.467**	1				
Enterprise Turnover	.814**	.302*	1			
Project Spend	-0.1	-.284*	0.008	1		
Project Duration	0.218	-0.015	0.217	.286*	1	
Project Turnover	-0.209	-.476**	-0.097	.693**	.339*	1

\* Significant correlation at the 0.01 level (two-tailed)  
\* Significant correlation at the 0.05 level (two-tailed)

Table 4.2.5.2. The repartition of enterprises by age and size

## 4.2.6. Partial conclusion

To analyze the projects situation in the Moroccan SMEs, we utilized a list of parameters: The number of employees, the enterprise age, the enterprise turnover, the project spent, the project duration and the project turnover. We found that:

- In Moroccan context, companies size can be defined either by their turnover or their permanent employees number because of the strong correlation between the two parameters;
- Enterprise age is a significant factor for the enterprises expansion: The older companies have a higher number of project team members whereas the young companies carry out projects with reduced number of employees;
- As for project spending, the youngest enterprises spend more than the oldest ones. Indeed, enterprises between 3 and 5 years spend 48% of their turnover on projects. The oldest enterprises (more than 10 years) spend 43%. All companies included spend 48% on average;
- As to project turnover contribution, Projects are more important in younger companies. They contribute higher in the enterprise turnover. This can explain why the small enterprises spend more in projects;
- Concerning the projects duration, Generally the longest projects are the most expensive and the most beneficial;
- The only absent correlation was between project spending, project turnover and project duration on one hand and enterprise size on the other hand. This is can be due to:
  - Projects have the same level of importance regardless of the size of the enterprise;
  - Moroccan enterprises do not have global projects policy, all the projects decisions are made by individuals, that is why we cannot notice differences between large and small ones.

## 4.3. Project management dimension

To analyze the project management dimension, we used three variables: General project management use, Use of Project Management as an official process and the Position of the Top Management of Project Management.

### 4.3.1. General use of project management

Our first question was if the enterprises use project management. All the enterprises claimed to use project management.

The difference between enterprises is in defining project management.

### 4.3.2. Use of project management as an official process

Enterprise Size/Existence of an official process	Yes	No
AE	50%	50%
TPE	25%	75%
PME	56%	44%
GE	64%	36%

Table 4.3.2.

The Existence of an official process by enterprise size

Except AE, we remark that the percentage of enterprises using project management as an official process is correlated with the size of the enterprise. While just 25% of the TPE use it, 56% of PME do that and 64% large enterprise do too. The result mean that the use of formal project management is restricted to the PME and GE. This is correlated with the idea that small companies use informal project management (Anderson and Ullah, 2014).

### 4.3.3. The position of the top management of project management

Enterprise Size/Top management support	Yes	No
AE	75.00%	25.00%
TPE	58.30%	41.70%
PME	77.80%	22.20%
GE	84.00%	16.00%

Table 4.3.3. Top management support by enterprise size

Except AE, the results show that the top management gives more support to projects when the structure is bigger. We see that 84% of large companies managers are supporters, that 77% of the PMEs are supporters too whereas just 58% from TPE are that.

## 4.4. Tools and techniques used by Moroccan SMEs

### 4.4.1. Use of standards

Before asking enterprises about the tools and techniques are commonly used. We asked them if they use the well-known norms and standards. The table shows the repartition of that use.

	AE	TPE	PME	GE
No	50%	75%	44%	40%
Yes	50%	25%	56%	60%

Table 4.4.1. Use of standards

Whereas just 25% of the TPE use a standard, more than the half of the PME do that. The large companies (60%) are the biggest user of the standards. This is correlated with other studies, in a study of using Agile methodologies in SMEs, 64% of the interviewed SMEs were not aware of the agile concept (Bin-Hezam et al., 2018). This result confirms the result about the use of formal project management. The large enterprises are the most likely to use formal project management (the norms as an example). The small enterprises prefer the informal procedures where team members have close interaction with customers and their teammates, characterized in strong personal links, short lines of communication and a sense of identity (Anderson and Ullah, 2014).

#### 4.4.2. The most used tools and techniques

We asked people how frequently they use some techniques and tools. We classified the answers by frequency. We had three choices: frequently, moderately and rarely. The table summarizes the repartition of the answer frequently.

	AE	TPE	PME	GE
Requirement management	50%	75%	89%	80%
Project roadmap	75%	67%	78%	56%
Milestones Schedule	75%	67%	78%	72%
Milestones	75%	58%	67%	76%
Status reports – time –	50%	67%	56%	60%
Status reports – cost –	50%	58%	33%	60%
Status reports – resource usage –	50%	50%	44%	36%
Risk management	50%	42%	22%	36%
Work Breakdown Structure (WBS)	25%	50%	56%	24%
Issue management	75%	50%	44%	28%
Resources calendar	25%	67%	22%	28%
Responsibility Matrix	50%	42%	33%	52%
Team building	25%	17%	22%	12%
Agile methods	50%	42%	33%	20%
Gantt diagrams	50%	42%	56%	56%
PMO: Project Management Office	0%	17%	0%	24%
MS project	25%	42%	56%	32%
Excel	75%	92%	89%	80%
Word	25%	92%	67%	52%
Messaging	25%	75%	67%	76%

Table 4.4.2. The tools and techniques mostly used

The table shows that requirement management, project roadmap and milestone schedule are the most practices used for all the enterprises. The Excel and messaging are the tools the most used for the whole enterprises. If we take each type of enterprise separately, the AE and the PME prefer the project roadmap, the milestones schedule and excel. The TPE use the requirement management, Excel, word and the messaging as tools. The GE used more the requirement management, milestones schedule, excel and messaging as tools.

#### 4.5. Success and failure factors in Moroccan SMEs projects

We asked people about the criteria the most decisive in project success and failure. For all the enterprises, the answer was about cost and time management, Stakeholders coordination top management support and requirement management. If we took each type separately, we find AE with top management support, the PME with cost and time management, the stakeholders coordination, project management, Project resources availability and good communication. The TPE consider cost and time management to be the most important whereas large

	AE	PME	TPE	GE
Cost and time management	50.00%	77.80%	58.30%	52.00%
Stakeholders coordination	50.00%	66.70%	50.00%	52.00%
Top management support	75.00%	55.60%	33.30%	52.00%
Requirement management	50.00%	55.60%	50.00%	60.00%
Good communication	50.00%	66.70%	41.70%	52.00%
Project management	50.00%	66.70%	33.30%	56.00%
Project resources availability	50.00%	66.70%	33.30%	48.00%
Technical expertise	50.00%	22.20%	25.00%	44.00%

Table 4.5.

The most important criteria in project success and failure

companies consider requirement management and project management as the most important elements. In comparison with literature, Rodney, Ledwith, Kelly ((J. Rodney Turner et al., 2009)) and Murphy and Ledwith ((Murphy and Ledwith, 2007)) argue that the most important factors for project management success are planning, monitoring and control, customer consultation, and having clear goals and support from senior directors. These are followed by resource allocation (J. Rodney Turner et al., 2009) and defining requirements (Turner et al., 2012).

The common elements in our study and Rodney studies are: time management (planning), top management support (support from top management) and requirement management (defining requirement).

Juan et al (Correa et al., 2018) added to the clear definition of the project's scope and the sufficient project planning, a qualified project manager with leadership skills as the most important factors in project success.

#### 4.6. Project management methodology required by Moroccan SMEs

	AE	TPE	PME	GE
Time management	50%	67%	67%	68%
Cost management	50%	50%	78%	56%
Quality management	50%	67%	56%	60%
Communication management	50%	67%	44%	60%
Risk management	50%	50%	56%	60%
Human resources management	50%	67%	44%	48%
Stakeholders management	50%	67%	33%	52%
Requirement management	50%	58%	22%	56%
Change management	50%	42%	22%	48%

Table 4.6. Required methodology components

If we take all the enterprises into account, we can remark that most important element is time management. If we take the enterprises separately, we can see that PME are more precise about the elements they would like to have: Cost management and time management. The smaller enterprises prefer more elements quality management, communication management, human resources management and stakeholder management. The largest enterprises prefer to have all the components. Cost and Risk management are two elements which become important when the enterprises become older. This is correlated to Payne and Turner conclusion that "better results are obtained for projects if the procedures are tailored to the size of project" (Payne and Turner, 1999).

## 5. Conclusion

In using projects and project management, Moroccan SMEs have many characteristics.

As for projects characteristics:

- Companies size can be defined either by their turnover or their permanent employees number because of the strong correlation between the two parameters;
- Enterprise age is a significant factor for project expansion: The older companies have a higher number of



project team members whereas the young companies carry out projects with reduced number of employees;

- As for project spending, the youngest enterprises spend more than the oldest ones. Indeed, enterprises between 3 and 5 years spend 48% of their turnover on projects. The oldest enterprises (more than 10 years) spend 43%. All companies included spend 48% on average;
- As to project turnover contribution, Projects are more important in younger companies. They contribute higher in the enterprise turnover. This can explain why the small enterprises spend more in projects;
- The only absent correlation was between project spending, project turnover and project duration on one hand and enterprise size on the other hand. This is can be due to:
  - Projects have the same level of importance regardless of the size of the enterprise;
  - Moroccan enterprises do not have global projects policy, all the projects decisions are made by individuals, that is why we cannot notice differences between large and small ones.

As for project management:

- All the enterprises affirm using project management;
- The percentage of enterprises using project management as an official process is correlated with the size of the enterprise. The large enterprises use formal techniques while the small companies use informal ones;
- The top management gives more support to projects when the structure is bigger.

As for techniques and tools:

- The large enterprises are the most likely to use formal project management (the norms as an example);
- The most used techniques are requirement management, project roadmap and milestone schedule. Excel and the messaging are the tools the most used for the whole enterprises.

As for success and failure factors:

- All the enterprises think that Cost and time management, Stakeholders coordination and top management support are the most important parameters.

As for the required methodology of project management

- The most important element for all the enterprises is time management. If we took the enterprises separately, PME are more precise about the elements they would like to have: Cost management and time management. The smaller enterprises prefer more elements quality management, communication management, human resources management and stakeholder management. The largest enterprises prefer to have all the components.

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