

Empowering Small Moroccan Businesses Performance using Information Systems: Analysis and Perspectives

Using Information Systems to perform SMEs

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Abstract— Actions allowed for promoting SMEs are effective if they take into account their environments. Currently, the lack of exact figures on Moroccan SMEs human composition, organizations, financial situations and life cycles are somewhat an obstacle that prevents evaluating their context and their growth performance. Moreover, it is not only difficult to evaluate how to establish an order of critical actions (with the market) but also to adopt the time of their implementations (on the technological choice). In this paper, we introduce a new model to empower SMEs performances based on information systems. This model is authors' research over a three years period; it takes into account the environment, organization and life cycle to improve the management model adopted, especially on the decision-making.

The analysis combines results from the 2013 National survey, and other organizational structure research, information systems and company performances conducted in the past.

Keywords-component; formatting; style; styling; insert (key words) Information System (IS), Moroccan SMEs (Small and Medium Enterprises), National Survey, Performance, Organization, Life cycle

I. INTRODUCTION

SMEs are a class of companies which are as important as large companies could be. They contribute efficiently to the countries' economy by covering all economic sectors; their developments are regarded as important issues for most governments [49] and their performance is key contributing factor to the performance of the country.

The performance of a country is evaluated by the economic and social SMEs contribution which can be described as follows (1) create jobs at low cost of capital [1]; (2) provide the required flexibility to adapt to market changes; (3) contribute to development policies that are more oriented towards decentralization and rural development [56]; (4) facilitate integration of people having a low academic

background; (5) ensure stability on country migratory flows; [27] (6) offer ideal ground for innovations; (7) offer an easy approach for business interactions; (8) offer a quick change of the direction at low cost and (9) give the best options for making meaningful productivity gained in the global marketplace.

Nevertheless, SMEs have great contributing factors that may never be achieved or acquired without encouraging internal (environment, organization, strategy, etc.) and external (infrastructure, political, legal, social, cultural, etc.) factors. The internal factors require government interventions [41]. The external ones such as the ability of enterprises to compete, adapt, and survive can be mitigated by introducing adapted technologies [14].

Technology alone is not enough for companies to overcome market challenges, there is a need for preparing and training work forces in order to better manage information. Technology alone is insufficient to change company growths and advances, but people need to leverage these technologies. Combining tools and aligning staff are two necessities used for balancing financial and non-financial key performance indicators [26].

Company's life cycles are comprised of the following four elements **Produce, Administration, Entrepreneurial and Integration (PAEI)**. Firstly, the companies must produce and sale efficiently their products. By a perfect administration they can achieve its objectives, using the decision-making in the right sequence and right intensity. The entrepreneurial role focuses on adapting changes, which require creativity and risk-taking. While the fourth role which is integration, is a necessary input for team effort building [31].

Barriers always challenge life cycles of companies. In spite of the companies' geographic-specifics, barriers are most common, and can be classified as external to the firm or exogenous and internal or endogenous [8]. Some of those barriers are lack of business management skills,

entrepreneurial drive, resistance in change [59], low technological knowledge, lack of education, lack of training and leadership styles, lack of human resource, limited capital resources, poor strategic planning and decision-making, tacit knowledge and little attention given to the formalization of processes, misconception of performance measurements [48]. These are the challenges that result in huge financial losses and poor work performance, which ultimately affect company performances [9].

SMEs environments need at least radical improvement and changes [27]. The specificity for Moroccan SMEs change is to create more business value by combining work force, tools and business practices. That would contribute to solving the current Moroccan SME's stagnation and to allowing them to reach the global efficiency frontier on the market [32]. The impact of the change can be seen on SMEs growth, in which their national economic terms, play a role in wealth creating and generating employment.

Such a study is needed for several reasons. First, clarifying SMEs context, their relationships with IS and how to mitigate obstacles that inhibit Moroccan SMEs. Secondly, sharing comprehensive support model for SMEs in their recovery and developments based on the formal sector and internal factors.

II. DATA SAMPLE AND RESEARCH BASE

A. Data sample

Information used to analyze SMEs context is mainly based on a previous survey conducted on Moroccan national levels in 2013 [27]. To simplify the study, the only criterion used to classify SMEs is their employees' number. The breakdown is as follows:

- Very small enterprises: less than 10 employees
- Small enterprises: between 10 and 49 employees
- Medium enterprises: between 50 and 250 employees

The study was based on the following axes: SMEs' Environment, Organization, Activity, Evolution and Information Systems considered as being the key performance factor for a company success [20].

A total of 2500 enterprises were randomly selected among the 12 regions of the Moroccan Kingdom, however, only 10% was selected to conduct the analyses. The research covered entire economic sectors, such as services, industry, trade and construction.

The work was done at two major levels. The first level (pre-investigation) aimed at validating survey instrument (defined as a questionnaire) and was performed in a limited number of companies using face-to-face contact. The second level concerned the survey conducted on national levels.

Two methods were used to validate the instrument of the survey. First, the triangulation design adopted for the survey design, including quantitative and qualitative items. Second, the content validity index (CVI) helps ensure confidence to the readers and researchers about the approach being used by

referring to the degree in which the questionnaire covers proper content.

B. A brief overview of the investigation

Given information gathered from SMEs, approximately 90% of the prospective respondents kindly refused to partake in the survey due to misconceptions of time wasting without reward of profit.

In almost all the companies, only the managers were willing to participate. While some accepted on grounds of contingency that we provide favors, such as promoting their practices by distributing advertising flyers to relatives and friends. Some others considered the research as an indirect way to gather unsolicited information about their companies and refused to participate upon reading the questionnaires.

They were mainly concerned getting more clarifications on the relationship between the needed information and the academic goals.

Managers were also concerned about questions in relation to taxes and national social security funds (turnover, company size, and the recruitments or the dismissal of employees). The finding result in the survey was restricted from financial KPI.

C. Research objectives

The target of this study is to evolve SMEs performance by using IS (or ICT). In this section, we first describe what we consider as an IS in this study, and then we present the motivation of the study.

1) A remind of the meaning of Information System

Information System [61] also called Information and Communications Technology [56] is comprised of technical hardware, like computer systems, telecommunication networks, and technical software. These technologies are used to support a firm's operations, business processes, innovation efforts, as well as strategic decision-making where relevant internal (enterprise-specific) and external (market-specific) information is gathered and made easily accessible to senior management [45].

On the other hand, ICT contributes in solving SMEs' problems in terms of lack of prepared resources and access to technology by promoting transfer of knowledge through the use of integrated processes [56].

Some researchers have suggested that there is a link between a firm's investments in information technology and in its' business-level strategies [52]. To be more precise, IS may be the support of the base circle, that makes available internal factors, information search and financial aspects.

The success of business strategy is linked to the strategy of IS adoption. An innovative IS strategy produces better result in a low-cost business strategy [18].

2) Motivations of the study

The current study aims to better understand Moroccan SMEs by shedding light on their context, on their work force

competencies and organizational structures. The analysis focused on inception and evolution of SMEs through life cycle.

In suggestions relating to external factors, it is appropriate to take into consideration the lessons we learned from the Chinese. They demonstrated how it is possible to address these external factors by improving policies, measures and by removing institutional barriers, creating a level playing field, promoting scientific and technological innovations and upgrading optimized industrial structures, and enhancing SMEs competitiveness [33].

For internal factors it is more appropriate to use IS to straighten companies' organization, activity (internal and external) and evolution respecting their context.

This analysis also sheds light on SMEs work force as a principal input. If the work force is not prepared enough it cannot use IS correctly, and add more obstacles and impact the company's performance. If the employee's adaptability and implementations are successful, the company can become more structured, and furthermore explore all the life cycle stages and consequently evolve and participate in the economy. In other words it concerns a change which includes humans and technology.

However, more importantly, in spite of the size of SMEs creation, the model proposed aims to accompany SMEs to experience all phases of the common life cycle, and consequently grow, to medium size level and move to intermediate levels and obtain the mature level (bigger size company). The most successful form of SMEs evolving is when they reach bigger companies in size.

D. Research Framework

To capitalize on the studies made, we elaborate a specific model done in three parts for studying the Moroccan SMEs inspired from ([5], [20], [24] and [31]). The model proposed (see Fig. 1) includes SME's environment, their organization and their performance.

In this Framework internal situational factors, such as findings, age, size, and decision-making were considered. To make a complete analysis, external factors (administration complexity, loans and environmental dynamism) were not included in this analysis, because smaller companies have little control on [5].

The characteristics of SME's are related to their environment, which forges their identity. By operating for many years on the market, they develop types of management in accordance to all factors studied in this article (type of creation, managing model, background of the managers and employees, etc.).

Their environment impacts on the organizations which in turn impact the mode of operations, affecting performance and life cycle [5].

This model excludes all SMEs managing owners which do not have the desire to grow their businesses, but take into account the managers with less resources and expertise [50].

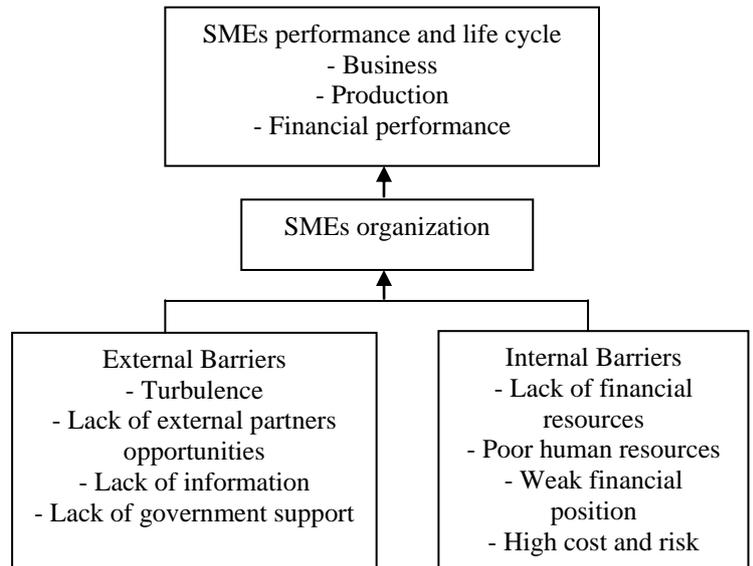


Figure 1. Research framework giving an abstract of SMEs barriers, (based on (Madrid-Guijarro and al., 2009))

Hypothesis 1. SMEs are defined by their environment, and are different from one environment to another. The environment influences their organization, and finally the organization impacts the performance and its life cycle.

III. ANALYSIS OF SME'S ENVIRONMENT

A. General view on SMEs environment

1) The origin of the company's inception

A Majority of SME's are presumed to be owned by initial shareholders (referred to creation) representing 90%, as compared to a small percentage, which are passed on from family or non-family members.

The history of SMEs can be exemplified as being one where many have gone but few have succeeded. The average life cycle of many SMEs can be estimated to be five years or less [47]. Previous research has indicated that about fifty per cent of new firms disappear before five years, survival rates of start-ups in the industrialized European countries are similarly low: only 65% of the start-ups live over three years, the proportion decreasing to 50% after five years [1].

Table 1 SMEs by life of operation

Companies' age	% of total sample
Equal or more than 10 years	26%
Between 5 and 10 years	33%
Between 2 and 5 years	32%
Between 0 and 2 years	9%

Source: Authors' field study.

In investigating changes, organizational structures are represented on coordination of mechanisms, design parameters and situational factors [46]. This structure reflects the

organization's situation (age, size, type of manufacturing system, complexity and dynamism) [5]. According to the research findings, new created SMEs represent 90% of the Moroccan market, suggesting domestic growth. However, 70% of those new creations are self-financed by personal capital contributions.

2) *SMEs perception for the Moroccan Market*

SMEs are perceived to operate in competitive markets with an unequal geographic distribution of business opportunities. Companies in bigger cities have more resources to be successful as compared to small cities and rural areas which adopt traditional means of business.

In the challenge of inadequate distributing opportunities, SME's made efforts to overcome obstacles and express their satisfaction towards their geographical locations.

This brought about a positive impact on business activity developments, and encouraged to extend the scope of activities at international levels. SMEs capitalize on their language diversity, which is the key features that provided advantages, regarding the flexibility to promote their products while empowering them to target more diverse customer bases.

Most businesses are concentrated at municipal-levels without form of collaboration, allowing simple tools to be used in managing the information even at very low-level skills. SME's lacked the means, strategy and objectives.

B. *The Financial component of SMEs*

1) *Impact of company funding on its financial situation*

The company's funding at its inception stage is a key part of its history and influences its organization. Entrepreneurs are not comfortable asking for bank loans for fear of inability of repayment or religious customs; as a result, the majority of organizations are micro-companies, representing 56% of the market.

At fundamental levels, company funding at inception results in huge financial weakness, which is a necessary condition for the company's performance [6]; it is evaluated as being a common obstacle in many SMEs [38]. In competitive business environments access to finances facilitate entry or exit and growth of firms and are therefore essential for the development process.

Empowered decision-making needs to consider the entire perimeter of businesses.

2) *How SMEs manage their financial situation*

The corporate finance management in general is absent for a majority of companies. The only part of the corporate finance known by SMEs is the accounting management. It is relevant for the financial stability of a company.

Moroccan companies have to be conscious of accounting management added-value in all aspects of the business. Companies that are aware about accounting management, use different manners: either, by an external accountant (that is the

most common), or by an accountant with SMEs, by entrepreneurship or by multi-skilled employees.

In addition, managers and employees are not competent in understanding and managing their financial component. Moreover, they often make decisions without any financial information at hand.

External resources provide key ingredients for rapid growth [23]. The key determinants for business start-ups, development and performance for SMEs is access to financing either external or internal [6], most SMEs use more internal sources of financing and this affects their performance. Innovative ways for SME firms are becoming increasingly important and irreplaceable in promoting economic developments to improve financing provision via crowd funding [6].

Adding to that, as measured on the survey, accounting management remains one of the main arenas that require urgent improvement. It is an art that allows the company to assess its situation and its financial health, not only at the end of the accounting exercise, as many companies do, but during the life cycle of the company, predominantly at the time of decision-making.

Governments should give the best effort to eradicate corruption, and support policy to maintain SMEs' survival and sustainability [43]. They also have to redress SMEs actions on falsified accounting results made in order to pay lower taxes. However, the best means and ways to continue to thrive in the market is to achieve a fair balance sheet, pay taxes and analyze the accounting results, to be better prepared for the next stage in acting on the real internal KPI. These inconveniences prevent SMEs from living real challenges and follow innovative companies.

C. *SMEs' human composition*

Two aspects are covered in this part of the paper: the age and the educational background of SMEs employees.

1) *The age of employees*

The human breakdown of men is 63% and 37% of women with an average age of 35 and 29 respectively, suggests a growth strategy for the future. But all Managers are men. Given that the employees are youthful, and they are ambitious and agile, the change in growth and adaptability can bring success to the company.

The features of the entrepreneur that most commonly receive attention in literature are the age and gender [10]. Regarding the entrepreneur's age, several studies show that people older than 40 are more entrepreneurial [53]. Accordingly, younger entrepreneurs show a higher rate of venture abandonment [2].

2) *The educational background of employees*

Educational level of employees has a positive influence on SMEs performance [19], given that they acquired imagination, inventiveness, flexibility, and the capacity to adapt at a minimal accumulation of knowledge [21]. This explains why the most important requirements in the growth process are training, skills, knowledge and expertise of the entire staff (OECD, 2002).

Continuing education is then a major asset to develop competence of human resources that are in general of specific nature. In addition, when line personnel are involved with the identification and verification of skills required they become partners in the competency development process [35].

Among characteristics of the entrepreneur are those of leadership, the ability to calculate risks and initiative [20].

In actual fact, we leave a contradiction between the hope of an efficient economic role and the academic backgrounds of SMEs' employees. Table 2 shows employees' academic background repartition.

Table 2 Academic background rate of SME's employees

Academic background	% of total sample
From primary to secondary school	66%
Bachelor's degree	20%
Master's degree	13%
Phd	1%

Source: Authors' field study.

While SMEs strive for growth, they are challenged by poor academic background in their work force. Given that, the evolution of SMEs is questionable, as more than 3 in 5 employees have an academic level lower than or equal to a high school diploma. The majority of SMEs with sub bar education are micro-companies, small companies and medium-sized companies with 36%, 34% and 30% respectively. This presents an obstacle that hinders companies from evolving, especially in micro-companies [27].

To rectify the weakness of employees with less academic backgrounds, the question is not to imagine returning employees back to school, because it is impossible to adapt courses into their needs, and finally they do not have either time or motivation to do that.

Training is a solution for SMEs employees. Training acts on three major components; knowledge, skills and mentalities which are more needed in Moroccan context.

3) *Languages used within companies*

The most frequently used languages in business environments in Morocco are French, Arabic, and a mixture of both languages in descending order which represents a total of 94% of all languages used today on the Moroccan market.

Overall, the study confirms that no correlation exists between the languages used and company sizes; however languages are related to the perimeter of business activities. As a rule, we have in general Arabic and French for the

national level, Tamazight for the local or the regional level and finally Spanish or English for the international perimeter. Languages are also related to the regions of SMEs as shown on Table 3.

The change on SMEs has to be based on the language used, their distribution and their relation with the perimeter of activity.

Table 3 Languages used for businesses in Moroccan regions

Regions	The main languages used for Business
Tanger-Tétouan-Al Hoceïma	Arabic/Spanish
L'Oriental	Tamazight
Fès-Meknès	Arabic/French
Rabat-Salé-Kénitra	French/English
Béni Mellal-Khénifra	French
Casablanca-Settat	French
Marrakech-Safi	French
Drâa-Tafilalet	Arabic
Souss-Massa	Tamazight
Guelmim-Oued Noun	Arabic
Laâyoune-Boujdour-Sakia el Hamra	Arabic
Dakhla-Oued Ed Dahab	Arabic

Source: Authors' field study.

Hypothesis 2. The SMEs environments analysis is based on their creation, human composition and languages used in businesses. In spite of the low levels of education, the employees are youthful which brings about change. The most frequently used languages in Moroccan business environments are French and Arabic. There are no correlations between the languages used and company sizes; however languages are related to the perimeter of business activities.

IV. SME'S ORGANIZATION AND MANAGEMENT MODEL

A. *Strategic decision-making (SDM)*

Known as the "we have seen syndrome" [46], the older a company, the more formalized its business behavior is and the better it has learned from its experiences.

If we take a closer look in SMEs' ages from 10 years or more, 55% are micro-companies, 31% are small and 14% are medium size companies. Despite the age and experience of these SMEs, they remain stagnant in growth and remain at the same size as at inception. Decision-making is not impacted by the age of the companies, but it is impacted by the academic background levels.

Despite their age, SMEs decision-making is based mainly on experience, the product's price (affecting customer's decision) and lack of relatedness to the organization's financial information (the absence of adequate financial knowledge). SMEs develop their own process without taking into account the context in which they operate.

To make efficient decisions, managers need to follow the five-step process model below (see Figure 2).

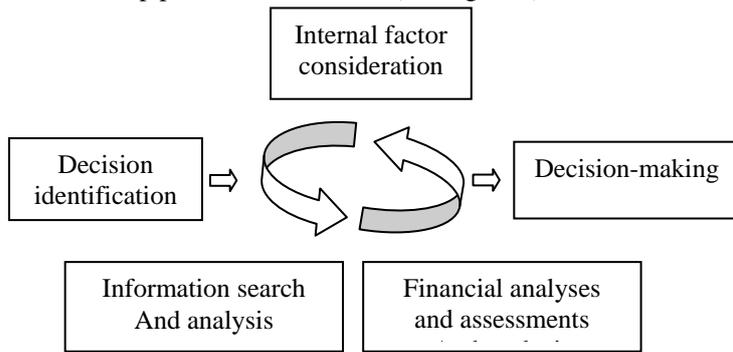


Figure 2. Enhanced decision making model in small businesses, (based on (Graham Jocusen, 2002) and (Xueli Huang, 2009))

B. SMEs network and sharing experience

One solution which is currently far from being exploited is to share information and experiences with other companies for efficient purposes, even when exterior guidance is needed. They must recognize the importance of being open to external influences. While trying to apply cooperation, they also need to put business profits ahead of personal profits by overcoming the individual mentality.

Internal solution should be the implementation of human resource management (HRM) practices [13].

With respect to all sizes of SMEs, it is generally acknowledged that isolating companies from support of other companies is the key obstacle inhibiting competitiveness. Networking offers an important route for individual SMEs to address their problems as well as to improve their competitive positions [39].

For high-growth firms, partnerships can play a vital role in their developments. Unfortunately, SMEs do not measure the role and the importance of building relationships with other players in the market that would allow them to benefit in sharing experiences with each other. Based on the fact that the majority of Moroccan SMEs stockholders fund their companies by personal capital contributions, the majority of this segment is financially independent, however decision making depends on individual abilities (The company founders/founder) ethics.

In findings, the investigations revealed a perception that the culture is motivated by personal profit. SMEs adopt technology only if they perceive a need for the technology to overcome a performance gap or exploit a business opportunity [24].

V. SMES LIFE CYCLE AND PERFORMANCE

A. General view

People, products, markets, even societies, have life cycles including birth, growth, maturity and death. Whereas all humans die, not all businesses do [40]. Organization's life

cycle theory indicates that enterprises experience a process of development from the time when they flourish to the time when they decline [57]. This development respects stages of distinct periods commonly referred to as cycle [31].

Models of life cycle stages are not new to the literature on organizations [36]. Research on this point has different opinions on the number of stages in the organization's life cycle; most of them are based on the biological life cycle, identifying a pattern of developments from birth to death. The number of stages in life cycles varies from three, the Inception, High Growth, Maturity to ten including Courtship, Infancy, Go-Go, Adolescence, Prime, Stability, Recrimination, Aristocracy, Bureaucracy and Death [31], [37], [16], [36], [51], [60]. We extend the researching point by adding new company life cycle composed of two phases, which presented in the following paragraph based on the research study results.

Researchers found ample evidence that organizations progress into mature stages only falls back to a growth stage [17], demonstrating that it is not inevitable that organizations must follow a natural progression from birth, to growth, to maturity and to declination.

The most common models of literature are composed of four or five stages of organizational life cycle [37], [44]. To experience all the stages of the life cycle, SMEs have to adapt successfully to the different challenges presented at each stage of the cycle, allowing them to better predict the decline phase, in order to extend the maturity stage and prepare for more progressions. The phases of life cycles change from one company to another in accordance to many factors such as (size, activity, sector, etc.).

Furthermore, SMEs do not all progress through the life cycle stages at the same rate. Some operate at low growth rates in traditional models, while others at a moderate pace in capped growth models, and a third group at a high growth rates in entrepreneurial models [29].

However there are at least two points across models. The most common point is one regardless of number; each stage is determined by the contextual factors of age of company, growth rate, and size. The other common point is that many of these models or studies suggest that problems (content factors) associated with various stages are unique [42].

New companies in respect of their countries have the same life cycle as those presented in this paragraph. The difference is in the speed of transition from one stage to another.

In summary, the number of stages is important to know in evaluating how a company's evolution and how its speed evolve. The life cycle having slow stages explains how slow the company's evolution is, and the changes in the life cycle stages lead to changes in management priorities [36].

B. Moroccan SMEs life cycle

Currently, the state of art suggests that all SMEs seem to go through different life cycles [47] after the establishment phase, sustained businesses move on rapidly in growth, however, Moroccan SMEs do not experience this evolution

(establishment to growth to maturity). This contrast suggests that their life cycles' can be analyzed in two ways.

The first theory, suggests that they have two phases on the life cycle; Establishment and Decline.

The second theory, suggests that SMEs still have two phases. The first phase, establishment, condenses growth and maturity, the second one is a company in its declining stage. Some companies reach a situation that tends to stay relatively idle for long periods of time, never growing beyond their original size, whether during establishment or the decline phase [44], for example, the first or second stage of the life cycle [22]. These are common occurrences for Moroccan SMEs. The survey results estimated the first stage to be around 10 years for companies that were still in existence.

As mentioned above, sustainable businesses suggest profitability and sustained value generation. SMEs do not have a common life cycle due to their environments, but remain stagnant for more than 10 years of operation. This is visible with respect to the growth trends of the companies. The stagnant situations suggest that they do not develop their business performances.

The ideologies in the two theories entirely cover SMEs (see Table 4), with exception to a small percentage that escapes to the rule concerning 1% of micro-companies and 3% of small companies. Two explanations are given, the first one is 1% of Micro-companies change their form and become small companies and 3% of small companies reach the medium level form after 10 years, or the mixtures of 4% are companies that stopped their activities.

Table 4 Evolution of Moroccan SMEs after 10 years of existence

SMEs by size	at creation	aged 10 years or more
Micro-companies	56%	55%
Small companies	34%	31%
Medium companies	10%	14%

Figure 3, illustrates and completes Table 3 which offers a vertical reading, by giving a general view of the distribution of SMEs by age existence.

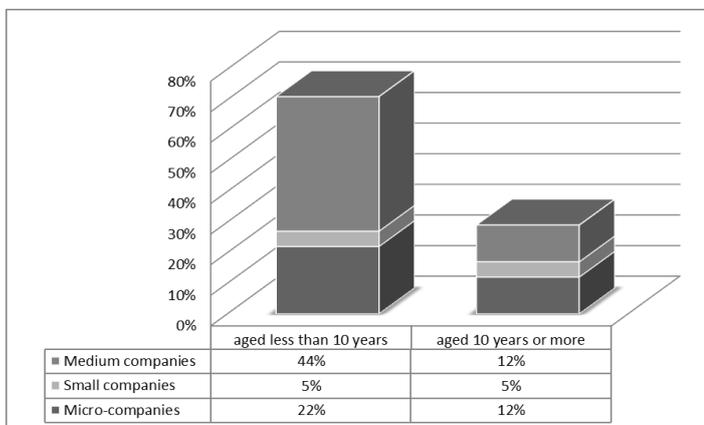


Figure 3. The distribution of Moroccan SMEs by age of existence

This stagnation directly impacts the employees' recruitment, in that dismissal is more frequent than recruitment. In particular, recruitment subtracted dismissals yields negative value in the service sector, which is evaluated to be the most significant economic business sector in which researchers often use business survival as a measurement for entrepreneurial success [55].

C. The current state in phase of a company's life cycle

For effective diagnosis of problems faced in enterprises, it is needed to determine the stage at which the enterprise is in. One of the most common models known is when firms pass through a sequence of stages. However they face myriad problems and challenges, progression onto the next stage is highly dependent on how successful the firm is in addressing the issues in the previous stages [49].

This explains why Moroccan SMEs do not succeed in transition from the first stage to explore all life cycle stages, and why they do not have a common life cycle. SMEs stay on resolving growth stage obstacles and look for solutions in their environment (first step of the model presented on Fig. 1).

Hypothesis 3. Management is based mainly on experience, and without any relation to financial aspects, market actors and orientation. Moroccan SMEs suffer from a stagnation situation on the market, and have a life cycle composed only of two stages.

VI. SMEs SOLUTION AND FUTURE RESEARCH

To overcome hurdles, several studies have proposed solutions to improve SMEs' context, a growing number are interested in ERP, e-commerce [54], [15], innovation, development of human resources, organizational structure [4], innovative IS strategy [18], electronic Commerce [54], and the presence and evolving of SMEs on the web [3].

Comparing all the works presented in this article combined with experiences from many countries, we summarize that the above mentioned are each part of the solutions that are the answers to the company's needs in Moroccan country. Moreover, it cannot be proven that any of those solutions should resolve all problems, and from that, they are not ideal solutions to address the Moroccan SMEs situation.

A. Causal relationship between the barriers causes and symptoms

The finding results show, in Moroccan SMEs context, the causal relationship between the causes of barriers, which are mainly financial resources and low academic backgrounds, and then symptoms as other barriers. Evolution is contingent on addressing the two principal causes mentioned above. Previous studies do not distinguish the two separate causes

from all symptoms and as a result, they group all barriers into one category.

Recognizing the difference between cause and symptom empowers SMEs to react rapidly and focus on urgent business needs. It pays higher dividends to be concentrated on principal causes and to bear in mind that symptoms will disappear once the causes are addressed.

B. Link between Moroccan SMEs and IS

The fact that company's still have the same size as at creation even after 10 years of operation, or at management based level on the "we have seen" syndrome impact the information management strategy. The time needed for using formal documentation directly impacts the means and tools used to manage the information. Analyses in time periods are divided from zero to two, two to ten and finally more than ten years.

1) From zero to two years

After their creation, they still do not have a clear vision or information in management strategy. The absence of paper-based information tracking and management, suggests that they do not manage their information at all.

2) Between two and ten years

The SMEs management attitude is the same between two and ten years, they understand their needs better and how to manage their tasks. Despite their understandings, managers are unsure of the different processes needed to implement the adequate tools for sustained competitiveness. Additionally, it is their moment to make priorities and to ask how to resolve problems.

3) After 10 years of existence

It is noted, yet again, the absence of paper material to manage information. This is not because they do not manage information at all but, as a result of the analysis, it is found that they begin to be aware of the importance of information-tracking for their competitiveness.

Consequently, they use computers or servers to store their information for their daily tasks. Very few SMEs have clear policy to protect their data, and confirmed having set up security policies, using the following means: backup software, antivirus software, servers, security service programs and personalized passwords.

Hypothesis 4. IS or ICT is the favorite lever to straighten Moroccan SMEs context. Currently it is not correctly understood or used. A change is needed before any implementation can take place. The change has to be planned in several steps.

C. SMEs issues and solution orientations

Evidence has proven that SMEs are challenged, and IS is a solution to overcome existing obstacles. The panel of new technology is very rich. Choosing adapted technology for SMEs is not a simple decision, and identifying adapted technology for SMEs according to the step of their life cycle phases is more complicated. Few solutions considered on SMEs context are available on the market. IS solutions are designed to address a large panel of SMEs needs, in this business perspective these solutions are not specific to Moroccan SMEs and do not take up their context.

As previously mentioned, after a minimum of ten years, SMEs begin to properly manage their business information. This is represented by the cannibalization of archaic management techniques, for example, paper-based management.

Poor technology implementation takes up three consequences:

- The first one hinders the company in that it takes more time to be reorganized in the presence of complex technology, bearing in mind low academic background. This impacts the life cycle of the company and extends the duration of the first stage of their life cycle,
- The second scenario will bring an end to the company because stakeholders are not prepared to change,
- In the last scenario, the companies implement the right technology at the right time with the right know-how.

D. SMEs urgent actions according to their life cycle

The survey shows strong relationship between needs of surveyed companies and their growth stages, most urgent needs are related to the first stage. Those critical needs are company financing, corporate finances management and understanding (training) how a company works. Access to information for employees and managers would make companies juggled to be the main obstacles that hinder their evolution, impacting their size, the scope of activities and employee turnover. High-level management needs to understand and manage their business financial components.

Moroccan SMEs must dedicate their first stage to knowledge and processes of working ethics. They are required to wait for the point of autonomous and maturity to integrate new technologies and complex IS like ERP systems.

The research was conducted based on two life cycle theories in order to create a dynamic model of IS capability building. One contribution of this research is that it recognizes that not all IS capabilities are equal or interchangeable in addressing SME growth needs. As a finding result, a closer, more detailed examination of specific IS capabilities and their applications are needed to overcome developmental crises at certain stages of organizational growth. In addition, it is proposed that managers should consider IS solutions, not only

as a functional tool, but as a strategic capability that can provide the SME with a competitive advantage.

To integrate new technologies in the first stage, SME executives will continue to face challenges including keeping up-to-date with changing IS solutions, training and educating employees, and receiving timely and accurate information [22].

The establishment phase can be considered to be as long as two to three years before SME's creation. SMEs need to train managers and employees, focus on way of doing and manage their corporate finance. This phase vary from one company to another, and takes longer or lesser time. Each company needs to measure growth according to the first implementation. If growth is impressive in the three first years after creation, that explains the company's success on having a common life cycle, its capability of challenging problems and progressing to the next stage [49].

Therefore, they can implement new technologies in the growth phase. Smaller companies may not feel the need for heavy technological implementation [24].

Combining the implementations of the process on the first phase and IS in the second phase, SMEs will experience the maturity phase with less challenges and more sustainable information and finance management.

This decomposition in two phases is a way to act according to the Framework on Fig. 1, which separate the environment (or characteristics) of SMEs and their organization.

The Hypothesis that are proposed in order to evaluate SMEs in secure manner, are the following below.

Proposition 1. After creation or on the first phase, Moroccan companies should not implement any heavy new technology which need organized environments and prepared work force. Consolidating the first phases permits a clear and visible SMEs evolving according to the context.

Proposition 2. To move to the implementing phase all indicators on this paper need be measured and need be approved.

Proposition 3. The Company's maturity is the only factor that lets Managers decide when to implement new technologies and how to choose the right ones.

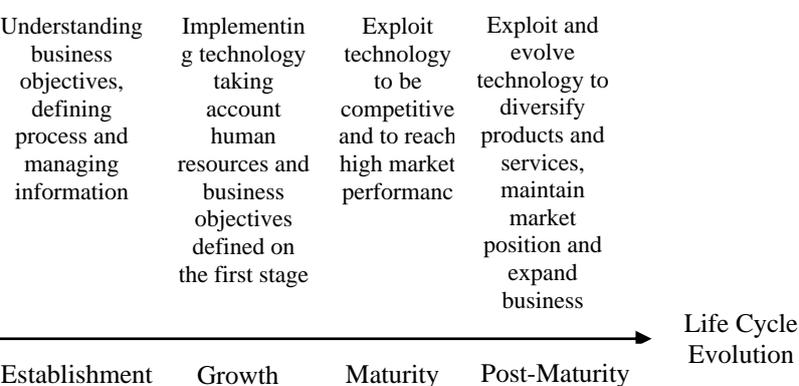


Figure 4. Enhanced SMEs evolution model (based on Robert Kazanjian, 1988)

VII. CONCLUDING REMARKS

The research findings from this study have significant implications for the researchers and provide the impetus for future research on many SMEs issues. While prior studies focused on traditional implementation of IS, this study explores SMEs context and offers a new vision of evolving SMEs by acting on their weaknesses and respecting their life cycle.

Modeling companies' context is a complex task; this study has attempted to represent a simple framework for determining the factors that enable SMEs to evolve.

In this empirical study, we have examined SMEs context, their evolution barriers (internal ones), we have analyzed the maturity of their environment (including their IT systems) and the relationship between IS and its life cycle. This analysis constitutes an essential and fundamental contribution by offering a basis to understand the Moroccan SMEs. Having a fragile financial health in a competitive globalized world, this class of companies should be more trained in work force and aware on their corporate finances by adopting new forms of information management.

At present, the hopes of Moroccan country and SMEs are that it will evolve and participate more in economic developments. SMEs feel an obligation to change and to adopt new methods of managing and new tools to work better. IS constitute for growing enterprises, a major factor contributing to continued progress and improved market share, becoming as if not sufficient, certainly necessary. The adoption of IS/ICT has grown dramatically in recent years with many firms already looking to upgrade to the newest models. However, investments are oriented for tools' acquisition which is not sufficient; instead, it must be viewed as one component that can be added to other core capabilities as training employees which can be used strategically.

As mentioned on this paper we divided SME's barriers on causes and symptoms. Principal causes are estimated to be finance corporate weakness, low academic background of employees and absence of their training. A list of symptoms was mentioned a previous study [27]. We expect training to change behavior and performance. By training older people knowledge can be transferred easily and skills are improved, but we face a heavy resistance in mentality transformation which is more efficient on young ages. The average ages of Moroccan SME's employees are favorable for mentality changes and change flexibility.

To build a clear understanding of strategic goals, SMEs need to be strength in their culture especially by overcoming personal profit. This individual mentality resists all form of sharing information and experiments. Companies need to apply coepetition to benefit from other companies' experience, to develop their network and extend their activity

scope from local concentration to national or international levels. The speed of market penetration as a result of new venture success and the impact of strategic alliances on absorptive capacity and the impact of new venture success with different extents of absorptive capacity [12].

Improving financial management will overcome the company's limited resources coming from personal contributions.

Moroccan SMEs have specific life cycle with a number of phases different from the standard ones. Acting on the causes of their stagnant situation allows SMEs to experience all the phases of the common business life cycle. To reach this hope, we have to operate according to the real context and analyze their evolution respecting their current life cycles. Many authors have argued that managers' priorities differ at different stages of organizations' growths and developments [36]. Although it is extremely difficult to make a precise prediction, the difference presented by the model on Fig. 4 ensures that before the company implements technology on the first stage of Moroccan SMEs, companies need to be autonomous and aware of the business environment.

Future work:

For future research we suggest to test and evolve the framework proposed in this study on a Moroccan SMEs sample respecting their life cycle evolution. We also suggest to reconsideration on ERP which is the solution that is most adaptable in addressing SMEs problems. This can help us to redress the principle causes of SMEs barriers, by adding two aspects to employees' training on business and finances, which can be done based on the ontology in the ERP. This can address the causes of their barriers, the corporate finance (It is necessary to be aware of the importance of accounting management which seems to be ignored today by SMEs) and training of all employees. According to finding results of the survey, this platform needs to be available based on two principal languages used by SMEs (French and Arabic), and will be extended to all used languages on the Moroccan business context.

Future research efforts should delve into the differences in IS investments and developments between growing organizations versus those that are stagnant or even out of business. The particular relevance of this strategy is to focus on the relationship between the IS investment and how it fits into the overall strategic direction of the organization.

Finally, we will complete the previous studies by adding the Moroccan informal sector which comprises 300,000 micro-enterprises [30].

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