International Journal of Advanced Engineering Research and Science (IJAERS)
Peer-Reviewed Journal
ISSN: 2349-6495(P) | 2456-1908(O)
Vol-8, Issue-5; May, 2021
Journal Home Page Available: https://ijaers.com/
Article DOI: https://dx.doi.org/10.22161/ijaers.85.50

Risk Implementation Aid model for Technical factors in Developing Countries' informal SME

Djamil Mohamed

School of Management, Wuhan University of Technology, Wuhan, P.R.China

Received: 26 Feb 2021;

Received in revised form:

21 Apr 2021;

Accepted: 11 May 2021;

Available online: 31 May 2021

***Keywords*— Risk Implementation Aid, Integration knowledge, Integrated Risks Management, Informal Small & Medium Enterprise, , Technical factors.**

Abstract*—** *The implementation of risk management plays critical role in an organization. The majority of SMEs find difficult to establish it in their organization. As important tools, the risk management factors can be eigther social or technical. And since most of these informal SMEs focus more on the technical engineering aspect of the society, this paper looking to find the technical factors that could positively influence the implementation of risk management. The purpose of this paper is the development of a Risk Implementation Aid Model with critical factors and constructs to help the process of implementing risk management. In general, the research is looking to answer our research question: "**What are the technical factors for the successful implementation of RM in informal SME?"

I. INTRODUCTION

Risk management has historically been conducted in silos, in the sense that insurance risk, technical risk, financial risk, organizational risk, etc., have mostly been handled independently of one another and on department charts. This way of managing risks in silos has shown its limits, as evidenced by the numerous debacles we witnessed in the last two decades. As an example, we cite the recall of Toyota cars justified by defective accelerator pedals and the brake problem on the Prius. These difficulties are accompanied by considerable financial costs, loss of shareholder value, and worse still, severe damage to the firm's reputation.

Such an environment characterized by an increase in risks whose consequences go beyond what can be anticipated requires that managers adopt a global perspective on managing risks such as Enterprise Risk (ERM)(Rao, 2007). Over the years, we have seen the development of a new direction of risk management (ERM), called "integrated risk management," in the sense that it is practiced throughout the enterprise. Already in 2003, more than 30 firms formalized ERM by designate a Chief Risk Officer (CRO) to lead their ERM program(Liebenberg & Hoyt, 2003). The first organizations to adopt ERM quickly realized that investment, growth, innovation, and technical changes are contributing significantly to increasing complexity as well as the diversity of risks(Rao, 2007). Indeed, according to Ernst & Young's Board Members on Risk report, which dates from 2006, 72% of members believe that the total risk to which firms are exposed has increased by 41% in the last two or three years. As a result, the ad hoc or informal way of managing risks now seems unacceptable to them. These members also accept that in view of the changing market climate, the approaches available to them to date were insufficient.

In addition, the need to comply with certain regulations, has led companies in the financial sector to take into consideration not only different categories of risks, but also the way whose multiple risks are managed and controlled throughout the organization. The ERM is part of this movement.

Unlike traditional management, ERM makes it possible to manage a fairly large range of risks in an optimized way,

on a company-wide basis. On the other hand, there is a consensus that ERM increases risk awareness, which, in turn, promotes innovative strategic and operational decisions(Hoyt & Liebenberg, 2011). A comparison between conventional risk management and ERM has been made.

In 1995 the EIU and Andersen, A. hey develop a comparison of conventional risk management with ERM as follows:

Conventional risk management:

(1) Fragmented: separate risk department/function manager; accounting; auditor, mainly concerned with the internal audit.

(2) Ad hoc: risk mitigation is carried out when administrators feel there is a need to do so.

(3) Narrowly focused: mainly deductible risk and investment risk

Enterprise Risk Management:

(1) Integrated: risk management organized with senior supervision; everyone in the company considers risk management as part of their business model

(2) Continuous: Continuing risk management cycle

(3) Broadly focused: All market challenges and opportunities are taken into account

II. BENEFITS ASSOCIATES WITH ERMERM

usually refers to the mechanism by which a firm anticipates, avoids, and reacts to the challenges associated with organizational goals(Monahan, 2008). Through this process, the firm proactively determines the appropriate risk types and levels for achieving its objective(Crouhy, Galai, & Mark, 2006). As with danger in general, the ERM is subject to many other interpretations aside from these concepts. Below, we reproduce the ones most commonly seen in the literature:

We can group these benefits into three categories:

(1) Benefits relating to governance and compliance aspects: As we mentioned earlier, some regulations, such as Sarbanes-Oxley and the Basel Committee on Supervision, require integrated risk management and consideration. In view of this, the ERM appears to be a very appropriate methodology. In fact, through the ERM, the committee of directors responsible for supervising management activities has not only exhaustive information relating to risk-taking, but also a methodology which enables it to better control them. This exhaustive information also facilitates due diligence on compliance with certain internal and external regulatory requirements.

(2) Benefits associated with creating value, competitive advantage, and financial performance: One of the recognized benefits of ERM is its ability to reduce income volatility and, therefore, create value(Lam, 2014),(Feldblum, 2001). In addition, given its organizational scope and integrated structure, the ERM participates in the deployment of the strategy in the organization. As such, it is likely to give the organization a competitive advantage. Ultimately, these operational and strategic advantages will translate into improved organizational performance(Liebenberg & Hoyt, 2003),(Coopers, 2004).

(3) Benefits that we call fundamentals: According to Bailey, Bloom, and Hida, ERM provides a certain number of advantages, including those allowing management to understand how risks are managed through the daily activities of the firm, to provide a perspective on a scale of the company according to the risk The company profile as well as control mechanisms by aggregating and integrating a set of key information and, ultimately, proactively identifying and assess all significant categories of risk, not to mention how they affect the organization's business objectives(Bailey, Bloom, & Hida, 2004),(Hoyt & Liebenberg, 2011).

In short, ERM offers a holistic and detailed view of the risks facing the company. Companies are using the ERM to(Alviniussen & Jankensgard, 2009):create value(Beasley, Branson, & Hancock, 2009; Beasley, Frigo, & Litman, 2007; Simkins, 2008; Viscelli, Beasley, & Hermanson, 2016);lower the cost of insurance(Li & Huang, 2019; Shad, Lai, Fatt, Klemeš, & Bokhari, 2019; Shan, Xin, LI, & FENG, 2010);Improving efficiency(Gordon, Loeb, & Tseng, 2009);define the strategy to be adopted concerning the risks in place (Banham, 2004);support the development of new products (Gurau & Ranchhod, 2007);know the origin of the risks and the degree of exposure to them (Merkley, 2001).

On a more empirical basis, Fraser et al. ranked the benefits of MRE in decreasing order of importance (Table1)(Fraser, Schoening-Thiessen, & Simkins, 2008).

Table1 the benefits of ERM

Enterprise Risk Management Benefits	%Responding of firms (38)
Better understanding and management of risk (including the integrated view)	44.7
Improve corporate governance or meet board requirement	18.4
Assist in allocation of resources	15.8

Effective decision-making	15.8
Minimize surprises	13.2
Improve risk reporting and risk controls	10.5
Achieve financial stability or better risk-adjusted returns	10.5
Improve credit rating	10.5
compliance	10.5
Enhance shareholder or firm value	7.9
Create a risk-aware culture	7.9
Best practices or achieve excellence	5.3
Support business or strategic plan	5.3

Source: Fraser, J., Schoening-Thiessen, K., and Simkins, B. (2008). Who Reads What Most Often? A Survey of Enterprise Risk Management Literature Read by Risk Executives. *Journal of Applied Finance.*

III. RM IMPLEMENTATION AS A TECHNICAL CHALLENGE

Our analysis focuses on a relatively researched feature of ERM and its application as well as key factors to successfully implementing ERM.

Implementation in many respects has been defined. It could refer to a constantly dynamic process of mutual adaptation between innovation and their environment in order to rectify the usual errors between innovation and the environment(Leonard-Barton & Deschamps, 1988; Leonard, 2011). It may also refer to a process that begins with an initial idea for a new approach or methodology and the changes it transmets and ends when the new practice has succeeded in integrating it into the work systems of the organization(Krcmar & Lucas Jr, 1991). By synthesizing these ideas, we understand implementation as a process through which target users embrace, accept and revise innovation into their regular work processes(Kwon & Zmud, 1987).

Many studies have analyzed different aspects of ERM implementation in this respect. The link between ERM implementation and firm value is one such aspect, particularly the degree to which the level of ERM execution has a positive effect on the value of coted companies. For example, some studies show that the implementation of ERM increases overall solid value irrespective of particular users in the industry(Bertinetti, Cavezzali, & Gardenal, 2013), and these companies see implementation of ERM as a strategic enterprise initiative rather than a requirement for compliance(Waweru & Kisaka, 2012). Factors related to the implementation of ERM are also of interest. Research on this subject aims to explain why some organizations respond by implementing ERM to changing risk profiles while others do not. On this basis Beasley, Clune & Hermanson concluded that the implementation phase is positive in terms of the presence of a chief corporate governors (chief risk officer) and the independence of the board, the apparent support of the CEO and CFO for ERM, the presence of an auditor of big four and their size in banking, eduction, and operations(Beasley, Clune, & Hermanson, 2005). The appointing of a Chief Risk Officer and the level of implementation of the ERM by Waweru and Kisaka, find substantial links, however, contrary to expectations, between ERM implementation level and the different variables such as the market, the independence and growth rates of the Board of Directors(Waweru & Kisaka, 2012). Likewise, it seems that Desender has a considerable impact on the CEO's role on the ERM, but that the board's freedom alone is not enough to lead to higher ERM levels(Desender, 2011). The independence of the Board only depends significantly on ERM if companies do not have the duality of CEO, as companies with an independent Board and no CEO duality have the highest level of ERM.

More recently, the focus of research has been on how organizations implement ERM. For example, Altuntas, Berry-Stölzle and Hoyt review the degree to which ERM is implemented by German property liability insurance firms with premium payments over EUR 40 million, including the application sequence of this emerging risk management approach(Altuntas, Berry-Stölzle, & Hoyt, 2011).

Though careful, these studies do not catch the complexities of real implementing ERMs in companies and ignore organizational characteristics which can influence the effectiveness of implementing ERMs. Their questions about the need for ERM incorporation and their readiness and capacity to contribute to this dynamic effort, especially, are not taken into account by social actors within the organisation. Furthermore, no research has consistently suggested conditions essential to implementing the ERM.

Some ERM execution actions have been published in trade and business journals, and while the guidance is helpful, its theoretical basis remains uncertain, leaving doubts as to its trustworthiness and validity. Theoretical systems would then clarify how to apply ERM effectively. These frameworks are important for examining both the technical and social aspects of the implementing of ERM and for questioning the assumption that an ERM model is

easily integrated into the work systems of an organization if risk appetite is well defined and limits and monitoring processes exist.

Actually, the key point is not that there is no use for the existing centralized risk management body with its principles, methodologies and methods, but that a more managerial approach is required to enrich and broaden ERM beyond tight financial perspective and to more closely link its application to the challenges posed by management practice.

ERM performance can be a dynamic and complex undertaking since it entails improvements in many organizational areas, such as business processes or work procedures, requiring coordination between functional units, including a variety of organization-related problems. With a holistic approach, we can conceptualize problems relating to the implementation of the ERM as a whole—that is, the identification of the ERM functions and its characteristics, the identification of links between these functions and the complexities of ERM-related integrated risk management. In particular, ERM is best seen as a social and technological structure, namely a network of individuals, instruments, records, and business routines(Akrich, Bijker, & Law, 1992; Kling & Scacchi, 1982).

IV. METHODOLOGY AND CONTEXT

This paper aims to defining the success technical factors for implementing the ERM. To this end, we first take a look at the current situation of risk management in developing countries' medium-sized enterprises, which lead us to theoretical perspective that build our theoretical framework, a mutual adaptation ontechnical perspective and the perspective of dynamic capacities.

The technical perspective was used to capture the systemic dimensions of ERM. ERM is a systemic approach to managing organizational risks. Therefore, the system approach seems best suited. This approach makes it possible to conceptualize the challenges associated with the implementation of the ERM as a whole in the sense of identifying the elements and their attributes, determining the relationships between the elements, and, finally, taking into account the dynamics of management. of the risks recommended by the ERM. More specifically, the technical perspective makes it possible to understand the ERM as being a technical system.

The perspective of mutual adaptation allowed for the effects of mutual structuring between the ERM, and the organizational structure has to be taken into account. In addition, the implementation of the ERM needs a mutual adaptation between the organizational context and the ERM, according to which the architectural nature of the processes and that of the ERM framework are effectively coupled in order to fully incorporate the implementation process.

Finally, the perspective on dynamic capacities has made it possible to recognize that implementing enterprise risk management compels a significant organizational resource and the coordination and integration of the various functions of the organization. As such, the organizational changes associated with implementing the ERM are complex. Specific attention must also be paid to the organization's diverse capacities if the successful implementation of ERM is to succeed.

The theoretical framework, as described, has led us to break down our general research question into more specific questions. The arguments from these theories, were able to formulate provisional answers or research hypotheses.

V. THEORITICAL PERSPECTIVE ON ADAPTATION

Regarding risk management, the enterprise risk management system is innovation. Innovation can be characterized according to two dimensions, namely its impact on administrative or technical processes and the relative weight of technological and organizational components. Taking into account only the first dimension, Swanson establishes a typology comprising three classes of innovation: innovation of types I, II, and III(Swanson, 1994, 2020).

Type I innovation is an innovation that takes place within and is confined to an organizational function such as accounting, marketing, or information technology. This type of innovation can be focused either on administrative tasks or on technical tasks. In both cases, the integration of this innovation results in increasing the efficiency and effectiveness of the organizational function.

Type II innovation involves using innovation to improve the organization's administrative processes. Technologies that support the production chain of goods and services are not affected. The introduction of computerized accounting systems and the adoption of groupware, for example, is one such innovation(Chatterjee, Grewal, & Sambamurthy, 2002; Zhang, van Donk, & Jayaram, 2020). Despite being focused on administrative aspects, Type II innovation is probably going to impact the processes of the business. The integration of this type of innovation results in increasing the productivity of

administrative functions and having an impact on operational processes.

Type III innovation consists of integrating innovation in terms of products or services into the technological infrastructure. Thus, business management in general is affected. So the whole organization is affected, and innovation can give early adopters competitive advantages. The introduction of online reservation systems by airlines from the 1960s, and that of material requirements planning systems (MRP) in the 1950s and 1960s was a type III innovation(Copeland & McKenney, 1988; Das, 2019). So the overall planning and execution of the organization are affected when incorporating this type of innovation.

On the basis of the above, we can legitimately qualify the ERM as a type III innovation, given its holistic and global nature.

Given the systemic nature of ERM, its implementation can prove complex beyond problems of communications or language. Indeed, the ERM constitutes both a technical and administrative innovation. Therefore, the interaction between operational and administrative changes can be a huge challenge.More intuitively, an ERM development and implementation project could be conceived in three phases. In the first phase, the functional processes are analyzed and reconfigured to form a process architecture following the organization's value chain. In the second phase, the specifications of the ERM system are defined, then it is developed. In a third and final phase, ERM is implemented that is to say, integrated into the organizational processes.

Despite the logic of the approach, it can lead to misalignments or hiatuses between the organizational context and innovation(Hsueh, Bretschneider, Stritch, & Darnall, 2020; Leonard-Barton & Deschamps, 1988). This occurs due to the challenge of establishing ERM specifications from the first step in the process and also due to the fact that the organization and its content on the ERM system can shift along the course of the project(Jacobson, Booch, & Rumbaugh, 1999). This implies that innovation such as ERM must be carefully integrated in a manner that encourages step-by-step learning as well as an adaptation process. More specifically, the implementation of the ERM requires a mutual adaptation between the organizational context and the enterprise risk management system so that the design of the architecture model and that of risk management are seamlessly link to facilitate a full integration of the implementation.

By combining the two theoretical perspectives previously described, it appears that implementing ERM demand an adaptation of the social aspect and technological aspect of the organization and the ERM at all dimensions.

VI. HYPOTHESES, CONSTRUCTS AND RESEARCH MODEL

Regarding the technical system, given the systemic nature of ERM, we favor the dynamic capabilities of the company. These make a reference to the capability of the company to sense, grasp, and adjust to generate and exploit the internal and external skills that are specific to it(Bogers, Chesbrough, Heaton, & Teece, 2019; Petricevic & Teece, 2019). The essential premise of this approach is that it is still necessary for managers and entrepreneurs to corporate, develop, and reconfigure the in and out abilities to constitute the changing environments of the organization. In essence, this approach involves understanding technological change as much as organizational change.

6.1 Capacity of integration knowledge

ERM consists of integrated ERM. It is, therefore, a system where goes through different functions of the organization such as marketing, production, finance, etc. However, each function of the organization constitutes a center of excellence bringing together specialists in a particular field under one roof. As such, each function constitutes a specific area of knowledge with its way of reasoning, its methods, its tools, and its vocabulary. Consequently, the interfaces between the functions constitute frontiers of knowledge. The characteristics of knowledge that lead to innovative solutions to problems within a function can, in reality, hamper problem-solving and the creation of knowledge between functions(Carlile, 2002). These knowledge boundaries constitute a paradox insofar as most of what a company produces finds its source in these areas of specialized knowledge, which also constitute a challenge for the organization when the time comes to integrate them since the different functions are interdependent. The ERM is based on this interdependence and therefore raises the question of knowledge management at the level of these borders between the different silos of the organization. Carlile developed a management knowledge model, which we propose to apply to the problem of knowledge integration raised by the ERM(Carlile, 2002, 2004; Carlile & Rebentisch, 2003). For this, we will first briefly present this framework, then develop the arguments for its application to the implementation of ERM.

According to the previous development, we pose the1sthypothesis:

H1: The ability to integrate knowledge between the different functions of the organization positively influences the success of the implementation of ERM.

Table 2 Capacity of Knowledge Integration

Please indicate, to what degree current information incorporation frameworks of the following types are used to implement the ERM program:	
CKI1	a common lexicon/language to describe risk
CKI2	common meaning regarding integrated risk management
CKI3	common interests among organizational functions

6.2. IT capacity

As already suggested, the introduction of the ERM means that improvements to the operational framework can be made to represent the way in which the various organizational elements, such as responsibilities, structured procedures, and evolving routines, are now related. In order to facilitate the production and execution of these changes, the company must have IT capabilities spanning technical and organizational dimensions(Bharadwaj, Sambamurthy, & Zmud, 1999). In particular, the company must have the capacity to maintain a close and continuing relationship between business and IT managers. We must also have the ability to jointly change organizational and technical processes in order to preserve their performance and effectiveness and to take advantage of the capabilities of evolving the acteurs. In order to have such capabilities, the company must have a relatively robust and interconnected IT infrastructure. It proves to be of paramount importance because it makes it possible to maintain continuity and "interoperability" between the various systems in place in the company(Kayworth, Chatterjee, & Sambamurthy, 2001). In addition, the variety of hardware, operating systems, and development resources increasingly necessitates the maintenance of a sufficiently cohesive IT infrastructure to avoid fragmentation and lack of integration between various systems(Lee & Chang, 2020). However, in order to maintain this consistency between risk management systems and the numerous other information systems, networks, and applications that are essential to the mission of organizations, the technical infrastructure must have the required architectures. In reality, this integrated IT infrastructure will provide a forum through which the shared IT capabilities of the company are expressed(Albertivan, Limantara, Rachmadiati, Pamungkas, & Surantha, 2019; Du, Pan, & Wu, 2020; Weill, Subramani, & Broadbent, 2002).

Finally, an organization with the capacity to keep a close interrelation among IT practitioner and IT consumer, that of making continual adjustments between its operational and technological processes to not only facilitate these changes, but also to allow operation for future technologies, meets the plausive conditions both for the implantation of innovation such as ERM and for its efficient exploitation, hence our 2nd hypothesis:

H2: The existence of an IT infrastructure positively influences the success of the ERM implementation.

Table 3 IT Infrastructures Dimension

Partnership Between user and IT's Professional	
PBT1	Multidisciplinary departments in this company help to combine business and technology skills.
PBT2	The partnership between office management and IT operators is nurtured in this organization.
PBT3	The organization's climate nurtures IT project championship
Integration of Business and Technology Processes	
IBT1	Application portfolios are consistent with business processes
IBT2	The organization's corporate work processes were reorganized to exploit opportunities.
IBT3	The organization's IT work procedures were reorganized to maximize opportunities.
Flexible IT'S Infrastructure	
INFR1	The IT infrastructure of the company allows a quick and efficient response to emerging requirements and prospects.
INFR2	If we ever need services to do tasks they were not intended to do, it is almost impossible for IT services/personnel to accommodate our requirements.
INFR3	The organization experienced difficulty each time it was necessary to integrate new systems with old ones

6.3 Capacity for organizational change

By its nature and principles, ERM is a component of organizational strategy. Therefore, the implementation of the ERM amounts in part to implementing the company's strategy. According to the traditional approach of strategic management, we agree to distinguish the formulation of the strategy from its implementation(McGuinness & Morgan, 2005). Some authors attribute the difficulties

encountered in implementing the strategy to this dichotomy(Armenakis & Harris, 2009; Barton & Ambrosini, 2013; Jeong & Shin, 2019; Rozanna, Adam, & Majid, 2019). An alternative to this traditional approach is to adopt a dynamic strategy perspective that considers implementation to a wider range, the larger organizational change environment. In fact, change management is on the managers' priority list when it comes to implementing ERM. Indeed, the establishment of the ERM supposes that the organization modifies its traditional way of conducting its business and, in particular, to modify the work processes. The characteristic and range of these changes require that the company has a specific dynamic capacity, namely: that of effectively implementing continuous change since the effectiveness of implementing a strategy is assessed by the organization's capability to implement continuous change. Capacity for organizational change is characterized as a relatively broad dynamic capacity of the organization that helps it to adapt its old capacity to face new challenges, to capture new opportunities as well as to generate new capacity(Judge & Elenkov, 2005). In 2011, Soparnot defined the capacity for organizational change as follows:

Based on the above, we pose the3rd hypothesis:

H3: The ability to change the organization positively influences the success of the implementation of ERM

Table 4 Organizational Change Capacity

Do business unit leaders:	
OCC1	To articulate a reliably positive view of the upcoming years?
OCC2	Will they show confidence in endorsing proposals for change?
Do intermediates in this company:	
OCC3	Do top executives interact effectively with frontline employees?
OCC4	Balance programs while the job is done?
Do your change leaders:	
OCC5	Demand that the remainder of the business unit is respected?
OCC6	Willing and in a position to question the status quo?
Do we have a philosophy of organization that:	
OCC7	Promote innovation and changing values?
OCC8	Does it have the opportunity to entertain new ideas?
Do frontline staff::	
OCC9	have chances to voice your warning about change?
OCC10	Overall, do senior management regard them as credible?
Will change champions accept the:	
OCC11	Implications of transition on interdependent systems?
OCC12	Need opportunities to realign with needed adjustments?
Do the staff all over the company unit:	
OCC13	Comply with the deadlines and uphold obligations on resources?
OCC14	feel responsible for getting the job done?
OCC15	Have straightforward instructions on who's got to do what?
Does knowledge actually flow?	
OCC16	From Supervisors to Employees?
OCC17	In an opportune manner?
OCC18	In all divisions of the organization?

6.4 Graduate student intern

When one runs an SME, it is extremely difficult to mobilize all the skills and resources necessary for the proper functioning of the company internally, especially at start-up. Only one solution is then offered: outsourcing, also known as subcontracting.

Delegating part of the work to a third-party partner structure can involve a certain number of risks for the company, but it can also bring many advantages. Let's go back in detail to what it really means to subcontract in the context of managing an SME.Subcontracting is the fact for a company to delegate to another company or a person, the realization of part of its production or sales. In the event of a surge in operations, for example, or as part of a company plan from the outset, subcontracting may be performed on an occasional basis.

The fact of subcontracting differs from a simple contract with suppliers in the sense that the ordering company retains responsibility for the service or product offered to the end client. Subcontracting to a third party can involve several types of risk.

Regarding quality, we must ensure that the work with partners will guarantee the quality standards expected by the customers, with whom we remain responsible no

matter what. So, for example, provide for late penalty clauses, which will allow you to define your collaboration.

Rather, make trusted partners work, recognized, and before entrusting a large project to an unknown subcontractor, test it beforehand on less engaging missions.

Financial risk also engages us vis-à-vis our partner. In case of disagreement or unpaid by the end customer, you will still have to respect your own commitments to our partner and assume to have to pay the service without having been paid ourselves.

Outsourcing can also have many advantages. First, it allows us to free ourselves from certain constraints and entrust them to one or more external service providers. Therefore We will, have more flexibility.SMEs, could also help break out of their isolation by developing new business opportunities. In fact, by collaborating with companies or a person that is part of our close ecosystem, we multiply the chances of opening ourselves up to new business sectors or new markets.Subcontracting can also allow us to structure a powerful network and thus place a company as a hub with the capacity to put in contact with many companies mastering transverse skills.

Finally, do not forget that for some SMEs, subcontracting is not an option and is an integral part of their mode of operation. It is estimated today that between 30 and 50% of SMEs subcontract, depending on the sector.

This strategy is,hence extremely widespread and contributes to the advancement of many small businesses. It is an essential growth vector that can also allow one to focus on a commercial approach, for example, and to free oneself from production monitoring constraints that are sometimes heavy and restrictive when starting a business.

Overall, the best solution is to establish a real relationship of trust with the companies to which we subcontract. We must be able to trust each other over the long term if one is to minimize the risk of disagreements and dysfunctions.

The outsourcing problem for SMEs, especially in developing countries, is the financial sector, where most do not have the means for outsourcing.

From the above statement, we can propose the 4th hypothesis:

H4: outsourcing a university student (post-graduate management student) influences the success of ERM implantation positively.

Table 5 Outsourcing university student

UNI1	The presence of university student intern will create a significant competitive environment among workers
UNI2	Student at university has the ability to offer major market benefits to the firm
UNI3	A university student is a secure consultant
UNI4	University students will be dedicated to secure an experience or a future job at the firm

In conclusion, we assume that the elements of the technical systems contribute, as illustrated in Figure 1, to the successful implementation of the ERM.

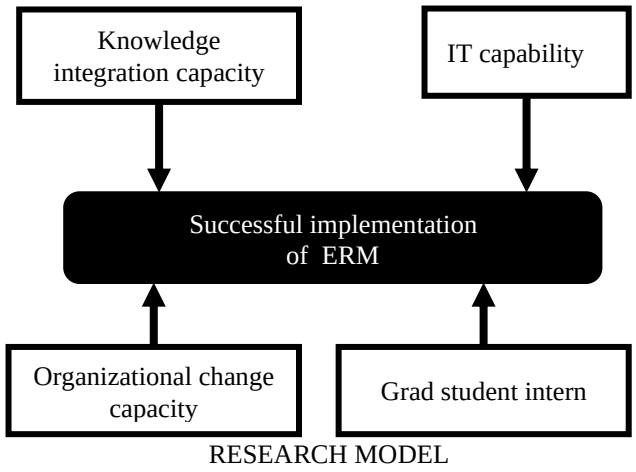


Fig.1: Proposed research structure model

VII. EXPLORATORY FACTORIAL ANALYSIS (EFA)

Our work is in essence exploratory, and our goal is to test its hypotheses. The provisional explanation that we offer is made through the structural model. We borrowed the majority of our instrument constructs developed in other contexts and objects of study. All of this raises the need to check whether, in fact, the indicators belong to the constructs they are supposed to define. In fact, this amounts to clarifying the factor structure underlying the data and, possibly, to reducing it in the event that indicators are weakly correlated with their constructs.

We have conducted four iterations of exploratory factor analysis using a Varimax rotation in principal components to explain the factor structure behind this database.

The aim of the AFE with *Varimax* rotation is to:

(1) check that each item is correlated to a single factor with a significant factorial factor (loading),

(2) check that this factor is the same for all the items which are supposed to return at the same latent construct, and

(3) finally, identify the appropriate set of factors that summarize the maximum data variability.

Table 6 Fourth round of the Exploratory Factor Analysis

Construct	item	loading
Know. Interg.	CKI1	0.771
	CKI2	0.837
	CKI3	0.753
	IBT3	0.810
	INFR1	0.808
	INFR2	0.789
	INFR3	0.731
Organ. Change	OCC1	0.754
	OCC5	0.862
	OCC6	0.883
	OCC9	0.760
	OCC10	0.790
	OCC11	0.779
	OCC14	0.862
	OCC15	0.807
	OCC16	0.719
	OCC17	0.741
	OCC18	0.775
Grad. intern	UNI1	0.843
	UNI2	0.821

VIII. THE ASSESSMENT OF STRUCUTRE EQUATION ANALYSIS

We will examine the structural relations between these constructs in this section and present the results of the hypothesis study. As stated, the PLS approach to structural equations has checked the hypotheses. In order to decide whether the structural model coefficients are significant or not, a bootstrapping technique with a subsamples set N equal to 2000 and Two-Tailed test forms with a significant level of 0.1. We used a unidirectional test for all hypotheses of our model that was used(Teo, Wei, & Benbasat, 2003)

Table 7 summary of the structural model

Hypotheses Relationship	Std Beta	Std Error	[t-value]	Decision	f^2	q^2	95%CI LL	95%CI UL	P-value
IT capability--> Implementation Success	0.168	0.107	1.736	Supported	0.03580	0.01810	-0.013	0.335	0.083
Organizationalchange--> Implementation Success	0.109	0.149	0.77	Not Supported	0.01481	0.00319	-0.204	0.309	0.441
Studentintern--> Implementation Success	-0.139	0.11	1.222	Not Supported	0.01852	0.00319	-0.315	0.049	0.222
Know.integration--> Implementation Success	0.221	0.102	1.935	Supported	0.03580	0.02556	0.06	0.395	0.053

IX. SUPPORTED HYPOTHESIS TESTS

Impact of IT capacity on Implementation Success of ERM

The presumed link between "IT capability" and "Implementation Success" is statistically significant, with p equal to *0.083* less than *0.1* significance level during the bootstrapping simulation. We confirm that the greater the IT capability is, that is to say, that better technical engineering support helps the involvement in implementing the integrated risk management, the greater probability of success of the implantation of ERM (β= *0.197*), the hypothesis was supported. Specifically, when IT increases by one standard deviation (σ), the successful implementation of the ERM increases by 0.197σ.

Knowledge integration capacity on ERM implementation success

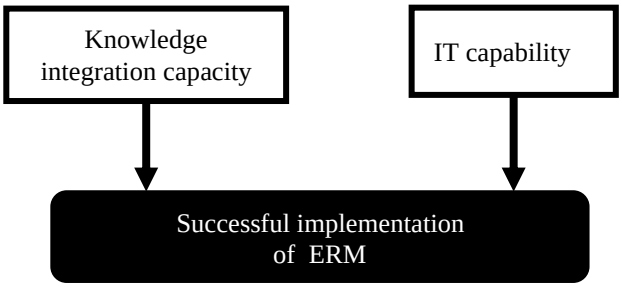
we presumed a link between "Know. integration" and "Implementation Success," which has a p-value equal to

0.053 < 0.1 significance level. We confirm that the greater the capacity for Knowledge integration in the company, particularly the capacity to set an awareness culture, the greater the degree of success of the implementation of ERM (*β= 0.204*), the hypothesis was supported. Specifically, the successful implementation of the ERM increases by 0.204σ when the capacity for organizational change increases by one standard deviation (σ).

X. CONCLUSION

The research aimed to understand the technical elements factors that could influence the the implementation of risk analysis in SMEs. There are two parts to this paper, devoted to displaying the findings of the research. The analyze by exploratory factor analysis method through SPSS (EFA) and the Structure Equation Model (SEM) via Smartpls to measure the model, assess the structure of the model, and test our hypothesis. We then present the results of the structural equations through the approach of the least partial squares (PLS), where assess the structural model through hypothesis tests. The resuslts shows that out of the four hypothesis only two are supported namely : IT capability and Knowledge integration capacity.

Revise model



REFERENCES

[1] Akrich, M., Bijker, W. E., & Law, J. (1992). Shaping technology/building society: Studies in sociotechnical change. In: MIT press Cambridge, MA.

[2] Albertivan, D., Limantara, H., Rachmadiati, R. A., Pamungkas, A. W., & Surantha, N. (2019). IT risk identification and evaluation: A case study on XYZ University. *International Journal on Advanced Science, Engineering and Information Technology*, *9*(1), 250-257.

[3] Altuntas, M., Berry-Stölzle, T. R., & Hoyt, R. E. (2011). Implementation of enterprise risk management: Evidence from the German property-liability insurance industry. *The Geneva papers on risk and insurance-issues and practice*, *36*(3), 414-439.

[4] Alviniussen, A., & Jankensgard, H. (2009). Enterprise risk budgeting: bringing risk management into the financial planning process. *Journal of Applied Finance (Formerly Financial Practice and Education)*, *19*(1&2).

[5] Armenakis, A. A., & Harris, S. G. (2009). Reflections: Our journey in organizational change research and practice. *Journal of change management*, *9*(2), 127-142.

[6] Bailey, M. A., Bloom, L., & Hida, E. T. (2004). Assessing the Value of Enterprise Risk Management. *Deloitte Development LLC*.

[7] Banham, R. (2004). Enterprising Views of Risk Management. *Journal of Accountancy*, *197*.

[8] Barton, L. C., & Ambrosini, V. (2013). The moderating effect of organizational change cynicism on middle manager strategy commitment. *The International Journal of Human Resource Management*, *24*(4), 721-746.

[9] Beasley, M. S., Branson, B. C., & Hancock, B. V. (2009). ERM: Opportunities for Improvement Take your risk management system to the next level. *Journal of Accountancy*, *208*(3), 28.

[10] Beasley, M. S., Clune, R., & Hermanson, D. R. (2005). Enterprise risk management: An empirical analysis of factors associated with the extent of implementation. *Journal of accounting and public policy*, *24*(6), 521-531.

[11] Beasley, M. S., Frigo, M. L., & Litman, J. (2007). Strategic risk management: Creating and protecting value. *Strategic Finance*, *88*(11), 24.

[12] Bertinetti, G. S., Cavezzali, E., & Gardenal, G. (2013). The effect of the enterprise risk management implementation on the firm value of European companies. *Department of Management, Università Ca'Foscari Venezia Working Paper*(10).

[13] Bharadwaj, A., Sambamurthy, V., & Zmud, R. (1999). IT capabilities: theoretical perspectives and empirical operationalization. *ICIS 1999 Proceedings*, 35.

[14] Bogers, M., Chesbrough, H., Heaton, S., & Teece, D. J. (2019). Strategic management of open innovation: A dynamic capabilities perspective. *California Management Review*, *62*(1), 77-94.

[15] Carlile, P. R. (2002). A pragmatic view of knowledge and boundaries: Boundary objects in new product development. *Organization science*, *13*(4), 442-455.

[16] Carlile, P. R. (2004). Transferring, translating, and transforming: An integrative framework for managing knowledge across boundaries. *Organization science*, *15*(5), 555-568.

[17] Carlile, P. R., & Rebentisch, E. S. (2003). Into the black box: The knowledge transformation cycle. *Management science*, *49*(9), 1180-1195.

[18] Chatterjee, D., Grewal, R., & Sambamurthy, V. (2002). Shaping up for e-commerce: institutional enablers of the organizational assimilation of web technologies. *MIS quarterly*, 65-89.

[19] Coopers, P. W. (2004). Strengthening the business: Optimizing the benefits of enterprise-wide risk management for audit committees. In.

[20] Copeland, D. G., & McKenney, J. L. (1988). Airline reservations systems: lessons from history. *MIS quarterly*, 353-370.

[21] Crouhy, M., Galai, D., & Mark, R. (2006). *The essentials of risk management* (Vol. 1): McGraw-Hill New York.
[22] Das, S. (2019). The Early Bird Catches the Worm-First Mover Advantage through IoT Adoption for Indian Public Sector Retail Oil Outlets. *Journal of Global Information Technology Management, 22*(4), 280-308.
[23] Desender, K. (2011). On the determinants of enterprise risk management implementation. In *Enterprise IT governance, business value and performance measurement* (pp. 87-100): IGI Global.
[24] Du, W., Pan, S. L., & Wu, J. (2020). How do IT outsourcing vendors develop capabilities? An organizational ambidexterity perspective on a multi-case study. *Journal of Information Technology, 35*(1), 49-65.
[25] Feldblum, S. (2001). *Underwriting cycles and business strategies.* Paper presented at the Proceedings of the Casualty Actuarial Society.
[26] Fraser, J. R., Schoening-Thiessen, K., & Simkins, B. J. (2008). Who reads what most often? A survey of enterprise risk management literature read by risk executives. *Journal of Applied Finance, 18*(1), 73.
[27] Gordon, L. A., Loeb, M. P., & Tseng, C.-Y. (2009). Enterprise risk management and firm performance: A contingency perspective. *Journal of accounting and public policy, 28*(4), 301-327.
[28] Gurau, C., & Ranchhod, A. (2007). Flexible risk management in new product development: the case of small- and medium-sized biopharmaceutical enterprises. *International Journal of Risk Assessment and Management, 7*(4), 474-490.
[29] Hoyt, R. E., & Liebenberg, A. P. (2011). The value of enterprise risk management. *Journal of risk and insurance, 78*(4), 795-822.
[30] Hsueh, L., Bretschneider, S., Stritch, J. M., & Darnall, N. (2020). Implementation of sustainable public procurement in local governments: a measurement approach. *International Journal of Public Sector Management*.
[31] Jacobson, I., Booch, G., & Rumbaugh, J. (1999). *The unified software development process*: Addison-Wesley Longman Publishing Co., Inc.
[32] Jeong, I., & Shin, S. J. (2019). High-performance work practices and organizational creativity during organizational change: a collective learning perspective. *Journal of Management, 45*(3), 909-925.
[33] Judge, W. Q., & Elenkov, D. (2005). Organizational capacity for change and environmental performance: an empirical assessment of Bulgarian firms. *Journal of Business Research, 58*(7), 893-901.
[34] Kayworth, T. R., Chatterjee, D., & Sambamurthy, V. (2001). Theoretical justification for IT infrastructure investments. *Information Resources Management Journal (IRMJ), 14*(3), 5-14.
[35] Kling, R., & Scacchi, W. (1982). The web of computing: Computer technology as social organization. In *Advances in computers* (Vol. 21, pp. 1-90): Elsevier.
[36] Krcmar, H., & Lucas Jr, H. C. (1991). Success factors for strategic information systems. *Information & Management, 21*(3), 137-145.
[37] Kwon, T. H., & Zmud, R. W. (1987). Unifying the fragmented models of information systems implementation. In *Critical issues in information systems research* (pp. 227–251): John Wiley & Sons, Inc.
[38] Lam, J. (2014). *Enterprise risk management: from incentives to controls*: John Wiley & Sons.
[39] Lee, N. C., & Chang, J. (2020). Adapting ERP Systems in the Post-implementation Stage: Dynamic IT Capabilities for ERP. *Pacific Asia Journal of the Association for Information Systems, 12*(1), 2.
[40] Leonard-Barton, D., & Deschamps, I. (1988). Managerial influence in the implementation of new technology. *Management science, 34*(10), 1252-1265.
[41] Leonard, D. A. (2011). Implementation as mutual adaptation of technology and organization. *Manag Knowl Assets, Creat Innovs, 17*, 429.
[42] Li, P.-Y., & Huang, K.-F. (2019). The antecedents of innovation performance: the moderating role of top management team diversity. *Baltic Journal of Management*.
[43] Liebenberg, A. P., & Hoyt, R. E. (2003). The determinants of enterprise risk management: Evidence from the appointment of chief risk officers. *Risk Management and Insurance Review, 6*(1), 37-52.
[44] McGuinness, T., & Morgan, R. E. (2005). The effect of market and learning orientation on strategy dynamics. *European Journal of Marketing*.
[45] Merkley, B. W. (2001). Does enterprise risk management count? *Risk Management, 48*(4), 25.
[46] Monahan, G. (2008). *Enterprise risk management: A methodology for achieving strategic objectives* (Vol. 20): John Wiley & Sons.
[47] Petricevic, O., & Teece, D. J. (2019). The structural reshaping of globalization: Implications for strategic sectors, profiting from innovation, and the multinational enterprise. *Journal of International Business Studies, 50*(9), 1487-1512.
[48] Rao, A. (2007). Evaluation of enterprise risk management (ERM) in Dubai–an emerging economy. *Risk Management, 9*(3), 167-187.
[49] Rozanna, N., Adam, M., & Majid, M. S. A. (2019). Does Job Satisfaction Mediate the Effect of Organizational Change and Organizational Culture on Employee Performance of the Public Works and Spatial Planning Agency? *IOSR Journal of Business and Management, 21*(1), 45-51.
[50] Shad, M. K., Lai, F.-W., Fatt, C. L., Klemeš, J. J., & Bokhari, A. (2019). Integrating sustainability reporting into enterprise risk management and its relationship with business performance: A conceptual framework. *Journal of Cleaner production, 208*, 415-425.
[51] Shan, H., Xin, G., LI, X.-y., & FENG, J.-w. (2010). A study on the integration risk management for the insurance enterprises. *Management Science and Engineering, 3*(1), 41-50.
[52] Simkins, B. (2008). Enterprise risk management: Current initiatives and issues journal of applied finance roundtable. *Journal of Applied Finance, 18*(1), 115.

[53] Swanson, E. B. (1994). Information systems innovation among organizations. *Management science*, *40*(9), 1069-1092.

[54] Swanson, E. B. (2020). How information systems came to rule the world: Reflections on the information systems field. *The Information Society*, *36*(2), 109-123.

[55] Teo, H.-H., Wei, K. K., & Benbasat, I. (2003). Predicting intention to adopt interorganizational linkages: An institutional perspective. *MIS quarterly*, 19-49.

[56] Viscelli, T. R., Beasley, M. S., & Hermanson, D. R. (2016). Research insights about risk governance: Implications from a review of ERM research. *Sage Open*, *6*(4), 2158244016680230.

[57] Waweru, N., & Kisaka, E. S. (2012). *The effect of enterprise risk management implementation on the value of companies listed in the Nairobi Stock Exchange*.

[58] Weill, P., Subramani, M., & Broadbent, M. (2002). IT infrastructure for strategic agility.

[59] Zhang, X., van Donk, D. P., & Jayaram, J. (2020). A multi-theory perspective on enablers of inter-organizational information and communication technology: A comparison of China and the Netherlands. *International Journal of Information Management*, *54*, 102191.