

A Risk Diagnosing Methodology Web-based Tool for SME's and Start-up Enterprises

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Abstract: This work presents a risk diagnosing methodology (RDM) web-based tool, that can provide to Small and Medium Enterprises (SME's) the capability to identify, evaluate and manage the risks associated with a company's idea development project portfolio. This tool was conceived to support successful innovative product/service development projects, from its idealization to its commercialization, and to encourage SME's on systematic use of risk management approaches in order to increase their successful rates. This paper also includes a brief literature review of some of the risk management tools and models available to SME's, as well as comparative analyses of the identified similar tools.

1 INTRODUCTION

During the last decades the world's economy has undergone a process of deep reestablishment, moving into a fast-changing, knowledge-based economy in a global scale (Yun-hong et al., 2007) which dragged businesses into a daily struggling to subsist in a new difficult and challenging economic environment (Emmenegger et al., 2012). To subsist in this global competition and overcome the rapid technology changes and product variety expansion, the development of an integrated capability to innovate is becoming a predominant strategy for SME's (Ebrahim et al., 2010). Innovation is an inexhaustible motive force for socio-economic development, which makes it a key factor to measure national competitiveness (Di, 2010). Innovation can be seen as the action or process of creating a new method or idea (Black, 2003) which also includes its exploration and commercialization (Massa and Testa, 2008). The use of a formal and systematic process in the development of new products/services, has been considered a decision factor of the project's success or failure (Griffin, 1997), in which the new product development (NPD) innovative approach is one of the most wide known and used to formally support the innovation project processes among SME's.

Since the creation of something new is the essence of an innovation, this process necessarily involves risk, and consequently early risk identification and management is specially vital and required in innovative SME's (Vargas-Hernández and García-Santillán, 2011). Nonetheless, efforts to develop empirical models, metrics and tools to accurately assist SME's in the risk management of innovative projects still needs development (Aleixo and Tenera, 2009). Literature review also shows that SME's operate in the same environment as their larger counterparts, but their attitude towards risk grandly differs, being that SME's owners/managers don't always recognize the need to escalate the importance of risk identification and its minimization (Smit and Watkins, 2012). SME's also have inevitable limitations regarding internal availability of resources, restraining the company's ability to engage in innovative activities (Freel, 2005), because they easily became fully occupied solving short-term operational problems, which conducts to a lack of attention to their long-term strategy and to disregard risk management importance in their initiatives, remaining stuck in a permanent operational problem solving (Vos et al., 1998). Knowing that the percentage of existing SME's around the world stands over 97% (Brancia, 2011), developing studies regarding the risk assessment and management in innovative projects for SME's is

then critical. Therefore, this paper seeks to present a solution to systematically support management risk practices in SME's in order to satisfy their need of useful and pragmatic approaches to manage the risks of their project portfolio ideas development and innovative projects. So, in this article it will be presented and discussed a web-based integrated risk perception and response tool, designed to SME's and start-up enterprises, which will provide an early stage risk assessment throughout a web-based platform – the Spotrisk®.

2 ASSESSING RISKS IN INNOVATIVE SME'S

2.1 Current SME's Risk Support Tools and Models

SMEs are usually characterized by the central role of their owners, high multiplicity of one's duties and close employee identification (McKiernan and Morris, 1999). Often, managing directors engage the overall risk assessment without sharing and discussing it with team members (Henschel, 2008). Consequently, enterprises in their starting phase often underestimate risks, ignoring them or just having only one risk strategy for bearing the risks (Henschel, 2008).

Furthermore, SMEs typically do not have the resources to acquire specialists for each enterprise's position nor in administration functions such as risk management (Matthews and Scott, 1995). Also, SMEs usually do not tend to use specific techniques to identify or manage risks and literature related is limited and still in an early phase of development (Jayathilake, 2012).

Moreover, due to limitations regarding infrastructure, management, technical expertise, intellectual and financial resources, SME's are far from adopting a proactive approach towards risk (Janney and Dess, 2006), despite its critical importance regarding their sustainability and results.

As a groundwork to the present research and for the aftermath risk tool comparative analysis, several existing risk models and tools were previously analysed. A list of the most relevant found is presented on Table 1, which includes a brief description along with the identified advantages and disadvantages of each one of them.

All the mentioned tools use a subjective risk approach based on uncertainties and nearly all identifies, prioritizes and address risks. However

none of the tools is suitable *per se* to SME's, because either is too expensive or too complex, compelling the company to use extensive efforts and time to an activity which most SME's managers consider not to be a binding activity.

From Table 1 analysis, Risk Diagnosing Methodology (RDM) emerges as an important model which, if adapted to a platform reducing the existing complexity, time expenditure and facilitator's function as originally required, could dwell as a strong risk supporting solution for SME's and start-up enterprises.

3 THE SPOTRISK® TOOL

The development of the Spotrisk® tool was made possible with the contribution of a group of researchers that included one of RDM's creators: Jimme Keizer. Spotrisk® has a RDM framework basis which provides SME's an adapted system of risk assessment and response. The tool seeks to allow enterprises to diagnose thoroughly and methodically both internal and external risks that an innovative project generally faces, formulating the type of risk management strategy to be established.

The tool was developed on a web-based platform, universally accessible, that automates the RDM's "Risk identification" and "Risk Response development and control" phases through a web integrated system, as synthesized in figure 1.

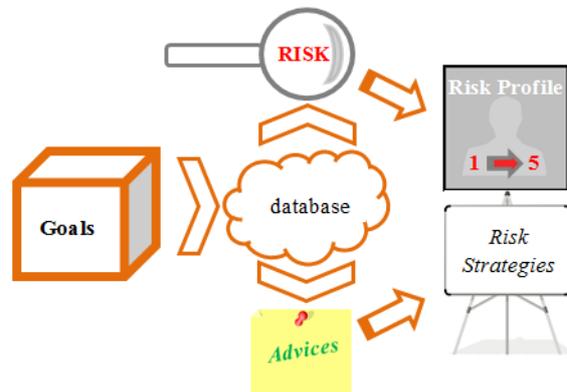


Figure 1: Spotrisk® global structure.

The interaction with the organization is based on the RDM's "Risk assessment" phase, where the manager and each member of project team need to answer to a standard risk questionnaire, in order to put forward the project's risk profile analysis and check its progress in time.

Table 1: Main existing risk management support tools and models.

Name/Year	Functionalities	Advantages	Disadvantages
Iris Intelligence 2005	Organizational integrated risk management within wide business practices.	<ul style="list-style-type: none"> • Integration with Microsoft Office; • User-Friendly; • Cloud based possibility; • Complete. 	<ul style="list-style-type: none"> • Very Expensive; • Designed to manage only organizational risks.
RiskCloud 2003	Risk identification and assessment with personal support.	<ul style="list-style-type: none"> • Cloud based (no installation required); • Visual & User-friendly; • AS/NZS/ISO31000:2009; • Complete. 	<ul style="list-style-type: none"> • Expensive; • Difficult access; • Organization analysis and not specific project analysis.
ProjectFuture 2003	Project’s quantitative and qualitative risk calculation and identification software.	<ul style="list-style-type: none"> • List of possible risks, effects, causes and responses; • Risks associated with tasks; • Possibility to evaluate severity of risks associated with different dates. 	<ul style="list-style-type: none"> • Limited number of Projects; • Expensive; • Software installation required.
RiskyProject 2002	Project planning, scheduling, quantitative risk analysis, and performance measurement.	<ul style="list-style-type: none"> • Add-In association with Microsoft Project; • Possibility to regulate the risk tolerance. 	<ul style="list-style-type: none"> • Complex; • No risk identification; • Software installation required; • Dilatory and slow processes.
SME-at-Risk 2002	Service that aims to provide a comprehensive understanding of the risk management basics.	<ul style="list-style-type: none"> • Provides a vast know-how basis; • Shortens the access to existing articles; • Shares information. 	<ul style="list-style-type: none"> • Lack of management; • No functionalities in terms of tool; • Only provides literature review.
RDM 2002	Methodology that through a series of interviews and a checklist questionnaire collects results, allowing a company to diagnose and manage project’s risks.	<ul style="list-style-type: none"> • Diagnoses thoroughly and systematically the project’s risks; • Develops technological, organizational and business approaches; • Formulates suitable risk output strategies. 	<ul style="list-style-type: none"> • Needs a risk facilitator; • Time expenditure; • Complex; • Difficult access to the methodology.

Each user can create an unlimited number of projects, specify its details and if necessary clone it, in order to assess a similar version of a certain project.

The Spotrisk® web-based platform is structured by: a “Goal oriented questionnaire”; a “Results” module with an integrated project risk profile analysis; and a “Benchmarking” and chart analysis module. Each of these topics will be next clarified and detailed.

3.1 The Goal Oriented Questionnaire

Because the success of product/service innovation can be determined by external influences and internal circumstances in which all these factors

interact, the nature of the issues must be done according to the domains in which the innovative project stands in order to obtain a global and effective assessment. However, for intended aggregation and project comparison purposes, a standardized format is desired. So, a general goal oriented questionnaire was developed in order to help identify common potential risks of product innovation projects in the following main domains as proposed on the RDM’s approach: technology, market, finance and operations (Keizer et al., 2002).

The tool also brings forward a RDM reference list with potential risk issues in the innovation process. For that, in a primary approach, a deep analysis of the reference list was made and selected issues were introduced and standardized in the

Spotrisk's questionnaire (see Appendix the selected risk issues). After some debate within researcher and development team some issues were added, such as question number 7 from Idea Stage or question number 3 from Feasibility Stage, setting up a total of 35 critical issues.

In order to manage the project portfolio better, the RDM uses the approach, known as the "Innovation Funnel" created in the early nineties (Ganguly, 1999). This approach, based on the conceptual model of Wheelwright and Clark (Wheelwright and Clark, 1992) is originally constituted by six stages in which projects are defined. However, in the Spotrisk® risk approach, only the four stages shown in Figure 2 were considered, while the remaining original stages "Post Launch Evaluation" and "Rollout Contender" were taken out, being the most important aspects of these phases included in the issues of the Launch Stage.

As it can be seen in the Appendix, the selected critical issues resorted in the goal oriented questionnaire were distributed through this four key staged process, from the initial conception of the idea, to the launching of the new product/service, elapsing through feasibility and capability phases to safeguard the potential and readiness of the project. Between each project stage a risk assessment will determine the viability of the project and a "go /no go" condition will be performed.

The critical questions were rendered into positive statements of goal objectives, meaning that each objective, if realized within a project, will translate it as a safe project. Each goal/objective on the questionnaire needs to be responded individually standing on three different parameters assessment:

- *Level of Implementation* – represents how much of the specific goal the project already

has or the level of certainty that it will be realized; i.e. the strength of the statement's truth, within the project's reality.

- *Capacity to Influence* – represents the ability of the project team to guaranty the accomplishment of the project's goal, within the time and resource limits.
- *Severity of the Consequences* – represents the potential level of negative impact on the project's performance by not attending to the specified goal.

For each parameter considered, an answer is required on a Likert five-point-scale, as for "Very low" representing the lowest reflection of the analysis and "Very high" being the highest consideration regarding the defined goal. "Low", "Medium" and "High" responses are for between conditions.

For example, addressing over the goal from the idea stage: "1. The idea has a clear business proposition: operational, cost, product, customer or resource leadership". Now, analyzing each of the parameters according to a hypothetical project:

- *Level of Implementation*: let's say my idea doesn't have a business proposition. So the Rating is "Very Low";
- *Capacity to Influence*: the project team is hypothetically capable of influencing the clearness of the idea's business proposition but it could be more capable. Therefore the influence should be "Medium";
- *Severity of the Consequences*: the lack of clearness in the idea's business proposition can strongly jeopardize the project. Also, a very clear business proposition will strongly benefit the project. Then the impact shall be "Very High".

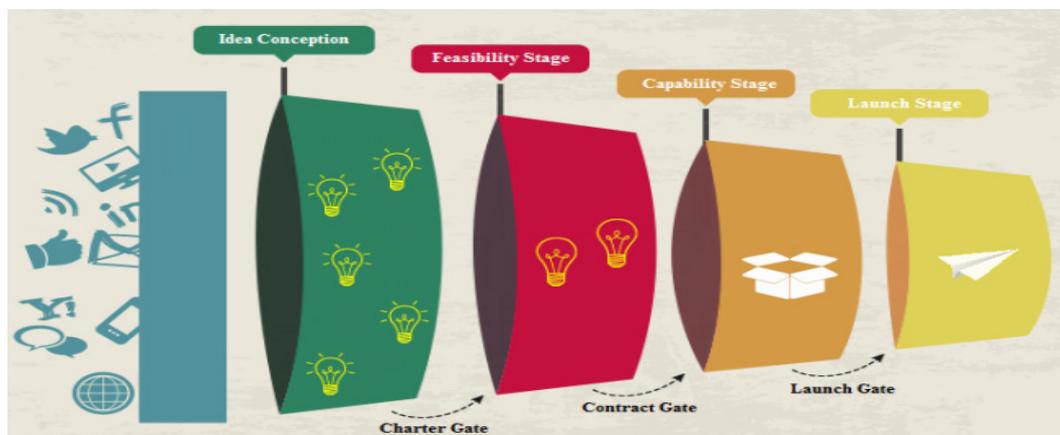


Figure 2: Innovation Funnel (adapted from: Wheelwright and Clark, 1992; Ganguly, 1999).

Each response represents a numeric quantity to be used in the risk profile calculation, being that the first two variables (level of implementation and capacity to influence) behave according to a “the higher, the better” logic, unlike the third variable (severity of the consequences), which behaves in the opposite sense (see Table 2).

Table 2: Qualitative risk metrics.

Level of implementation		Capacity to influence		Severity of the consequences	
Answer	Value	Answer	Value	Answer	Value
very low	1	very low	1	very low	5
low	2	low	2	low	4
medium	3	medium	3	medium	3
high	4	high	4	high	2
very high	5	very high	5	very high	1

The questionnaire results are then conducted into a database, where each goal is categorized into a risk class, returning from the data base the respective categorization: “Safety”, “Low Risk”, “Medium Risk”, “High Risk” or “Failure”, as it can be seen in Figure 3. In next section the data from de Results Module will be further present and discussed, along with the advices generated per each goal.

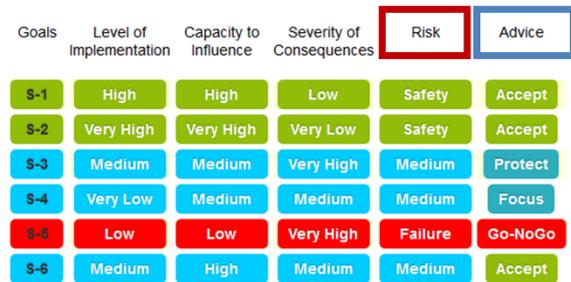


Figure 3: Print screen of the capability stage of a certain project.

3.2 Results Module

The project risk profile calculation transcribes the work developed by Jimme Keizer, Johannes Halman and Michael Song (Keizer et al. , 2002), so likewise, every risk is classified along the three parameters into four groups by the following decision rules:

Table 3: Correspondent parameter conditions for the generated broad advices.

Advices	Accept	Focus	Acquire	Protect	Go/No-Go
Condition	Each of the parameters: ≤ 2	Level of Implementation: ≤ 2	Capacity to Influence: ≤ 2	Severity of the consequences: ≤ 2	At least 2 of 3 parameters: ≤ 2

- (“*”): At least 50% of the scores are 1 or 2 (1 being “very risky”) and there is an absence of 5 scores on the numeric point scale.
- (“0”): At least 50% of the scores are 4 or 5 and there are no scores of 1 on the numeric point scale.
- (“m”): At least 50% of the scores are 3 and there is an absence of 1 or 5 in the numeric point scale.
- (“?”): For all remaining cases. There exists a lack of consensus, visible in a wide distribution of opinions. After cautious analysis and posterior comparison with decision profiles it is possible to avail each case (Keizer et al., 2002).

For example, a combination of scores “*,*,*” on a given goal would result in its classification as too risky that not diminishing the associated risks could be fatal for the project (*Failure*), on the other end the combination “0,0,0” would result in a “*Safety*” classification for that project’s goal.

Meanwhile, the database formulates the risk management strategies to respond to the assessed risk goals. Each goal is analyzed with a criterion relating the number of answers below a given value, generating an advice (specified in Table 3). For each goal, one of five broad advices can be generated and, for each advice specific actions will be later formulated.

If, for one explicit goal, the answers given reflect a safety situation, the database outputs the “*Accept*” advice, meaning that the project is proceeding according to a desired profile. If the parameter “*Level of Implementation*”, and no other parameter else, is below the value “3” (very low or low) then the advice given is “*Focus*”. This stands for a lack of efficiency in the distribution of the resources available. The “*Focus*” advice is generated when the project team possesses solutions to influence a specific goal and seeks to center the resources available on this shortage objective.

More specific actions can also be suggested by the database such as “*Avoid an unfamiliar subcontractor*” or “*Allocate resources*”, depending on the context of the goal.

If the parameter “*Capacity to Influence*”, and no other parameter else, is below the value “3” (very low or low) then the advice given is “*Acquire*”. This advice stands for a lack of resources available for the specific goal.

The “*Acquire*” advice is generated when the level of implementation is good, as well as the protection of the project related goal impact, but the capacity of the project team to influence the objective within the time and resources is weak. Therefore the “*Acquire*” advice suggests the project manager to take specific actions such as “*Obtain information*”, “*Acquire expertise in this subject*” or “*Improve communication*”, depending on the nature of the objective.

If the parameter “*Severity of the consequences*”, and no other parameter else, is below the value “3” (high or very high) then the advice given is “*Protect*”. This advice stands for creating a safety net for the case the goal is not accomplished.

The “*Protect*” advice is generated when the level of implementation is good, as well as the capacity of the project team to influence the goal, but the consequences potential impact on the project goal is too high for not to be protect it. Therefore the “*Protect*” advice suggests that project manager should protect the viability of the project, by taking specific actions such as “*Change contracts typology*”, “*Get insurance*” or “*Chose for performance bounds*”, depending on the context of the associated goal.

Finally, If 2 of the 3 existing parameters are below the value “3” then the advice given is “*Go/No-Go*”. This case stands for a difficult situation where the manager needs to decide whether there are possibilities to continue with the project, knowing that it stands on a hazard situation and the need to change some of the parameters in jeopardy; or if the possibilities are diminished and its best to simply abandon the project.

Moreover, apart from the calculation of objective’s risk classes and the generation of advices, the platform is able to calculate the average risk per stage or the general risk profile for the project (see Figure 4). This is performed through the calculation of the weighted average of the assessed goals within each stage or within the whole project. The average risk profile attains values from 1 to 5, being that a project is considered as “*Excellent*”. If the risk profile stands below “2”; gets the representativeness of “*Viable*”.

If it stands between 2 - 3; as “*Risky*” if it stands between 3 - 4; and in the case it stands above “4” as “*Impracticable*”.

Risk	1	2	3	4	5	Average
wsenergia	7	4	23	0	1	2.54
testec1	0	0	6	0	0	3.00
1 - Idea Stage	4	3	4	0	1	2.25
2 - Feasibility Stage	0	0	9	0	0	3.00
3 - Capability Stage	0	0	6	0	0	3.00
4 - Launch Stage	3	1	4	0	0	2.13

Figure 4: Print screen of the risk profile of each stage and its average.

3.3 Benchmarking Discussion

Small firms, in which inevitable limitations of internal resources ultimately constraint the ability to engage in innovative activities (Rothwell, 1991), will barely gather conditions to obtain a risk facilitator, which will attain the RDM risk management approach. In this context, Spotrisk® gives the possibility for the enterprise to earn feedback from a global network of its users, aggregating and bidding the information collected. So, the services provided behind the platform may stand in for the risk facilitator’s role, automatically.

Each submitted project takes a tended place in the database, contributing to data collection from which every user can compare his project. Each project can then be compared in terms of overall risk ranking, stage status or goal assessment and scaled up with the overall average of existing projects, within a specific user or with a specific project. For example, a project manager may wish to compare his project with a specific company’s kind of project (e.g. Google’s) which it could be possible if the stated profile was created. Thereby, it is possible to incrementally enrich an assessed project by submitting it to a global comparison and working as an innovation network.

The continuum use of the platform will provide further information to the database, working as a bilateral delivery that will bring feedback to platform administrators regarding incremental improvements, layout suggestions, new specific project advices and other issues.

4 TOOL TEST AND ASSESSMENT

4.1 Tests Description and Main Results

Conferences and workshops can be held for a wide

range of purposes, but mostly they have been held for helping communities or groups of individuals structuring problematic and supporting action plan or in the decision processes. Yet, a common purpose of these thematic gatherings is also to attain ideas and visions that are suitable as basis for the strategy development processes to be carried out by a certain community (Vidal, 2009). Therefore these meetings are learning and creative substantiated, producing outcomes from each participant contribution.

The Spotrisk® tool was developed by a Portuguese SME, developer of products and services in the solar photovoltaic industry - WS Energia - who shared the exposed difficulties of risk management in their SME practices and the need of having an integrated and early stage risk perception, management and response approach of their projects. So, the first tool test was carried out with six projects within the company, through an individual evaluation made by each of the six collaborators inserted in the respective project. The evaluated projects, despite pertaining within the same company, were able to reach different areas and components, such as operational, research & development and financial departments, providing a preliminary test regarding the universal content of the goal oriented questionnaire.

The first results obtained showed that the purpose of a web integration of a tool could directly and effectively support the use of risk management practices, and that the easy access and little time expenditure involved could be the most suitable approach towards SME's.

Aiming to test the Spotrisk® tool, and check their potential coverage and utility for other organizations, outside the energy cluster, a risk management workshop was carried out for start-up enterprises and SME's, in Madam Park, a start-up incubator in Almada, Portugal. This event took place with a total of 14 participants. As exposed in Table 4 the participants covered several selected areas such as start-up incubator representatives, SME's managers, risk academic experts and researchers.

The workshop was opened with an initial insertion of what was the main purpose of the work to be done, followed by a brief individual introduction of each of the participants.

Table 4: Participants' professional domains.

Main Domain	Participant
Academic	4
SME's Enterprises	6
Start-up Enterprises	4

Afterwards a brainstorm session took place, aiming to list the main risks experienced by each of the interveners and respective categorization, where different issues were pointed out, such as human resources, intellectual property, deadlines or market inexperience, which would help later to grasp the tool.

Then a brief presentation from a representative from a Lisbon start-up incubator was carried out, regarding the main difficulties felt in their project on the initial phase. Hereafter, the theoretical components bonded to a conformed risk management process were introduced in order to insight the participants upon the project risk management professional standards and existing models.

Lastly the Spotrisk® tool was then presented and each participant used the platform to evaluate a particular project being held or in which they had been inserted in their professional life. Then all the 14 projects were compared and the risk profiles were analyzed, collecting sundry project risk profile average results. The lowest and highest results were respectively 1.74 and 3.82, which led to a conversation regarding the reasons underneath the values found in each project, where it was concluded for example that the lowest result of 1.74 was in fact due to the nature of project analyzed, holding very safe conditions from several investors and institutions.

In the end a debate took place, where some appreciations were dealt regarding the value that Spotrisk® could bring to SME's and start-up enterprises, as well as some improvements and suggestions on the platform's performance.

4.2 Spotrisk® Evaluation

During the workshop, each participant received a small survey to set down some considerations upon the most interesting aspects, as well as suggestions and ideas regarding the improvement of the presented tool. They were also asked to fill a small evaluation table, in order to assess a few specific

Table 5: Spotisk® workshop assessment results.

Item	mean	min	max
Usability	3,4	2	4
Comprehension	3,5	3	4
Appearance	3,5	3	5
Potential Utility	4,6	4	5
Overall Appreciation	3,9	3	5

aspects. Table 5 presents summarized the main assessment values obtained from the 14 workshop participants, where they evaluated individually, in writing, platform's aspects such as "Usability", "Comprehension", "Appearance"; "Potential Utility" and "Overall Appreciation", with a scale from 1 (very bad) to 5 (excellent).

From the results gathered, the average numbers obtained suggest that the strongest feature of the platform is the potential utility to users, while the aspect which needs more improvement is the usability associated with the navigation in the web-platform.

Additional feedback was also brought driven by the awareness given to the participants through the process of answering the goal oriented questionnaire. Appreciations were rendered by participants affirming that the questionnaire provided to them the possibility of contemplating risks and events that they would never have directly thought before. These appreciations suggest that the simple action of answering to the questionnaire *per se* provides the user an important awareness of some critical risks inherent to a project. Therefore, as it was also inputted through the contribution of the segment of start-up incubators, that this risk assessment tool can compose an ideal tool for start-up incubators, for it brings important awareness to individuals who normally were never exposed to the exerted situations.

5 MAIN CONCLUSIONS AND FURTHER WORK

This paper sought to present a tool to help filling the gap over SME's risk management practices, proposing a useful and pragmatic approach to assess risks of innovative projects, provided on an RDM based risk appraisal on a web platform. The proposed, Spotrisk® tool intended to provide an integrated and early stage risk perception and response tool, designed to SME's but which recent assessment test results indicated that the tool can also be successfully applied to start-up enterprises.

Through the collected results it can be expected that the simple action of answering the developed questionnaire *per se* may provide the user an important awareness of critical risks inherent to a project, showing strong potential as to be an important tool for start-up incubators, due to the fact that the start-up enterprises associated are promptly the ones with less notion and tangibility with the

market. Therefore, besides making a capable risk assessment and generating factual risk strategies, the platform can also bring important awareness to individuals who, in most of the cases, were never exposed to exerted situations and events within an innovative project.

These first empirical results provides us the means to a favorable integration of an universal tool to support innovative projects development on SME's, regarding that the sample held embraced several distinct areas. Yet, it remains as a pending operation to extend the evidence of the universality of the goal oriented issues integrated in the platform. Also, it stands as future research to extend the list of specific advices, linked to a group of concrete actions to attend to risks accordingly, so that SME's may be driven thoroughly and systematically to suitable risk management practices.

Further investigation is also needed regarding the analysis of perceived risk profiles, in order to be able to control risk tendencies, cognitive bias and propensity into the decision making. Also, future research can be held in order to embrace several approaches, such as the integration of the platform in other project management modules, connecting risk management practices within project management general operations, or it can also be developed a filtering of the project assessment per project type, being able to approach a more valid series of issues regarding a specific project.

Finally, a research on the possibility of differentiation of the goal responses by threats and opportunities, being able to relativize the impact positive or negative (or both) of the risks associated, can be attended.

Due to the fact that it dwells as a cloud based interface, it is expected that: on one side, Spotrisk® will evolve with the users' activity in the platform, contributing incrementally with proactive feedback; on the other hand it will encourage companies to use tools to systematically improve the risk identification and management processes, associated with the development of new products and services. Hopefully, these tools will generate a positive impact by reducing project's costs, raising success rates, along with the entraining of a higher number of innovative projects into market.

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APPENDIX

Spotrisk's Goal Oriented Questionnaire

1.Idea Stage

1. The idea has a clear business proposition: operational, cost, product, customer or resource leadership.
 2. The idea has “springboard potential” (i.e. good prospects to become products or services).
 3. The idea has a value proposition with unique points, clear for buyers and partners.
 4. The idea is based on a solid market research.
 5. The project team has listed all the characteristics that the intended client seeks in the product/service.
 6. The target market is well defined and there are clearly described channels.
 7. There is a proposal for an effective action plan including eventual contingencies.
 8. The team has clearly identified channels to access external knowledge and skills regarding technology, marketing and management.
 9. Outsourcing solutions have been identified and are available.
 10. The idea is free of eventual property rights disputes.
 11. Possible ideas under development from competitors have been described.
 12. There is a clear list of competitors by market segment.
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2.Feasibility Stage

1. The team possesses the critical competences to develop, produce and market the intended product/service.
 2. Partners will deliver in time, with all the specifications as agreed upon.
 3. Organization and relations within the team members and partners are clear and goal oriented.
 4. The product/service will meet all requirements in terms of licenses, safety, environment, regulations, or others.
 5. The company is ready to provide future after sales services.
 6. The product/service will satisfy demands and expectations from stakeholders and external bodies/agencies.
 7. Financial resources are guaranteed to develop the product/service.
 8. The product/service can be delivered with prices that are acceptable to buyers.
 9. The product/service will contribute to the long term financial position of the company.
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3.Capability Stage

1. There is a clear production/supply process to provide a reliable product delivery.
 2. Future scaling up of process has been clearly addressed and described.
 3. Prototypes of the product/service have been tested to reach clear pre-defined criterion.
 4. Schedule and costs are realistic and achievable.
 5. Sales projections for the new product/service are based on consistent data.
 6. There is contingency plan to correct schedule and cost deviations along the project.
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4.Launch Stage

1. There is an action plan to react to competitors' response to the introduction of the product/service.
 2. The roll out of the product/service will happen as planned without information leaks.
 3. There is a plan to increase and protect the barriers that the new product/service will create against competitors.
 4. The key opinion makers are identified and assured.
 5. There is a clear process to measure the product acceptance and marketing & sales.
 6. There is a clear strategy to spread the marketing information through multiple channels.
 7. A clear ratio of cost/income will be monitored during the launch processes.
 8. A financial budget and monthly burn-rate thresholds are clearly defined.
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