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Design and implementation of operational risk mapping Case study: the Local Development Bank of Algeria « BDL »

Bedrouni aissa[1], Azzaoui khaled [2]

[1] University of Mohamed boudiaf-M'sila, Algeria, aissa.bedrouni@univ-msila.dz,

[2] High School of Commerce Koléa-Tipaza, Algeria, Kh_azzaoui@esc-alger.dz,

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Abstract: This study aims to design and implement an operational risk scheme in an Algerian bank, by adopting the current concepts of banking operational risks, and managing and planning risks in particular. With this study, we wanted to inspire best practices in operational risk mapping. This research work has allowed us to identify operational risks in the Bank, and to develop management and planning for these risks. Operational risks are considered very important risks that greatly affect the proper performance of the bank, and for this purpose, the bank seeks to manage and control it to reduce it and achieve its objectives. The Bank follows the various texts of the prudential rules: the international Basel Convention and the Central Bank's risk management rules, to establish a good risk management process.

Keywords: Bank, Operational risk, risk management, risk mapping.

Jel Classification Codes : G32, G21.

1. INTRODUCTION

The banking activity carries many risks, such as credit, market, counterparty, operational risk, etc. Within this framework. It is therefore essential to understand what risk is, in order to identify, assess, control and control it. This evolving universe of banking and financial risk requires banks to identify all the dimensions of risks linked to the banking industry and inevitably affecting the bank. The emphasis also increasingly placed on operational risk. The importance of which now recognized due to the scandals caused by its mismanagement and which have shaken the entire international banking community.

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[1] **Corresponding author**

According to the Basel Committee, Operational risk defined as the risk of losses resulting from deficiencies or failures attributable to personal procedures and internal systems or to external events. To deal with this risk, banks have several decades developed sophisticated techniques for identifying and assessing these risks, as well as numerous processing tools, foremost among which is internal control and risk management. One of the main challenges in operational risk management is to identify a bank's risks objectively and rationally. At this stage, it is essential to achieve a risk mapping that prioritizes emerging meta-risks. Risk mapping is a method of representing, prioritizing, identifying, and evaluating risks with regard to the controls in place, with a view to disseminating information that highlights any residual weaknesses.

1.1. The problematic of the study

The main question to which this study would provide an answer is as follows: "**What is the process of designing and implementing the mapping of operational risks inherent in the activity of the Local Development Bank?**"

This general issue leads us to ask ourselves the following questions:

- What is the process followed for the identification of the operational risks inherent in the activity of the BDL?
- What is the appropriate methodology for setting up operational risk mapping within the BDL?

1.2. The hypotheses of the study

In order to answer the previous questions, we put the following hypotheses:

- The Bank adopts modern concepts of operational risk and its management.
- Operational risks affect the proper functioning of the bank.
- The Bank follows various texts and prudential rules in managing risks.

In order to answer the previous questions, we will base our work on two types of methodological approaches: The descriptive approach: used during the theoretical presentation of the concepts of risk management, the concept of operational risk and the mapping of the latter. The analytical

approach: used to present the empirical framework of the study is based on the design and implementation of an operational risk map within the "BDL".

1.3. The study objectives:

The main objective of this work is to conduct a study on the operational risk mapping approach adopted by the Bank of Local Development "BDL" in Algeria. The research work is useful to BDL; it convinces the leaders of this credit institution of the importance of this tool in the evaluation of risk management processes, in other words our study aims to promote the treatment risks to reduce them to an acceptable level of threat. In addition, it will be, for us, the opportunity to apply the knowledge acquired during our training, to understand the logic underlying the establishment of a mapping of risks and thereby familiarize ourselves with this risk management tool. Finally, this work will be a means of obtaining a specific view of the mapping process and more generally of the control of operational risks in the banking sector.

2. Literature review

As with commercial banks, risk management at central banks is more advanced with respect to financial than to non-financial risks (Deloitte, 2017, p. 1).

2.1 The specificity of operational risks in the banking sector: An integrated framework will lead to a higher understanding of how risks are identified, monitored and mitigated (Deloitte, 2017, p. 8).

2.1.1 Definition: Operational risk is defined as the risk of losses resulting from deficiencies or failures attributable to procedures, persons and internal systems or to external events, the definition includes legal risk and excludes reputational risk as well as strategic risk (Comité de Bâle sur le contrôle bancaire, 2020, p. 139).

2.1.2. General components: the operational risk encompasses the full range of significant operational risks that threaten banks and takes into account the main factors that cause severe operational losses. Among the types of operational incidents likely to cause heavy losses, the Committee - in cooperation with the profession - identified the following (Comité de Bâle sur le contrôle bancaire, Saines pratiques pour la gestion et la

surveillance du risque opérationnel, 2003, p. 2):

Internal fraud: losses due to acts carried out internally aimed at defrauding, misappropriating property or circumventing regulations.

External fraud: losses due to acts by a third party aimed at defrauding, or misappropriating property, in violation of the law.

Employment practices and workplace safety: losses resulting from acts not in accordance with legislation or agreements relating to employment, health or safety of staff, breach of equality or acts of discrimination.

Customer, Product and Business Practices: Losses resulting from unintentional or negligent breach, professional obligation to specific customers, or the nature or design of a product. Damage to physical property: destruction or damage resulting from a natural disaster or other disaster.

Business interruption and system failures: losses resulting from malfunction of the business or "IT and telecommunications" systems. Execution of operations, deliveries and processes: losses resulting from a problem in the processing of a transaction or in the management of processes or relationships with commercial counterparties and suppliers.

2.1.3. Characteristics: The main characteristic of operational risk is that it is not concentrated in a particular industry; it is everywhere present. Loss can caused by the default of a borrower, but also an operational cause: error, negligence, fraud ... etc. Operational risk is subject to a capital requirement in the new Basel Committee solvency ratio. We can summarize the characteristics of operational risk as follows (Amina LOUADFEL, 2014, p. 16): An interweaving of causes, events and effects, An interweaving with credit and market risk (border risks), A coexistence of direct and indirect losses, Insufficient data history, and A difficulty of measurement, because it is not always apparent or directly observable. Findings suggest that there is a movement towards acknowledging the value of regulatory operational risk management practices, policies and procedures. Organisations that acquire crossborder interests should take cognisance of the psychosocial factors that affect the implementation of an operational risk management framework in order to address similar challenges (Annelize van Niekerk and al, 2012, p. 1).

2.1.4. Operational risk measures and coverage

Determination of the own background requirements: Basel II specifies three methods that banks can use to calculate capital charges related to operational risk. These methods represent a continuum of increasing complexity and risk sensitivity, and they include (Comité de Bâle sur le contrôle bancaire, Convergence internationale de la mesure et des normes de fonds propres, 2006, pp. 157-164): Basic indicator approach; Standard approach; and Advanced measurement approaches (AMA).

Operational risk measurement: For each possible loss event, the risk assessed in terms of severity (amount) and frequency (number of times in a period). The mapping carried out, it is important to set up an "incident" database in which loss events listed as and when they occur. It is from this history of losses that it will be possible to quantify the risk, to distribute it and to analyze the impacts of a particular measure taken for its mitigation. Three measurement approaches are then possible (Smaïl ARAOUR, 2007, p. 38): Statistical approaches; The Scorecard approach; and Approach by analysis of scenarios.

Operational risk coverage method: Any operational risk control system must not be limited solely to the identification and quantification of risks. The irreversible nature of the risk must not concealed. Because the total or partial realization of the calculated risk is certain, it is therefore necessary to take measures in order to act on the elements identified, to mitigate the impact of these risks, to anticipate certain dangerous situations, to foresee the outcomes in the event of occurrence and finally to absorb the losses suffered. All of these measures represent operational risk coverage, which takes two forms depending on their modes: internal coverage and external coverage (M. AHRAS, 2008, pp. 75-80).

2. 2. Mapping of operational risks

2.2.1. Definition: Risk mapping is a dynamic process for identifying and evaluating risks, which makes it possible to give a synthetic and visual representation. It thus constitutes a tool for highlighting the risks to be cover as a priority (IFACI, 2013, p. 10). Usually represented in a matrix format, each of the risks analyzed is positioned there according to its

likelihood (or probability) - affect (or severity). The matrix can divided into different colored zones, also known as “temperature zones”, representative of the level of criticality of the risks (G. SUTRA, 2018, p. 8).

2.2.2. Types of risk mapping: Before setting up a risk mapping, it is essential to determine the type of mapping you want to develop. There are two types of mapping namely:

Global mapping: makes it possible to identify and study all the risks that threaten the entity concerned. Establishing an overall map consists of identifying the main risks to which an organization is exposed, evaluating them and prioritizing them.

Thematic mapping: used to identify and prioritize the risks linked to a specific theme. It allows have a synthetic, but precise vision of the different areas of risk for a topic studied. Its main interest is to be able to bring together and compare on the same factual theme: Either different organizations for the same risk theme; That is to say different areas of risk linked to the theme studied by the same organization. The thematic mapping exercise can be a first step towards global mapping. The choice of the type of mapping linked to the choice of the type of risk studied.

2.2.3. The objective: Risk mapping should make it possible to (Frédéric. BERNARD et autres, 2013, p. 85): Identify the risks as exhaustively as possible and classify them; Identify the critical risks for the implementation of appropriate control systems; Describe the major risks facing the organization, as precisely as possible; Integrate in-depth analysis of processes and capitalize on operational expertise; Adapt the most effective risk reduction actions; Initiate a process of quantifying financing needs after risk reduction actions; Support each decision-maker (at group level, by business, by entity, by establishment) in the assessment and reduction of their significant and major vulnerabilities.

2.2.4. Motivation to develop the risk map: Several motivations can lead to the development of a risk map (compliance with professional regulations, internal audit activities, etc.). These motivations will determine the approach that will adopted as well as the different stages of development (Emma MOHAMED, 2017, pp. 25-27):

The Audit plan: For Jacques RENARD: ″ when a risk mapping is established, it constitutes the measurement tool which the internal auditor will seize ″. The risk mapping allowing the piloting of risk management by identifying the priority areas of action used as a basis for the programming of audit missions. Indeed, this tool allows, by a comparison between the opinions of operational staff and Audit, a rationalization of the approach of the audit department.

A risk analysis benchmark: The risk mapping established to allow both managers and operational staff to have a risk benchmark. It is a basis because it makes it possible to attest to the approach in terms of risk management. Risk communication; Banking regulations; Organizational restructuring events; Pressure from corporate governments and the Audit Committee. A bank can also establish a risk map by fashion effect to be at the methodological forefront of risk management. There are many internal and external reasons that can push a financial institution to establish a risk map for the control of its activities. The process must carried out in a scrupulous and precise manner. It must meet the conditions essential to its success.

2.2.5. Conditions for successful risk mapping: Establishing a mapping requires a number of conditions to ensure its success. These include, among others: The support, involvement and motivated support of senior management; The formation of a qualified working group; Clear and well communicated objectives; The creation of a climate of trust; The designation of a leader; The availability of means… .Etc.

2.2.6. Approaches to developing a risk map: Due to the rapid changes in the regulatory environment and the increasing complexity of activities, the general management has made risk mapping a real global management tool and have become its main sponsors. The systematic understanding of risks generally done using two approaches and a reconciliation between these two approaches (IFACI, La cartographie des risques, 2013, pp. 41,46-47):

The bottom-up approach: Starting from the analysis of processes and allowing the implementation of appropriate risk control systems. The top-down approach: consists of collecting at the top management level all the

major risks that may limit or prevent the achievement of the organization's strategic objectives, or threaten its main assets.

Integration of the two approaches: bringing these two approaches together should allow the organization to identify the risks that may have an impact on the major objectives of the organization and to lead to an overall risk mapping for effective management of the organization.

The Benchmarking approach: which consists of collecting best practices in risk identification from entities known for their good risk management. This can done during stays to exchange experiences in these companies, or during conferences and training workshops.

2.2.7. The stages of designing a risk map: Risk mapping is increasingly becoming a valuable management tool for companies. However, its development raises the question of how develop it? The answer to this question depends on the activity sector of the organization and its size, and the degree of involvement of operational staff in the management process. However, it should be noted that there is no standard approach to the development of the risk mapping imposed on Algerian banks, each must take into account its own specificities for better internal control provided it is adapted to the Algerian regulations. At the end of our various readings, we have defined an approach composed of six (6) phases summarized as follows:

The preparation phase: Before starting a risk mapping, it is first necessary to determine its scope in the organization. Indeed, this is the most important phase, because it helps to structure and organize the future mapping. It should allow us to define with precision (Amina LOUADFEL, 2014, p. 38): The studied theme; the scope of activity covered; the level of responses; the threshold of relevance; and the risk measurement rule. In this phase, it is also a question of setting up the mapping of the processes because in order to carry out the risk management approach in an organization, it is necessary, to know it and for this, the availability of a mapping of processes appears to be a logical prerequisite. Indeed, process mapping is a prerequisite, which serves as a basis for risk mapping.

The realization phase: This phase subdivided into two successive stages:

Risk identification stage: which is a prerequisite for the risk mapping process, thus the identification stages are numerous: Identification based on value-creating assets; Identification based on goal achievement; Identification by historical analysis; Identification based on environmental analysis; Identification by analysis of activities. Analysis Step: Once identified, the risks must analyzed and assessed based essentially on two criteria: their probability of occurrence and their impact both at the level of the entity and of each activity.

Risk assessment: During this step, it is necessary to (Amina LOUADFEL, 2014, pp. 42-45): Determine the nomenclature and the typology of risks: This involves classifying them by category and associating them with the various activities and functions of the company (human, financial, legal, and strategic, etc. . .). In addition, Break down the risks: Risk defined by two elements: the impact and the probability of occurrence. Thus, risk mapping contains two axes, one representing the level of impact (or severity) and that of probability. By multiplying the level of severity by the probability, we obtain the level of criticality of a risk. These three concepts each assessed on a scale that is specific to them.

The assessment of the risk control system / assess the net risk: The net risk will depend on the monitoring system implemented by the supervisory authorities to protect against risks. It is necessary to inventory the existing measures that will have a reducing impact and estimate the extent of this reduction. To do this, we must identify all the elements that contribute to risk control: Organizational arrangements; the control mechanisms put in place; Tools for monitoring the activity and its smooth running; and The elements of risk reduction or transfer. In this phase of the work, it is the operational staff themselves who will perform the task, the latter being part of a self-assessment process. They make a judgment on the degree of risk control and the influence of this device on the impact and / or the associated frequency.

Graphic representation: Traditionally, this is a two-axis graph: probability and impact. The graphic representation provides a view of the major risks and makes it possible to identify the areas to be treat as a priority. There are

several ways to represent a cartography including the dual-scale representation, which is the most common, Radar mapping (spider star) and thematic mapping.

The action phase: The purpose of making and maintaining a map lies in the implementation of an action plan. It consists of the stages of risk treatment, which carried out by different methods depending on the characteristics of the risks facing the company; we distinguish acceptance, sharing, avoidance and reduction of the risk weight. In addition, the implementation of action plans. The ultimate goal is to reduce gross risks as much as possible, in order to achieve the lowest possible residual level.

The Reporting phase: “Reporting makes it possible to provide the hierarchy with a periodic report of the actions carried out and the results obtained by a management unit (responsibility center, subsidiary, factory, etc.)” (GRANDGUILLOT & al, 2008). The purpose of the Reporting phase is to report, in real time, on the state of execution of the action plan on the one hand, and the level of risk control on the other. This information can be obtain from the lower level to the higher level and vice versa. Their reliability must be irreproachable, because they can trigger decisions to correct the action plan, which is be implemented.

The plan verification phase: The annual action plan is the formal establishment (based on the last mapping) of actions decided for the coming year in the area of risk control”. This involves setting up a mechanism for monitoring and evaluating the action plan currently be implemented. In other words, the results achieved are measured and compared to the objectives to achieve in order to identify any deviations (FAUTRAT, 2002).

The updating phase: "Mapping wouldn't make sense if it were just a static tool not being exploited and updated at a sufficient rate." The update will concern auditable objects (IFACI, De la cartographie des risque au plan d’audit , 2013, pp. 38-39): new auditable objects (for example, new "business units" through external growth), existing auditable objects but carrying new risks, and on the other hand, the risks identified in the previous cartography, the criticality of which must be reduced or increased. Therefore, the update method should identically follow the construction

method of the initial map.

3. Case study

We propose a methodology for developing a: "Thematic" mapping of operational risks, and the overall mapping of all BDL activities. The methodology of the cartography established by the BDL is that mentioned above in the theoretical part. It sums up in six phases.

3.1. The preparation phase: Before starting a risk mapping, it is first necessary to determine its scope in the organization; this phase is one of the most important, because it allows structuring and organizing the future mapping. It allows us to define with precision: The theme studied is the design of an operational risk mapping.

The scope of activity covered: We must limit our research work to the implementation a mapping of operational risks, which will only concern the foreign trade service of the “DSP” payment services department.

Format of the mapping: the format developed by the BDL based on the principle of associating with each process the risk (s) of category 1 and category 2 as well as the wording of the risk event that corresponds to it (ENT), risk scenario, frequency and DMR. The essential prerequisite for the implementation of risk mapping is the definition of a process mapping for all the banking businesses. The BDL has followed various structures in order to apply the mapping of these risks. This document sets out a detailed vision of all the activities of the "BDL" international service, broken down into Lines, Pilot, Domains, processes and sub-processes. The mapping set up by the BDL team is quite long. We therefore preferred to present a simplified part, which we consider more relevant, at this stage we have chosen these two main processes for our study.

Table 1: The mapping activities of the "BDL" international service

Line	Pilot	Field	Process	Sub process	Objective of the process
Commercial Bank	**t Services Department**	Trade Operation	Import Documentary Credit	Pre-domiciliation	Allow a customer to settle an import
				Domiciliation	
				Opening	

				Modification	transaction by letter of credit, subject to documentary compliance
				Cancellation	
				Document processing	
				Rules	
			Export Documentary Credit	Domiciliation	Allow a customer to collect revenue from an export by letter of credit
				Opening confirmation	
				Modification	
				Cancellation	
				Document processing	
				Repatriation	

Source: internal bank document.

3.2. The risk identification phase: The mapping of operational risks responds to an approach, which consists in identifying all the events likely to give rise to risks at the level of a given activity. To do so, and for the sake of completeness, it is necessary to divide the bank's activities into processes. Risky events are associated with each generic process. The (ER) correspond to manifestations of generic risks adapted to the business lines and processes of the BDL. We will start by giving the Blaise typology of risks and we will unfold the risks retained for the foreign trade service thereafter. (The risk typology selected structured in two levels).

Due to the lack of a history or base of incidents and of recording of the losses that have occurred, the most appropriate approach at the "BDL" level is self-assessment. This phase consists of defining the risk events linked to the activities identified as part of the process mapping. Thus, each mapping process will be associated with one or more first level risk (s), to which (which) will be associated a second level risk and a risk event (Appendix 02).

3.3. Risk assessment and prioritization: This step, also called "rating", revolves around two main components: the frequency of the risk and the corresponding financial losses.

3.3-1. the raw risk assessment: The evaluation approach divided into two levels: The evaluation of frequency and that of impact. Indeed, the frequency rating takes into account the history and answers the following question: has the risk event already occurred? If so, how many times in the

year? Moreover, that of the impact answers the question: What is the estimate of the loss generated by this risk?

Table 2: Financial impact and annual frequency of occurrence

Financial losses	Loss intervals (MDZD)	**Time values**
4. Critical	X > 500	Several times a month
3 Strong	100< X <500	1 per month
2 Medium	50< X <100	at least once a year
1 low	X< 50	Once every 5 years

Source: internal bank document.

Gross risk rating: It obtained by following the following formula:
Gross risk = Frequency * Gross impact.

Table 3: Gross risk rating

Gross impact	**Gross criticality**			
4. Critical	2 Medium	3 Strong	4. Critical	4. Critical
3 Strong	1. Low	2 Medium	3 Strong	4. Critical
2 Medium	1. Low	2 Medium	2 Medium	3 Strong
1 low	1. Low	1. Low	1. Low	2 Medium
	1. Very rare	2. Quite rare	3. Quite Frequency	4. very Frequency
	Frequency of occurrence			

Source: extract from the mapping table established by the BDL team.

According to the method established by the BDL, the value of the gross impact takes the higher value of the following impacts: financial impact, legal impact, image impact and continuity impact.

3.3-2. Image impact assessment: After assessing the raw risk associated with a particular risk, the image impact should be assessed in the event of the occurrence of the risk in question. Indeed, the "image" impact is very important for the bank because it represents the reputation of the bank with third parties. This risk is not part of the nomenclature of the Basel Committee because of the difficulty of measuring and determining it, it is the consequence of several other risks (commercial risk, internal fraud, etc.). The image risk is a function of several parameters, mostly qualitative,

which we have summarized in the following table.

Table 4: The image risk

Impact Image	Appreciation
4. Critical	Very negative media coverage in the press and television news at national and international level. Loss of confidence of depositors.
3 Strong	Negative media coverage in the national print media. Image and reputation are affected in the short term.
2 Medium	Information relayed on the internet, social networks ... potential impact on the image and reputation of the bank.
1 low	Rumor internally only. Insignificant impact on the notoriety, image and reputation of the bank.

Source: internal bank document.

3.4. risk management system Assessment and net risks determination

Once the gross risk map has been established it is necessary to develop that of net risks. The operational risk actually borne by the bank depends on the control system implemented to prevent or eliminate risk events. After identifying all the potential risks, an inventory of existing measures that would have a positive effect on risk reduction is made. Operational staff who make a judgment on the degree of risk control back up this approach. There are three kinds of "BDL" controls: Preventive, Detective and Corrective. In addition, by nature: Manual, semi-automatic and automatic. The control system is therefore rated regardless of the nature of the risk according to the following scale.

Table 5: The control system and the nature of the risk

Master's degrees	Evaluation
4. [0%, 30%]	No controls in place to deal with this risk.
3.] 30%, 50%]	The control put in place partially covers the risk.
2.] 50%, 70%]	The control put in place fully covers the risk but its application is irregular.
1.] 70%, 95%]	The control in place fully covers the risk and its application is regular.

Source: internal bank document.

Net risk rating = gross criticality * DMR efficiency.

Table 6: Raw criticality and Net risk rating

Raw criticality	**Net risk rating**			
4. Critical	2. Medium	3. Strong	4. Critical	4. Critical
3 Strong	1. low	2. Medium	3. Strong	3. Strong
2 Medium	1. low	1. low	2. Medium	2. Medium
1 low	1. low	1. low	1. low	1. low
	1.]70%, 95%]	2.] 50%, 70%]	3.] 30%, 50%]	4. [0%, 30%]
	Effectiveness of DMR			

Source: internal bank document.

3.5. Development of the risk matrix: The mapping of the net risks obtained by the BDL, after all the previous steps, (simplified version). In the end, the bank must study the state of the processes (risky or non-risky process) by two different approaches: The first: if there is a single sub-process, which contains a critical net risk (very high), then the process is risk. The second: the calculation of the average of the various net risks of the sub-processes.

3.6. Definition of action plans: The definition of action plans at the BDL level is carried out after a general discussion on the state of risk and its impact on the performance of the bank, after several meetings and workshops of specialists in the field.

3.7. Updating the mapping: The mapping is updated as follows:

Table 7: The mapping

the update date is decided between the risk department and the operational managers	
Least risky entities	Most risky entities
every 3 years	annually

Source: internal bank document.

4. Results and recommendation

4.1. Analysis and distribution of the risks of the foreign trade service

First, in terms of the distribution of operational risks identified at the level of the international service of the "BDL" in terms of category, we were able to identify 49 risks distributed as follows:

Table: 8: international service risks

Risk code	R01	R04	R05	R06	Total
Number of risks	1	45	2	1	49
The percentage	2%	92%	4%	2%	100%

Source: the two researchers, depending on the bank's data, achieved it.

From the results obtained, we can conclude that the most important risks at the level of the COMEX service of the "BDL" after their assessments in the various operations are the risks related to "Execution, delivery and management of processes". They represent 92% of the total residual risks and in our example; they mainly consist of the following generic risks: Non-compliance with deadlines or regulatory obligations; Failure to meet internal bank management deadlines; Errors in entering, monitoring or loading data ... etc. This could be explained by the workload of the staff, both at the level of the agency and at the level of other structures intervening in the foreign trade service, also the non-specification of the tasks dedicated to each operational contributes to the increase. The number of risks identified, they also result from the discrepancy between managerial decisions and the reality of activities, this discrepancy is caused by the inadequacies of the basic control processes and / or organizational ambiguities. Then, the distribution of ROs of the foreign trade service in terms of quotation is represented as follows.

Table 9: gross and net risk in foreign trade service

Cotation	Critical	Strong	Medium	low	Total
Gross risk	10	9	15	15	49
Pourcentage	20%	18%	31%	31%	100%
Net risk	2	10	11	26	49
Pourcentage	4%	20%	23%	53%	100%

Source: the two researchers, depending on the bank's data, achieved it.

According to the two diagrams, we notice that: Critical risks represent a percentage of 20% of the total gross risks defined and those with a high rating of 18%. The risks of medium and low rating represent the largest proportion 31%, but this does not 'not prevent the significant percentage of critical and high risks from being overlooked; they should be reduced and controlled. Then, the diagram of net risks represents that the percentage of critical risks is reduced to 4% (a decrease of 16%), as well as the average

risks (a decrease of 8%). Finally, we note that the effectiveness of the risk control system is greater on "critical" risks, which have been reduced from 10 risks to only two risks, than on "strong" and "medium" risks.

4.2. Assessment of the sequence of steps in the cartography of the BDL

Depending on the analysis of the bank's data. Assessment of the sequence of steps in the cartography of the BDL.

4.2.1. Assets

The approach established by the BDL respects the general stages of a risk mapping process. The bank relied on the combined approach (the integration of the two Top down and Bottom up approaches) to apply its mapping. This combination allows exhaustive identification of the processes.

The process concept is well defined and delimited allowing an optimal division of the activity of the bank. The approach to identifying operational risks, combining both an intuitive approach through process mapping and a systematic approach based on a typology of operational risks, is consistent.

The risk typology is inspired by that proposed by the Basel Committee. The inherent risk assessment approach is quite relevant because it is based on the combination of a qualitative and quantitative approach to the probability and impact of operational risks. This makes it possible to objectify the assessment of the dimensions of each operational risk.

The distinction between financial impact, image, continuity and legal impact and giving them importance allows an analysis of the internal and external environment of the Bank. Internal controls are identified for each generic process. A correspondence is made between the types of controls identified (preventive, detective and corrective) and the operational risks identified.

The operational risk matrix is simple and clear, based on a breakdown drawn up into risk zones and allows a vision of the operational risk profile of each sub process at a time “t> l.

4.2.2. Weakness

The absence of the incident base. The lack of a centralized database to

allow the control of the completeness of declarations at the level of the directorates. (The project is still running). The establishment of the risk matrix is not formalized as a full step. A distinction should be made, however, between the establishment of the operational risk map and the assessment of residual risks.

The step of defining the action plans of the DBL approach combines the action and evaluation phases of the theoretical approach. However, it is not interesting to combine the concepts of definitions and implementation of action plans and those of monitoring these action plans.

Lack of time, we were not able to obtain sufficient information regarding the Reporting stage, while in principle, the Consolidated Reporting should follow the stage of implementing action plans. Lack of an efficient and secure information system allowing the detection and treatment of anomalies within an appropriate timeframe, absence of centralization.

4.3. Recommendations for enriching the BDL approach

Strengthen staff training in the field of risk management, and make them aware of the importance of operational risks and their role in hindering the proper functioning of the organization. Staff awareness and training on respecting regulatory deadlines, in particular for partial settlements. In addition, on the checkpoints for documents to be received.

Integrate the list of prohibited direct debit / prohibited product in the information system with a centralized update. Formalize a checklist of the mandatory checks to be carried out on the documents received, which will be accessible to those involved in this process. The bank must set up an international filtering and blacklist system with access for management with foreign countries and network (branches).

The monitoring of the factors of vulnerability by a permanent reassessment of the weighting rates according to the evolution of the activity of the bank. This would reduce the subjectivity of this approach to assessing the likelihood of operational risks, should it be used on its own. Set up management reports for monitoring deadlines; warranties pending; guarantees refused… etc. and automatic management of repatriations in terms of deadlines.

Highlighting the risk coverage strategy; the implementation of a standard model of action plans and the calculation of the approximate cost of implementing each action plan.

4.4. The contribution of the OR mapping project for the BDL: Mapping is an essential tool for the various actors in the organization to improve overall risk management; strengthen the risk culture in the organization; reduce financial and non-financial impacts and improve performance and control within the establishment.

5. CONCLUSION

Operational risk is omnipresent in all banking transactions. Its assessment is not easy to make, in particular, because of its diffuse nature, the difficulty that there may be in collecting or even understanding the information given by employees when it comes to qualifying operational risks. Identified. The differences in terms of the definition of these risks, the difficulties encountered by the banks in setting up an "operational risk management" system were one of the major reasons, which prompted us to retain this subject for our brief, at the effect of making the link between this risk and the risk mapping.

Risk mapping is proving to be the most relevant tool for identifying, evaluating, prioritizing and controlling the risks of a bank. It is the starting point for all other actions necessary to reduce, control or transfer risks. See even a decision support tool.

According to this mapping, the BDL presents significant operational risks linked to the foreign trade service. We have grouped them into four risk areas, namely: low risk, medium risk, high risk and critical risk. We have developed an action plan, which provides for measures to control the various risks belonging to this category. To do this, the BDL must take care to avoid these risks in order to allow it to last and remain a leader in the Algerian market. In this context, we strongly recommend rigorous monitoring of the controls put in place. In addition, it is important that the proposed action plan be taken into consideration to allow the BDL to carry out all daily operations and tasks without any risk that could hinder the

achievement of their objectives. This is only possible through the full involvement of general management as well as those involved in the various aforementioned processes.

Finally, we will retain that the control of operational risk must. First, be everyone's business, which is why we insist on the fact that a "risk culture" must be disseminated within our banks and institutions. Financial and which will result, in the field, by both theoretical and "professional" training at all hierarchical levels.

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