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Strengthening the Three Lines of Defence in Terms of More Efficient Operational Risk Management in Central Banks

Abstract: This paper is the result of the author's many years of multidisciplinary research in the areas of quality management and operational risk management. The main focus of the research is aimed at strengthening the model of the "three lines of defence" in terms of more efficient management of operational risks - those that arise as a result of inadequate and unsuccessful processes and systems, human factors, as well as those that can appear as a result of external events. The strengthening of the three lines of defence model is brought about through the synergy of quality management principles, the principles of risk management, and the total quality management approach. In essence, the term strengthening may be interpreted as a process of continual improvement. Business operations based on the principles of quality management and risk management allow central banks to be able to continuously improve their overall business performance. The principles of quality management contain properly aligned and matched best solutions from current management theory and practice. Designed to work together - and this essentially means in a consistent, synchronized and synergistic manner, the principles are translated into a series of requirements and guidelines of international standards suitable for implementation. Through their synergy, the principles of quality management and risk management, as well as approaches to total quality management form a clear, applicable and sustainable paradigm of successful management of central banks. Incorporation of the principles of quality management in central bank systems and processes would significantly strengthen the three lines of defence, in terms of efficient operational risk management, which this paper aims to show in a clear and comprehensive manner. Although any central bank is a specific

institution, all the principles of quality management and risk management can be applied to its operations. In addition to the numerous and highly significant benefits and synergistic effects that the application of quality management and risk management principles bring to central banks, what should also be highlighted is their impact on a new way of thinking regarding successful central bank governance, which generates a new attitude towards its responsibilities, objectives, employees, and the environment. A new way of thinking produces new behaviours and an improved business culture and can ensure the sustainable success of central banks and other financial system entities. Bearing in mind that the process of risk management is an integral part of the working of central banks, the most effective results are achieved when the “process owner” is also the “risk owner”. This paper shows that the integration of these two roles contributes to the full effectiveness and efficiency of the processes and risks management. It is clearly demonstrated that this unity of the roles, along with a quality culture, a risk culture, and risk-based thinking is embedded in all management processes - from defining policies, objectives, and plans, all the way to their operational implementation and that this ensures the fulfilment of requirements, needs, and expectations of customers and other relevant stakeholders. In all of this, the management of any central bank plays the most important role, not only because of the importance and complexity of the issues in question, but also because of their full responsibility to manage risks in a proper, effective, conscientious and dedicated manner, as that is the key precondition for achieving sustainable success..

Keywords: strengthening the three lines of defence, operational risk management, strengthening the first line of defence, strengthening the second line of defence, strengthening the third line of defence, harmonisation and coordination of the strengthened three lines of defence model, central banks.

JEL classification: E58, G31

1. Introduction

Technology development, market expansion and rapid changes, as well as increasingly stringent regulations at regional and international levels are the reasons behind the appearance of diverse, complex, and growing risks faced by modern organizations (Luburić, 2013). That is why we face the repeated dilemma regarding the best way to identify, carefully evaluate, and effectively manage risks. In seeking the answer to this dilemma, more and more organizations in all areas of work, especially those in the field of finance and banking, have been showing great interest in the operational risk management model called “three lines of defence”. This model, governed by a series of rules, especially in the domain of the banking system, starts from the assumption that every individual function in an organization has a clearly defined role in risk management in order to reduce the likelihood that a risk goes unnoticed and thus cause unexpected negative consequences. Checking a model arranged along these lines and confirmed in practice is rather challenging; especially checking whether it can be improved using various approaches, thus contributing to a more efficient management of operational risks. The implementation of these improvements, as a permanent

process, should clearly define a model to which these improvements relate, as well as methods and procedures by which these are to be achieved.

The three lines of defence model of operational risk management is applied in many areas of business. This model is also applied in many of the leading central banks¹, as well as in a number of commercial banks and with a considerable success, although full operational compliance with all the principles for the sound operational risk management has not been achieved. So let us briefly reflect on the principles, when and by whom they were issued, and what is their essence.

In 2011, the Basel Committee on Banking Supervision (the Committee) issued a document titled “Principles for the Sound Management of Operational Risk” (the Principles). The document defines eleven principles for operational risk management (Bank for International Settlements - BIS, 2011, p. 1-19). These principles particularly emphasize that the operational risk should be embedded in all banking products, activities, processes and systems, which is a specific responsibility of the board of directors and senior management. It is also very important that banks measure risk exposure in all known processes and respond with appropriate measures for their control and mitigation. This document also states that sound internal governance forms the foundation of an effective operational risk management Framework (BIS, 2011, p. 3-5).

The Principles recommend the three lines of defence model for an effective operational risk management, which consists of business line management, an independent corporate operational risk management function, and an independent review. The first line of defence in the banking practice is operational management, i.e. business line management that is responsible for identifying and managing risks. A functionally independent corporate operational risk management function is the second line of defence that, as a rule, complements the activities of business lines' operational risk management. This second line of defence needs to be independent from risk generating business lines and responsible for the design, maintenance, and ongoing development of operational risk framework

¹ In many eminent central banks, roles and responsibilities for risk management are structured using the “three lines of defence”. In the *Federal Reserve*, for example, the first line of defence is the management of business lines (business units). Business lines, i.e. business units are responsible for the identification and management of risks in the business. The second line of defence, risk management, monitors the implementation of the first line, represents the risk control, establishes a framework for risk management, administers the risk policy, and prepares reports on risk exposures to the senior management and board of directors. The third line of defence, internal audit, provides independent evidence of the risk management and internal controls, including the activities of the first and second lines of defence (Luburić, 2016b, p. 166-167).

within the bank. According to the Principles, the third line of defence is an independent overview and challenge of the bank's operational risk management controls, processes and systems. Those who perform this overview must be competent and appropriately trained and not involved in the development, implementation and operation of the Framework. This review may be performed by the audit or employees independent from the process or system under review. It is very important to emphasize that a strong risk culture and good communication among these three lines of defence are important characteristics of a good risk management (BIS, 2011, p. 4).

The Principles particularly address the role of internal audit, underlining its adequacy in order to provide independent verification that the Framework has been implemented as intended and that it functions effectively. Internal audit should also give opinion on overall appropriateness and adequacy of the Framework and the associated governance processes in the entire bank. Although internal audit should not set the specific risk appetite or risk tolerance, it should review the robustness of the process by determining the way these limits are set and why and how they are adjusted in response to changing circumstances (BIS, 2011, p. 4-5).

Considering that operational risk management is constantly evolving, and that business environment is constantly changing, the Principles emphasize the need for the management to ensure that policies, processes and systems of the Framework remain sufficiently robust. It should be particularly borne in mind that improvements in operational risk management largely depend on the readiness of senior management to act promptly and adequately on warnings received in relation to risks.

The Principles also define the role of the board of directors and senior management, as well as the role of banks in the development, implementation, and maintenance of the Framework for operational risk management.²

The Basel Committee for Banking Supervision issued another document in 2014, the *Review of the Principles for the Sound Management of Operational Risk* (the Review) that significantly supplements and clarifies the aforesaid principles.³ The Review gives an overview of the implementation of the three lines of defence and additional clarification regarding their implementation. It covered 60 systemi-

² For more details on the Framework see: Bank for International Settlements - BIS (2011). *Principles for the Sound Management of Operational Risk*, p. 5-11.

³ For more details see: Bank for International Settlements - BIS (2014). *Review of the Principles for the Sound Management of Operational Risk*. p. 1-52.

cally important banks from 20 countries⁴ and all 11 principles, with a particular focus on the three lines of defence. The process involved a questionnaire by which banks self-assessed their implementation of the Principles.

The general conclusion was that, overall, the banks had made insufficient progress in the implementation of the Principles originally introduced in 2003 and revised in 2011. It was concluded that many of the banks were still in the process of implementation of some of the principles, whereas systemically important banks had implemented the Principles and the operational risk management tools to varying degrees. With regard to the three lines of defence, banks are encouraged to (BIS, 2014, p. 40–41): (1) ensure that an effective three lines of defence model is implemented to appropriately identify and manage operational risk; (2) assign roles and responsibilities of the three lines of defence to relevant departments, including business units, business unit ORMs, other corporate experts and ORMs; and (3) reinforce their operational risk management culture through an active communication strategy in the bank.

2. Main characteristics of the model of three lines of defence

The model of three lines of defence clearly indicates the roles of different functions, their competence and responsibility, as well as the coordination that should specifically demonstrate how they can cooperate for the purpose of effective and efficient risk management. A particular quality of this model is the fact that its basic structure can be applied to any organization, regardless of its size and/or activity, and, therefore, to financial institutions as well. The model of three lines of defence for effective risk management in the banking sector is structured in a way that clearly indicates the three pillars, that is, three lines:

- First line of defence — Operational management
- Second line of defence — Risk management function
- Third line of defence — Internal audit.

⁴ The review covers banks from Australia, Belgium, Brazil, Canada, China, France, Germany, India, Italy, Japan, the Netherlands, Russia, Saudi Arabia, South Africa, Spain, Sweden, Switzerland, Thailand, Turkey, and the USA.

Figure 1: Structure of the three lines of defence model



Modified according to: Hostyn, E. (2009), *Internal Audit and other assurance providers*.

This model achieves efficient results if all three elements of the structure function as regulated lines of defence. The first line of defence is operational risk management; the second line supports the first line through the development of management framework, whereas the third line supports the proper functioning of both the first and the second line of defence with internal audit activities. The importance of this model for operational risk management in the banking sector is already highlighted in the referenced Principles that indicate that a sound practice of operational risk management is based on the model of three lines of defence.

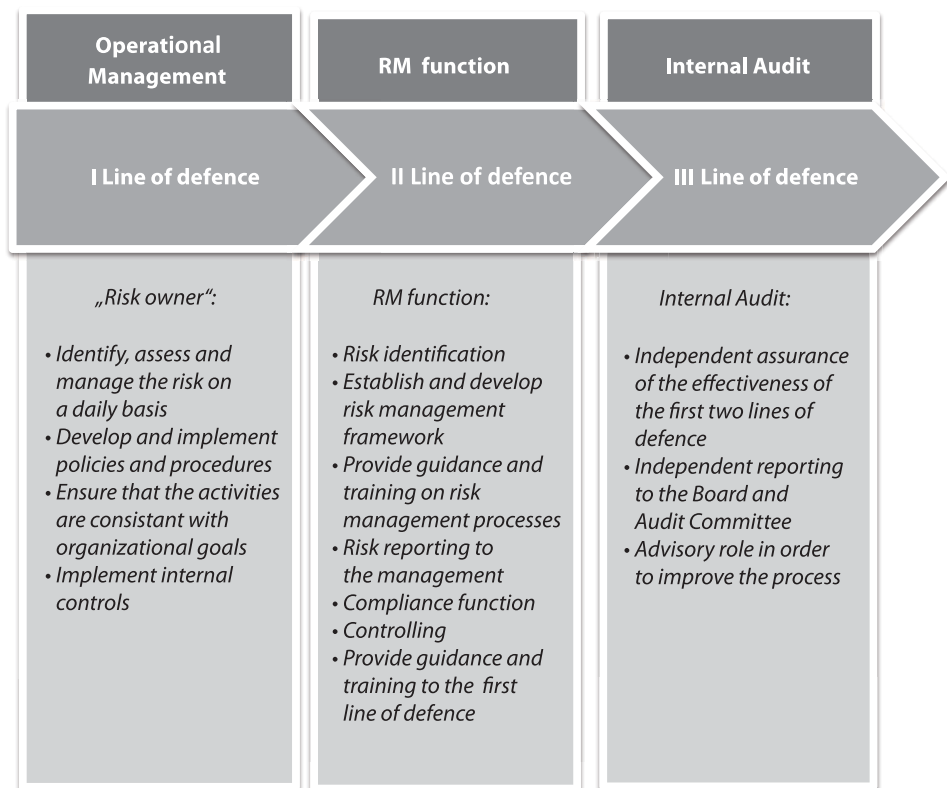
This model defines the first line of defence as operational management that identifies and manages risks in processes, products, and services for which it is accountable. This line of defence recognizes operational management as the risk owner. Operational management is authorized to implement and maintain systemic measures for efficient risk management that are required from the second and third lines of defence. The internal control process, which is particularly important for the efficient operation of the first line of defence, has the role to point to the (mis)match between what is required and what is achieved. Business line management is responsible for the establishment of an efficient internal control.

The second line of defence has a distinctive role in the model as it provides the fundamental formal management frameworks and instruments, management

methods and procedures, as well as systems of training and qualification to raise and promote risk culture and risk awareness in an organisation. This centralized management function covers: control systems, management methods, quality management, harmonized actions of individual functions in the first line of defence, information connectivity, and the like.

The third line of defence, internal audit, has the role to completely independently, objectively, impartially, and competently provide assurance on the effectiveness of the risk management system implemented by the first and second lines of defence, and to inform senior management thereof. For a successful operation of the third line of defence it is very important to conduct a comprehensive operational risk training of staff, with a special emphasis on the importance and role of internal audit and its working methods and techniques.

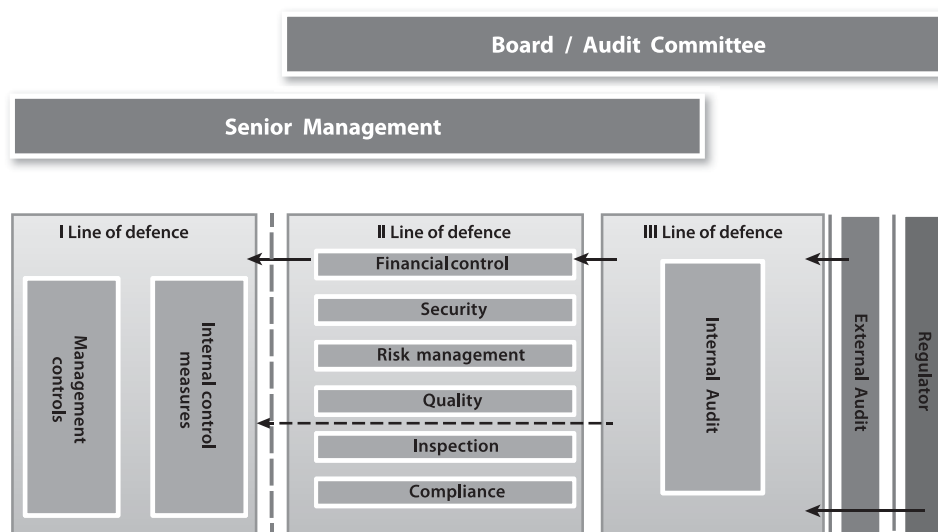
Figure 2: The basis of the three lines of defence



Source: Luburic R., Perovic M., Sekulovic R. (2015). Quality Management in Terms of Strengthening the „Three Lines of Defence“ in Risk Management - Process Approach. *International Journal for Quality Research* 9(2). p. 244.

As previously stated, the review showed that compliance of banking operations with the reference principles with the model of three lines of defence was not satisfactory, and that the process of their implementation should be carried out more intensively. The success of the implementation of the principles for the sound management of operational risks and the model of three lines of defence depends primarily on the board of directors and senior management and their involvement. It should be noted here that both, the principles and the model, emphasize that a high level of risk culture and intensive communication between the three lines of defence are important characteristics of a good operational risk management in the banking sector. The content of the entire system, which includes the model of three lines of defence and the functional connection with other relevant systems of the organization, is shown in Figure 3.

Figure 3: Functional model of the three lines of defence



Modified in accordance with: The Institute of Internal Auditors Global (2013). *IIA Position Paper: The three lines of defence in effective risk management and control*, p. 4.

The three lines of defence model particularly highlights the need to identify each of these lines and their contents, then processes and activities in which risks are identified, as well as the importance of continual improvement of the model. This paper examines the possibilities of improving this model with a view to more efficient operational risk management in central banks through the use of synergistic effects of the principles of quality management, risk management principles, and approaches to total quality management (Luburić, 2012). The analysis also

includes the referenced *Principles for the Sound Management of Operational Risk*, as well as development trends in total quality management.⁵

3. Strengthening the first line of defence

The term “strengthening” can essentially be interpreted as an ongoing process of continual improvement. Starting from this premise, this paper seeks to identify the key elements of cohesion and possible synergies of several approaches that strengthen, that is, improve risk management processes. The process approach, as a principle of quality management supplemented by the principle of risk management “Risk management is an integral part of all organizational processes”, as well as the total quality management approach “Process engineering”, are the basic elements of strengthening the first line of defence.⁶ In addition to these systems, it is necessary to analyse other possibilities offered by other management systems in the processes of strengthening this model, and in particular the international standard ISO / IEC 27001: 2013, *Information technology - Security techniques - Information security management system - Requirements*. The principles and approaches of several management systems applied together in this context are considered as the process approach, which is their synergistic resultant.

In order to strengthen the first line of defence in an organisation (in a central bank as well) by using the *process approach*, it is necessary to:

- Recognize and understand the processes and interrelated processes - network of processes, which means, all processes which the organization uses to meet the requirements of relevant interested parties.
- Establish the institute of “process owner” with defined powers and responsibilities that maintains, manages and improves the process. Depending on the nature of the process and the organisation’s culture, the process owner can be a person or a team (ISO 9004:2009, p. 12). Responsibilities for processes are defined by the risk management standard that particularly emphasizes the existence of accountability, authority and appropriate competence for managing risk (ISO 31000:2009, p. 11). To strengthen the

⁵ For more details see: Luburić, R. (2016b). *Kvalitet i upravljanje operativnim rizikom centralnih banaka*.

⁶ For more details on quality management in terms of strengthening the three lines of defence see: Luburic R., Perovic M., Sekulovic R. (2015). Quality Management in Terms of Strengthening the „Three Lines of Defence” in Risk Management - Process Approach. *International Journal for Quality Research* 9(2). p. 243–250.

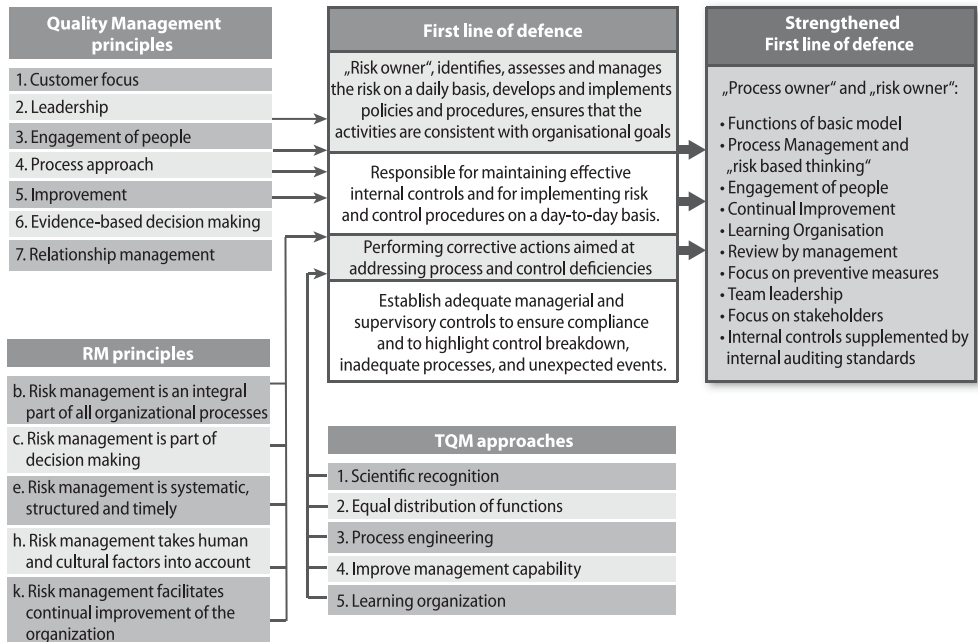
first line of defence, it is essential that the role of the process owner and the risk owner be merged in one person or a team that manages both the process and the risk. This also refers to the “owner of a network of processes” and the “risk owner” to manage risks in the network of processes.

- Defining the process, network of processes, as well as the process owner and the risk owner, indicates the need for each organisation, including the central bank, to develop awareness of the importance of the person(s) preparing to take over these ownerships. It is also important to develop and spread awareness of the importance of learning, training, and information for acquiring competence and raising the level of organisational culture to which, as we have already said, quality culture and risk culture belong. When it comes to staff and their potentials, the synergy of several principles and approaches could significantly contribute to the strengthening of the three lines of defence model. Among the quality management principles, these are *staff recruitment and leadership*, in the range of risk management principles, *risk management takes into account the human and cultural factors*, while in the range of principles of total quality management this is a *learning organisation*. (Luburić, 2016a).
- Improvement is a particularly important area of strengthening the model of three lines of defence and it can be achieved through the synergistic action of quality management principles - *improvements*, the principles of risk management - *risk management facilitates continual improvement of an organization*, as well as the approach to total quality management - *scientific recognition and process of engineering*. The importance of this very significant strengthening factor is best interpreted by the recommendations of the international quality standard ISO 9004: 2009, which states that “the organization should ensure that continual improvement becomes established as a part of the organizational culture” where processes, products, and services in all areas of work are improved. It should be noted here that improvements can potentially be sources of risk, while effective risk management always leads to improvements.
- Internal control envisaged in the model can be strengthened by meeting the requirements from the quality standard related to the internal review. This particularly refers to the requirements involving mandatory reviews, the planning of reviews, defined criteria for the training of reviewers, and the like.

The analysis of the previously mentioned strengthening factors such as the process approach and defined process owners, risk owners, staff recruitment, learning and training, learning organisation, as well as improvements, reveals that their articulation factor is *process* that recognizes contents and connections, un-

derstands requirements and needs, identifies risks, and generate new improvements.

Figure 4: Strengthening the first line of defence



Source: Luburić, R. (2016b). *Kvalitet i upravljanje operativnim rizikom centralnih banaka*, p. 247.

These strengthening factors apply to all levels of the organization, as well as to all its business areas. Under this concept, we can also strengthen the first line of defence of operational risk management in central banks where senior management, as well as mid-level and operational management, become owners of the process and network of processes. Being the process owners, they are at the same time risk owners. The *process approach*, i.e. the identifying and understanding of the process and the network of processes reduces the importance of hierarchical management structure, which is especially strong in central banks, and significantly improves communication and responsibility and, consequently, the effectiveness of risk management. In this way, the strengthening of the overall model of three lines of defence is indirectly affected through the first line of defence.

The abandoning of the logic of a “rigid and high” hierarchical structure and by moving to a “milder and more flexible” structure in no way diminishes the authority and responsibility of any participant in the process. On the contra-

ry, by applying the *process approach* and the aforesaid principles, in particular the obligation of establishing a risk management policy by identifying the “risk owner” and the “process owner”, powers and responsibilities are particularly emphasized. Powers and responsibilities are determined by identifying persons or teams responsible for the development, implementation, and maintenance of risk management framework, as well as the obligation of communicating policy, objectives, and plans. In such regulated processes, responsibility is essentially increased with the attitude that it may not be transferred to anybody else, which significantly affects an increase in the number of those who are responsible for individual processes.

This concept of *process approach*, which strengthens the first line of defence, has a significant impact on the rationalisation of the governance structure of the central bank, which is a good organisational framework for streamlining other processes. Elements of the *process approach*, such as system characteristics, merged roles (of the process owner and the risk owner), leadership, scientific recognition, as well as staff involvement, continuous learning and training, significantly affect the quality of management, as well as the risk minimisation. The major impacts of the said elements can be separately articulated by their involvement in the process of diminishing operational risks that arise from inadequate and futile processes and systems, the human factor, as well as external events.

Operational risk is analysed in this study as a complex web of risks that arise as a result of the network of processes - causes of the system status and/or consequences. This state of the network of operational risks, as well as a network of agents, can be analysed in several ways and by using several methods, as defined in the international quality standards and the international risk management standards.

4. Strengthening the second line of defence

Same as with the strengthening of the first line of defence, the strengthening of *the second line of defence – risk management function* explores those contents that are of fundamental importance for an efficient risk management. Here it should be kept in mind that the second line of defence is constituted of the basic infrastructure processes of support to the first line of defence and the third line of defence. These are particularly the activities of developing a methodology for risk management, developing methods and procedures for the identification and monitoring of risks, the organization of training and qualification, as well as activities related to management reporting.

Processes of the second line of defence, as elaborations of the basic functions, can be presented in the way that is suitable for the analysis of the strengthening impact. These are (The Institute of Internal Auditors Global, 2013, p. 5)⁷:

- Supporting management policies, defining roles and responsibilities, and setting goals for implementation.
- Providing risk management frameworks.
- Identifying known and emerging issues.
- Identifying shifts in the organization's implicit risk appetite.
- Assisting management in developing processes and controls to manage risks and issues.
- Providing guidance and training on risk management processes. Facilitating and monitoring implementation of effective risk management practices by operational management.
- Alerting operational management to emerging issues and changing regulatory and risk scenarios.
- Monitoring the adequacy and effectiveness of internal control, accuracy and completeness of reporting, compliance with laws and regulations, and timely remediation of deficiencies.

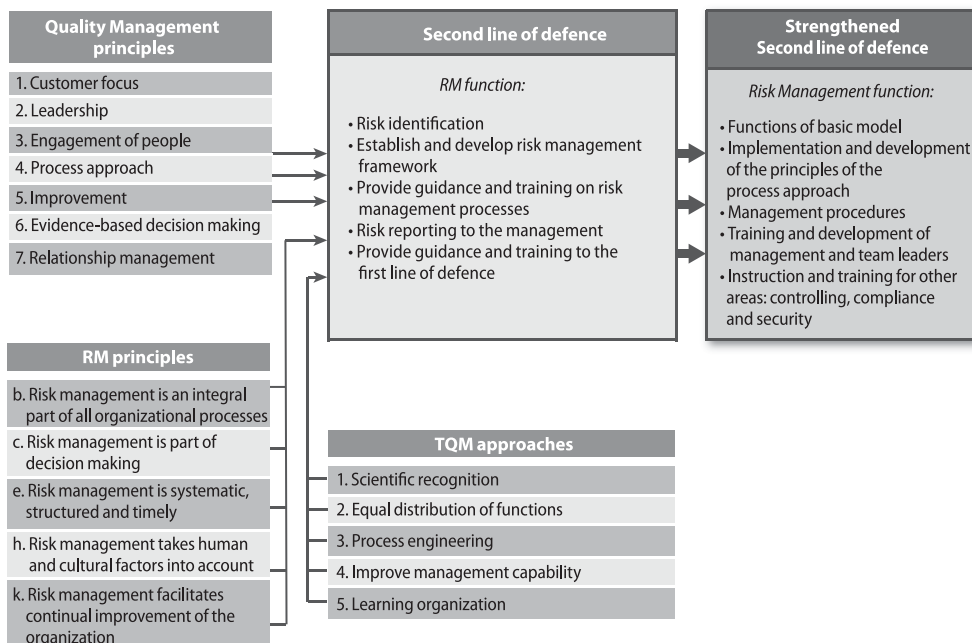
Strengthening the second line of defence basically starts with the strengthening of the first line of defence, the introduction of the process approach and the process owner institute. The presented improvements of the second line of defence are those used to reinforce the first line and upgrade the existing model:

- Introduction of the process owner which, together with the risk owner, manages the process, and which is guided by the concept of risk-based thinking, represents the basis of strengthening the second line of defence. Combining these two roles changes the style of work, content, and essence of the management approach as well as the outlook on life and the attitude towards the environment. This, in fact, enriches quality culture and risk culture. Each of these elements has to be accepted by employees, so it is necessary to systematize and communicate this approach in an understandable methodological way that transfers knowledge. This will provide support for all processes such as the definition of policies, general and measurable objectives, plans, and their implementation at all levels of governance, which is of utmost importance for central banks.

⁷ *Review of the Principles for the Sound Management of Operational Risk* indicates in detail the level of application of the second line of defence in banks (BIS, 2014, p. 36–37).

- Successful management of processes requires methodological forms as carriers of systematic and specific knowledge that is acquired and developed through continuous learning. This is a special type of learning that shows how to transform this knowledge into work, which means that all employees in an organization should be trained to know how standards and their interpretations as well as specific work instructions can be most effectively implemented in practice. This is mainly achieved by mandatory training and qualification programmes in the organization. Continuous learning also implies knowledge acquired by transferring experience from successfully completed projects, benchmarking, analysis of the performance of peers, as well as learning how to meet requirements of all relevant interested parties. If knowledge is converted into work and work into learning, then one can expect a better mastery of processes and better forecasting and risk management. This is not only the primary objective of the strengthening, but also an important requirement for sustainable development of an organization and containing risks, particularly operational risks as one of the key risks in central banks.

Figure 5: Strengthening the second line of defence



Source: Luburić, R. (2016b). *Kvalitet i upravljanje operativnim rizikom centralnih banaka*, p. 251.

- Successful management of processes offers an organization a realistic opportunity to operate efficiently and achieve a competitive position, and a highly responsible social role to a central bank. The purpose of a successful process management, as stated above, primarily reflects in continuous improvement. Process improvement is a continual obligation of employees, which is especially important in the area of preventive actions because they lessen risk occurrence and reduce it to acceptable levels. It should be noted that there is no permanent improvement without constant training and qualification programmes for employees.
- In order for an organization to strengthen its internal controls in the first line of defence, it needs to establish internal review in accordance with quality management standards. This means that compliance with the standard requirements is checked at defined time intervals. The results of these checks are subject to review by the management. This review is carried out at defined time intervals, always after internal reviews or in case of sudden occurrence of non-compliance or the appearance of expected or unexpected risks.

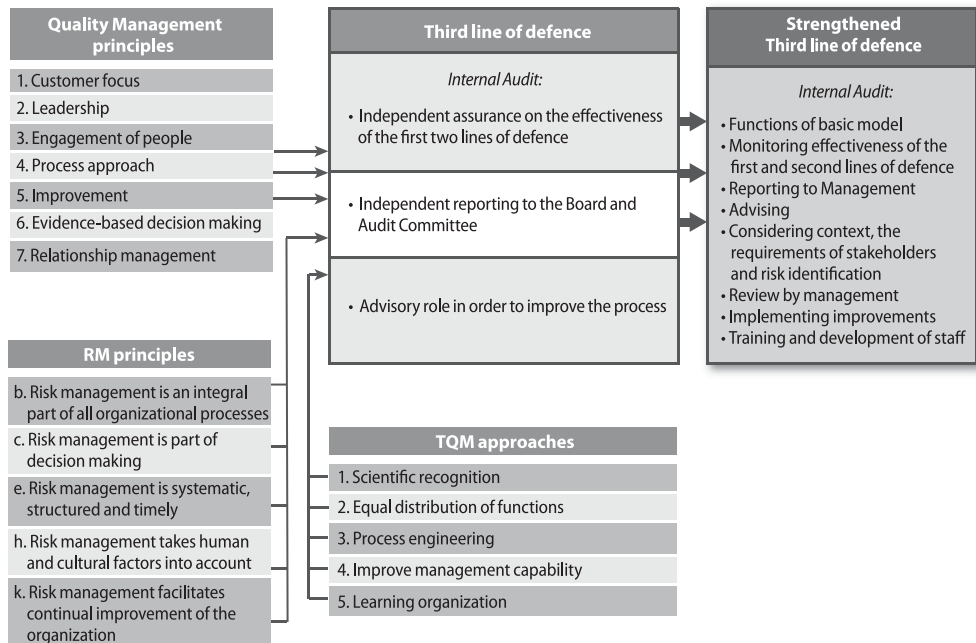
By introducing the process approach and combining the roles of process owner and risk owner, as well as through continual learning and training based on the concept of transforming knowledge into work and turning work into learning, central banks create efficient risk management frameworks. This allows other processes in the second line of defence such as security, financial security, and compliance to improve through the process approach. All these make the second line of defence even stronger because the existing model is enriched by adding new quality approaches.

5. Strengthening the third line of defence

The third line of defence – Internal audit has a significant managerial role and that is to provide the governing body and senior management with objective assurance regarding the situation in the organisation. This assurance is based on the highest level of independence, objectivity, and professionalism that is carried out by the rules - positions of the *Institute of Internal Auditors*. These positions give internal audit a broad scope of assurance with regard to activities and functions of the organisation. One very important segment of this scope of assurance refers to “all elements of the risk management framework” that internal audit reports to the organisation management (The Institute of Internal Auditors Global, 2013, p. 5).

Applying and observing the principles of quality management and risk management, as well as the approach to total quality management, can significantly strengthen the role of internal audit as the third line of defence. This is accomplished by internal audit adding new assurances in addition to those previously given to the senior management. These new assurances involve the following strengthening:

- Internal audit should provide assurance that the organization, when planning, considers issues related to its context and the understanding of needs and expectations of interested parties, as well as identify risks and opportunities for the achievement of the business plan.
- The subject of assurance is also the fact that the senior management carries out periodic management reviews to analyse suggestions and remarks made by users and relevant interested parties, reached compliance with the objectives, as well as the effectiveness of risk related measures and the like.
- Assurance that shows whether the organization implements continual improvement, in particular those relating to the identification and early detection of risks, as well as whether they gradually become the working style and an important part of the organizational culture.
- The consistency of the senior management in the implementation of periodic internal reviews, as well as preventive and corrective measures.
- Important aspects of assurance that have been reiterated in this paper as one of the key elements of sustainable success are continuous training and qualification programmes for both the staff and the management, as well as the analysis of results of these programmes. Internal audit gets assurance that the training was planned and that the plan was implemented, and also that the results of the training have been timely and adequately analysed.

Figure 6: Strengthening the third line of defence

Source: Luburić, R. (2016b). *Kvalitet i upravljanje operativnim rizikom centralnih banaka*, p. 254.

Strengthened third line of defence - internal audit, completes the system of strengthening the first and second lines of defence and contributes to the consistency and effectiveness of the organization's management. Strengthened third line of defence, with the additional functions of assurance, does not impair independence, objectivity, and professionalism of the internal audit with any of its elements.⁸ On the contrary, those attributes that accompany internal audit are also strengthened, especially in the domain of assurance in the area of operational risk management, which is especially important for financial institutions, including central banks.

The third line of defence has an important place in operational risk management in the banking sector, and thus central banks as well. Strengthening the existing functions adds new tasks and assurances with a focus on interested parties, review, continual improvement, training process, internal reviews and more.

⁸ For more on international standards on auditing see The Institute of Internal Auditors - IIA (2012). *The International Professional Practices Framework*.

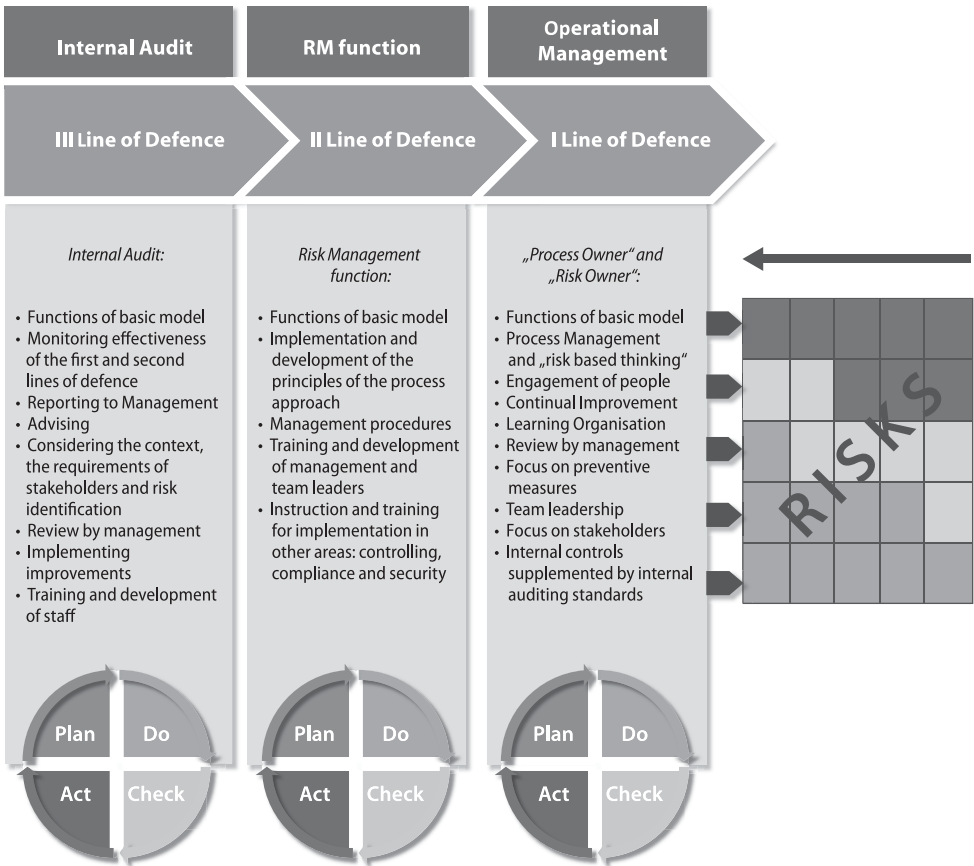
In cooperation with the second and the first line of defence, and with the senior management of a central bank, the third line makes a significant contribution to the minimization of operational risks in this institution.

6. Harmonisation and coordination of the strengthened three lines of defence model

In addition to the principles of risk management, the strengthening of the model of three lines of defence incorporates quality management principles and approaches to total quality management, with a range of economic, social, cultural, psychological, technical and other aspects that require systematic alignment. (Luburić, 2015).

The strengthening has not made the three lines of defence model lose any functionality; it has just added new features to the base model. The first line of defence has changed the content and the method of work, which significantly increases employee involvement as process owners and risk owners in an organization to become more actively engaged in containing risks. Since process owners and risk owners are found at all levels of an organization's management, the second line of defence needs to be strengthened in order to effectively contribute to success of the management and employees through infrastructure support and training system. In this context, the third line of defence enhances control complementing it with those assurances that are necessary for a good and effective functioning of the first and second lines of defence in order to manage the organization as efficient as possible. A successful functioning of three lines of defence primarily requires good communication between the lines because the strengthening increases the number of connections and topics for communication. The reinforced model of three lines of defence is shown in Figure 7.

Figure 7: Strengthened three lines of defence model



Source: Luburić, R. (2016b). *Kvalitet i upravljanje operativnim rizikom centralnih banaka*, p. 257.

The coordination of the strengthened model of three lines of defence that is in the front line of dealing with risks is built in the system and logic that reinforce the basic model, especially through the incorporation of quality management principles and requirements, risk management principles, as well as the approach to total quality management. The model coordination is a process that significantly affects the generation of an organisation’s success, but which also carries its own risks, as well as its own instruments of implementation and performance evaluation. Harmonization and coordination can be analysed using as an example the process of defining and establishing quality and risk policies, as well as their communication throughout the organization. This means that the quality policy and risk policy are communicated to and discussed with employees in all

sectors and at all levels of the organization, which ensures their full participation and deployment, as the best guarantee for an effective implementation of these two policies. Quality policy and risk policy express the attitude of the management and employees towards the vision, quality, and overall risks, in particular, operational risk.

Quality and risk policies generate general and measurable objectives that fully consider both the internal and external context of the organization, steering its future course towards risk. Processes are determined and activities are planned based on the objectives and identified requirements, needs and expectations of users and relevant interested parties that are implement them within defined deadlines. This means that the establishment of quality and risk policies, their communication to all levels of governance and their adoption represent a process or multiple processes organized as a network. It should be noted that the definition of goals and measurable objectives is a process, same as the establishment of processes, plans and activities.

All these processes and network of processes have process owners and risk owners that use the institute of management review⁹ to coordinate activities. Decisions are made based on facts, so quality methods and techniques are used at the level of network of processes, the process level, and the level of operations. Using the methods and techniques significantly helps to challenge the arguments in a competent manner, also helping the effective implementation of coordination and harmonisation.

The strengthened model of three lines of defence envisages the communication and coordination both vertically and horizontally in a way that has been used so far - *through management review*, as well as through other forms that are recommended under total quality management approaches. Management review is conducted at all levels of management, as well as at the level of processes or a network of processes. Management review in accordance with standards generally refers to quality, but since the “strengthening” does not separate quality from risks, the review itself relates to both quality and risk. It should be noted that review is a natural part of the modern leadership so this becomes a daily necessity and an indispensable approach to operational risk management. The review does

⁹ According to the quality standards, review is “determination of the suitability, adequacy or effectiveness of an object to achieve established objectives”. Review can also include the determination of efficiency. For example, management review is a “design and development review, review of customer requirements, review of corrective action, and peer review.” (ISO 9000:2015, p. 60)

not preclude hierarchical coordination and communication but it is clear that the establishment and development of the institute of review reduces its role.

Quality cycles can be communicated and coordinated and here employees take part to discuss problems of quality and risks. Quality cycles developed in Japan and in Europe, as a way of quality management through the development of freedom in the workplace, also become risk cycles. This is due to the inclusion of risks in all processes. Quality and risk cycles generally mean that employees gathered in cycles jointly identify quality and risk problems and seek best solutions. Defining policies, objectives, plans, and implementation is subject to vertical communication and coordination. Unlike other approaches, the strengthened model requires the participation of all employees in the process of communication and coordination, in accordance with their powers and responsibilities arising from the process ownership and risk ownership.

Harmonization and coordination of the strengthened model of three lines of defence are especially important for effective functioning of central banks since vertical and horizontal coordination of all aspects of risk management is one of the key conditions for achieving sustainable success of these institutions. Since risk management involves all employees in accordance with their “ownership”, as well as their competences and responsibilities, it is necessary for the second line of defence to constantly work on regulating and improving the working framework and the framework for coordination of risk management activities.

7. Conclusion

Applying and observing the principles of quality management and risk management, as well as the approach to total quality management, can significantly strengthen all three lines of defence in operational risk management. Therefore, this paper primarily seeks to identify the key elements of the connections and possible synergies of several approaches that strengthen and/or improve risk management processes. To strengthen the first line of defence, it is essential that the role of the process owner and risk owner be merged in one person or a team that manages the process and the risk. It also includes the owner of the network of processes and the risk owner that manages risks in the network of processes. It should be noted that improvements could also be a potential source of risk, while effective risk management always leads to improvements.

Strengthening the second line of defence actually begins with the strengthening of the first line of defence, the introduction of the process approach and the defi-

inition of the process owner. Merging the roles of process owner and risk owner inevitably changes the style of work, content, and the essence of the management approach and outlook on life and the attitude towards the environment. This, in fact, enriches both quality culture and risk culture. With the introduction of the integrated roles of process owner and risk owner, as well as that of continuous learning and training with the concept of converting knowledge into work and work into learning, the introduction of continual improvement, management review, and the rules of internal review, all generate control frameworks for more efficient risk management in central banks. This allows other processes in the second line of defence such as security, financial security and compliance, to improve through the process approach. All these make the second line of defence even stronger because the existing model is enriched by adding new quality approaches.

The principles of quality management and risk management, as well as the approach to total quality management, can significantly strengthen the role of internal audit as the third line of defence. This is accomplished by internal audit providing new assurances in addition to those previously given to the senior management. The new assurances relate to a number of different components. Internal audit should provide assurances that the organization, when planning, considers issues related to its context and the understanding of the needs and expectations of all interested parties, as well as identify risks and opportunities for the achievement of the business plan. The subject of this assurance is whether the organization implements continual improvements, in particular those relating to the identification and early detection of risks, as well as, whether they gradually become the working style and an important part of the organizational culture. Important aspects of assurance are continuous training and qualification programmes for the staff and the management, as well as thorough analysis of the results of these programmes. This certainly includes the consistency of management through conducting periodic internal reviews.

In addition to the principles of risk management, the strengthening of the model of the three lines of defence incorporates quality management principles and approaches to total quality management, with a range of other aspects that require systematic alignment. The first line of defence has changed the content and the method of work, which significantly increases employee involvement as process owners and risk owners in an organization, to more actively deal with containing risks. Since we find process owners and risk owners at all levels of an organization's management, the second line of defence needs to be strengthened in order to effectively contribute to the success of the management and employees through infrastructure support and training. To that end, the third line of de-

fence enhances control, complementing it with those assurances that are necessary for the effective functioning of the first and second lines of defence.

The successful functioning of the three lines of defence primarily requires good communication between the lines because the strengthening itself increases the number of connections and topics for communication. The coordination of the strengthened model of the three lines of defence is thus put on the front line, when dealing with risks is built into the system and is part of the logic that reinforces the basic model. Harmonization and coordination can be analysed through the process of defining and establishing quality and risk policies, as well as their communication throughout the organization. This means that both the quality policy and risk policy are communicated to and discussed with employees in all sectors and at all levels of the organization. The harmonization and coordination of the strengthened model of the three lines of defence are especially important for the effective functioning of central banks since vertical and horizontal coordination of all aspects of risk management is one of the key conditions for achieving sustainable success in these institutions.

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