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# Operational Risk framework and Standardised Measurement Approach (SMA)

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#### Abstract

On December 2017, the Basel Committee published the "Basel III: Finalising post-crisis reforms" (also known as Basel IV) that introduces the Standardised Measurement Approach (SMA) to define the Pillar I operational risk capital requirement that is foreseen to entry into force on the 1<sup>st</sup> of January 2025, replacing all the existing approaches.

This approach not only introduces a new method to be used to calculate the operational risk capital requirement but details several updates that have to be applied to the main components of the framework such as Governance, Loss Data Collection and Risk Self-Assessment.

With the entry into force of the SMA, banks have the chance to fully re-think their operational risk Management Framework (ORMF) integrating the different components and making it more efficient and effective in terms of data governance, process management and reporting.

This paper describes the SMA methodology to be implemented to calculate the Pillar I operational risk capital requirement and provides an overview of the expected impact on the different components of the ORMF of the banks.

# **Keywords**

Operational Risk, Risk Management, Risk Management Framework, Regulatory Capital Requirement, Standardised Measurement Approach, SMA, Basel III Reform, Business Indicator Component, Internal Loss Multiplier, Loss Data Collection, Risk and Control Self-Assessment, Operational Risk Management Framework, Capital Requirement Regulation

#### Introduction

Operational risk represents the second risk category in terms of capital requirement across the EU banking sector and, also considering the increase of Operational Risk Management Framework (ORMF) complexity within the banking sector, it has become a priority on Regulator agenda.

Since the existing operational risk framework failed to capture the fact that operational risk is often associated with other types of risk and since some weaknesses regarding governance, risk data aggregation capabilities and reporting practices emerged, supervisors required banks to adopt an integrated risk management approach through the introduction of the SMA as specified by the "Basel III: Finalising post-crisis reforms".

This paper provides an overview of how, considering the entry into force of the revised operational risk framework foreseen for the 1<sup>st</sup> of January 2025, banks have the opportunity to perform an overall refresh of their operational risk related processes in order to be compliant with the new framework and to introduce efficiency and effectiveness in the key processes and procedures related to Loss Data Collection (LDC), Data Governance, Risk Self-Assessment, Monitoring and Reporting.

# Operational risk in a nutshell

Operational risk has become an increasingly important type of risk to be managed by financial institutions. The Basel Committee has introduced a series of substantial reforms to the international regulatory framework mainly addressing the strengthening of the capital adequacy scheme.

Operational risk is the second most important RWA (Risk-Weighted Asset) component representing, on average, 9,5% of total RWAs.

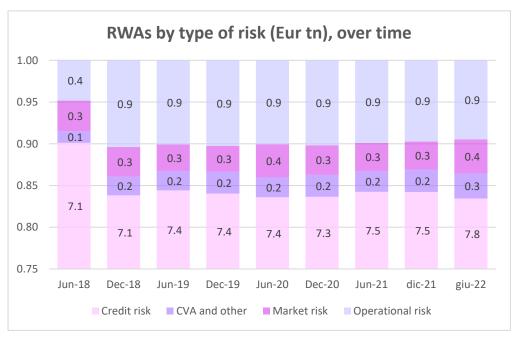


Figure 1: RWA by type of risk.

Source: Risk Assessment of the European Banking Authority (December 2022) - Supervisory reporting data

In their responses to the Risk Assessment Questionnaire, banks identified the main drivers that may affect their activities leading to operational losses and, under the SMA, triggering an increase of the operational risk capital requirement.

The graph reported below shows that **Cyber risk and Data security** are the most prominent drivers of increased operational risk, followed by Conduct, Legal and Fraud risks.

However, also **IT failures and organizational change** are considered as relevant drivers of operational risk since organizational change risks arise when institutions further adapt their organizational setups to a digital environment.

Risks stemming from sophisticated and organised cyber-attacks with potentially big impact as well as other ICT-related incidents are very high if we consider the complexity and interconnectedness of ICT systems, both owned by banks and those dependent on third-party providers<sup>1</sup>.

In addition, the relevance of **Conduct and Legal risk** has significantly increased compared to last year. Concerns about past misconduct behavior, such as breaches of sanctions, redress for mis-selling, fines associated with financial crime and misconduct continue to uphold and add to operational risks.

Beyond reputational damage for the banks concerned, misconduct costs have been substantive and added to challenges to attain sustainable profits. **Risk of fraud** continues to increase in banks' perceptions, especially considering that they are relying on digital and remote solutions to perform their daily operations, to deliver their services to customers, and to conduct business.

These have resulted in an enhanced exposure and vulnerability to frauds and to increasingly sophisticated cyber-attacks.

# In the future, the operational risk outlook continues to be high.

Economic and geopolitical uncertainty coupled with a high level of cyber risks will contribute to maintaining a high level of operational risk.

The incentives to circumvent the sanctions may potentially provide opportunities for the emergence of new types of misconduct.

It is therefore important to strengthen the monitoring of business operations and therefore the related operational risk.

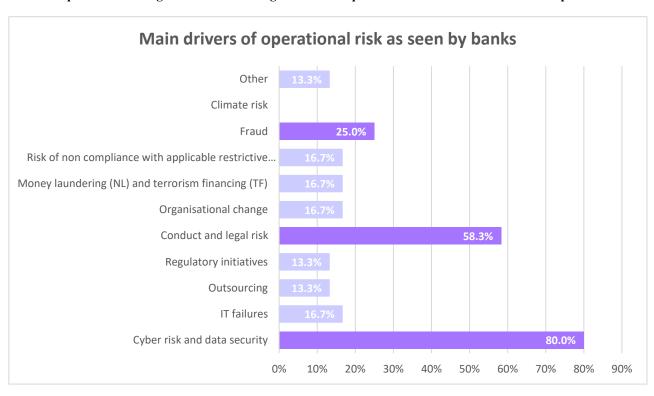


Figure 2: Main driver of operational risk as seen by banks. Source: Risk Assessment of the European Banking System (December 2022) - Reporting data

Source: Risk Assessment of the European Banking Authority (December 2022) - RAQ for banks

The Basel Committee highlights that a failure to fully implement appropriate operational risk identification and management practices may result in direct and material financial losses, or reputational and consequential losses, and could lead to a systemic impact on other banks, customers, counterparties and the financial system.

In recent years, the amount of gross losses has been quite stable. Despite the Covid-19 pandemic, the gross losses have decreased in 2021 at the lowest value of the last 10 years.

Going forward, phishing attempts and other types of cyber-attacks are expected to become more common. Moreover, the evolution of the products and activities performed by banks, such as participation in virtual currency transactions where the identities of the individuals involved are not fully transparent, may expose banks to additional risks (cases related to money laundering, terrorist financing and sanctions due to non-compliance have increased in recent years).

Additionally, an inadequate management of environmental, social or governance (ESG) factors might increase the reputational costs.

<sup>&</sup>lt;sup>1</sup> Digital Operational Resilience Act - Regulation (EU) 2022/2554 of the European Parliament and of the Council of 14 December 2022 on digital operational resilience for the financial sector

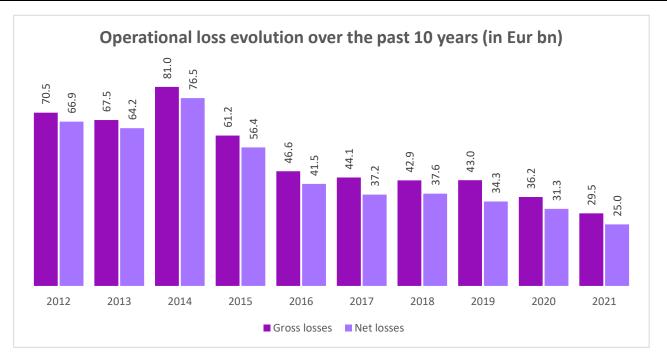


Figure 3: Operational loss evolution over the past 10 years. Source: Basel Committee on Banking Supervision – Basel III Monitoring report February 2023

Since a poor management of these types of risk could lead to a materialization of new losses, supervisors require banks to stay vigilant in times of economic turmoil and uncertainty and strengthen their monitoring of operational risks.

The improvement in operational risk capital adequacy is one of the most central elements of the global regulatory response to enhance credibility in the EU banking sector.

# Regulatory framework

The Basel III framework implemented through the Regulation EU 575/13 (Capital Requirement Regulation - CRR) has foreseen three different approaches, with growing complexity and requirements to be fulfilled, to be used to calculate the operational risk capital requirement:

- **Basic Indicator Approach** the own funds requirement for operational risk is equal to 15 % of the average over three years of the relevant indicator (proxy of the gross income)
- **Standard Approach** banks activities are divided into eight business lines with different weighting factor: corporate finance, trading and sales, retail banking, commercial banking, payments and settlements, agency services, asset management and retail brokerage. The own funds requirement for operational risk is calculated as the average over three years of the sum of the annual own fund requirements across all business lines
- **Advanced Measurement Approach** the capital requirement is quantified through empirical models created by the banks considering internal loss data, external data, scenario and business environment analysis, or internal control factors.

With the aim to reduce possible inconsistencies in the calculation of capital requirements by institutions, in 2016 the Basel Committee on Banking Supervision (BCBS), proposed the Standardised Measurement Approach (SMA).

The SMA substitutes all the existing approaches for the calculation of the Pillar I operational risk capital requirement. The final guidance has been included in the "Basel III: Finalising post-crisis reforms" published on December 2017<sup>2</sup>.

In August 2020, the BCBS published a Consultative Document on the Revisions to the Principles for the Sound Management of Operational Risk (PSMOR)<sup>3</sup> with the aim to provide a guidance on the management of operational risk.

The document emphasizes the importance of an efficient Operational Risk Management Framework and encompasses five areas where the banks are expected to follow the best practices: Governance, Risk Management Environment, Information and Technology, Business Continuity Planning and the Role of Disclosure.

The BCBS pointed out that it is necessary to integrate all the specific components into the Operational Risk Management Framework avoiding to consider each element as stand alone.

Indeed, an effective and efficient management of the operational risk allows banks to continue to carry out their operations despite the occurrence of outstanding events.

### Capital Requirement calculation under SMA

The Operational Risk Capital Requirement (OCR) can be summarised as follows:

 $OCR = BIC \times ILM$ 

<sup>&</sup>lt;sup>2</sup> Basel III: Finalising post-crisis reforms (bis.org)

<sup>&</sup>lt;sup>3</sup> Revisions to the Principles for the Sound Management of Operational Risk (bis.org)

Thus, according to the new standardised approach for operational risk, a bank's operational risk capital requirement is based on two components:

1. the *Business Indicator Component* (BIC), calculated as the Business Indicator (BI), a balance sheet metric, multiplied by marginal coefficients that depend on the BI amount.

Bucket	BI range (in € bn)	BI Marginal Coefficient
1	≤1	12%
2	$1 < BI \le 30$	15%
3	> 30	18%

Table 1: SMA marginal coefficient

2. the Internal Loss Multiplier (ILM), which is a scaling factor that considers the amount of the operational losses recorded by the bank on a 10-years horizon. For banks in bucket 1 (i.e., with BI ≤ EUR 1 billion), the ILM is equal to 1, therefore internal loss data does not affect the capital calculation.

More in detail, as per "Basel III: Finalising post-crisis reforms":

- the Business Indicator is defined as the sum of three components:
  - 1. interest, leases and dividend component (ILDC) calculated as:

ILDC = Min [Abs (Interest Income – Interest Expense); 2,25% \* Interest Earning Assets] + Dividend Income

2. services component (SC) calculated as:

SC = Max [Other Operating Income; Other Operating Expense] + Max [Fee Income; Fee Expense]

3. financial component (FC) calculated as:

FC = Abs (Net P&L Trading Book) + Abs (Net P&L Banking Book)

where the underlined factors indicate a 3-years average

- the Internal Loss Multiplier is calculated as:

$$ILM = \ln\left(\exp(1) - 1 + \left(\frac{LC}{BIC}\right)^{0.8}\right)$$

where the Loss Component (LC) is equal to 15 times average annual operational risk losses incurred over the previous 10 years.

It is necessary to highlight that the standards set by the Basel III Reform allow Jurisdictions to disregard historical losses for the calculation of operational risk capital for all relevant institutions. For the calculation of the minimum own fund requirements, in order to ensure a level playing field within the Union and to simplify the calculation of operational risk capital, those discretions have been exercised by the European Commission in a harmonised manner by disregarding historical operational loss data for all institutions<sup>4</sup>.

However, the European Central Bank (ECB) "considers that taking into account the loss history of an institution would entail more risk sensitivity and loss coverage of capital requirements, addressing the divergence of risk profiles of institutions in highly sensitive issues such as conduct risk, money laundering or cyber incidents, and would provide greater incentives for institutions to improve their operational risk management. The ECB would therefore favor an implementation where the internal loss multiplier is determined by historical losses incurred by the institution and gradually introduced".

<sup>&</sup>lt;sup>4</sup> Regulation of the European Parliament and of the Council amending Regulation (EU) No 575/2013 as regards requirements for credit risk, credit valuation adjustment risk, operational risk, market risk and the output floor

<sup>&</sup>lt;sup>5</sup> European Central Bank - Opinion of the European Central Bank of 24 March 2022 on a proposal for amendments to Regulation (EU) No 575/2013 of the European Parliament and of the Council as regards requirements for credit risk, credit valuation adjustment risk, operational risk, market risk and the output floor.

Also, national Regulator like Bank of Italy considers that, in a phase in which technological developments and the use of outsourcing are leading to an increase in operational risks, disregarding historical operational loss data reduces the sensitivity of the methodological approach to risk and could weaken the incentives for banks to adopt virtuous behavior<sup>6</sup>. Therefore, since ECB already introduced the idea of a gradual introduction of the Internal Loss Multiplier, banks should develop an efficient Loss Data Collection system that allows to historicize all the relevant information regarding the operational loss and perform simulation on the impact of the adoption of the ILM on the capital requirement.

# Comparison between SMA and current approaches

The existing methods that banks can apply in order to determine the operational risk capital requirement generate distortions and do not allow to the stakeholder to correctly compare the exposure of the banks to the operational risk.

The SMA allows to balance:

- **simplicity** lowering the complexity of the calculation of the capital requirement;
- **comparability** granted by the fact that all institutions will use the same method;
- **risk sensitivity** due to the introduction of the Business Indicator Component which considers the business model and the operational losses data recorded by the bank in a time horizon of 10 years.

EVALUATION CRITERIA	EXISTING APPROACHES	SMA			
Simplicity	The Advanced Measurement Approach (AMA) involves complex modeling and data retrieval.  The Traditional Standard Approach (TSA) requires to develop a procedure to allocate the Relevant Indicator in the different Business Line.	The calculation of the capital requirement using the SMA is performed through a simple algorithm.  The SMA does not require the usage of external data nor scenario analysis.			
Comparability	It is difficult to compare the operational risk capital requirement due to the lack of homogeneity of:  - the Advanced Measurement Approach (AMA) models developed by the banks;  - the procedure developed by the banks to allocate specific items in the Business Line using the TSA.	Greater comparability, granted by the application of the same algorithm to all banks, allows the regulator to identify and respond to potential systemic issues.			
Risk Sensitivity	For banks that use Basic Indicator Approach (BIA) and TSA there is no correlation between the operational risk capital requirement and the operational losses occurred.	The Internal Loss Multiplier (ILM) component introduces a link between the operational risk capital requirement and the operational losses, increasing the risk sensitiveness.			

Table 2: Comparison AS-IS vs SMA. Source: Reply elaboration

# Main impact adopting SMA

With the entry into force of the Standardised Measurement Approach, all banks are required to update the Operational Risk Management Framework considering the impact of the new approach. In particular, the following impacts have to be considered:

- modelling of the capital requirement calculation as per the SMA
- development of an efficient and effective Loss Data Collection process including the building up of an historical losses database
- update of the internal processes and procedures related to the operational risk

Main Immanta	Cost/Effort				
Main Impacts	Governance	IT/application	Processes		
Requirement calculation algorithm	Low	Medium	Medium		
LDC	High	High	High		
Update processes and procedure	Medium	Low	High		

Table 3: SMA Impacts. Source: Reply elaboration

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<sup>&</sup>lt;sup>6</sup> La recente proposta della Commissione europea di modifica delle regole prudenziali per le banche: un quadro d'insieme e una prima valutazione - Intervento di Paolo Angelini (Vice Direttore Generale della Banca d'Italia) - Comitato Esecutivo dell'Associazione bancaria Italiana - Roma, 19 gennaio 2022

On the 26 September 2023, the Basel Committee on Banking Supervision published the Basel III Monitoring Report.<sup>7</sup> The analysis shows the change in Tier 1 Minimum Requirement Capital (MRC) due to the revisions to the operational risk standards.

More in details, the results of the analysis summarized in the table below highlights the specific impact (in percentage) of Internal Loss Multiplier (ILM) and Business Indicator Component (BIC) on Minimum Requirement Capital (MRC). The analysis emphasises that:

- for AMA banks, the business-driven BIC increased from 66,45% to 79,49% of the 2017 operational risk MRC. Although the loss component decreases similarly as the BIC increases, due to the logarithm feature of the ILM, the final MRC of the new Standardised Approach (SA) is still increasing by almost 10% over the past six years. According to the analysis, if these banks would use the Basic Indicator Approach (hypothetical BIA) instead of the AMA, the current MRC in 2022 would be 65,87%, i.e., about 40% lower than the current reported operational risk MRC.
- for the non-AMA Group 1 banks (that have Tier 1 capital of more than €3 billion)<sup>8</sup>, the hypothetical BIA is about 10,5% higher than current MRC, which indicates that this cluster uses a less conservative approach to measure their risk exposure and benefit from the use of the current indicator-based approaches of ASA or SA.

	Group 1 AMA banks			Group 1 non-AMA banks						
	20k LC (lhs)	Hypothetical BIA	BIC	20k new SA	Reported operational risk MRC	20k LC (lhs)	Hypothetical BIA	BIC	20k new SA	Reported operational risk MRC
Years	Per cent of 2017 op risk MRC				Per cent of 2017 op risk MRC					
2017	244,34	58,01	66,45	93,92	100,00	165,75	107,85	118,58	107,50	100,00
2018	248,64	58,86	67,25	95,34	104,10	183,30	112,02	123,62	113,88	104,76
2019	245,12	60,50	69,39	97,03	108,19	208,00	116,08	129,02	120,11	107,08
2020	223,66	58,71	67,98	93,41	93,45	204,52	113,64	128,95	118,12	107,37
2021	211,40	62,22	73,41	97,96	99,27	214,37	126,63	144,92	129,88	119,03
2022	201,34	65,87	79,49	102,25	105,70	200,56	133,15	153,64	135,91	122,68

Table 4: Impacts of Internal Loss Multiplier and Business Indicator Component on Minimum Requirement Capital. Source: Basel Committee on Banking Supervision – Basel III Monitoring report September 2023 – Statistical annex

A different analysis shows the changes in operational risk MRC due to the use of SMA approach and considering the application of two national discretions:

- to set the internal loss multiplier equal to one and hence base capital requirements for operational risk solely on the business indicator component for all banks in a jurisdiction; and
- to have Bucket 1 banks (with BI ≤ EUR 1 billion)<sup>9</sup> measure their ILM using their loss history, rather than apply ILM = 1 to all Bucket 1 banks.

Changes in MRC for operational risk							
In per cent							
	With chosen	ILM = 1	20K 10Y				
	approach						
Group 1 banks	1.8	0.5	9.7				
of which: Europe	25.9	21.3	58.3				
of which: Americas	-3.1	-23.8	-3.1				
of which: RW <sup>10</sup>	-11.0	24.1	-11.1				
of which: G-SIBs <sup>11</sup>	-7.2	-10.2	0.0				
Group 2 banks	6.8	10.0	20.7				

Table 5: Changes in MRC for operational risk. Source: Basel Committee on Banking Supervision - Basel III Monitoring Report (September 2023)

<sup>&</sup>lt;sup>7</sup> Basel Committee on Banking Supervision – Basel III Monitoring report September 2023

<sup>&</sup>lt;sup>8</sup> Group 1 banks are those that have Tier 1 capital of more than €3 billion and are internationally active. All other banks are considered Group 2 banks

<sup>&</sup>lt;sup>9</sup> Institutions have been divided into three buckets based on the BI thresholds. Bucket 1 consists of institutions with BI ≤ EUR 1 billion, bucket 2 consists of institutions with EUR 1 billion < BI ≤ EUR 30 billion and bucket 3 consists of institutions with BI > EUR 30 billion.

<sup>10</sup> RW: rest of the world

<sup>&</sup>lt;sup>11</sup> G-SIBs: Global systemically important banks

It is possible to see that the final operational risk framework generates an aggregate small increase in operational risk MRC of approximately 1.8% for all Group 1 banks while an increase of 6.8% for the Group 2 banks<sup>12</sup>. In addition, at a regional level, Europe faces a significant increase of around 26%. However, if all banks used the less risk-sensitive BI component only ("ILM=1"), the operational risk MRC for Group 1 banks would slightly increase by 0.5%. If all Group 1 banks applied the ILM based on the average losses above €20,000 of the past 10 years ("20k 10Y"), the impact would be 9.7%. The comparison between ILM=1 and ILM 20k, on a regional level, shows that the MRC in Europe (delta of 37 percentage points) is the most affected by the revision to ORMF.

# Operational Risk Management Framework (ORMF) components and SMA provisions

In 2014, the BCBS performed a review of the implementation of the Principles for the Sound Management of Operational Risk and in March 2021 published its revisions of these principles. The BCBS' purpose was to provide banks with guidance to facilitate the implementation of the principles in their operational risk management framework and ensure consistency with the new operational risk framework foreseen by the Basel III reforms. All the following Principles reflect sound practices relevant to all banks.

#### • GOVERNANCE

For the purposes of correct management of operational risk, it is important to identify and integrate the roles and responsibilities of the governance structures (operational risk management functions, business units and support functions) that will be involved in the process of calculating the regulatory capital for operational risk.

**SMA PROVISION:** an effective governance is a key component of the operational risk management framework in order to reduce the operational losses through an efficient decisional process that allows to manage the identified potential risks.

#### • LOSS DATA COLLETION

In order to correctly manage the operational risk, it is important that banks' internal operational losses data respect the standards in terms of the soundness, quality and integrity of the data.

**SMA IMPACT**: banks have to build up a database considering the general and specific criteria on loss data identification, collection and treatment. ILM calculation has to be based on a 10-year observation period and has to be linked to bank's current business activities, technological processes and risk management procedures. Moreover, the criteria used to identify and manage the operational losses have to be well documented.

### • RISK CONTROL SELF-ASSESSMENT

Banks should perform qualitative and quantitative self-assessments of their operational risks. These self-assessments are important to identify and understand the underlying causes of risks to which banks are most exposed (including "relevant risks") and to evaluate the effectiveness of controls that have been put in place to monitor such risks. Moreover, through this tool banks can carry out a forward-looking evaluation of potential risks to which could be exposed (for example, due to the offering of new services) and can give to the Top Management an overview of risks that bank is facing in order to take properly corrective actions.

**SMA IMPACT:** an effective risk control self-assessment is essential to prevent unexpected internal operational losses from materialising. Since, banks' internal operational losses have become part of operational risk capital requirement, the risk assessment is important to identify risks to which banks could be exposed in the future, in order to implement controls related to those risks and, in this way, avoid that some occurring events could translate into substantial financial losses (increasing the bank's ILM).

Moreover, while implementing the SMA, banks should evaluate to develop a continuous self-assessment process which would allow the monitoring and the timely analysis of the identified risks.

#### KEY RISK INDICATORS

In order to be always aware of and monitor own exposure evolution to operational risk on a daily basis, banks should develop and integrate metrics that provide early warning signs of trends, potential risks and vulnerabilities within the different areas of the bank. The KRIs, as a preventive measure, allow the timely implementation of possible mitigation measures following the worsening of the bank's level of risk.

**SMA IMPACT:** well-defined key risk indicators will ensure the identification and the monitoring of threats and vulnerabilities related to banks' current operations, and provide a warning signal of the current and emerging risks. In other words, key risk indicators allow the banks to be aware of the risks that may arise before that such risks materialise in financial losses (increasing the bank's ILM).

## • RISK MITITGATION STRATEGY

Banks should have a strong control environment that uses appropriate risk mitigation and/or transfer strategies in those circumstances where internal controls do not adequately address risk. Management may complement controls by seeking to transfer risk to another party (such as through insurance) by carefully considering the extent to which risk mitigation tools actually reduce the risk involved. However, since risk transfer is an imperfect substitute for sound risk management controls and programs, banks should view risk transfer tools as complementary to, rather than substitute for, sound internal control of operational risk.

<sup>12</sup> Group 1 banks are those that have Tier 1 capital of more than €3 billion and are internationally active. All other banks are considered Group 2 banks

**SMA IMPACT:** for banks in buckets 1 and 2, in addition to the optimisation of the risk transfer procedures, it is necessary to develop an effective risk mitigation strategy to cut down the level of losses that might occur due to the materialising of an identified risk.

#### REPORTING SYSTEM

Banks should have adequate reporting mechanisms in place to support proactive operational risk management. To effectively manage risk, the right information needs to be presented to the right people at the right time. Therefore, it is essential to identify a reporting model for the production and communication of summary and aggregated information, as well as detailed information, on the risks identified and assessed to allow the board of directors and senior management to make effective risk decisions.

**SMA IMPACT:** an efficient reporting system allows the management to be aware of the current and emerging risk in a timely manner enabling to establish a risk mitigation strategy aimed to correctly manage these risks and reduce the operational losses.

### • APPLICATION SOLUTION

In order to respond to regulatory changes and managerial needs, banks should have application solutions to:

- strengthen the control system and continuously intercept the evolution of the risk profile;
- facilitate the monitoring of risk mitigation interventions from point of view of Continuous Assessment; and
- guarantee the traceability of the data and the replicability of the processes.

Thus, automated processes introduce risks that need to be addressed through robust technology governance and infrastructure risk management programs.

**SMA IMPACT:** with the introduction of the SMA, will be even more important to have an integrated tool that allows to manage all the data and processes related to the Operational Risk Management Framework (i.e., Loss Data Collection, Requirement Calculation, Risk Self-Assessment, Reporting, etc.).

#### Conclusion

In accordance with the final Basel III reforms package, the current approaches to Pillar 1 minimum capital requirements for operational risk are being replaced by the new Standardised Method Approach starting from January 1, 2025.

Considering that all banks within the European Union will have to move on the new method for calculating the regulatory requirement, it is necessary to point out that several qualitative requirements must be met in order to reduce inconsistencies in the capital requirement calculation process and in the supervisory reporting related to operational risk. Despite some differences that depend on the inherent characteristics of a bank, clear strategies supervised by management, a strong operational risk culture, effective risk management and internal reporting, and contingency planning are all crucial elements for building up and maintaining a sound operational risk framework for banks of any size and scope. In other words, an efficient and consistent operational risk framework is essential for the proper assessment, prevention and mitigation of operational risk.