



Staying Ahead: Key Insights from the PRA's SS1/23 and Beyond

Your Guide to Effective Model Risk Management (MRM)

November 2024



The evolving regulatory landscape challenges financial institutions to manage model risk effectively. The PRA's SS1/23 provides essential guidance on strategic governance, model lifecycle management, and data integrity to ensure compliance and resilience.

Recent regulatory reviews, including s166, have highlighted significant areas for improvement in firms' MRM practices. Addressing these findings is crucial for enhancing compliance and risk management frameworks.



PRA's SS1/23: A New Era in MRM

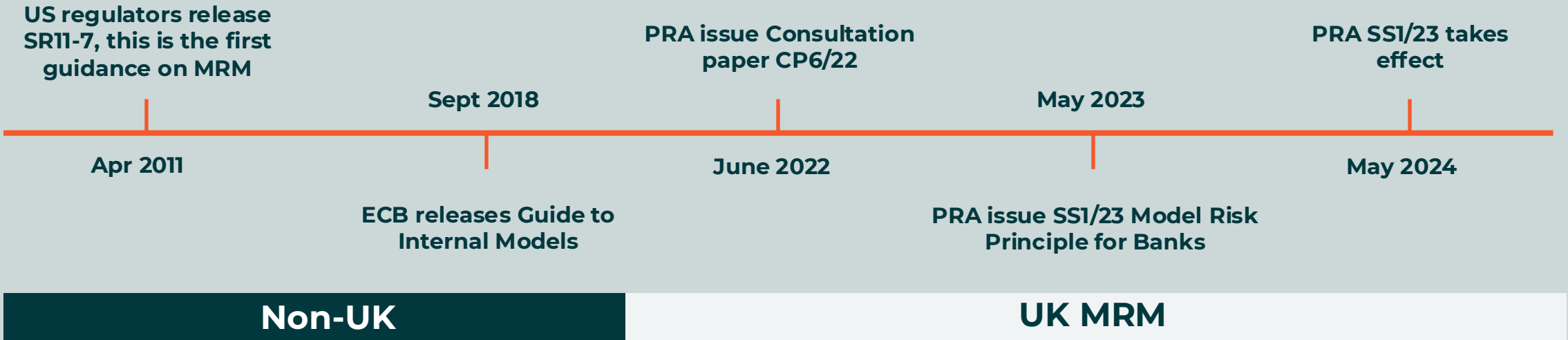
The financial services sector is continuously evolving, with regulatory expectations and risk management practices becoming increasingly sophisticated. The Prudential Regulation Authority's (PRA) [Supervisory Statement SS1/23](#), issued in May 2023, and the preceding consultation paper from June 2022, provide comprehensive guidance on managing model risk.

Our insights paper explores the key principles and recommendations from these documents, offering a detailed roadmap for firms to enhance their MRM frameworks and ensure robust risk management.

In June 2022, the PRA issued a consultation paper to address shortcomings in firms' MRM practices. It introduced five key principles focusing on model identification, governance,

development, validation, and risk mitigation.

By May 2023, these principles were finalised in Policy Statement (PS) 6/23, emphasising strategic governance, rigorous model lifecycle management, data quality, risk identification, and comprehensive documentation. The policy went live in May 2024, marking a significant step forward in enhancing MRM practices across the financial sector.



Whom is it Applicable to?

Applicability of PRA's SS1/23

- The Supervisory Statement (SS) primarily targets all regulated UK-incorporated banks, building societies, and PRA-designated investment firms with internal model approval for calculating regulatory capital requirements. This policy took effect on 17 May 2024.
- The framework covers a wide range of models, including IFRS 9, IRB, stress testing and business scorecards. Additionally, it includes End-User Computing (EUC) tools and any methods involving offline calculations in spreadsheets, significantly expanding the scope.
- Additionally, the expectations in this SS are relevant to models used for financial reporting purposes. The effectiveness of MRM for financial reporting is crucial for the auditor's assessment of the risk of material misstatement during statutory audits. Firms should ensure that a report on the effectiveness of MRM for financial reporting is available to their audit committee regularly, at least annually, to facilitate effective audit planning.
- However, even if your firm does not fall into these categories or is a third-country firm operating in the UK through a branch, the principles outlined in this SS are still highly beneficial. These principles represent core disciplines essential for robust MRM and can significantly enhance your firm's risk management framework.

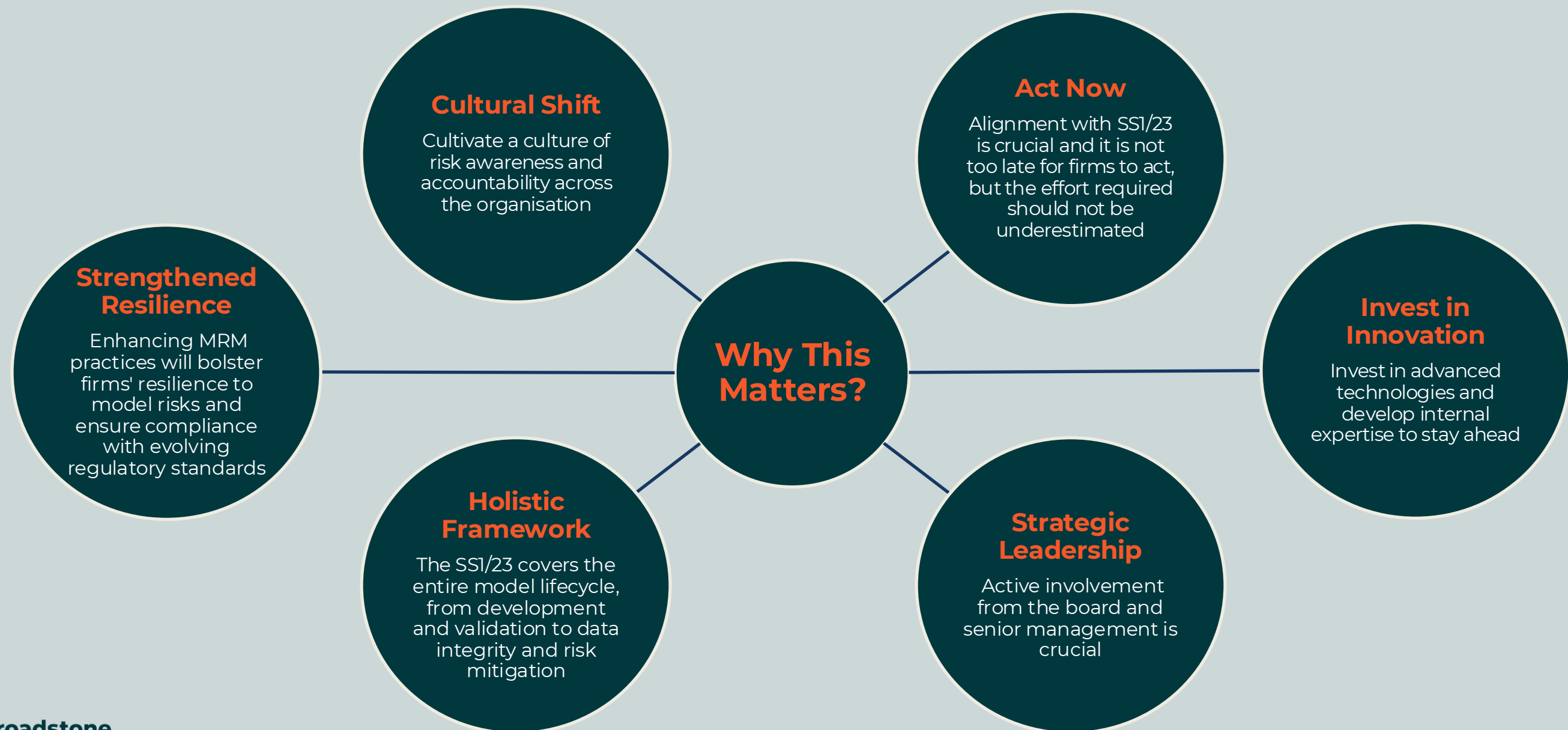
What Firms Need to Do: Initial Self-Assessment and Ongoing Updates

- Before the policy came into effect, firms were required to conduct an initial self-assessment of their MRM frameworks and prepare remediation plans for any shortcomings.
- These self-assessments should be updated annually, with findings and remediation plans documented and shared with the board regularly. Boards should be kept informed of progress.
- Recent s166 reviews have highlighted the importance of robust MRM practices. Firms should ensure their self-assessments and remediation plans address any findings from these reviews.

By adopting these principles in a way that suits your firm's size, business activities, and model complexity, you can ensure effective and proportional model risk management, ultimately enhancing your overall risk management framework.

The Old Guard Meets a New Era?

While governance has always been a cornerstone of financial stability, the PRA's SS1/23 mandates a renewed focus on MRM. This isn't just another regulatory update - it's a comprehensive framework that provides essential principles for robust MRM practices. Adopting this ensures compliance, enhances risk management, and helps firms navigate regulatory expectations while driving strategic decisions.



Key Highlights of PRA's SS1/23:



Strategic Governance: Emphasise the importance of a strategic approach to MRM, with active board and senior management involvement



Model Lifecycle Management: Ensure rigorous development, validation, and continuous monitoring of models



Data Quality and Integrity: Maintain high-quality data and ongoing monitoring to ensure accurate model outputs



Risk Identification and Mitigation: Conduct comprehensive risk assessments and implement effective mitigation strategies



Documentation and Reporting: Ensure transparency through clear documentation and compliance with regulatory reporting requirements

Key Principles of SS1/23

The key principles of SS1/23 are categorised into five areas of focus:

- 1 Model Identification and Model Risk Classification
- 2 Governance
- 3 Model Development, Implementation, and Use
- 4 Independent Model Validation
- 5 Model Risk Mitigants

1. Model Identification and Model Risk Classification

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Firms need to define models, maintain a comprehensive inventory, and use a risk-based approach to categorise models.

Sub-Principle

What is Expected?

Challenges and Insights

1.1 Model Definition

- Define a model as a quantitative method that processes input data into output. Apply MRM framework aspects to significant deterministic methods and ensure sound controls.

- Consistency across units can be difficult, but standardising definitions helps ensure uniformity and clarity.
- Broad definitions may expand scope, so clear guidelines are necessary to maintain focus and prevent scope creep.
- Applying MRM to complex deterministic methods is challenging, but documenting these methods ensures transparency and facilitates better understanding.

1.2 Model Inventory

- Maintain an accurate inventory of all models, capturing details like purpose, assumptions, validation findings, and governance.

- Maintaining a complete inventory is resource-intensive, but centralised systems help streamline the process and improve efficiency.
- Combining inventories from different parts of a firm is complex. Working together helps ensure the inventory is detailed and standardised, such as when inputting primary and feeder models.
- Capturing detailed information requires robust systems, and regular audits are essential to keep inventories accurate and up-to-date.

1.3 Model Tiering

- Use a risk-based tiering approach to prioritise validation and risk controls. Assign materiality and complexity ratings to each model and regularly validate the tiering approach.

- Consistent tiering across diverse models is difficult, but decision trees or scorecards help standardise the process, such as by using uniform criteria for complexity, performance, and materiality.
- Assessing materiality and complexity accurately is challenging, so risk-based resource allocation helps prioritise controls effectively.
- Periodic validation is essential, and regular reviews ensure that the tiering process remains effective and relevant.

Firms should have strong governance oversight with a board that promotes an MRM culture and sets clear model risk appetite.

Sub-Principle	What is Expected?	Challenges and Insights
2.1 Board of Directors' Responsibilities	<ul style="list-style-type: none"> ➤ Establish a comprehensive MRM framework, set model risk appetite, and receive regular reports on model risk profile. 	<ul style="list-style-type: none"> ➤ Establishing a comprehensive MRM framework can be complex, but it ensures a structured approach to managing model risk. ➤ Setting a clear model risk appetite is crucial but challenging; it helps align risk management with the firm's strategic goals. ➤ Receiving regular reports on model risk profile requires robust reporting systems, which enhance transparency and informed decision-making.
2.2 SMF Accountability for MRM Framework	<ul style="list-style-type: none"> ➤ Appoint an accountable SMF to oversee the MRM framework, ensuring effective implementation and compliance. 	<ul style="list-style-type: none"> ➤ Appointing an accountable SMF ensures clear oversight, but finding the right individual with the necessary expertise can be difficult. ➤ Ensuring effective implementation and compliance requires continuous monitoring and adaptation, which strengthens the MRM framework.
2.3 Policies and Procedures	<ul style="list-style-type: none"> ➤ Develop comprehensive policies and procedures to formalise the MRM framework and ensure consistent application. 	<ul style="list-style-type: none"> ➤ Developing comprehensive policies and procedures is resource-intensive, but it formalises the MRM framework and ensures consistency. ➤ Regularly updating these policies to reflect changes in the business environment and regulatory landscape is essential for ongoing relevance.

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Sub-Principle	What is Expected?	Challenges and Insights
2.4 Roles and Responsibilities	<ul style="list-style-type: none"> ➤ Clearly define roles and responsibilities for each stage of the model lifecycle, ensuring staff have appropriate skills and experience. 	<ul style="list-style-type: none"> ➤ Clearly defining roles and responsibilities can be challenging due to overlapping duties and evolving project needs, but it ensures accountability and effective operation of the MRM framework. ➤ Ensuring staff have appropriate skills and experience requires ongoing training and development, which enhances the quality of model risk management.
2.5 Internal Audit	<ul style="list-style-type: none"> ➤ Conduct periodic assessments of the MRM framework's effectiveness and compliance with internal policies. 	<ul style="list-style-type: none"> ➤ Conducting periodic assessments of the MRM framework's effectiveness can be challenging due to its complexity and the need for specialised knowledge, but it is essential for ensuring compliance and identifying weaknesses. These provide valuable insights for continuous improvement and adaptation. ➤ Ensuring internal audit teams have the necessary expertise and independence is crucial for unbiased evaluations. Providing continuous training and fostering a culture of transparency further enhances the quality of these assessments.
2.6 Use of Externally Developed Models	<ul style="list-style-type: none"> ➤ Ensure third-party models meet internal validation standards and are appropriately monitored. 	<ul style="list-style-type: none"> ➤ Integrating third-party models can be challenging due to compatibility issues and varying data formats. A standardised integration framework with predefined formats and automated validation can streamline the process and ensure consistent evaluation. ➤ Ongoing monitoring of third-party models requires robust systems and processes, which help in identifying and mitigating risks associated with external models.

Firms should have robust processes for model development, implementation, and use, ensuring models are suitable for their intended purposes.

Sub-Principle	What is Expected?	Challenges and Insights
3.1 Model Purpose and Design	<ul style="list-style-type: none"> ➤ Clearly state the purpose and design objectives of models, ensuring they are suitable for their intended use. 	<ul style="list-style-type: none"> ➤ Stating the purpose and design objectives of models ensures they are suitable for their intended use but requires understanding the business context. Aligning the design with the intended use helps in selecting appropriate variables and methodologies, enhancing model effectiveness. ➤ Ensuring the design is aligned with the intended use helps in selecting appropriate variables and methodologies, enhancing model effectiveness.
3.2 The Use of Data	<ul style="list-style-type: none"> ➤ Ensure data used in model development is suitable, representative, and free from inappropriate bias. 	<ul style="list-style-type: none"> ➤ Identifying and sourcing high-quality, representative data can be difficult, especially when dealing with diverse data sets from multiple sources. Robust data governance and validation processes help in maintaining data quality and relevance, reducing the risk of biased or inaccurate models. ➤ Detecting and correcting biases in data can be complex, especially when biases are subtle or embedded in historical data patterns. Implementing advanced analytical techniques can help identify and mitigate biases, ensuring the data remains fair and representative for model development.
3.3 Model Development Testing	<ul style="list-style-type: none"> ➤ Conduct thorough testing to ensure models work as intended and meet performance criteria. 	<ul style="list-style-type: none"> ➤ Ensuring models meet regulatory standards for discrimination, accuracy, stability, and prudence (for regulatory models) is technically demanding. Implementing comprehensive performance metrics can help maintain model integrity and compliance. ➤ Testing under various scenarios helps in identifying potential weaknesses and improving model robustness.

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Sub-Principle	What is Expected?	Challenges and Insights
3.4 Model Adjustments and Expert Judgement	<ul style="list-style-type: none"> ➤ Address model limitations and uncertainties through justified and documented adjustments. 	<ul style="list-style-type: none"> ➤ Addressing model limitations and uncertainties through justified and documented adjustments ensures transparency and accountability, but it requires careful consideration and expertise. ➤ Using expert judgement to make adjustments helps in addressing unforeseen issues and improving model accuracy.
3.5 Model Development Documentation	<ul style="list-style-type: none"> ➤ Maintain comprehensive documentation on model design, theory, and logic. 	<ul style="list-style-type: none"> ➤ Maintaining comprehensive documentation on model design, theory, and logic is time-consuming, but it ensures transparency and facilitates independent review and validation. ➤ Detailed documentation helps in understanding model assumptions, limitations, and methodologies, enhancing model governance.
3.6 Supporting Systems	<ul style="list-style-type: none"> ➤ Implement models in tested and validated systems, reassessing their suitability periodically. 	<ul style="list-style-type: none"> ➤ Implementing models in tested and validated systems ensures they operate effectively, but it requires rigorous quality control and change management processes. ➤ Periodically reassessing the suitability of systems helps in maintaining model performance and adapting to changes in the business environment.

Firms should have a validation process that provides ongoing, independent, and effective challenge to model development and use.

Sub-Principle	What is Expected?	Challenges and Insights
4.1 The Independent Validation Function	<ul style="list-style-type: none"> ➤ Establish a validation function to provide objective reviews and periodic revalidation of models. 	<ul style="list-style-type: none"> ➤ Establishing a validation function requires significant resources and expertise, but it ensures unbiased evaluations and enhances the credibility of the models. ➤ Maintaining independence from model development teams can be challenging, especially in smaller firms, but it is crucial for objective assessments.
4.2 Independent Review	<ul style="list-style-type: none"> ➤ Conduct independent reviews covering all model components and assessing conceptual soundness. 	<ul style="list-style-type: none"> ➤ Conducting thorough reviews of all model components is time-consuming and requires specialised knowledge, but it ensures models are suitable for their intended use. ➤ These reviews help uncover hidden risks and potential weaknesses, allowing for proactive risk management and improving overall model quality.
4.3 Process Verification	<ul style="list-style-type: none"> ➤ Verify that all model components operate effectively and are implemented as intended. 	<ul style="list-style-type: none"> ➤ Verifying that all model components operate effectively and are implemented as intended requires detailed testing and validation, but it ensures the integrity and reliability of the models. ➤ This process helps identify discrepancies and ensures models function correctly in real-world scenarios, enhancing their robustness.

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Sub-Principle	What is Expected?	Challenges and Insights
4.4 Model Performance Monitoring	<ul style="list-style-type: none">➤ Perform ongoing monitoring to assess model performance against acceptable thresholds.	<ul style="list-style-type: none">➤ Performing ongoing monitoring to assess model performance against acceptable thresholds is resource-intensive and requires continuous data collection and analysis, but it ensures models remain effective and relevant.➤ Regular monitoring helps in early detection of performance issues, allowing for timely interventions and adjustments.
4.5 Periodic Revalidation	<ul style="list-style-type: none">➤ Undertake regular revalidation to ensure models continue to operate as intended.	<ul style="list-style-type: none">➤ Undertaking regular revalidation to ensure models continue to operate as intended requires significant effort and expertise, but it maintains model accuracy and relevance.➤ This process provides an opportunity to incorporate new data and methodologies, improving model performance over time and ensuring they continue to meet their intended purposes.

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5. Model Risk Mitigants

Firms should have policies and procedures for using model risk mitigants when models underperform and for reviewing post-model adjustments (PMAs). The guidelines for PMAs require more quantitative assessments rather than relying solely on subjective expert judgment. This aligns with the [PRA Dear CFO letter's](#) emphasis on quantitative rigor in PMAs.

Sub-Principle

What is Expected?

Challenges and Insights

5.1 Process for Applying Post-Model Adjustments

- Apply adjustments systematically and transparently, ensuring they are justified and documented.

- Applying adjustments systematically and transparently can be complex, but it ensures that adjustments are justified and documented.
- Ensuring adjustments are justified requires robust validation processes, which enhance the credibility and reliability of the adjustments.

5.2 Restrictions on Model Use

- Place restrictions on model use when significant deficiencies are identified, such as inaccurate predictions, data integrity issues, non-compliance with regulations, outdated methodologies, and operational failures.

- Placing restrictions on model use when significant deficiencies are identified is crucial but challenging; it helps mitigate risks associated with underperforming models.
- Implementing these restrictions requires clear guidelines and effective communication, which ensure that all stakeholders are aware of the limitations and controls.

5.3 Exceptions and Escalations

- Formulate and manage exceptions to model use and performance, with clear escalation procedures.

- Formulating and managing exceptions to model use and performance can be difficult, but it ensures that exceptions, such as model performance issues, data quality problems, regulatory non-compliance, and operational changes, are handled consistently and transparently.
- Clear escalation procedures are essential for timely and effective resolution of issues, which helps maintain the integrity of the model risk management framework.

What should you do next?

Enhancing MRM Practices

To effectively enhance MRM practices, firms should focus on several key areas that collectively strengthen risk management frameworks and ensure regulatory compliance. By integrating MRM into the broader risk strategy, leveraging advanced technologies, promoting a culture of risk awareness, and maintaining open communication with regulators, firms can significantly improve MRM capabilities. These efforts not only help in managing model risk effectively but also align with business objectives and regulatory expectations, ultimately strengthening the firm's overall risk resilience.

Key Areas to Focus on:

- **Self-Assessments:** Conduct initial and regular self-assessments of your MRM framework to identify gaps and ensure compliance. Share updates with the board to maintain transparency and drive improvement. Firms should ensure that their self-assessments and remediation plans effectively address any findings from s166 or similar regulatory reviews.
- **Adopt a Holistic Approach:** Integrate MRM into the broader risk management framework, ensuring alignment with business objectives and regulatory expectations. This holistic approach helps in managing model risk as part of the overall risk strategy.
- **Invest in Technology and Expertise:** Leverage advanced technologies and build internal expertise to enhance model development, validation, and monitoring capabilities. Investing in technology can improve model accuracy and efficiency.
- **Foster a Risk-Aware Culture:** Promote a culture of risk awareness and accountability across the organisation. Encourage proactive identification and management of model risks, ensuring that all employees understand the importance of MRM.
- **Engage with Regulators:** Maintain open and constructive dialogue with regulators to stay informed of evolving expectations and best practices in MRM. Regular communication with regulators can help in aligning practices with regulatory standards.

How we can assist you on this journey?

Firms face several challenges in enhancing MRM practices. Developing comprehensive policies and integrating MRM across departments is complex. Ensuring board members understand model risk and maintaining effective oversight are crucial yet difficult tasks. Rigorous model development and validation require significant resources and expertise.

These challenges highlight the need for a strategic approach, resource allocation, and ongoing commitment to strengthen MRM frameworks and ensure regulatory compliance.

We support firms in addressing these issues, providing real-time insights into key challenges in the evolving MRM landscape. With our deep understanding of regulatory and auditor expectations, we help future-proof your MRM and broader risk management frameworks.

Capital and Impairment Risk Advisory – MRM

We develop and implement model risk management frameworks, identify and assess model risks, and provide mitigation strategies. Our services include conducting initial and ongoing self-assessments to identify gaps and ensure compliance. We also assist with remediation plans and their implementation.

With our extensive s166 regulatory review experience, we understand the areas of concern and how to remediate them effectively. Our approach ensures adherence to regulatory standards, such as those outlined by the PRA, SS 1/23, enhancing the robustness and reliability of risk models.

Our key services:

A. Model Risk Frameworks

- **Development and Implementation:** Create comprehensive model risk management frameworks tailored to the firm's needs.
- **Policy Development:** Develop policies and procedures for model risk management.
- **Governance Structures:** Establish governance structures to oversee model risk management activities.

B. Model Risk Assessment

- **Self-Assessments:** Perform initial and periodic self-assessments of the MRM framework to identify gaps and assist with remediation plans and implementation.
- **Risk Identification:** Identify and assess risks associated with the use of models.
- **Mitigation Strategies:** Develop strategies to mitigate identified model risks.
- **Audit Support:** Provide support during internal and external audits of model risk management practices.

Find out more



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