

EBA – Validation of rating systems under the IRB

Supervisory handbook



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1 | Executive summary

Introduction

The EBA has launched a consultation paper on the supervisory handbook on the validation of IRB rating systems which provides some general guidance regarding the expectations of the validation function, as well a detailed description of the areas whereby the validation function is expected to form an opinion on

1- Background



The EBA has to develop and maintain a supervisory handbook on the supervision of financial institutions in the Union which is to set out **supervisory best practices and high-quality methodologies and processes** and takes into account, inter alia, changing business practices and business models and the size of financial institutions and markets.



The IRB validation is mostly described in the **CRR as well as in CRD** which provides a general description of the activities and objective of the validation function, as well as the assessment methodology.



Nevertheless, the EBA has identified some **heterogeneity** in the expectations of competent authorities (CA) relative to the validation function.

2.- Overview of the Handbook

The supervisory handbook provides some **general guidance** on the **expectations relative to the validation function**:

1. Clarification of the specificities of the validation in the context of the prudential framework, in terms of corporate governance and structural independence from the CRCU.
2. General description of the requirements applicable to the validation function.
3. Description of the validation tasks: tasks related to the pure model performance assessment and the ones dealing with the modelling environment.
4. Applicable requirements in the context of a first or recurrent validation.
5. Specific aspects which may trigger specific validation challenges.

3- Next steps



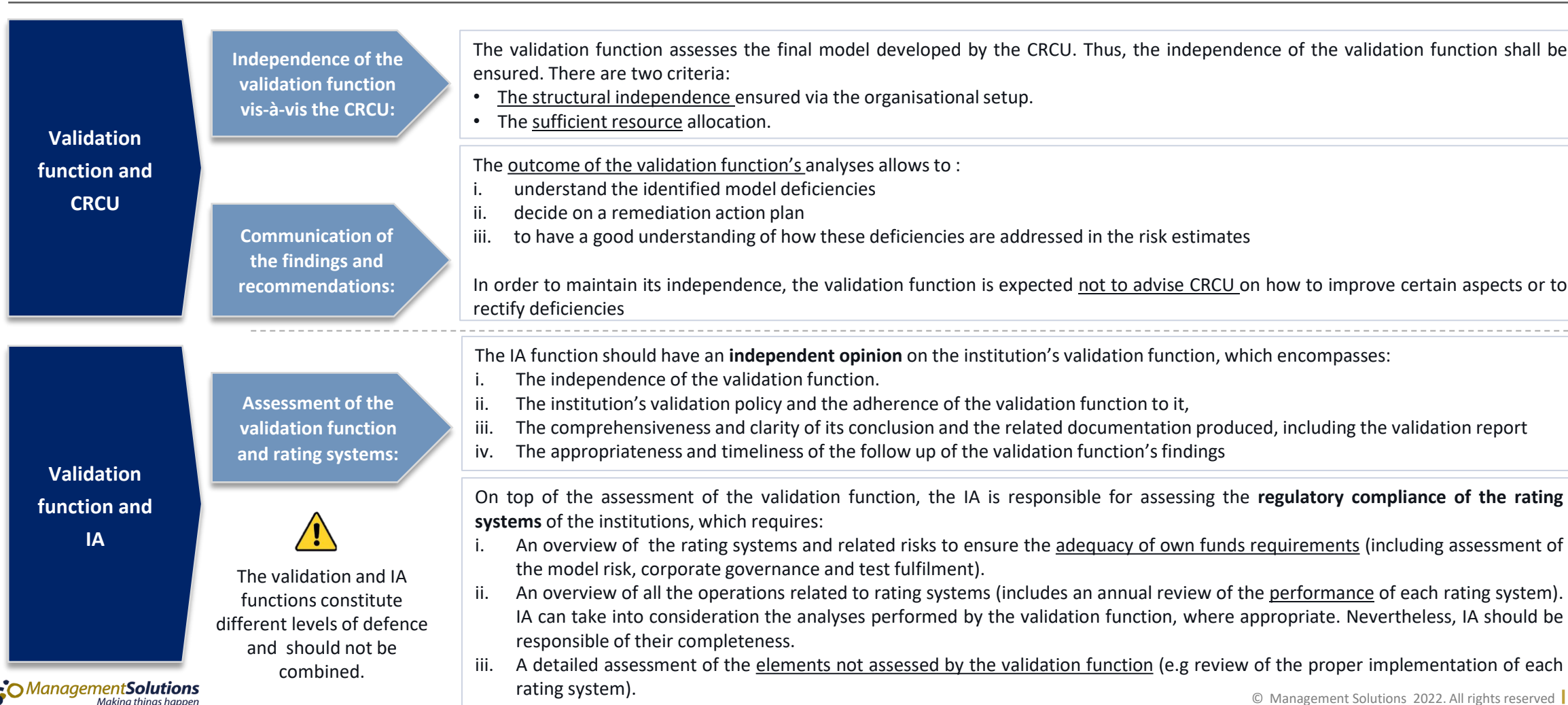
- The draft supervisory handbook is published for a *three months* consultation period (until 28 October 2022). The responses received during the consultation period will be taken into account when specifying the final handbook.



2 | Context of validation function

Three layers of defence

The assessment of the model performance is performed by several functions: i) credit risk control unit (CRCU); ii) the validation function and ii) the Internal Audit (IA). However, the EU regulation requires institutions to set up a specific independent validation function with its own responsibilities



Validation function is expected to assess the materiality of all model changes and extensions

1. Scope

The internal validation should be conducted at **each level where a CA has granted an approval for a rating system**. The responsibility of the validation tasks shall be retained by the validation function of the entity at the level of which the rating system has been approved.

What if a rating system is used at different levels of a group of entities?

- The validation functions are expected to share their findings and come up with an opinion on the **corrective actions** against any identified model deficiency or under-estimation of risk parameters.
- The validation functions should come up to an agreement on whether a deficiency identified at a certain level is an indication of a **general deficiency at group level**.
- Institutions must ensure the **sufficient capitalisation** at all relevant levels, taking into account the validation functions.

2. Validation Policy and Report

The validation function should form an opinion on whether the final rating system developed by the CRCU meets the **regulatory requirements**. The validation function should come up with:

- A **list of the deficiencies** identified.
- An **assessment of the consequences** of these deficiencies.
- An **assessment of the level of confidence** in the results of its assessments.



The validation policy is expected to describe the validation framework, i.e. the roles, responsibilities, processes and content of the validation activities that need to be performed.



The validation report is expected to describe:

- the relevant tests performed to challenge the rating system
- the outcomes of the validation analyses
- the inclusion of a comparison between the latest results of the validation and the ones observed in the previous years

3. Validation tasks

1 - Institutions shall have robust systems in place to validate the accuracy and consistency of rating systems, which encompasses:

- An assessment of **CRCU's work and related documentation**.
- Development of own **empirical challengers** (using new set of data not used during the development of the rating system).

2 - Institution are expected to define and implement validation methods and procedures that are **consistent** across rating systems as well as through time. (e.g. ensure the changes in the validation policy are recorded and highlighted).

3 - In addition to assess the model in terms of performance, the validation function is expected to assess the **materiality of all model changes and extensions and their combined effects by:**

- **Qualitative** assessment
- **Quantitative** assessment



4

Initial validation vs. recurrent validation

Risk differentiation

The guidelines differentiate between initial and recurrent validations to determine the actions to be taken by entities within the validation process.

		Initial validation	Recurrent validation
Risk differentiation	Rating assignment process	It is necessary to assess the correct documentation of the process and that it can be replicated by a third party . It is also necessary to assess both the quality and quantity of those clients/contracts that are unrated or have an expired rating . It is recommended to calculate the impact through RWA and the number of clients/contracts.	Conclusions drawn from previous validations can be re-used , although possible new deficiencies (such as those detected by internal audit) have to be taken into account . Materiality analysis of non-standard (expired/unrated) ratings is also expected to be performed .
	Input data	All the variables that perform the sample should be analyzed , with a special focus on the representativeness of the development sample with respect to the current portfolio . This analysis must include: scope of application, definition of default, distribution of the main <i>risk drivers</i> and admission and recovery policies.	The validation function can use the previous assessment for the data quality and the completeness . A representativeness analysis should also be performed taking into account the analysis performed by the CRCU (paragraph 218(a) of the PD and LGD estimation guidelines).
	Modelling Choices	<ul style="list-style-type: none"> ▪ Revision of the choices: Check that the drivers indicated by the regulation⁽¹⁾ are included. Possible outliers in LGD realised. The use of external ratings to segment. ▪ Hyperparameters: In case they (e.g. depth or number of leaves in a decision tree) are used, both expert decisions & quantitative results will have to be reviewed ▪ Rating segments: Check that the proposed segments are clear and not too granular. The number of segments should be reviewed to ensure that they meet the regulatory minimum 	The validation function can use the previous assessment .
	Quantitative Analyses & Validation Challengers	These should include analyses of discriminatory power , within-segment homogeneity and between-segment heterogeneity for PD, LGD and CCF. In addition, it will have to be verified that an out-of-time (OOT) and out-of-sample (OOS) sample has been used during model development. The validation function is expected to assess the impact and number of overrides , the stability of the ratings , relationship between obligor grades in terms of the level of default risk, the use of external data and the potential concentration in rating grades.	Internal validation will have to perform tests using OOT sample taking both new data since the last validation and since the last model approval date . As the initial validation, it is expected to assess the impact and number of overrides , the stability of the ratings , relationship between obligor grades in terms of the level of default risk, the use of external data and the potential concentration in rating grades.



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Initial validation vs. recurrent validation

Risk quantification

The guidelines differentiate between initial and recurrent validations to determine the actions to be taken by entities within the validation process.

		Initial validation	Recurrent validation
Risk quantification	Input data and methodology	<p>The data used shall be reviewed to verify that any uncertainty is covered through a MoC.</p> <p>Assumptions made to estimate the PD such as the LGD, the long-run-average-DR, the length of the historical period or the choice of calibration samples, the choice of the LR period, the maximum period of recoveries, the length of the historical period and possible adjustments made will also be reviewed.</p> <p>The quantification of the MoCs will also be reviewed as well as their application, especially that the application of MoCs always increases the parameters.</p> <p>The choice of the DT period for LGD and CCF will be reviewed as well as its duration and severity.</p>	<p>In the case of LGD, it will be analysed whether the inclusion of new closed dossiers entails a significant change in the estimate related to non-closed dossiers.</p> <p>The conditions of the calculation method chosen for the observed DRs. The calibration methodology of the Long-Run average will be analysed and, in the event that the previous validation did not comply with the minimum number of years required, validation will have to verify that there has been a recalibration of the model.</p> <p>It is recommended to review the evolution of the MoCs through the evolution of their corresponding uncertainties.</p> <p>With respect to the DT period of the LGD and the CCF it will be checked whether any new data added to the estimate could be classified as a DT period.</p>
	Additional tests	<p>Additional tests will have to be carried out to verify both the data and the methodological choices implemented by the CRCU performing a back-test of risk parameter estimates and the accuracy of model prediction and best estimate calibration. The rating philosophy of the model should be considered in these tests</p>	<p>The same tests as in the previous validations should be performed including a more recent sample.</p>



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4 Initial validation vs. recurrent validation

Other specifications

The guidelines differentiate between initial and recurrent validations to determine the actions to be taken by entities within the validation process.

		Initial validation	Recurrent validation
Other specific points	Exposures in default	In the case of LGD-in-default and ELBE , the same analysis must be performed as for LGD , but instead of taking the date of default , the reference date must be taken . In this regard, attention should be paid to the definition of the reference date , the non-inclusion of MoCs in the ELBE and the consistency between the ELBE and LGD-in-default .	The LGD will be reviewed to ensure that there are no major changes including the most recent sample as well as the definitions of the reference dates and the recovery policies . Regarding the ELBE, the possible adjustments related to economic conditions applied will be reviewed while for the LGD in default the MoCs will also have to be reviewed.
	CRM	Validation is expected to check that the LGD reflects the recovery policy . With respect to the sample used, it will be verified that the RDS must include all recovery flows allowed . In addition, it will be verified that recoveries are assigned in their corresponding contracts and that collateral recoveries should reflect the repossession value. In the case of using a haircut , the corresponding MoC should also be analysed. Double counting should be verified in the case of application of CRM techniques , although special attention should be paid to netting contracts.	It should be checked that the recovery policy has not changed . The validation function can rely on its previous assessments . The internal audit opinion shall also be considered. As for the rest of the tests, the same tests can be carried out as in previous validations with the most recent data .
	Slotting approach	Because PD and LGD parameters are not used , some tasks in the validation process are different: <ul style="list-style-type: none"> ▪ In case AI does not review the allocation within the specialised funding subcategories, it will have to be reviewed by internal validation. ▪ Both the selection of relevant information, the rating criteria and the aggregation of relevant information must be verified. ▪ The rest of the tests will be similar to a normal portfolio, number of overrides, stability, concentration, etc... 	The same tests with the most recent data should be carried out with more emphasis on discriminatory power , especially if there has been any renewal of loans when they were due to mature. As the initial validation, it is expected to assess the impact and number of overrides , the stability of the ratings , relationship between obligor grades in terms of the level of default risk, the use of external data and the potential concentration in rating grades.

4 Initial validation vs. recurrent validation

Model environment

The guidelines differentiate between initial and recurrent validations to determine the actions to be taken by entities within the validation process.

		Initial validation	Recurrent validation
Model environment	Data quality	On the one hand, the RDS information of the development sample will have to be validated , and on the other hand, the sample application of the model will have to be validated .	Validation is expected to review the data quality document submitted to senior management , as well as the CRCU's treatment of the deficiencies detected , especially if they have been addressed with a MoC. The validation function is expected to monitor the comprehensiveness of the assignment process .
	IT implementation	Check that the functional and business requirements defined by the methodology team are translated into the IT infrastructures . To this end, the functional documentation of the system must be analysed . Ensure that the implementation of the Rating System in the systems complies with the regulations and reproduces what is documented under the model under review . This will be done by verifying that UATs of the model under implementation have been performed. <i>Walk-through</i> sessions of the validation team and the IT team are recommended to understand this test plan and its implementation.	A review of the Rating System should be carried out , checking in detail that any changes to the model have been duly reflected in the functional and business requirements .

5

Validation challenges

External Data, Outsourcing and Data scarcity

The EBA focuses on three aspects which may trigger specific validation challenges:

- i) the use of external data in the model development; ii) the outsourcing of validation task and
iii) the validation in the context of data scarcity

External Data



The validation of a rating system which is built on external data is expected to follow the following five principles:

- **Representativeness:** Analysing whether the use of external data is appropriate. Divergences in ratings assignments to counterparties may occur.
- **Access to data:** possibility to request any further analyses from the data provider
- **Methodological choices' assessment:** the validation function is expected to assess whether any bias has been introduced
- **Performance assessment:** quantitative evaluation of the rating system performance is expected to be performed first on internal data.
- **Data quality:** The external data is not expected to be treated differently than internal data in terms of data quality assessment.

Outsourcing of
validation tasks

When outsourcing operational tasks, it is expected that an institution **complies with the regulatory requirements** (e.g. EBA GL on outsourcing).

Therefore, among others:

- The validation function remains responsible of its validation policy, validation methodology and the final assessment on the rating system. As a result, the management of the validation function will remain responsible for all validation activities.
- The institution outsourcing policy plays an important role.
- The communication with Competent Authority should start as early as possible.
- The outsourcing must be clear and transparent (properly documented).

Data scarcity



The validation of ratings systems in a context of data scarcity brings some additional challenges:

- Creation of **specific metrics**, paying special attention to the interpretation of the results obtained for the application of statistical challengers or tools.
- Complementary analyses to **supplement quantitative measures**, such as descriptive statistics or visual analyses
- Where it is **not feasible to apply certain statistical tests** it can be used a comparison with internal credit expert ranking or OOT and OSS validation samples.



6

This consultation document seeks to gather the views of all stakeholders through six questions

1

1a) How is the split between the first and the subsequent validation implemented in your institution?

1b) Do you see any constraints in implementing the proposed expectations (i) as described in section 4 for the first validation for a) newly developed models; and b) model changes; and (ii) as described in section 5 for the subsequent validation of unchanged models?



2

For rating systems that are used and validated across different entities, do you have a particular process in place to share the findings of all relevant validation functions? Do you apply a singular set of remedial action across all the entities or are there cases where remedial actions are tailor-made to each level of application?



3

3a) Do you deem it preferential to split the review of the definition of default between IRB-related topics and other topics?

3b) If you do prefer a split in question 3a, which topics of the definition of default would you consider to be IRB-related, and hence should be covered by the internal validation function?



4

Which approach factoring in the rating philosophy of a model into the back-testing analyses should be considered as best practices?



5

What analyses do you consider to be best practice to empirically assess the modelling choices in paragraph [76] and, more generally, the performance of the slotting approach used (i.e. the discriminatory power and homogeneity)?



6

6a) Which of the above mentioned approaches do you consider as best practices to assess the performance of the model in the context of data scarcity?

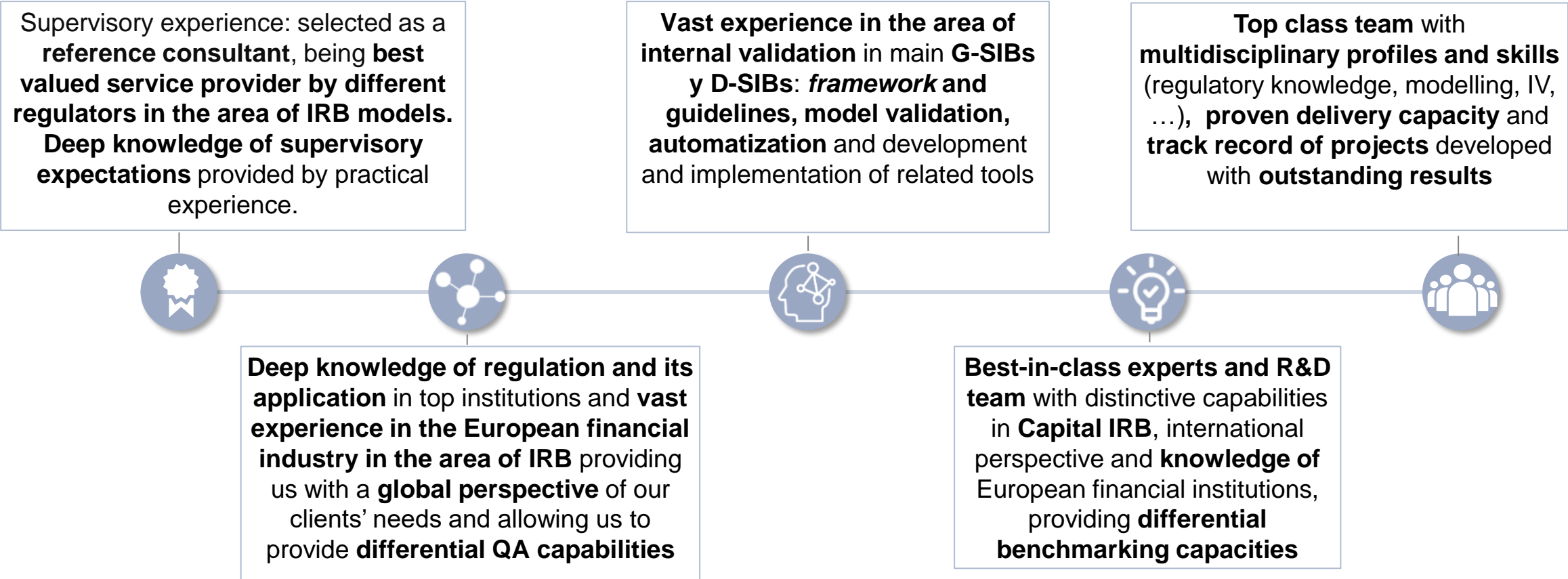
6b) More in general, which validation approaches do you consider as best practices to assess the performance of the model in the context of data scarcity?



7 | Why Management Solutions?

Summary of capabilities and credentials

Management Solutions has differential expertise in IRB related projects and with extensive experience working with supervisors and in main European financial institutions in the scope of IRB models and internal validation frameworks





International
One Firm



Multiscope
Team



Best Practice
Know-How



Proven
Experience



Maximum
Commitment



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