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Effects of the IBOR  
Transition on Processes,  
Information Systems and  
Operations

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## 2 . Introduction

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### 2.1 Scope

This document covers the process of determining the effects that the transition from the IBOR standard to alternative reference rates has on the business processes, operational activities and information systems infrastructure of institutions and the points to be taken into consideration during the IBOR transition. It provides an action plan as a suggestion to ensure that the transition process is effective and realized with minimum costs

### 2.2 Limitations and Key Points

- This document was prepared for the purpose of providing guiding information to stakeholder institutions to be affected from the IBOR transformation in the process of transition to a new reference rate.
- Despite focusing on processes, systems and operational effects related to the banking sector in particular, this document may also be beneficial to other sector players with similar processes, systems and operational effects.

### 3 Summary

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The manipulation of IBOR from time to time in the past, declines in unsecured interbank lending markets and the decline in the general opinion that using IBOR is risk-free resulted in the need to transition from IBOR to alternative reference rates.

The fact that the publication of IBOR will cease is expected to cause major changes in a wide range of products and market groups. The IBOR reform is an important and long-term transformation attempt for many global financial and non-financial institutions affected from products and instruments, contracts, processes, models and systems based on IBOR.

As a result of the IBOR reform, processes such as credits, deposits, derivative products, securities and loans among the provided services are expected to be affected from the changes particularly in the legal, tax, risk management, treasury, finance, accounting, operation, compliance and technology units of institutions and in the business methods of such units.

For completing the process of transition to alternative reference rates successfully, it is important to carry out the process in compliance with national and international regulations, determine the process and technology investments to be made during the transition process, identify potential internal and external risks during the transition and take steps to manage such risks.

The section **“Effects of the IBOR Transition on Operations and Processes”** included in this document aiming to support the completion of the process effectively and with minimum cost to financial institutions, includes the impact analysis approach proposed for processes and systems, the scope of the processes to be impacted from the transformation, the steps to be taken in the processes and the sub-processes and systems impacted from the transformation. The potential effects of the transition on pricing, valuation and interest calculation processes, the governance structure and control environment are also mentioned.

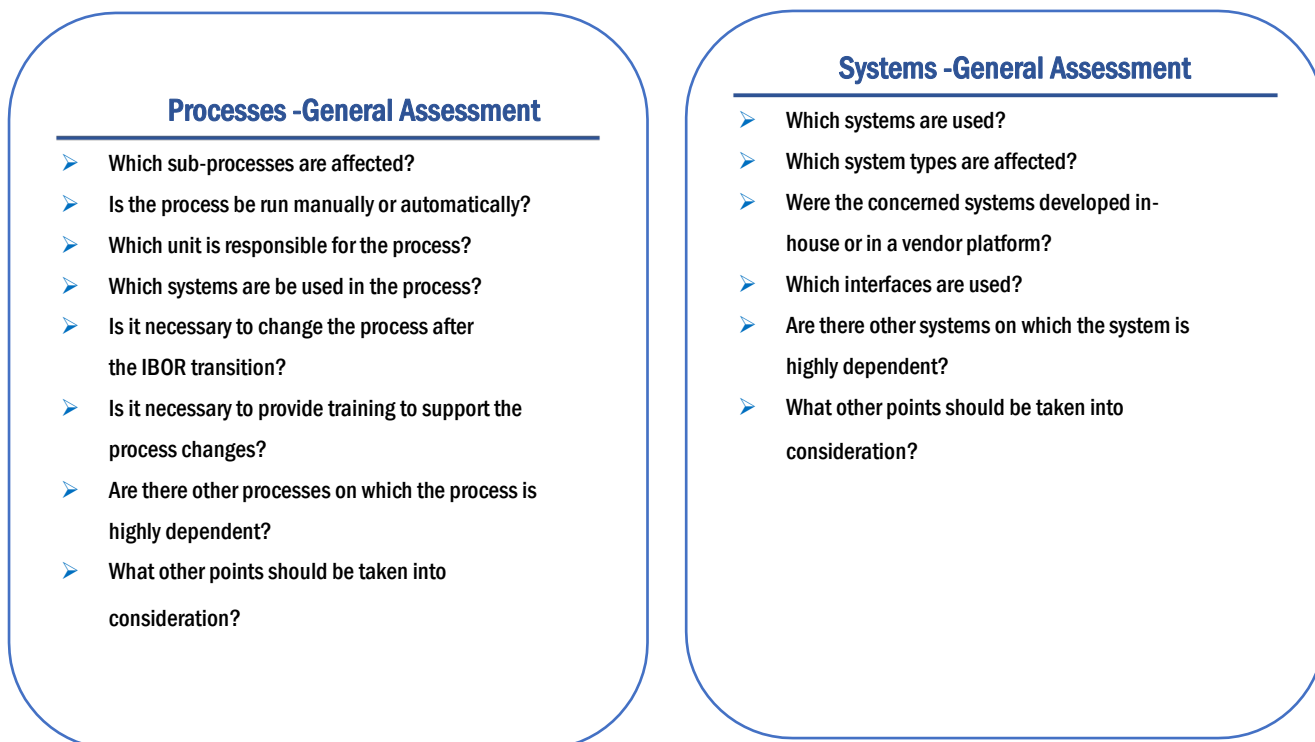
The section **“Effects of the IBOR Transition on Information Systems”** includes the technological investments required as part of the transformation and the points to be taken into consideration during such investments.

The section **“Global Approach to the IBOR Reform”** outlines the document published by the Alternative Reference Rates Committee (ARRC) that includes the steps to be taken in the internal systems and processes of institutions as part of the IBOR reform, results of the survey conducted for assessing the vendor platform and the points to be taken into consideration during the transition from IBOR to reference rates.

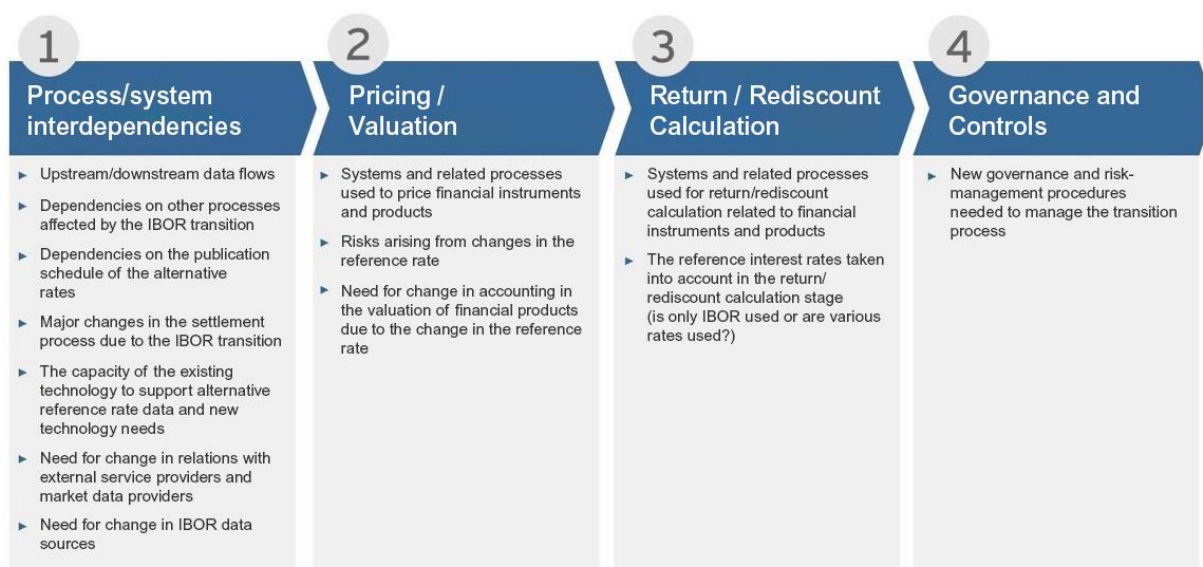
## 4 Effects of the IBOR Transition on Operations and Processes

Systems, business processes, datasets and models usually take IBOR as reference. The process of transformation from IBOR to alternative reference rates is expected to lead to significant changes and updates in processes and systems. Therefore, the IBOR transition on operations and processes should be assessed.

### 4.1 Impact Analysis Approach for Processes and Systems



### Changes Needed in the Processes and Systems



### Sample Impact Analysis Template

|           |     | General Assessment                |  |  |   |  |   |   | Process/System Interdependencies                      |  | Pricing/Valuation                   |  | Return/Rediscount Calculation       |  | Governance and Controls             |  |                                     |
|-----------|-----|-----------------------------------|--|--|---|--|---|---|---|--|-------------------------------------|--|-------------------------------------|--|-------------------------------------|--|-------------------------------------|
| Processes | No. | Which sub-processes are affected? | Is the process be run manually or automatically? | Which unit is responsible for the process? | Which systems are be used in the process? | Is it necessary to change the process after the IBOR transition? (Y/N) | Is it necessary to provide training to support the process changes? (Y/N) | Are there other processes on which the process is highly dependent? | What other points should be taken into consideration? | Description of the change required in the process. | Impact Analysis (High, Medium, Low) | Description of the change required in the process. | Impact Analysis (High, Medium, Low) | Description of the change required in the process. | Impact Analysis (High, Medium, Low) | Description of the change required in the process. | Impact Analysis (High, Medium, Low) |
|           |     | 1                                 |  |  |   |  |   |   |   |  |                                     |  |                                     |  |                                     |  |                                     |

|         |     | General Assessment      |                                  |  |                            |  |   |  | Process/System Interdependencies    |  | Pricing/Valuation                   |  | Return/Rediscount Calculation       |  | Governance and Controls             |  |
|---------|-----|-------------------------|----------------------------------|--|----------------------------|--|---|--|-------------------------------------|--|-------------------------------------|--|-------------------------------------|--|-------------------------------------|--|
| Systems | No. | Which systems are used? | Which system types are affected? | Were the concerned systems developed in-house or in a vendor platform? | Which interfaces are used? | Are there other systems on which the system is highly dependent? | What other points should be taken into consideration? | Description of the change required in the systems. | Impact Analysis (High, Medium, Low) | Description of the change required in the systems. | Impact Analysis (High, Medium, Low) | Description of the change required in the systems. | Impact Analysis (High, Medium, Low) | Description of the change required in the systems. | Impact Analysis (High, Medium, Low) |  |
|         |     | 1                       |                                  |  |                            |  |   |  |                                     |  |                                     |  |                                     |  |                                     |  |

## 4.2 Sample Process Scope



## 4.3 Process and System Interdependencies

### 4.3.1 Treasury process

#### 4.3.1.1 Primary Dealership

##### Steps and Activities to be Performed During the Transition Process

1. The effects of the IBOR transition on purchase & sale and investment activities should be assessed in consideration of transaction spreads and volume information.
2. Its effect on the securities inventory and basic trading services of primary dealer institutions should be assessed in consideration of the effects on the new reference rates, the volume of products based on IBOR, timing of the requests, spreads, variability of market conditions and bank financing costs.
3. The legal responsibilities regarding primary dealership and the monitored processes should be checked for changes.
4. The effects of the transition to alternative reference rates on profits and provisions should be determined.
5. IBOR transition scenarios should be analyzed to assess the profit levels in various market conditions for any trading transactions.

6. The completeness of the mechanisms related to the updated pre-trade activities should be checked.
7. Sufficient support teams should be created for systemic updates.
8. The implementation plan should be monitored and realized in consideration of developments concerning the external environmental practices and the regulatory legislation.

The IBOR transition has additional issues and interacting processes that need to be taken into consideration.

- Upstream/downstream data flows between processes and systems and interacting activity steps should be taken into consideration.
- The costs to be incurred due to the IBOR transition should be taken into consideration.
- Attention should be paid to potential intersections between regulatory legislation changes and the approval processes.
- Updates in interconnected processes and systems should be tested.
- Realizing the tests primarily in pilot schemes should be considered.

#### 4.3.1.2 Pre-Trade Warnings

##### **Steps and Activities to be Performed During the Transition Process**

1. The effects of the IBOR transition should be considered on Front Office Operations such as entering orders into the system and realizing them, and on Middle Office Operations such as risk management activities and forwarding orders.
2. Before performing the transactions, it is necessary to check the market contracts and legal responsibilities such as risk management controls, guarantee requirements and order types for any changes.
3. The effect of the IBOR transition on customer credibility should be evaluated.
4. IBOR transition scenarios should be analyzed for various order types and customers for the purpose of assessing the risks to be exposed to under various market conditions.
5. It is necessary to design systems that update the pre-trade control mechanism for the purpose of implementing the changes required to provide Alternative Reference Rates (ARR).
6. The completeness of the mechanisms related to the updated pre-trade activities should be checked.
7. Sufficient support teams should be established for systemic updates.
8. The implementation plan should be monitored and realized in consideration of developments concerning the external environmental practices and the regulatory legislation.

The IBOR transition has additional issues and interacting processes that need to be taken into consideration.

- The technological solutions designed to support the IBOR transformation process and the labor costs should be assessed.
- Potential internal and external risks to be exposed to as a result of the transition should be assessed and strategies should be developed to manage such risks.
- Attention should be paid to potential intersections between regulatory legislation changes and the approval processes.
- Upstream/downstream data flows between processes and systems and interacting activity steps should be taken into consideration.
- Realizing the tests primarily in pilot schemes should be considered.

#### 4.3.1.3 Entering Order Data

##### **Steps and Activities to be Performed During the Transition Process**

1. Changes to be caused due to using alternative reference rates on order details should be identified.



2. The scope of order details and the order types should be checked for any changes regarding legal responsibilities or market contracts.
3. The technology solutions designed for compliance to the transition and required process changes should be analyzed.
4. It is necessary to design systems that enter the order data into the system for the purpose of implementing the changes required to provide Alternative Reference Rates (ARR).
5. It should be checked that the updates are completed in the systemic mechanism where order data is recorded.
6. Sufficient support teams should be created for systemic developments.
7. The implementation plan developed for transition to alternative reference rates should be determined in consideration of external environmental changes and regulatory legislation changes and be monitored proactively.

The IBOR transition has additional issues and interacting processes that need to be taken into consideration.

- The technological costs to be incurred due to transition from IBOR to alternative reference rates should be taken into consideration.
- Attention should be paid to potential intersections between regulatory legislation changes and the approval processes.
- Upstream/downstream data flows between processes and systems and interacting activity steps should be taken into consideration.
- Updates in interconnected processes and systems should be tested.

#### 4.3.1.4 Realizing Orders

##### **Steps and Activities to be Performed During the Transition Process**

1. The effects of the IBOR transformation on order types, guarantee requirements and the trade systems of brokers should be assessed.
2. Its effect on the securities inventory and basic trading services of brokers should be assessed in consideration of the effects on the new reference rates, the volume of products based on IBOR, timing of the requests, spreads, variability of market conditions and bank financing costs.
3. The changes in the classification and order of transactions should be identified in the order book.
4. The effect of transition to alternative reference rates on interest rates, fixed yield securities and guarantees should be analyzed.
5. The legal responsibilities and market contracts should be checked for any notable changes related to realizing orders.
6. It is necessary to take into consideration the vendor practices to be used in the updates in systems where orders are realized.
7. In the process of transition from IBOR to alternative reference rates, systems should be designed that perform the necessary changes in the mechanisms where orders are realized.
8. Sufficient support teams should be established for systemic updates and it should be checked that the updates are completed.
9. The implementation plan created for the updates in the mechanisms where orders are realized should be reviewed and arranged in consideration of any changes in environmental factors and legal regulations.

The IBOR transition has additional issues and interacting processes that need to be taken into consideration.

- Upstream/downstream data flows between processes and systems and interacting activity steps should be taken into consideration.
- The costs to be incurred due to transition from IBOR to alternative reference rates should be taken into consideration.
- Attention should be paid to potential intersections between regulatory legislation changes and the approval processes.

- Updates in interconnected processes and systems should be tested.
- Realizing the tests primarily in pilot schemes should be considered.

#### 4.3.1.5 Realizing Trading Transactions

##### **Steps and Activities to be Performed During the Transition Process**

1. The effect that changes in systems where the transactions are performed have on the transaction realization performance should be assessed.
2. The legal responsibilities and market contracts (broker notifications, details of realized transactions, taxes and commissions collected from realized transactions etc.) should be checked for any changes.
3. IBOR transition scenarios should be analyzed to assess potential risks under various market conditions for various types of trading transactions including products structured in various asset classes and complex-structured asset classes.
4. In the process of transition from IBOR to alternative reference rates, systems should be designed that perform the necessary changes in the systems where transactions are realized.
5. It should be checked that the updates are completed in the mechanisms where transactions are realized.
6. Sufficient support teams should be established for systemic updates.
7. The implementation plan created for the updates in the mechanisms where transactions are realized should be reviewed and arranged in consideration of any changes in environmental factors and legal regulations.

The IBOR transition has additional issues and interacting processes that need to be taken into consideration.

- The labor costs to be incurred due to transition from IBOR to alternative reference rates should be taken into consideration.
- Potential internal and external risks to be exposed to as a result of the transition should be assessed and strategies should be developed to manage such risks.
- Attention should be paid to potential intersections between regulatory legislation changes and the approval processes.
- Upstream/downstream data flows between processes and systems and interacting activity steps should be taken into consideration.
- Updates in interconnected processes and systems should be tested.

#### 4.3.1.6 Data Entry on Trading Transactions and Lifecycle Management

##### **Steps and Activities to be Performed During the Transition Process**

1. The effect of alternative reference rates on trade systems including structured products and complex-structured asset classes should be assessed.
2. Potential changes should be analyzed in the complexity of transaction and the financial, non-financial and static features of transactions that may impact entry of the transaction data on the system.
3. Legal responsibilities and market contracts should be checked for any changes concerning the lifecycle of trading transactions.
4. It is necessary to assess the need to allocate trading transactions to various funds as a result of the IBOR transformation and the changes concerning such risk.
5. The effect should be assessed of the process of transition from IBOR to alternative reference rates on the clearing and settlement activities of trading transactions.
6. IBOR transition scenarios should be analyzed to assess the risks under various market conditions.

7. In the process of transition from IBOR to alternative reference rates, systems should be designed that perform the necessary changes in the mechanisms where transaction data is entered and the transaction lifecycle is managed.
8. Sufficient support teams should be established for systemic updates and it should be checked that the updates are completed.
9. The implementation plan created for entering transaction data and managing the transaction lifecycle should be reviewed and arranged in consideration of any changes in environmental factors and legal regulations.

The IBOR transition has additional issues and interacting processes that need to be taken into consideration.

- The labor and technological costs to be incurred due to transition from IBOR to alternative reference rates should be taken into consideration.
- Attention should be paid to potential intersections between regulatory legislation changes and the approval processes.
- Upstream/downstream data flows between processes and systems and interacting activity steps should be taken into consideration.
- Updates in interconnected processes and systems should be tested.
- Realizing the tests primarily in pilot schemes should be considered.

#### 4.3.1.7 Model Development

##### Steps and Activities to be Performed During the Transition Process

1. The in-house list of models based on IBOR, model ownership and the potential risk of the models should be determined.
2. Model work groups should be established with the participation of relevant in-house stakeholders.
3. With the transition from IBOR to alternative reference rates, the effects should be understood of changes such as the dataset used as input during the process and compound interest rate calculation on the models used. The internal and external processes and functions should be determined that effect the model's use, purpose and the model.
4. The changes to be made in the model should be determined and their impact level should be assessed.
  - Developing a new model
  - Updating the current model
  - Updating only model documentation
5. The criteria for the assessment and validation of the model should be determined.
6. Draft development plans should be created and reviewed in the work groups.
  - The start and end dates of the development plan should be determined.
  - The changes should be tested in the user acceptance test environment.
  - The model control and model validation tests should be performed.
  - Moving the changes into live environment. (Performing the tests in live environment if necessary.) The IBOR

transition has additional issues and interacting processes that need to be taken into consideration.

- The labor and technological costs to be incurred due to transition from IBOR to alternative reference rates should be taken into consideration.
- Potential internal and external risks to be exposed to as a result of the transition should be assessed and strategies should be developed to manage such risks.
- Attention should be paid to potential intersections between regulatory legislation changes and the approval processes.
- Sufficient historical data should be available to support the modeling.

#### 4.3.1.8 Market Risk Management

##### Steps and Activities to be Performed During the Transition Process

1. Assessment of the financial risks identified in the risk inventory.
2. The effects on the model risks should be assessed of models that need to be updated for complying with the alternative reference rates.
3. Risk reports that take into consideration the alternative reference rates should be created regarding the new transactions during the conversion of the current derivative instruments and debt instruments into alternative reference rates.
4. The market risk reports should be arranged to comply with the alternative reference rates.
5. Uniformity should be ensured in the controls related to the customer acceptance process, reputation management and / or the management of legal risks: A portal should be created to notify customers about potential changes in advance, to prepare a draft letter explaining the change and the new conditions and to receive customer feedback.
6. The new product approval processes should be improved to be able to take into consideration the potential market risk of products related to the alternative reference rate.
7. Directives should be created to prevent intentional or unintentional value transfers to the institution.

The IBOR transition has additional issues and interacting processes that need to be taken into consideration.

- The corporate risk management relation should be taken into consideration: It may be necessary to improve the risk inventory after the detailed risk analyses are conducted using the alternative reference rates.
- In order to be prepared for retrospective examinations, the working papers related to the IBOR transformation and the documents prepared for examining the processes should be stored in suitable conditions.
- The documents should explain the established main strategy, the determined communication method and the results of realizing the strategy.

#### 4.3.1.9 Counterparty Credit Risk Management

##### Steps and Activities to be Performed During the Transition Process

1. The potential credit risk to be exposed to should be assessed in accordance with the risk inventory.
2. The spread level should be adjusted and the repricing method should be determined during the transition to alternative referent rates that exclude credit risk.
3. The necessary corrections should be made in the credit risk mitigation policies including the following topics.
  - Alternative reference rates reduction calculations and related policies.
  - Determining the guarantees based on IBOR and planning the transition process to guarantees based on the alternative reference rates.
  - Assessment of whether the enterprise uses non-treasury investment guarantees and whether the baseline risk level corresponding to the new alternative reference rate was determined correctly.
4. The accounting policies should be updated so that the updates in the credit valuation process can be reflected onto the financial statements.
5. The effect of the IBOR transformation should be assessed on the credit risk arising from funding and treasury activities.
6. The necessary updates regarding the capital and risk processes should be performed across the institution. (E.g.: Standardized approach to counterparty credit risk (SA-CCR), current exposure method, internal model methods, guarantee policy etc.)

The IBOR transition has additional issues and interacting processes that need to be taken into consideration.

- The corporate risk management relation should be taken into consideration: It may be necessary to improve the risk inventory after the detailed risk analyses are conducted using the alternative reference rates.
- In order to be prepared for retrospective examinations, the working papers related to the IBOR transformation and the documents prepared for examining the processes should be stored in suitable conditions.
- The documents should explain the established main strategy, the determined communication method and the results of realizing the strategy.

#### 4.3.1.10 Product Development and Process Approval

##### Steps and Activities to be Performed During the Transition Process

1. Approval of process and product requirements.
2. Submitting new developed products to the Product Committee for approval if required.
3. Identification of systems impacted by new products and processes to determine the size and scope of the impact.
4. Identification of stakeholders to be included in the new product development process and creating new working groups.
5. Preparation of the draft process and product and reviewing them with the working groups.
  - Determining the dependencies.
  - Determining the process owners.
  - Deciding on the start and completion dates.
6. Planning the user acceptance tests, putting the acceptance criteria into writing and structuring the user acceptance test environment if necessary.
7. Performing the test changes in the user acceptance test (UAT) environment, performing end-to-end tests.
8. Moving the changes into real environment after the tests are successful.
9. Performing the tests in real environment if necessary.
10. Performing regression tests if necessary.

#### 4.3.1.11 Transaction Management

##### Steps and Activities to be Performed During the Transition Process

1. It should be ensured that sufficient resources are made available to meet the increasing transaction volume.
2. It should be ensured that the systems where the transactions are performed are able to support the new risk-free interest rates.
  - The product configurations should be updated to support the new interest rates.
  - The IBOR codes should be updated to support the new interest rates.
3. The scope of manual processes that depend on risk-free interest rates should be determined and improved.
4. The effect of the transition from IBOR to alternative interest rates should be understood, the checklists should be updated and the customers should be contacted accordingly.
5. Transaction contracts, account opening documents and trade transaction documents (confirmations, contracts etc.) dependent on IBOR should be updated.
6. It should be ensured that vendor support will be available when needed during trading transactions.
7. The industry approach should be understood regarding products for special needs and the need for support.

#### 4.3.1.12 Document and Contract Management

##### Steps and Activities to be Performed During the Transition Process

1. A sub-group should be established in charge of tracking all the legal documents.
2. The documents / systems containing the IBOR fallback language should be determined based on the valid product list.
3. The inventory of all the documents should be taken for the IBOR fallback language, the transactions and the due terms.
4. Permanent cessation and any pre-cessation items should be categorized.
5. Processes should be created for tracking any change in documents related to new or existing trading transactions.
6. Any language incompliant with the fallback language approved by the relevant working group should be marked for approval by the working group or the suitable person.
7. The methods should be determined for signing new contracts, contacting customers and revising contracts.

#### 4.3.1.13 Contracts and Position Management

##### Steps and Activities to be Performed During the Transition Process

1. Creating the contracts and position risk inventory.
  - Transactions
  - Credits/Assets
  - Liabilities
  - Derivative Products
  - Other
2. Analyzing the transition results.
  - Analyzing each business line / department and sector in accordance with the IBOR transformation.
    - Taking the inventory of the risk amount resulting from IBOR for each transaction.
    - Assessment of the effects resulting from the transformation / reduction of the IBOR position.
  - Changing potential scenarios.
  - Determining contingency plans and interacting processes.
  - Action plans should be created for the IBOR transformation.
    - Interactive processes should be understood.
    - Approaches should be developed regarding solution methods for contingencies.
    - Scenarios should be created regarding the results.
3. Realization of the results.

The IBOR transition has additional issues and dependencies that need to be taken into consideration.

- Increase in the volatility of IBOR with the transition from IBOR as the reference rate to alternative reference rates.

4.3.1.14 Impacted Systems and Processes

| Affected Systems  |  | Affected Processes  |  |
|---|--|---|--|
| ➤ Trading systems   | ➤ Systems performing trade contracts and confirmation              | ➤ Trading confirmation and transaction management   | ➤ Pre-trade activities                                       |
| ➤ Systems on which trading transactions are performed   | ➤ Systems related to pre-trade activities                          | ➤ Trading transaction management  | ➤ Processes related to trading lifecycle                     |
| ➤ Data required for alternative reference rates   | ➤ Trade contracts pool   | ➤ Information/data collection processes   | ➤ Trade settlement   |
| ➤ Systems applying models related to alternative reference rates  | ➤ Systems to which trade data is entered                           | ➤ Credit spread data from internal system   | ➤ Profitability predictions                                  |
| ➤ Systems related to back-office and front-office transactions  | ➤ Profitability analysis systems                                   | ➤ Market data from external sources   | ➤ Counterparty risk assessments                              |
| ➤ Supplier products and internal systems and reports used for X-value adjustments (XVA) made regarding valuations and potential future exposure (PFE) | ➤ Credit management system, systems to which trade data is entered | ➤ Documentation (e.g., ISDA/CSA, risk management framework, operational procedures, capital plan, accounting policies.) | ➤ Provision  |
| ➤ Modules for entering module data into the system  | ➤ Corporate risk management systems                                | ➤ Entering order data into the system and carrying out the orders   | ➤ Confirmation and settlement                                |
| ➤ Order management systems  | ➤ Accounting systems   | ➤ All the processes from the receipt of orders to completion of the transactions  | ➤ Credit risk reporting                                      |
| ➤ Systems performing orders   | ➤ Settlement systems   | ➤ Carrying out the orders   | ➤ Market data received from internal and/or external sources |
| ➤ Systems calculating the interest payment schedule   | ➤ Systems related to market data                                   | ➤ Instruments' maturity conditions  | ➤ Adjusting the risk limits                                  |
| ➤ Supplier products and internal systems used for financial risk measurements   | ➤ Primary dealership systems                                       | ➤ Processes related to evaluating the variability of interest rates   | ➤ Determining the limits & value at risk analyses            |
| ➤ Reporting interfaces used to track the transition process   | ➤ Portfolio accounting and management systems                      | ➤ Pricing platform  | ➤ Spread and guarantee management processes                  |
| ➤ Surveillance / monitoring systems   | ➤ Systems from which reference rates are acquired                  | ➤ Pricing support   | ➤ Front-office and back-office activities                    |
|   | ➤ Risk systems   | ➤ Pricing new products configuration and manual processes   | ➤ Market risk management activities                          |
|   | ➤ Value at Risk systems  | ➤ Analytic information on treasury risk and asset and liability management committee                                    | ➤ Market risk reporting                                      |
|   | ➤ Clearing and settlement systems                                  |   | ➤ Primary dealership   |
|   | ➤ Guarantee management system                                      |   | ➤ Risk amount and tolerance analysis                         |
|   | ➤ Product data center  |   | ➤ Hedging analysis   |
|   | ➤ Data processing systems  |   | ➤ Guarantee reporting and management                         |

4.3.2 Credit process

4.3.2.1 Allocation

Steps and Activities to be Performed During the Transition Process

1. Training should be provided regarding the IBOR transformation to call center employees, portfolio managers and the credits and other services staff.
  - In order to explain the effects of the IBOR transformation to the customers, trainings should be organized regarding the change to alternative reference rates, the effects of the change on the payment scheme of debtors and the new reference interest rates.
  - A web site should be created for continuous access to the training materials.
  - Trainings should be organized regarding the changes in the user interface.
2. Communication with Debtors
  - A uniform strategy should be determined for informing debtors before the changes regarding the IBOR transformation take effect. The strategy should include the following items.

- As the concerned changes are particularly related to the payment scheme, the legal regulations concerning the notification of debtors should be understood clearly.
  - Communication with debtors should be facilitates and standardized to the extent permitted by the legal regulations.
  - Effective communication methods should be designed to ensure that debtors understand the changes that may occur in their credit balances at the institution as a result of the IBOR transformation.
  - Notifications related to changes resulting from the transformation should be posted on the institution's website and the customer portal.
3. A process should be created regarding contract changes in accordance with the legal and regulatory directives and a transparent communication method should be established to ensure that debtors clearly understand the changes in their credits.
  4. The debtor's consent should be obtained that he/she clearly understands and approves the changes in his/her credit scheme.
  5. Close cooperation should be ensured between the Capital Markets Team which is in charge of tracking the updates related to the interest rates and pricing, and the Allocation and Operation Team.
  6. A roadmap should be established to identify the current processes related to determining the reference rates and determining and balancing the spread difference resulting from the transition and to identify and update the areas related to such processes.
  7. A change management process should be created for updates related to external systems and the internal data and reporting processes associated with such systems. The change management system to be created should include the following items.
    - The system criteria should be identified and their management should be tracked.
    - The user acceptance tests should be planned and a reliable test environment should be created.
    - Logs should be stored to ensure that system updates and changes can be tracked.

#### 4.3.2.2 Product Development and Process Approval

##### **Steps and Activities to be Performed During the Transition Process**

1. Approval of process and product requirements.
2. Submitting new developed products to the Product Committee for approval if required.
3. Identification of systems impacted by new products and processes to determine the size and scope of the impact.
4. Identification of stakeholders to be included in the new product development process and creating new working groups.
5. Preparation of the draft process and product and reviewing them with the working groups.
  - Determining the dependencies.
  - Determining the process owners.
  - Deciding on the start and completion dates.
6. Planning the user acceptance tests, putting the acceptance criteria into writing and structuring the user acceptance test environment if necessary.
7. Performing the test changes in the user acceptance test (UAT) environment, performing end-to-end tests.
8. Moving the changes into real environment after the tests are successful.
9. Performing the tests in real environment if necessary.
10. Performing regression tests if necessary.



11. Checking with the reporting team whether the developed products are included in the scope of the “Business model aiming to collect only contractual cash flows” under TFRS 9.

#### 4.3.2.3 Document and Contract Management

##### Steps and Activities to be Performed During the Transition Process

1. A sub-group should be established in charge of tracking all the legal documents.
2. The documents / systems containing the IBOR fallback language should be determined based on the valid product list.
3. The inventory of all the documents should be taken for the IBOR fallback language, the transactions and the due terms.
4. Permanent cessation and any pre-cessation items should be categorized.
5. Processes should be created for tracking any change in documents related to new or existing trading transactions.
6. Any language incompliant with the fallback language approved by the relevant working group should be marked for approval by the working group or the suitable person.
7. The methods should be determined for signing new contracts, contacting customers and revising contracts.

#### 4.3.2.4 Impacted Systems and Processes

| Affected Systems                                       | Affected Processes                                     |
|--|--|
| ➤ Collection systems                                   | ➤ Collection management processes                      |
| ➤ Systems related to services provided to the customer | ➤ Call center operations                               |
| ➤ Systems calculating the interest payment schedule    | ➤ Return calculation processes                         |
| ➤ Guarantee management system                          | ➤ Restructuring process                                |
| ➤ Loan contract pool (the system it is defined in)     | ➤ Loan contract negotiations                           |
| ➤ Pricing system                                       | ➤ Pricing process                                      |
| ➤ Limit definition systems                             | ➤ Product profitability calculation/analytic processes |

### 4.3.3 Accounting and Financial Reporting Process

#### 4.3.3.1 Financial Data Management

##### Steps and Activities to be Performed During the Transition Process

1. The effect of the updates made in the financial models (Expected credit losses calculation models, stress tests etc. under TFRS 9) on the data should be assessed.
2. The whole spreadsheet inventory should be reviewed for data updates.
3. The manual correction/adjustment processes on data should be reviewed and updated.
4. The datasets used for financial forecasting, pricing, investment and strategic decisions should be assessed and updated for each business line and product.
5. IBOR transition scenarios should be created to analyze the operating profit to be realized under various market conditions and the datasets required for the analysis should be obtained.
6. New data sources should be obtained and assumptions should be developed to assess the new rates under changing market conditions and the product volumes and profitability dependent on the current IBOR.
7. The datasets required to assess the effect of various transition scenarios on the overall institution profitability should be obtained. For example, the effect on the new reference rate and IBOR-based product volumes, demand timing, spreads

and financing costs.

8. The effect of updates in management reporting and legal reporting on the dataset should be assessed.
9. The effects of updates in analytical datasets related to corporate performance (e.g., RAROC, RAPM, RAV etc.) on the data should be assessed.
10. The data management processes should be assessed for the necessary updates.
11. Whether the products to be newly developed as part of the reform are included in the scope of the “Business model aiming to collect only contractual cash flows” under TFRS 9 and its potential effects on the institution financials should be checked.
12. Whether the changes such as those in contracts, cash flows etc. performed on a contractual basis fall under the Phase 2 criteria published by the Public Oversight Authority should be assessed and test should be conducted to determine whether any the changes not in the scope of the reform lead to “Exclusion from financial statement”.
13. In institutions that use hedge accounting, the effects that changes made in cash flows under the reform have on hypothetical derivative products and forward effectiveness tests should be analyzed and the necessary systemic changes should be performed.

#### 4.3.3.2 Profit & Loss and Balance Sheet Control

##### **Steps and Activities to be Performed During the Transition Process**

1. The effect of the IBOR transformation on business processes should be assessed with various transition scenarios.
2. The whole contract inventory should be reviewed to analyze the effects of changes resulting from alternative reference rates on the financial statement.
3. The potential effects of the new contract changes on the expected credit loss calculations should be assessed (ensuring that changes such as those in cash flow, effective interest rate etc. are simultaneously transferred to the model calculation system) and the necessary actions should be taken.
4. Assumptions and IBOR transition scenarios should be developed to analyze operating profitability under various market conditions and to take the relevant actions.
5. The effects that the changes made in management reporting and legal reporting resulting from the IBOR transition have on the profit & loss calculations and the balance sheet should be assessed.
6. The systemic developments required for profit & loss calculations and balance sheet updates should be designed, the processes should be improved and the necessary changes should be implemented.
7. It should be checked that the updates concerning the profit & loss calculations and the balance sheets are complete and accurate.
8. Sufficient support teams and analytic processes should be established.

The IBOR transition has additional issues and interacting processes that need to be taken into consideration.

- Upstream/downstream data flows between processes and systems and interacting activity steps should be taken into consideration.
- Updates in interconnected processes and systems should be tested.
- Realizing the tests primarily in pilot schemes should be considered.

#### 4.3.3.3 Independent Price Confirmation

##### **Steps and Activities to be Performed During the Transition Process**

1. New data sources should be identified, tested and implemented among the cash and derivative products affected from

the transition process: interest rate curves and relevant valuation inputs, rate curves, cash product price levels.

2. In the scenario where market liquidity decreases, a backup plan should be developed aiming to ensure due valuation of existing IBOR products.
3. A valuation plan should be developed for IBOR products.
4. The valuation tolerances should be valued and updated at location, product and process levels.
5. Tolerance valuation should also be performed for the current IBOR transactions due to the potential disruption in liquidity level that will result from the decrease and end of IBOR utilization on the market.
6. Price confirmation policies should be assessed and updated.
7. Price confirmation reports should be assessed and updated.
8. Products related to guarantees and customers and the updates required for the valuations related thereto should be determined.
9. An up-to-date and complete inventory should be taken of the products, systems and processes affected from the IBOR transition. The IBOR transition has additional issues and interacting processes that need to be taken into consideration.
  - The products and systems affected by the transition process and the business flows created due to the IBOR transition should be consolidated.
  - The processes affected by the business flows created due to the IBOR transition should be determined.

#### 4.3.3.4 Financial Reporting

##### Steps and Activities to be Performed During the Transition Process

1. The marking rules and topics should be determined to identify the contracts based on IBOR and similar contract groups with the current reference rate.
2. Financial reporting requirements related to the reference rate reform should be determined and the dataset in the data pool should be updated.
3. The valuation system should be updated to comply with valuations based on alternative reference rates.
4. Cooperation should be made with the Treasury Unit for updated related to the payments process, accrual calculations and settlements.
5. The explanations in the financial statements and other financial reports should be updated in accordance with the IBOR transition.
6. The necessary revisions should be made on the Hedge Accounting setup and documentation resulting from the reform as part of Hedge Accounting.
7. Whether the changes made in the assets/liabilities under Hedge Accounting are included in the scope of the reform should be analyzed and whether Hedge Accounting will be ended should be analyzed.
8. In institutions using Hedge Accounting, the actions should be planned and the necessary arrangements should be made as part of changing the forward effectiveness tests and hypothetical derivative product cash flows under the updated contract conditions.
9. Whether the products newly developed in the institution are included in the scope of the "Business model aiming to collect only contractual cash flows" under TFRS 9 should be checked and assessed with the business units.
10. Footnote templates should be created containing the effects of the transition on the financial statements of the institution under TFRS 7.

The IBOR transition has additional issues and interacting processes that need to be taken into consideration.

- Additional points to take into consideration:
  - In order to be prepared for retrospective examinations, the working papers related to the IBOR

transformation and the documents prepared for examining the processes should be stored in suitable conditions.

- The documents should explain the established main strategy, the determined communication method and the results of realizing the strategy.

#### 4.3.3.5 Legal Reporting

##### **Steps and Activities to be Performed During the Transition Process**

1. The effect of the transition to alternative reference rates on reporting obligations should be assessed.
2. It should be checked that the contractual changes resulting from the reform flow accurately to the legal reports.
3. Compliance should be achieved with the effect of changes in compulsory risk metrics such as RAROC, RAPM and RAV.
4. The datasets used in financial reporting activities concerning each business line and product group should be assessed and updated.
5. The effect that changes which occur in the institution's profit as a consequence of the transition processes (the volume of products dependent on IBOR, alternative reference rates, spread, demand timing, effects on the institution financing costs) have on the legal reporting processes should be assessed.
6. It should be checked that the reporting process is complete and accurate.
7. Systemic processes should be designed and improved to realize the necessary updates.
8. Sufficient support teams and analytic processes should be established.

The IBOR transition has additional issues and interacting processes that need to be taken into consideration.

- The products and systems affected by the transition process and the business flows created due to the IBOR transition should be consolidated.
- The processes affected by the business flows created due to the IBOR transition should be determined.

#### 4.3.3.6 Tax Management and Reporting

##### **Steps and Activities to be Performed During the Transition Process**

1. Updates in the tax regulations related to alternative reference rates should be checked.
2. Events that could result in tax obligations related to debt instruments should be checked.
3. The effect of the transfer pricing legislation on the borrowing and loan transactions to be conducted after the alternative reference rates are implemented should be separately assessed.
4. Whether the alternative reference rates affect the fair value of contracts in a way that results in any tax obligation should be assessed.
5. Whether the changes made in debt instruments dependent on IBOR will cause tax obligations should be assessed.
6. Whether the implementation of the alternative reference rates change the source or nature of the contracts should be analyzed.
7. All the calculation methods used for tax calculations such as interest expenses or fair value calculations should be updated.
8. Sufficient support teams and analytic processes should be established.

The IBOR transition has additional issues and interacting processes that need to be taken into consideration.

- Upstream/downstream data flows between processes and systems and interacting activity steps should be taken into consideration.
- Updates in interconnected processes and systems should be tested.

- Realizing the tests primarily in pilot schemes should be considered.

#### 4.3.3.7 Fund Transfer Pricing

##### Steps and Activities to be Performed During the Transition Process

1. The effect of the alternative reference rates on the interest rate difference between the Treasury Unit / Fund Management Unit and the Business Units should be analyzed.
2. Based on the implementation of the new reference rates, it should be assessed whether factors such as the volumes of products dependent on IBOR or spread will negatively impact the performance of the business units.
3. The cost should be updated of potential risks that may arise during the financing process due to the alternative reference rates.
4. The legal responsibilities regarding fund transfer pricing should be checked for any changes.
5. IBOR transition scenarios should be analyzed to assess the operating revenues and costs under various market conditions for each business unit.
6. Systems should be designed to update the fund transfer pricing mechanism in accordance with the alternative reference rates and the necessary changes should be implemented.
7. It should be checked that the updated in the fund transfer pricing mechanism are complete.
8. Sufficient support teams and analytic processes should be established.

The IBOR transition has additional issues and interacting processes that need to be taken into consideration.

- Upstream/downstream data flows between processes and systems and interacting activity steps should be taken into consideration.
- Updates in interconnected processes and systems should be tested.

#### 4.3.3.8 Liquidity Management

##### Steps and Activities to be Performed During the Transition Process

1. The cash flow assumptions should be updated in accordance with the requirements on the alternative reference rates.
2. IBOR transition scenarios should be developed to be able to analyze the cash flow projections according to various market conditions and to adjust the provisions.
3. The risk limits should be reviewed and updated.
4. The cash flow position should be reviewed and updated in accordance with the changes in the interest rate scenarios resulting from the IBOR transformation.
5. An up-to-date and complete inventory should be taken of the systems and processes affected from the IBOR transition.
6. Systems and processes should be designed to meet the product requirements related to the new reference rate and to implement the updates.
7. The emergency plans for cash flow should be updated according to the alternative reference rates.
8. Sufficient support teams and analytic processes should be established.

The IBOR transition has additional issues and interacting processes that need to be taken into consideration.

- Upstream/downstream data flows between processes and systems and interacting activity steps should be taken into consideration.
- Updates in interconnected processes and systems should be tested.
- Realizing the tests primarily in pilot schemes should be considered.

#### 4.3.3.9 Asset-Liability/Internal Rate of Return Management

**Steps and Activities to be Performed During the Transition Process**

1. The indicator curves should be duly updated from IBOR to the new alternative reference rate.
2. The risk limits should be reviewed and updated.
3. The interest rate scenarios should be reviewed and updated.
4. The product pricing process should be examined and updated.
5. The spread calculation should be updated for the new reference rates.
6. The impact of products dependent on the new reference rate on the risk position in the context of various risk and sensitivity profiles should be analyzed.
7. An up-to-date and complete inventory should be taken of the systems and processes affected from the IBOR transition.
8. Systems and process development requirements should be determined and implemented for compliance with rules related to the new reference rate.

The IBOR transition has additional issues and interacting processes that need to be taken into consideration.

- Upstream/downstream data flows between processes and systems and interacting activity steps should be taken into consideration.
- Updates in interconnected processes and systems should be tested.
- Realizing the tests primarily in pilot schemes should be considered.

**4.3.3.10 Capital Management****Steps and Activities to be Performed During the Transition Process**

1. The effect of the IBOR transformation on the capital structure should be analyzed.
2. Whether the alternative reference rates change the capital structure of the institution should be analyzed.
3. The capital optimization algorithms should be updated due to the effect of the alternative reference rates on the capital structure.
4. The potential impact on the liabilities and cost projections of the institution should be checked by analyzing the effect of the IBOR transition on the business processes.
5. The securities inventory should be updated to keep the capital calculations up to date with respect to the alternative reference rates.
6. The capital liabilities should be recalculated and established as a result of the changes in the financial models (IFRS 9, ECL, VaR, IRC/CRM).
7. The IBOR transition scenarios should be analyzed to assess the revenues and expenses of the institution under various market conditions and to adjust its capital liability accordingly.
8. The effects of updates in analytical datasets related to corporate performance (e.g., RAROC, RAPM, RAV etc.) on the capital liability should be assessed.
9. Systems and processes should be designed to perform the necessary updates in capital liability for compliance with the alternative reference rates.
10. The accuracy of the updated capital liability should be checked.
11. Sufficient support teams and analytic processes should be established.

**4.3.3.11 Funding/Money Market Management****Steps and Activities to be Performed During the Transition Process**

1. The effects of practices based on the alternative reference rates on the assets and liabilities of the institution should be

assessed.

2. The potential impact on the liabilities and cost projections of the institution should be checked by analyzing the effect of the IBOR transition on the business processes.
3. Algorithms related to hedging methods should be updated to determine the effect of the alternative reference rates on funding and money market activities.
4. The effect of alternative reference rates on money market securities should be checked.
5. The IBOR transition scenarios should be analyzed to assess the revenues and expenses of the institution under various market conditions.
6. The funding requirements should be determined based on the updates made in the analytic datasets related to corporate performance.
7. System improvements should be designed and the necessary changes should be implemented to update the fund management process.
8. It should be checked whether the updates in the fund management process are complete and accurate.
9. Sufficient support teams and analytic processes should be established.

The IBOR transition has additional issues and interacting processes that need to be taken into consideration.

- Upstream/downstream data flows between processes and systems and interacting activity steps should be taken into consideration.
- Updates in interconnected processes and systems should be tested.
- Realizing the tests primarily in pilot schemes should be considered.

#### 4.3.3.12 Financial Planning and Analysis

##### **Steps and Activities to be Performed During the Transition Process**

1. Cash flow positions, analyses and forecasts should be reviewed and updated to measure the effect of the alternative reference rates.
2. The effect of the IBOR transformation on the institution's profitability and growth should be analyzed and the IBOR transition plan should be arranged accordingly.
3. The critical applications and the spreadsheet used in financial planning should be updated.
4. The management reports affected from the IBOR transformation should be determined and updated.
5. The resource and budget needs should be determined for the transition activities identified for implementing the new reference rates.
6. Financial, operational and legal risks that may arise due to the IBOR transformation should be assessed and the actions to minimize exposure to such risks should be determined.
7. The business processes related to implementing the new reference rates should be optimized.
8. Pivot tables and applications should be created to monitor the study results.
9. Sufficient support teams and analytic processes should be established.
10. The implementation plan should be monitored and implemented in consideration of developments concerning non-sector practices and the regulatory institutions.

The IBOR transition has additional issues and interacting processes that need to be taken into consideration.

- Upstream/downstream data flows between processes and systems and interacting activity steps should be taken into consideration.
- Updates in interconnected processes and systems should be tested.
- Realizing the tests primarily in pilot schemes should be considered.

#### 4.3.3.13 Financial Management Reporting

##### Steps and Activities to be Performed During the Transition Process

1. Financial management reports affected from the process of transition to the new rates should be determined.
2. The effect of implementing the alternative reference rates on the financial ratios of the institution should be analyzed and the positions should be adjusted accordingly.
3. Key financial performance indicators and calculation methods should be reviewed as part of implementing the alternative reference rates and the necessary changes should be realized.
4. The update requirements in the financial management reports should be determined for meeting the requirements of reports to be provided outside the institution regarding the IBOR transition.
5. The effect of the IBOR transformation on the systems used for financial management reports should be assessed.
6. It should be checked whether the updates in the financial management reports are complete and accurate.
7. Sufficient support teams should be established to manage the changes in the systems and processes.
8. The implementation plan should be monitored and implemented in consideration of developments concerning non-sector practices and the regulatory institutions.

The IBOR transition has additional issues and interacting processes that need to be taken into consideration.

- Upstream/downstream data flows between processes and systems and interacting activity steps should be taken into consideration.
- Updates in interconnected processes and systems should be tested.
- Realizing the tests primarily in pilot schemes should be considered.

#### 4.3.3.14 Impacted Systems and Processes

| Affected Systems  | Affected Processes                          |
|---|---|
| ➤ Financial reporting systems                                 | ➤ Manual corrections / adjustments on data  |
| ➤ Financial data warehouse                                    | ➤ Internal and external financial reporting |
| ➤ Profitability analysis systems                              | ➤ Preparation of financial statements       |
| ➤ Budget systems  | ➤ Hedge accounting process                  |
| ➤ Purchasing systems  | ➤ Purchase and supply processes             |
| ➤ Systems used for valuation                                  | ➤ Fair value calculation processes          |
| ➤ TFRS 16 calculation system                                  | ➤ Settlement process                        |
| ➤ TFRS 9 systems  | ➤ Legal reporting process                   |
| ➤ Settlement systems  | ➤ Cash flow predictions                     |
| ➤ Payment and accrual systems                                 | ➤ Cash position settlements                 |
| ➤ Systems performing forward tests                            |   |
| ➤ Fund transfer pricing systems                               |   |
| ➤ Liquidity management systems                                |   |
| ➤ Interest rate risk / asset and liability management systems |   |

## 4.4 Pricing, Valuation & Return/Rediscount Calculation

In order to achieve compliance with the new reference rates, institutions should;



- Determine the business processes related to pricing, valuation and return/rediscount calculation operations related to IBOR.
- Determine the products related to such processes.
- Determine the information systems on which related transactions are performed.

Points to be taken into consideration in determining the pricing, valuation and return/rediscount calculation processes and systems related to IBOR;

- Systems and related processes used to price financial instruments and products
- Risks arising from changes in the reference rate
- Need for change in accounting in the valuation of financial products due to the change in the reference rate
- Systems and related processes used for return/rediscount calculation related to financial instruments and products
- The reference interest rate taken into account in the return/rediscount calculation stage (is only IBOR used or are various rates used?)

The transition from IBOR to alternative reference rates is expected to lead to changes in the following;

- The product pricing processes and strategies,
- The fund transfer pricing processes and methods,
- The pricing model,
- The return/rediscount calculation processes and the used interest rate curves,
- The valuation processes, methods and models,
- The pricing, valuation and return/rediscount calculation systems.

The main processes and related systems expected to be affected from the changes the IBOR transformation will cause on the pricing, valuation and return/rediscount calculation are outlined below.

| Affected Systems  | Affected Processes                                      |
|---|---|
| ➤ Software / systems related to securities products   | ➤ FE & TRY Securities (received and issued)             |
| ➤ Software and systems related to trading transactions  | ➤ Derivative products (option, swap, IRS, forward etc.) |
| ➤ Treasury systems  | ➤ Borrowing (syndicated and others)                     |
| ➤ Software / systems related to derivative products   | ➤ TLREF Deposit   |
| ➤ Software / systems processing business loans  | ➤ TLREF Bond/note issue                                 |
| ➤ Systems for providing loan service  | ➤ Corporate / SME loans                                 |
| ➤ 3rd party service provider applications/platforms (Reuters, Bloomberg, superderivatives etc.) | ➤ Floating-rate borrowed and lent loans                 |
|   | ➤ Project finance                                       |

## 4.5 Governance and Controls

For institutions to effectively plan the transition process to be able to carry out the required transformation in all the processes and systems related to IBOR, it is important to determine and implement the necessary actions, take into consideration the potential risks arising from the transition and establish suitable controls.

In this context, a strong governance structure and control framework should be established that continuously monitor the implementation plan, the potential effects and the potential risks.

## 4.5.1 Risk Controls

### 4.5.1.1 Risk Appetite and Limit

#### Steps and Activities to be Performed During the Transition Process

1. The risk appetite notifications should be reviewed.
2. The method should be understood for using the risk appetite notifications in determining the risk level limits for the institution including the calculation methods.
3. The following items should be determined in conformity with the risk appetite notifications and the institution's risk appetite:
  - Updated IBOR risk appetite
  - Risk appetite related to alternative reference rates
4. The revised IBOR risk limits across the institution and the risk limits related to the alternative reference rates should be calculated.
5. The proposed new risk limits should be allocated to each business line and legal entity in accordance with the institution and the business strategies.
6. The proposed new limits should be submitted to the relevant committee for approval and the required approvals and signatures should be completed.
7. The revised limits should be notified to the business lines.
8. The relevant systems should be updated in accordance with the new set limits.

#### Affected Systems

- All market risk, credit risk and counterparty risk systems providing details on credit limits and their use and other systems fed by such systems

#### Affected Processes

- Credit and market risk limit update processes
- Credit and market risk limit use update processes

The IBOR transition has additional issues and interacting processes that need to be taken into consideration.

- The updates in the limits should be periodically revised to make sure that the limits reflect the varying liquidity level of the IBOR and alternative reference rates markets.
- Upstream/downstream data flows between processes and systems and interacting activity steps should be taken into consideration.
- Updates in interconnected processes and systems should be tested.
- Realizing the tests primarily in pilot schemes should be considered.

### 4.5.1.2 Risk Policies and Governance

#### Steps and Activities to be Performed During the Transition Process

1. The transition process steps related to the policies:
  - An inventory should be made of the affected risk policies.
  - The risk policies should be updated in consideration of the new risk limits set for IBOR and the alternative reference rates.
  - The required approvals should be obtained for each policy update.

- The updated policies should be sent to all the concerned stakeholders in the institution.
- 2. The transition process steps related to governance:**
- The IBOR Transition Committee should be established that will review the new risk limits and policies.
  - The IBOR Transition Committee should submit the new risk limits and policies to the Risk Committee for approval and obtain the required approvals.
  - The Internal Audit Unit should assess the new risk limits and policies.
  - The Compliance Unit should assess the new risk limits and policies.

**Affected Systems**

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- New policies to be included in the inventory

**Affected Processes**

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- The processes of creating and approving new policies
- The assessment process of the Internal Audit Unit
- The assessment process of the Compliance Unit

The IBOR transition has additional issues and interacting processes that need to be taken into consideration.

- The IBOR Transition Committee should be established.

#### 4.5.1.3 Risk Data Management

##### Steps and Activities to be Performed During the Transition Process

1. An inventory should be made of the affected risk reports.
2. The changes required to be made in each risk report with the start of using alternative risk rates in the relevant products and business lines.
3. The additional reporting needs should be determined that will be required to track the risk amount arising from IBOR and the alternative reference rates during the transition.
4. The inventory should be made of the risk management systems and data management systems affected from the necessary updates in the reports.
5. The changes required to be made in the risk data should be determined.
6. It should be ensured that update requests regarding the risk management & data management systems should be prioritized.
7. The necessary updates should be made in the risk reports to be affected from the transition process.

**Affected Systems**

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- Risk management & data management systems
- From front to back office related to trading transactions

**Affected Processes**

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- Risk reporting processes

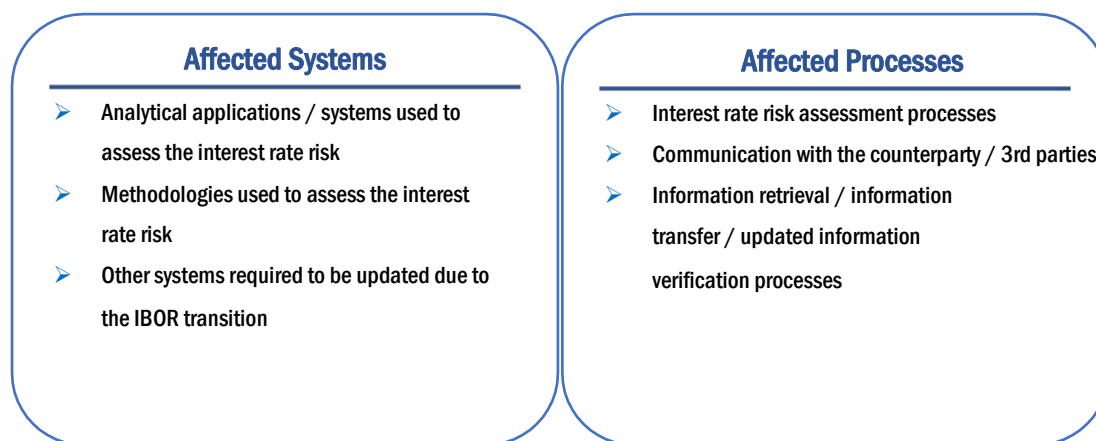
The IBOR transition has additional issues and interacting processes that need to be taken into consideration.

- A uniform approach should be ensured with the IBOR Transition Committee among business units for reporting the risk levels of IBOR and the alternative risk rates.
- Upstream/ downstream data flows between processes and systems and interacting activity steps should be taken into consideration.
- Updates in interconnected processes and systems should be tested.
- Realizing the tests primarily in pilot schemes should be considered.

#### 4.5.1.4 Identification of Risk

##### Steps and Activities to be Performed During the Transition Process

1. The risk levels borne by the portfolios should be determined:
  - Areas bearing IBOR risk should be determined.
2. The portfolios should be organized in consideration of their industry and region.
  - The risk level that each business line, unit and industry will be exposed to due to the IBOR transition should be analyzed.
  - The transaction types to be exposed to transition risk should be determined.
  - The IBOR risk level on the assets, liabilities and derivatives should be determined.
  - The business units should analyze the tools used to assess the interest rate risk levels.
  - Contingencies and interacting processes should be identified.



The IBOR transition has additional issues and interacting processes that need to be taken into consideration.

- Data availability
- Data expiry
- Contingencies caused by counterparty / 3rd party actions
- IBOR volatility

#### 4.5.1.5 Risk Models and Management

##### Steps and Activities to be Performed During the Transition Process

1. The approaches should be examined to ensure accurate assessment of the interest rate risk.
  - An inventory should be made of each area / step / process to be affected during the transition from IBOR to the

alternative reference rates.

- The models / methodologies used to assess the IBOR risk amount and volatility.
    - Other criteria assumed to be dependent on IBOR or strongly related to IBOR.
  - Industry and geographical region classification.
2. The alternative reference rates to replace IBOR should be assessed.
  3. The available data should be reviewed to assess volatility.
    - Direct and indirect data and proxy datasets
    - The current period, expiry and performance history
  4. The changes required for the alternative reference rates should be made on the models and methods used.
  5. The changed models and methods should be tested and verified.
  6. The new models and methods applicable to the current portfolios should be implemented.

#### Affected Systems

- Data acceptance
- Model / methodology governance / inventory
- Automatized surveillance and monitoring systems and risk scoring systems

#### Affected Processes

- Data cleaning
- Surveillance/monitoring of the new reference rates

#### 4.5.1.6 Risk Measurement

##### Steps and Activities to be Performed During the Transition Process

1. Measurement of the alternative reference rate risk amount
  - Risk measurement methods should be determined in accordance with the risk management policies to determine the risk levels of the new alternative reference rates across business lines.
  - The required systemic updates should be determined to automatize risk measurement calculation and reporting.
  - The identified system updates should be performed.
2. IBOR liquidity
  - The measurement of the IBOR risk amount should be reviewed and revised as the market develops.
  - The liquidity buffer and the other reserves should be reviewed in terms of the IBOR risk and should be re-measured and allocated as required for compliance with the liquidity policies and legal requirements.

#### Affected Systems

- Systems used for pricing / transaction execution purposes
- Risk management system

#### Affected Processes

- Determining the limits and value at risk analysis
- Risk amount and tolerance analysis
- Reserve analysis
- Hedging analysis
- Risk assessment and audit processes
- Netting and guarantee management
- Risk budgeting process
- Risk governance process
-

The IBOR transition has additional issues and interacting processes that need to be taken into consideration.

- The liquidity risk measurement of IBOR products will need to be periodically assessed as the market develops.
- The IBOR Transition Committee should ensure the consistency of risk measurements across business lines.
- Upstream/downstream data flows between processes and systems and interacting activity steps should be taken into consideration.
- Updates in interconnected processes and systems should be tested.
- Realizing the tests primarily in pilot schemes should be considered.

#### 4-5.1.7 Risk Monitoring and Control

##### Steps and Activities to be Performed During the Transition Process

1. The Risk Management Plan should be reviewed and updated in accordance with the IBOR transformation.
2. The Risk Register should be reviewed and updated in accordance with the IBOR transformation.
3. The following risk management items should be reviewed in accordance with the IBOR transformation to ensure they are up-to-date.
  - Key indicators
  - Trigger items
  - Threshold values
4. The control inventory should be updated to include the IBOR transformation.
5. The risk audit process should be examined and be updated to include the IBOR transformation.
6. The management reporting templates and practices should be updated to include the IBOR transformation.

#### Affected Systems

- Risk management systems (market risk, credit risk, risk reporting etc.)

#### Affected Processes

- Determining the limits and value at risk analysis
- Risk amount and tolerance analysis
- Reserve analysis
- Hedging analysis
- Risk assessment and audit processes
- Netting and guarantee management
- Risk budgeting process
- Risk governance process

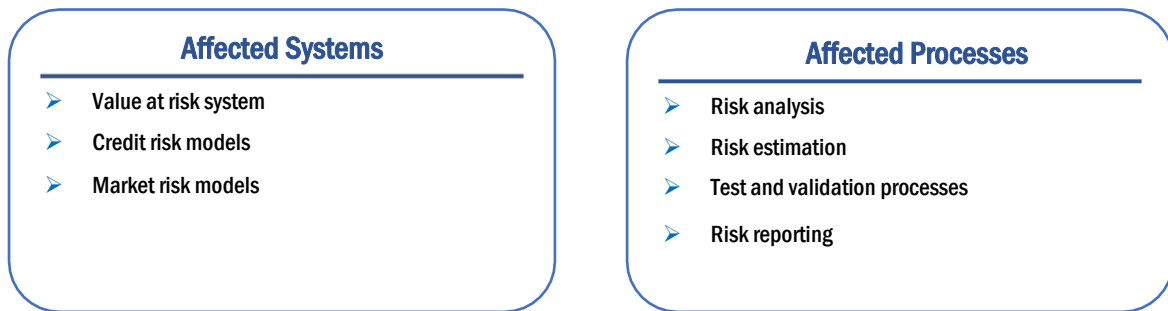
The IBOR transition has additional issues and interacting processes that need to be taken into consideration.

- Upstream/downstream data flows between processes and systems and interacting activity steps should be taken into consideration.
- Updates in interconnected processes and systems should be tested.
- Realizing the tests primarily in pilot schemes should be considered.

#### 4.5.1.8 Risk Analysis

##### Steps and Activities to be Performed During the Transition Process

1. The current processes should be reviewed and the areas affected from the IBOR transformation should be determined and risk analysis should be conducted.
2. Various IBOR transition scenarios should be assessed and the potential effects of such scenarios on risk analysis should be determined.
3. The quantitative and qualitative risk analyses should be updated to include the IBOR transformation.
4. Internal and external data sources should be reviewed and it should be ensured that the IBOR transition is taken into consideration in the utilization of such data sources.
5. By comparing the risk analysis results with the older results, it should be ensured that they conform to the potential impact of the IBOR transition.
6. The variations in the risk analysis outputs should be monitored.



The IBOR transition has additional issues and interacting processes that need to be taken into consideration.

- The international effects of the IBOR transformation should be taken into consideration.

#### 4.5.2 Legislation and Compliance

##### 4.5.2.1 Legal Process Support

###### Scope:

1. The effect of the IBOR transformation on the legal processes should be determined.
  - Customer and third-party contracts, systems and processes
2. The identified effects should be forwarded to the relevant experts in the institution and feedback should be collected.

###### Planning:

1. The legal processes affected from the IBOR transformation should be determined.
  - The Compliance & Legal IBOR Management Committee consisting of senior executives of the institution should be established.
  - The areas of improvement should be determined in the legal processes.
  - The outsourced legal counseling services and the processes managed through legal service providers should be determined.
2. An improvement plan should be created to ensure that the required changes can be made in the contracts.
  - All the contracts affected from the IBOR transformation should be determined.

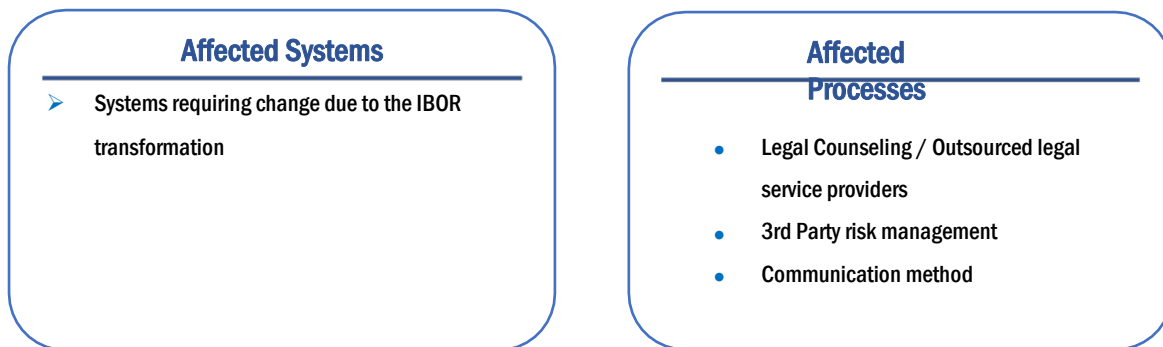
- The contracts should be transferred into digital environment.
3. The contracts and datasets containing phrases related to IBOR should be determined.
    - The contract language proposed for the fallback language provisions should be included in the scope.
    - Reviews should be performed for the legal processes and contract contents.

**Pre-implementation preparation steps:**

1. The contracts should be arranged based on risk-free reference rates.
2. A method should be determined for customer interactions.
3. Controls should be established to eliminate risks that may arise due to the IBOR transformation.

**Implementation steps:**

1. Pioneering IBOR transformation practices in the sector should be understood and a transition plan should be implemented accordingly.
  - Monitoring, reporting and planning activities regarding the transformation should be managed centrally.
  - Current contracts should be improved.
  - Risks arising from the transition should be monitored, managed and compared.



The IBOR transition has additional issues and interacting processes that need to be taken into consideration.

- The labor and technological costs to be incurred due to transition from IBOR to alternative reference rates should be taken into consideration.
- Potential internal and external risks to be exposed to as a result of the transition should be assessed and strategies should be developed to manage such risks.

#### 4.5.2.2 Legislative Compliance and Controls

**Scope:**

1. The effect of the IBOR transformation on the compliance functions should be determined.
  - Legal reporting, processes and systems
2. The identified effects should be forwarded to the relevant experts in the institution and feedback should be collected.

**Planning:**

1. A governance structure should be created.
  - The Compliance & Legal IBOR Management Committee consisting of senior executives of the institution should be established.
  - The improvement areas in the compliance processes should be determined for a strong control framework.
  - A Project Management Team should be created in charge of reporting to the Senior Management about legal reporting and controls.



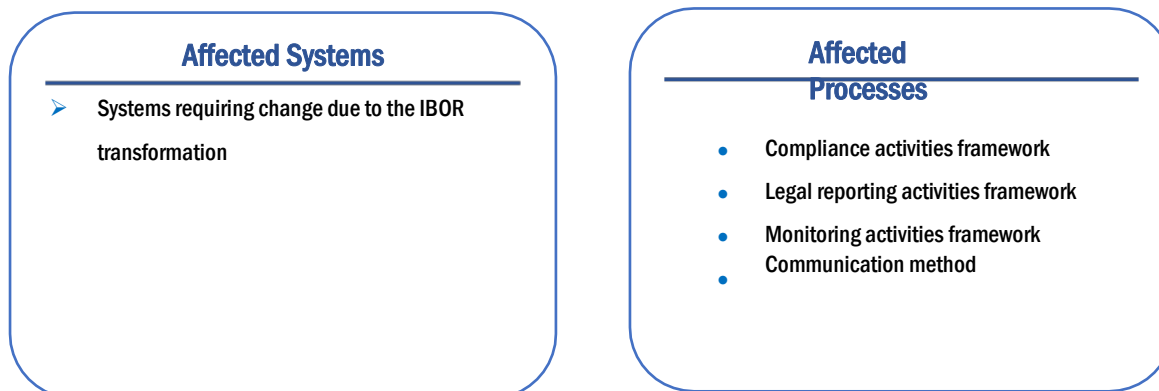
2. An improvement plan should be created for the transition process from IBOR to the alternative reference rates.
  - A governance framework should be created regarding the monitoring and test activities.
  - The implementation process created based on the business line and new products should be monitored.
  - Systems related to monitoring activities should be ensured to have the capability to the monitor transactions that are based on new reference rates.
  - The risk management and control process should be reviewed to update the new products and risks.
3. Communication channels should be established in compliance with the legislation and regulations.

#### Pre-implementation preparation steps:

1. The products should be changed according to the risk-free interest rate.
2. A method should be determined for customer interactions.
3. Controls should be established to eliminate risks that may arise due to the IBOR transformation.

#### Implementation steps:

- The legal requirements and implementation dates to be complied with should be understood for conforming to the IBOR transformation.
- Monitoring, reporting and planned activities regarding the transformation should be managed centrally.
- Risks arising from the transition should be monitored, managed and compared.



The IBOR transition has additional issues and interacting processes that need to be taken into consideration.

- The labor and technological costs to be incurred due to transition from IBOR to alternative reference rates should be taken into consideration.
- Potential internal and external risks to be exposed to as a result of the transition should be assessed and strategies should be developed to manage such risks.

#### 4.5.2.3 Monitoring and Surveillance

##### Scope:

1. Monitoring and surveillance activities affected from the IBOR transformation should be determined.
  - Front, middle and back-office systems etc.
2. The identified effects should be forwarded to the relevant experts in the institution and feedback should be collected.

**Planning:**

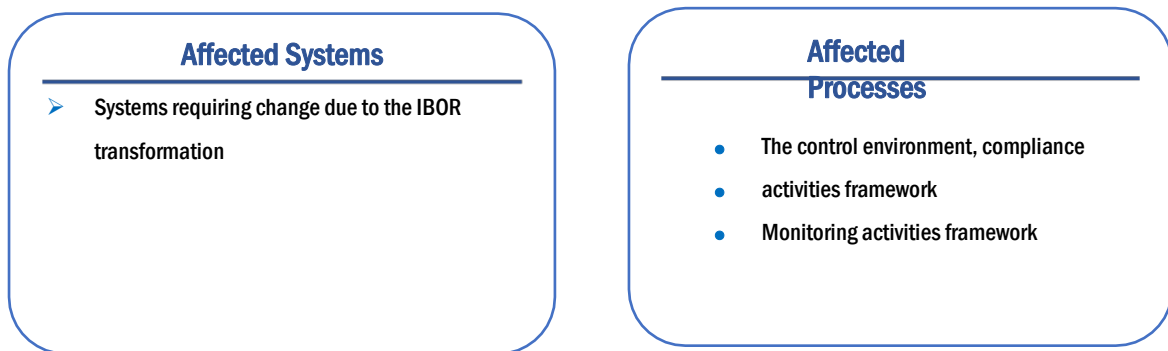
1. A governance structure should be created.
  - The Compliance & Legal IBOR Management Committee consisting of senior executives of the institution should be established.
  - Systems related to monitoring activities should be ensured to have the capability to the monitor transactions that are based on new reference rates.
  - A reporting framework should be created to ensure that warnings on adverse situations are forwarded to the Compliance Unit.
  - An implementation risk governance framework should be created that covers the business lines affected from the IBOR transition.
2. An improvement plan should be created regarding the transition process from IBOR to the alternative reference rates.
3. Surveillance tools and pivot tables should be created regarding the effects of the IBOR transition.
4. The transition process from position to performance indicators should be designed.

**Pre-implementation preparation steps:**

1. Systems related to monitoring activities should be ensured to have the capability to the monitor transactions that are based on new reference rates.
2. The implementation risks regarding new products dependent on the alternative reference rates should be determined.
3. Controls should be established to mitigate risks arising from the IBOR transition.

**Implementation steps:**

- Pioneering IBOR transformation practices in the sector should be understood and a transition plan should be implemented accordingly.
- Surveillance and reporting activities regarding the transformation should be managed centrally.
- Risks that may arise in relation to the variation in reference rates should be monitored.



The IBOR transition has additional issues and interacting processes that need to be taken into consideration.

- The labor and technological costs to be incurred due to transition from IBOR to alternative reference rates should be taken into consideration.
- Potential internal and external risks to be exposed to as a result of the transition should be assessed and strategies should be developed to manage such risks.

**4.5.2.4 Compliance Data Management****Scope:**

1. The datasets affected from the IBOR transformation across the institution should be determined.
  - Market data, risk amounts, systems and processes etc.
2. The identified effects should be forwarded to the relevant experts in the institution and feedback should be collected.

**Planning:**

1. A governance structure should be created.
  - The Compliance & Legal IBOR Management Committee consisting of senior executives of the institution should be established.
  - Outsourced market data should be determined and matched with the alternative reference rates.
  - A Project Management Team should be established in charge of assisting the Compliance & Legal IBOR Management Committee in project planning, progress level measurement and reporting regarding the IBOR transformation.
2. An improvement plan should be created for the transition process from IBOR to the alternative reference rates.
3. Data integration potentials should be determined.
4. Surveillance tools and pivot tables should be created regarding the effects of the IBOR transition.
5. Tests should be designed for the changes caused by the IBOR transition on the business processes, data analytics and technology.

**Pre-implementation preparation steps:**

1. A data inventory that complies with the risk classification should be created.
2. Controls should be established to mitigate risks arising from the IBOR transition.

**Implementation steps:**

1. Internal and external data sources used by the business lines should be determined.
  - The visibility of the data sources should be ensured.
  - A risk architecture should be created for estimating the transition risk.

**Affected Systems**

- Systems requiring change due to the IBOR transformation

**Affected Processes**

- Project management areas:
  - The control environment,
  - Compliance activities framework
  - Data management framework

The IBOR transition has additional issues and interacting processes that need to be taken into consideration.

- The labor and technological costs to be incurred due to transition from IBOR to alternative reference rates should be taken into consideration.
- Potential internal and external risks to be exposed to as a result of the transition should be assessed and strategies should be developed to manage such risks.

#### 4.5.2.5 Internal Compliance and Controls

##### Scope:

1. The internal effects of the IBOR transition should be determined.
  - Risk amount, controls, systems and processes etc.
2. The identified effects should be forwarded to the relevant experts in the institution and feedback should be collected.

##### Planning:

1. A governance structure should be created.
  - The Compliance & Legal IBOR Management Committee consisting of senior executives of the institution should be established.
  - The improvement areas in the compliance processes should be determined for a strong control framework.
  - A Project Management Team should be established in charge of assisting the Compliance & Legal IBOR Management Committee in project planning, progress level measurement and reporting regarding the IBOR transformation.
2. An improvement plan should be created regarding the transition process from IBOR to the alternative reference rates.

##### Pre-implementation preparation steps:

1. The products should be changed according to the risk-free interest rate.
2. Controls should be designed for products with floating interest rate.
3. A method should be determined for customer interactions.
4. Controls should be established to eliminate risks that may arise due to the IBOR transformation.

##### Implementation steps:

1. Pioneering IBOR transformation practices in the sector should be understood and a transition plan should be implemented accordingly.
  - Applications created based on the business lines should be monitored and tested.
  - Customer communication should be monitored during and after the change in the reference rates.
  - The reports to be submitted to the Board of Directors should be planned.
  - Risks arising from the transition should be monitored, managed and compared.

#### Affected Systems

- Systems requiring change due to the IBOR transformation

#### Affected Processes

- The control environment, compliance
- activities framework
- The control and monitoring activities

The IBOR transition has additional issues and interacting processes that need to be taken into consideration.

- The labor and technological costs to be incurred due to transition from IBOR to alternative reference rates should be taken into consideration.
- Potential internal and external risks to be exposed to as a result of the transition should be assessed and strategies should be developed to manage such risks.

#### 4.5.2.6 Customer/Counterparty Management

##### Scope:

1. The effect of the IBOR transformation on customers and other third parties should be determined.
  - Risk amount, communication, systems, processes, legal processes etc.
2. The identified effects should be forwarded to the relevant experts in the institution and feedback should be collected.

##### Planning:

1. A governance structure should be created.
  - The Compliance & Legal IBOR Management Committee consisting of senior executives of the institution should be established.
  - A Project Management Team should be established in charge of assisting the Compliance & Legal IBOR Management Committee in project planning, progress level measurement and reporting regarding the IBOR transformation.
  - The improvement areas in the processes related to customer and counterparty management should be determined.
2. A communication plan should be created regarding the transition process from IBOR to the alternative reference rates.

##### Pre-implementation preparation steps:

1. The customers and third parties should be contacted to negotiate the new reference rates.
2. A method should be determined for customer interactions.
3. Customer feedback should be received and the corrective actions should be taken.

##### Implementation steps:

1. Pioneering IBOR transformation practices in the sector should be understood and a transition plan should be implemented accordingly.
  - Monitoring, reporting and planned activities regarding the transformation should be managed centrally.
  - The contracts should be matched with the trading transactions, risks and accounting systems.
  - The contracts should be stored in a secure environment accessible by the stakeholders and transferred to digital environment.

#### Affected Systems

- Systems requiring change due to the IBOR transformation

#### Affected Processes

- The control environment, compliance activities framework
- Contract improvement activities framework
- Trading transactions, risk and accounting process

The IBOR transition has additional issues and interacting processes that need to be taken into consideration.

- The labor and technological costs to be incurred due to transition from IBOR to alternative reference rates should be taken into consideration.
- Potential internal and external risks to be exposed to as a result of the transition should be assessed and strategies should be developed to manage such risks.

#### 4.5.2.7 Legal and Compliance Reporting

##### Scope:

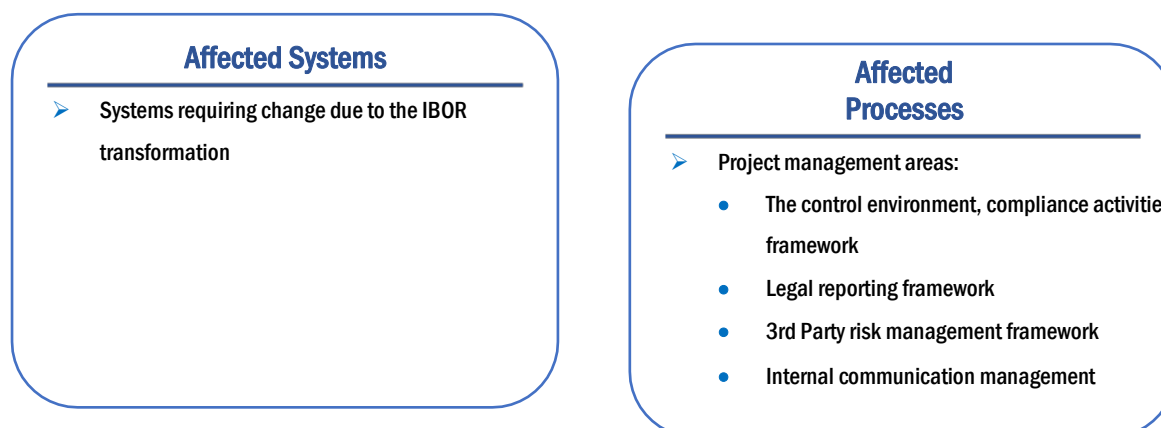
1. The effect of the IBOR transition on legal and compliance reporting activities across the institution should be determined.
  - Risk amount, communication, systems, processes, legal etc.
2. The identified effects should be forwarded to the relevant experts in the institution and feedback should be collected.

##### Planning:

1. A governance structure should be created.
  - The Compliance & Legal IBOR Management Committee consisting of senior executives of the institution should be established.
  - A Project Management Team should be established in charge of assisting the Compliance & Legal IBOR Management Committee in project planning, progress level measurement and reporting regarding the IBOR transformation.
  - The areas of improvement should be determined in the legal and compliance reporting processes.
  - The reports to be submitted to the Board of Directors should be determined.
2. An improvement plan should be created for the transition from IBOR to the alternative reference rates.
3. **Pre-implementation preparation steps:**
  1. New controls and measurement methods should be established regarding the surveillance activities framework.
  2. The roles and responsibilities of the Senior Management and stakeholders regarding the IBOR transformation should be determined.
  3. Controls should be established to mitigate risks arising from the IBOR transition.

##### Implementation steps:

1. Pioneering IBOR transformation practices in the sector should be understood and a transition plan should be implemented accordingly.
  - Monitoring, reporting and planned activities regarding the transformation should be managed centrally.
  - The legal reporting framework should be created.
  - The outsourced legal counseling services and 3rd party risk management framework should be managed.



The IBOR transition has additional issues and interacting processes that need to be taken into consideration.

- The labor and technological costs to be incurred due to transition from IBOR to alternative reference rates should be taken into consideration.
- Potential internal and external risks to be exposed to as a result of the transition should be assessed and strategies should be developed to manage such risks.

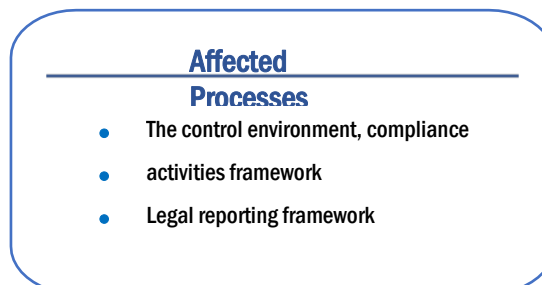
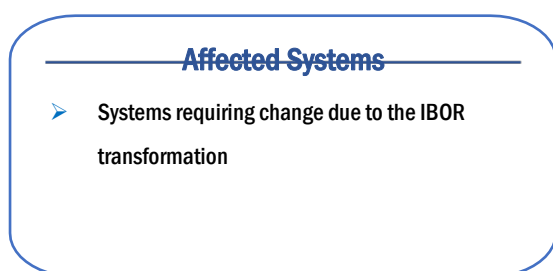
#### 4.5.2.8 Relations with Regulatory Authorities and Legal Actions

##### Scope:

1. The effects of the IBOR transition across the institution should be determined.
  - Risk amount, monitoring activities, systems, processes, legal etc.
2. The identified effects should be forwarded to the relevant experts in the institution and feedback should be collected.
3. **Planning:**
  1. A governance structure should be created.
    - The Compliance & Legal IBOR Management Committee consisting of senior executives of the institution should be established.
    - A Project Management Team should be established in charge of assisting the Compliance & Legal IBOR Management Committee in project planning, progress level measurement and reporting regarding the IBOR transformation.
    - The areas of improvement in the relations with regulatory authorities and legal actions should be determined.
  2. An improvement plan should be created for the transition from IBOR to the alternative reference rates.
  3. **Pre-implementation preparation steps:**
    1. The counterparties and regulatory authorities should be contacted regarding the transition plan created for the IBOR transformation.
    2. A method should be determined for customer interactions.
    3. Documentation rules should be determined for easy access to the relevant documents and contracts and a guideline should be published for the rules.
    4. The fallback language should be determined in compliance with the sector standards.
    5. Controls should be established to eliminate risks that may arise due to the IBOR transformation.

##### Implementation steps:

1. Pioneering IBOR transformation practices in the sector should be understood and a transition plan should be implemented accordingly.
  - Monitoring, reporting and planned activities regarding the transformation should be managed centrally.
  - The contracts should be updated in compliance with the new decided contract provisions.
  - Communication channels should be established in compliance with the legislation.
  - Systemic updates should be made to monitor and manage internal investigations.



The IBOR transition has additional issues and interacting processes that need to be taken into consideration.

- The labor and technological costs to be incurred due to transition from IBOR to alternative reference rates should be taken into consideration.
- Potential internal and external risks to be exposed to as a result of the transition should be assessed and strategies should be developed to manage such risks.

## 5 Effects of the IBOR Transition on Information Systems

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The IBOR reform is an extensive transformation requiring actions to be taken in many areas such as the institution's business processes, pricing, valuation & calculation models, datasets used, products and instruments, contracts, information technology infrastructure and vendor services.

The level of technological support required for such transformation will vary across functions. At this stage, all the information systems affected from the IBOR transformation across the institution should be determined including the internal systems, the practices for end users and the vendor practices. In this context, an inventory should be made for all the systems affected from the IBOR transformation across the institution.

With the IBOR transition, coding and configuration changes should be made in systems particularly related to front office, risk management, treasury, finance, tax and accounting activities.

In many institutions, vendor platforms are used along with internal systems. Therefore, certain changes will be necessary to align the used vendor platforms with the alternative reference rates.

### 5.1 IBOR Technology Requirements

#### 5.1.1 Impact Analysis

A detailed impact analysis should be conducted on the processes and systems, which covers both the future and the past contractual responsibilities signed before today concerning.

##### **What should be done?**

1. The financial, risk, technological and operational effects of IBOR on all the activities should be assessed in detail.
2. Conducting the impact analysis correctly will help determine the scope and extent of the works required to realize the works required to transition to products related to the new alternative reference rates.
3. The impact analyses conducted by institutions will provide confidence to regulatory authorities during the IBOR transition.

##### **Why it should be done?**

1. Without a full impact analysis, the Senior Management will lack full information on the internal extent and effect of the IBOR transformation.
2. A detailed impact analysis should be conducted regarding the IBOR transformation to be able to accurately and fully reply questions from regulatory authorities.
3. A technology and operation impact analysis should be conducted for the size, cost and planning of the changes required in the systems and business processes.



**Key Points**

1. Impact analysis may not be a one-time practice. Various changes are expected to occur in terms of approach and timing during the IBOR transition. Therefore, it may be necessary to periodically repeated the impact analyses.
2. Some institutions estimate that the effect of the transformation on the information systems infrastructure will be low due to incorrect assumptions that the IBOR reform is merely slightly more than a new product. However, the impact analysis should be conducted considering that the transformation will have effects on end-to-end information systems, datasets and business processes.

**5.1.2 Demand Management**

Standardizing the definition of demand during the transformation and ensuring coordination between departments regarding this standardization will provide efficiency when meeting the demands.

A demand management process with completed consolidation will ensure that the demands can be prioritized effectively and the traceability of the system is increased throughout the whole lifecycle.

**What should be done?**

1. Business requirements were not identified to perform the IBOR reform. Institutions have to be flexible in order to identify the requirements for product groups and their functions.
2. Identifying the IBOR transition requirements will require relevant experts to work during the IBOR transformation.
3. Project teams, business units and control and technology functions should work in coordination to determine the minimum requirements for the IBOR transformation.
4. Identifying the IBOR transformation requirements is a complex process. Therefore, potential risks should be mitigated by implementing a pilot scheme with a certain product and system and then it should be implemented across the institution.
5. The requirements should be identified under three main structures:
  - Transformation of the current transactions
  - New product valuation
  - Instruments to support the transition

**Why it should be done?**

1. Institutions should make preparations for scenarios regarding the potential termination of all the IBORs. (E.g., lack of forward interest rates in loaning transactions.) Institutions should identify their transformation requirements in detail to meet such scenarios.
2. Some transformation requirements are at the risk of contradicting each other due to the hundreds of changing systems and products.
3. The minimum requirements for the IBOR transformation should be outlined in order to meet legal authority, market and customer expectations.
4. Determining the requirements will provide guidance regarding system installation, testing and program roadmap.

**Key Points**

1. Institutions should increase their capacity for human resources with specific expertise in the early stages of the transformation.
2. The requirements should be defined as categorized according to their product groups and functions. (E.g.: derivative products, loaning, front office, risk, finance etc.)
3. Minimum requirements should be identified for critical change areas in each product group and function. Critical areas include items such as product design, contracts, market data processing etc.
4. The pilot schemes should be implemented by the Project Management Team and then forwarded to the business units for the identification of the templates / standards.
5. Common requirements should be identified to increase centralized capabilities. For example, common requirements such as market data requirements or contract changes should be identified. Suitable instruments will be vital to manage the requirements and increase cooperation.
6. The requirements should be managed and updated with agility with the business units and technology teams.
7. The prepared templates should have the required level of detail and be consistent.

**5.1.3 Design and Investment**

It is aimed to realize the changes required in the processes and systems and carry out the whole transformation with an inclusive approach and effective cooperation between departments. The needed deliverables will thus be achieved with an end-to-end approach.

An example of this approach is the transformation of the Front Office processes in a way that supports both the products to be used after the transformation and the IBOR products.

**What should be done?**

1. Institutions should create an agile design and flow for complex and large-scale programs.
2. Institutions should manage by prioritizing the synergy between various structure components.
3. The systems should have the capacity to support a double-rate (both IBOR and ARR use) process for a certain period.
4. Institutions should effectively analyze the change on various layers of technology assets and optimize it to the extent possible.

**Why it should be done?**

1. The changes in the systems are mostly related to other systems and should be optimized with an architecture that will be compatible with the changes in the risk platforms.
2. Most institutions use an architecture based on IBOR and are mostly dependent on the forward rate structure of systems.
3. Transforming the old transactions and the risk, valuation, pricing and accounting systems will be complex and time consuming.
4. Changes in the vendor platforms will take additional time.

**Key Points****1. The Command and Control Center Team**

- A complete and meticulous change program should be conducted with the command and control center.
- This team should consist of or be supported by persons with full knowledge of the design requirements for the IBOR transition.

**2. The target design is important.**

- Interim and final targets regarding the design framework should have been determined and accepted.
- The design team should coordinate the work groups on the changes that occur during the transformation and the other IBOR work groups.

**3. Vendor Platform Changes**

- The vendors should be contacted at an early stage to understand their transition strategy for the IBOR transformation and roadmap for the implementation plan.
- Proactive planning is necessary to eliminate the problems related to interacting processes and to minimize the risks arising from the vendors.
- The relevant expertise capacity should be increased and the improvement of the product groups should be planned.

**4. Database/Data Repository Changes**

- The reference and market data models and the relevant systems should be improved significantly.
- The changes in the data models for the transaction data sources and data repositories should be managed strictly in the whole program flow.

### 5.1.4 Vendor Platform Transformation

The IBOR transformation will require major changes to be made in the vendor platforms being used. Close follow-up is required to determine and control the risks arising from these changes.

The vendor assessment should be carried out first to understand the extent to which the vendor platforms are prepared for the IBOR transformation. Institutions should also determine whether such third-party service providers will be able to align with the alternative reference rates after IBOR usage is eliminated.

It should be kept in mind that both IBOR and the alternative reference rates will coexist for some time during the transition. It is necessary to assess with the vendors whether the practices have sufficient capacity to support such a double-rate process and to halt and reconstitute the transaction positions in bulk if deemed necessary.

It is important to contact and ensure effective coordination with the vendors at an early stage in order to determine the change requirements in the vendor platforms and to ensure that such changes are performed on time.

### 5.1.5 Test Process

The IBOR test is very complex and rich in content. It therefore requires a qualified source. At this point, it is important to minimize repeated tasks as a standard with an agile organizational approach. Comprehensive analyses should also be performed because certain system changes to be made during the IBOR transformation may negatively affect many

processes.

**What should be done?**

1. The IBOR test approach should be compatible with the products related to the new alternative reference rates.
2. In addition to determining the product scope and prioritization, institutions should identify the IBOR test strategies, high-level test scenarios and the major restrictions. The acceptance criteria and risk appetite for each product should be determined in contract with stakeholders.
3. The preparation activities will mitigate the implementation risk and ensure that the new products are released to the market with a suitable risk level.

**Why it should be done?**

1. End-to-end IBOR tests will result in certain difficulties due to prolonged implementation times and affected large-scale systems and business processes, and the need will arise to align the approaches between the internal areas of implementation and third parties.
2. The changes resulting from the IBOR transformation will affect many products and departments. It is therefore important to focus on the strict auditing of the test activities, the test environment and the test data.
3. Certain test activities should be planned for each customer and product transition.

**Key Points**

1. The IBOR test is very complex and rich in content. It therefore required qualified human resources.
2. It is important to start the test process early after the requirements are identified.
3. Conducting the test activities with a centralized command and control mechanism will be important to ensure consistency and efficiency in the quality and acceptance activities.
4. Intense use of automation due to the long-term nature of the IBOR transformation and the need to perform multiple runs for the products, will ensure that the test works are performed efficiently and cost effectively.
5. A strict regression test will be necessary as certain system changes to be made for the IBOR transformation will affect some datasets.
6. A requirement management supported and consolidated with suitable tools will enable the deliverables to be prioritized effectively and support their traceability throughout the project lifecycle.
7. A strict management is important to mitigate major changes in the vendor platforms and the implementation risk arising from such changes. Institutions should also assess with the vendors whether the vendor platforms have the required capacity to support a double-rate (coexistence of both IBOR and the alternative reference rates for a certain period) process and to halt and reconstitute the transaction positions in bulk.

## 6 Global Approach to the IBOR Reform – The Case of SOFR

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The Alternative Reference Rates Committee was created by the FED to assist in the successful transition from USD LIBOR to the alternative reference rate Secured Overnight Financing Rate (“SOFR”).

The document “**Internal Systems and Processes Transition Aid for SOFR Adoption**” was published by the Alternative Reference Rates Committee on July 8, 2020.

The document was prepared to assist institutions in planning the steps required for the IBOR transition.

The transition activities are classified in detail in the document under 10 main categories and 50 sub-categories. The summaries created for each sub-category list the transition steps to be taken into consideration by the market participants and the areas that may be affected by the transition. Also, interacting processes that may affect the timing and sequence of the transition activities were identified.

The Alternative Reference Rates Committee conducted a vendor evaluation survey to address the operational difficulties in transitioning from USD LIBOR to the alternative reference rate SOFR. The survey results were published in the “**Alternative Reference Rates Committee Vendor Survey Results**” on May 7, 2020.

The survey consists of two main sections. The first section focuses on basic questions concerning the transition;

- The vendors’ level of understanding regarding the transition’s effect on the products and applications
- Main developments required to ensure product readiness
- Financial instruments to which the products/applications are related

The second section focuses only on information regarding the applications and systemic competencies (e.g., the capability of the systems to estimate cash flows) required for the transition.

The main inferences from the results of section one:

1. Vendors stated that they are aware of the IBOR transition in general and have assessed the potential effects of the transition process on the products and services.
2. Almost all vendors said that they have a good understanding of the key enhancements needed.
3. Vendors stated that they are working on applications at all stages of the developments. Some vendors stated that they started negotiations with their customers, some stated that they established the system requirements, some stated that they are in the development stage and a few stated that they are in the market release planning stage.
4. Most vendors have considered backward compatibility and incorporated transition work into upcoming release schedules. The document “**Practical Implementation Checklist for SOFR Adoption**” was released by the Alternative Reference Rates Committee in September 2019.

The document includes checklist of 10 key areas to be taken into consideration during the transition.

|   |   |   |  |   |
|---|---|---|--|---|
| <p><b>01</b> Establishing the Schedule Governance</p> <p>A robust governance framework should be established in charge of supervising the outputs and coordination of the IBOR transition program and comprising senior executives.</p>       | <p><b>02</b> Developing the Transition Management Program</p> <p>A cross-functional and cross-entity corporate program should be created to assess and mitigate product and customer risks arising from the transition.</p>   | <p><b>03</b> Establishing the Communication Strategy</p> <p>A corporate strategy should be developed and implemented that aims to establish proactive communication with internal and external stakeholders affected from the IBOR transition, remain in continuous contact and increase the level of training related to the transition.</p> | <p><b>04</b> Identification &amp; Verification of Risks Caused by the Transition</p> <p>A flexible approach should be determined and developed to monitor IBOR-related risks throughout the transition period.</p> | <p><b>05</b> Establishing the Product Strategy</p> <p>A strategy should be established to create new products based on alternative reference rates or to redesign or change existing IBOR-based products.</p> |
| <p><b>06</b> Risk Management</p> <p>Financial and non-financial risks arising from the transition should be identified, measured, tracked and controlled. Processes and surveillance routines should be established for identified risks.</p> | <p><b>07</b> Assessing the Effects and Design Plan of Contract Amendments</p> <p>The financial, customer-induced and legal effects of the amendments in the fallback languages arising from the transition from IBOR to alternative reference rates should be understood and mechanisms should be planned to implement the changes.</p> | <p><b>08</b> Establishing an Operational and Technological Readiness Plan</p> <p>A readiness plan should be developed to determine the changes required in the large-scale operation model, data and technologies for successful IBOR transition.</p>   | <p><b>09</b> Accounting &amp; Reporting</p> <p>The effect of the transition on accounting and reporting issues should be determined.</p>   | <p><b>10</b> Taxation and Legislation</p> <p>The effect of the transition on tax and legal reporting issues should be determined.</p>   |

The document also specifies points to be taken into consideration to prepare the operational and technological readiness plan.

1. The places where IBOR is used throughout all business processes and operations should be assessed. Risks arising from the transition will vary for each business line and will therefore require prioritization at different levels.
2. To fully understand the activities in which IBOR is used, the inventory should be taken of the technological solutions, operations and modeling tools used in each business line or in basic functions such as finance or treasury.
3. The process should be developed to incorporate new market data sources and relevant new calculation methods into the institution's systems. It will be important to remain competitive in the sector with the emergence of new products based on new rates.
4. The requirements should be identified and implemented to create financial products based on the new alternative reference rates that will replace the IBOR products.
5. The technological needs should be determined and the technological support should be provided to ensure the changes in the contract fallback languages resulting from the transition can be realized.
6. Test plans should be created to operationalize the new products, models, model validations and the fallback process. The readiness plan to be created should cover the surveillance of the readiness of vendors providing operational and technological services.
7. Plans should be developed for internal test processes, third-party verification works / preparation for the transition process and the potential tests to be conducted throughout the sector.

## 7 Annexes

### 7.1 Abbreviations and Terminology

|               |  |
|---------------|--|
| <b>ARRC</b>   | Alternative Reference Rates Committee      |
| <b>ARR</b>    | Alternative Reference Rates                |
| <b>ECL</b>    | Expected Credit Loss                       |
| <b>CRM</b>    | Credit Risk Mitigation Techniques          |
| <b>IBOR</b>   | Interbank Offered Rates                    |
| <b>IFRS 9</b> | International Financial Reporting Standard |
| <b>IRC</b>    | Incremental Risk Capital Liability         |
| <b>LIBOR</b>  | London Interbank Offered Rate              |
| <b>RAPM</b>   | Risk-Adjusted Performance Management       |
| <b>RAROC</b>  | Risk-Adjusted Return on Capital            |
| <b>RAV</b>    | Risk Weighted Assets                       |
| <b>SOFR</b>   | Secured Overnight Financing Rate           |
| <b>VaR</b>    | Value at Risk                              |

### 7.2 References

[ARRC - Internal Systems & Processes Transition Aid for SOFR Adoption](#)

[ARRC - Practical Implementation Checklist for SOFR Adoption](#)

[ARRC – Vendor Survey Results](#)

[EY- How to Navigate the Ibor Transition](#)

[EY - Managing Conduct Risk Throughout IBOR Transition](#)

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