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of Deposit Insurers

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General Guidance for Developing Effective Reimbursement Systems and Processes

**Prepared by the Research and Guidance Committee of the
International Association of Deposit Insurers**

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Executive Summary

The mission of the International Association of Deposit Insurers (IADI) is to contribute to the enhancement of deposit insurance effectiveness by promoting guidance and international cooperation. Its vision is to share its deposit insurance expertise with the world. As part of its work, the IADI undertakes research projects to provide guidance on deposit insurance matters.

In this respect, IADI has set forth guidance through adoption of the *Core Principles for Effective Deposit Insurance Systems* (Core Principles). The Core Principles include guidance for reimbursing depositors under Principle 17. The key elements of Principle 17 are comprised of consumer protection elements aimed at protecting the rights of depositors to reimbursement, as well as the requisite enabling conditions necessary for deposit insurers to achieve this objective.

A key mandate of a deposit insurance organisation is the obligation to make timely reimbursements to depositors when a bank is closed by the authorities. A deposit insurer's effectiveness, efficiency, and capability to meet this mandate are critical for financial stability and confidence in the banking system. A deposit insurer must have in place policies, reimbursement processes and procedures, and information systems.

One of the biggest constraints hindering prompt and accurate reimbursements is the lack of early access to accurate depositor information. This includes access to depositor records in advance of a failure, poor quality of depositor records at banks, and the lack of a bank client unique identifiers to aggregate deposits held by the same person/entity so as to apply the deposit insurance coverage limits.

Other key impediments to timely reimbursement include the difficulty in determining depositors' claims and related loans/liabilities for complying with netting requirements and the lack of appropriate Information Technology (IT) reimbursement systems and reimbursement plans to deal with different sized banks.

The IADI Research and Guidance Committee established the Subcommittee on Reimbursement Process (the Subcommittee)¹ to consider the challenges, issues and effective practices for reimbursing depositors. One of the tasks of the Subcommittee was to develop a set of supporting guidance points for the effective implementation of Core Principle 17. The Subcommittee has identified 13 supplemental guidance points.

¹ The Subcommittee comprised representatives from Albania, Canada, Hong Kong, Indonesia, Malaysia, Mexico, Nigeria, Russia, Kazakhstan, Singapore, Taiwan, the UK and the US.

Supporting IADI Guidance

Principle 17 on the reimbursement process states:

“The deposit insurance system should give depositors prompt access to their insured funds. Therefore, the deposit insurer should be notified or informed sufficiently in advance of the conditions under which a reimbursement may be required and be provided with access to depositor information in advance. Depositors should have a legal right to reimbursement up to the coverage limit and should know when and under what conditions the deposit insurer will start the payment process, the time frame over which payments will take place, whether any advance or interim payments will be made as well as the applicable coverage limits”.

The key elements of Principle 17 are:

- Depositors be given prompt access to insured funds;
- Depositors be informed of (i) when and under what conditions deposit reimbursement will commence, (ii) time frame for making payments, (iii) if advance/interim payments are to be made, and (iv) applicable coverage limits;
- Deposit insurers be given advance notification of conditions for triggering reimbursement; and
- Deposit insurers should be given advance access to depositor information.

The following essential criteria and an additional criterion for assessing whether a deposit insurer is appropriately addressing this Principle are noted in the *Methodology for Assessing Compliance with the Core Principles (Methodology)*.

Essential Criteria:

1. *The deposit insurer is able to reimburse depositors promptly after the deposit insurance system is triggered by law, contract or the relevant authority.²*
2. *The time frame for accomplishing the reimbursement process is prompt and clearly stated to meet the public policy objectives of protecting depositors and promoting public confidence and financial stability of the deposit insurance system. The time frame is made public.*
 - (a) *Depositors are provided information after the failure on when and under what conditions the deposit insurer will start the reimbursement process and when the process is expected to be completed;*

² A prompt reimbursement is defined to be when depositors are reimbursed within a time frame that does not undermine financial stability and the proper functioning of payment systems.

- (b) *Information on coverage limits, scope of coverage and whether advance or interim payments will be made is provided; and*
 - (c) *If there is an interest-bearing account, the deposit insurer shall reimburse depositors for interest as provided by contract, law or regulation up until at least the date the deposit insurance obligation is triggered.*
- 3. *In order to promptly reimburse depositors, the deposit insurer has:*
 - (a) *Access to necessary data, including deposit account records, to prepare for reimbursing depositors as soon as the supervisor is aware of a likelihood of failure;*
 - (b) *The power to review in advance by itself (or by request from the supervisory authority) the way depositor records are kept by banks to ensure the reliability of records, to reduce the time needed for calculation and verification of depositors' claims;*
 - (c) *A range of payment methods for reimbursing depositors; and*
 - (d) *Access to adequate and credible sources of funding (e.g., reserve fund, Ministry of Finance, central bank) to meet its obligations under the established time frames.*
- 4. *The deposit insurer has the capacity to carry out the reimbursement process in a timely manner, including:*
 - (a) *Adequate IT; and*
 - (b) *Adequate personnel (in-house or contractor).*
- 5. *In situations where there may be extended delays in reimbursements, the deposit insurer can make advance, interim or emergency partial payments.*

Additional Criterion:

- 1. *The deposit insurer has contingency plans as well as regularly scheduled tests of its systems. The reimbursement process is audited by an independent auditor or authority.*

The main conclusions of this research, summarised in the following 13 supporting guiding principles, are consistent with the essential criteria outlined in the Methodology document.

1. A deposit insurer should have access to depositor records at all times and undertake preparatory reviews of bank deposit liability records to ensure prompt and accurate reimbursement of insured deposits.
2. Authorities should issue guidelines or regulations to ensure that banks can provide accurate deposit liability records, within a specific time frame, for aggregation of depositors' funds and when required by law or regulation, a single customer view (SCV).
3. Authorities should work on the elimination of impediments to prompt reimbursement. These could include eliminating the right of set-off and disaggregation of multiple ownership accounts. These agreements should be put in place in good times.
4. Transit items of banks should be subject to agreements with all clearing and settlement system agencies to ensure that the items, after a bank failure, are dealt with in an appropriate and consistent manner.
5. To expedite the reimbursement process, a deposit insurer should rely on technology-based systems to process depositor information in a systematic and accurate manner.
6. The limits and scope of coverage and product insurability must be set out in law, clearly defined and communicated to depositors to mitigate confusion.
7. A deposit insurer should consider a range of payment methods that would expedite the reimbursement process.
8. A deposit insurer must communicate clearly the payment methods and timing for payments to depositors as part of a comprehensive communications strategy to manage public expectations.
9. A deposit insurer may provide interim payments in circumstances when the deposit insurer is of the view that insured depositors require access to their funds before the start of actual reimbursement is made, if it could do so without impeding the overall reimbursement process.
10. It is an effective practice to conduct an audit of the reimbursement process by an independent party to confirm that appropriate internal controls have been applied during the reimbursement process and that reimbursements are accurate.
11. Adequate resources and trained personnel dedicated to the reimbursement function should be made available to ensure readiness in undertaking

reimbursements. Where internal resources are insufficient, a contingency plan should be in place to augment resources in times of need.

12. Where reimbursement-related cross-border issues exist, such as who would perform a reimbursement in an affected jurisdiction, these should be addressed well in advance to ensure that effective and timely reimbursements can be implemented. This would involve developing coordination protocols to define the responsibilities for performing reimbursement-related activities, developing consistent communication messages and strategies, and addressing other reimbursement-related issues.
13. Effective practices should be in place to conduct regular simulation exercises to test the operational readiness of the deposit insurer in carrying out reimbursements.

I. Introduction and Purpose

A prompt and accurate reimbursement is crucial in order to:

- **Maintain public confidence** in the stability of the financial system. If depositors are aware and have confidence that they will be reimbursed promptly and accurately, they are less likely to withdraw their funds from the banking system;
- **Minimise the likelihood of contagion.** Confidence in the financial system reduces the possibility that the failure of one bank will spread to other banks;
- **Minimise disruption for depositors.** Prompt payment will enable depositors to meet their financial obligations and reduce the potentiality that problems in the banking sector will spread to other sectors of the economy; and
- **Maintain the credibility of a deposit insurance protection scheme.** Reimbursement delays to insured depositors of failed banks may affect the broader public confidence in both the deposit insurance protection scheme and, by extension, the stability of the financial system.

The recent financial crisis has shown that many deposit insurers were not ready, had they been called upon, to undertake a timely reimbursement of deposit insurance. Deposit insurers must be in the position to advise the authorities of their capacities to undertake a reimbursement and the likely costs of doing so. The risk, clearly, is that if a reimbursement is not handled effectively and efficiently, it could potentially create a systemic risk in the banking system.

In view of its significance and the wide difference in approaches, the Research and Guidance Committee of IADI established the Subcommittee on Reimbursement Process (the Subcommittee). The Subcommittee had the mandate to identify effective practices and guidance for the development of effective reimbursement systems and processes.

This paper aims, first, to review the experience and the wide range of practices adopted by deposit insurers. Second, it aims to identify impediments to developing effective reimbursement systems and processes. And third, the considerable complexity of the reimbursement process demands a set of guidance points, or best practices, in developing effective reimbursement systems and processes.

A. Methodology

This paper is based on the experiences of IADI deposit insurers. The Subcommittee conducted a survey³ to identify impediments to developing

³ Information Paper: IADI Survey on Effective Reimbursement Systems.

effective reimbursement systems and processes.⁴ The survey covered key processes that are fundamental building blocks of an effective reimbursement system. The questionnaire was divided into five sections.⁵ The respondents were asked to identify the impediments and challenges of undertaking a reimbursement and how they addressed these problems. They were asked to rank those impediments in order of criticality, with 1 being the most critical, 2 (critical), 3 (somewhat critical), and 4 (not critical).

Five country case studies were undertaken to analyse in greater detail several aspects that were considered to be important elements of the fundamental building blocks.⁶ These country studies provide a rich variety of experiences and valuable lessons that were incorporated into this paper.

II. Essential Elements of an Effective Reimbursement System and Processes

A. Timing of reimbursements and pre-closure preparatory work

Principle 17 recommends that “the deposit insurance system should give depositors prompt access to their insured funds.” In practice, the timing of reimbursements to depositors varies considerably across jurisdictions. The IADI Survey on Effective Reimbursement Systems showed that 17 respondents have a mandated reimbursement period while the other eight do not. The mandated period for reimbursement ranged from “as soon as possible” for the Canada Deposit Insurance Corporation (CDIC-Canada) to “not later than six months” for the Deposit Insurance Corporation (Bahamas), which relies on its central bank to conduct a reimbursement.

Notwithstanding that, almost all respondents have a targeted period to reimburse depositors, which is generally shorter than the mandated reimbursement period. The Federal Deposit Insurance Corporation (FDIC) has the shortest targeted period, with the ability to advance full payments within the next business day, typically two days. The Central Deposit Insurance Corporation (CDIC-Taiwan) is not far behind, with plans to reimburse depositors three days after a failed bank is closed. The CDIC (Canada)’s system allows for partial reimbursement within five days after a bank failure and full reimbursement of most accounts within 14 days. In Mexico, the Instituto para la Protección al Ahorro Bancario (IPAB) has a mandate to reimburse depositors

⁴ 27 organisations (close to 80 per cent of participants that have indicated interest to participate in survey) responded to the survey. However, two responses were not complete. The 25 deposit insurers which completed the questionnaires are from Albania, Bahamas, Bulgaria, Canada, Canada (Quebec), Hong Kong, Hungary, India, Kazakhstan, Korea, Malaysia, Mexico, Netherlands, Romania, Russia, Singapore, Slovakia, Sweden, Taiwan, Tanzania, Trinidad & Tobago, Turkey, UK, US and Vietnam.

⁵ The five sections are: access to prompt and accurate information, resources, coverage rules and product insurability, IT System and mandate and powers.

⁶ The case studies were - CDIC (Canada): Contingency Planning and Simulations at Canada Deposit Insurance Corporation, FDIC: Information Technology for Effective Reimbursement of Insured Deposits, FSCS: Faster Reimbursement, IPAB: Technical aspects of the inspection visits carried out by the IPAB, in order to evaluate the banks’ compliance to the Rules for classifying transactions relating to insured deposits, and MDIC: MDIC’s Experience in Designing and Developing an Effective Reimbursement System.

who have met requirements, within 90 days of the announcement of the reimbursement procedure in the Official Gazette. However, past experiences demonstrated that the IPAB was able to reimburse depositors within seven days after a claim has been filed.

It should be noted that the targeted reimbursement periods begin from the date of the closure of the bank. The time periods do not include the time that may be taken by the deposit insurer, prior to a closure, to prepare for reimbursement. Clearly, deposit insurers cannot reimburse eligible depositors within days if they do not spend adequate time on reimbursement preparatory work before a bank is closed.⁷

Reimbursing depositors is a complex undertaking and requires establishing the infrastructure building blocks in anticipation of a potential bank closing. This includes establishing the legal authorities for the deposit insurer to direct banks to submit accurate depositor records, strategies and approaches for handling depositor records, coordination protocols with other safety net participants and service suppliers, as well as policies, controls and authorities within the governance structure of the deposit insurer that will guide the management of the reimbursement process.

Even with the relevant infrastructure in place, there are a large number of activities to be undertaken prior to a bank closure if a prompt reimbursement to depositors is to be met. The preparatory activities to be performed include:

- Coordinating with other safety net agencies to obtain relevant information to assist in planning for the reimbursement;
- Developing work plans and budgets for undertaking the reimbursement, including an estimate of the time frame required to make reimbursements;
- Assessing the funding requirements for making reimbursements to depositors and effecting the necessary arrangements for obtaining funds;
- Arranging and organising human resources, internal and external, to prepare for undertaking the reimbursement;
- Reviewing the bank's systems and procedures for obtaining depositor information;
- Transforming the depositor records into a format that is usable by the deposit insurer. Where feasible, the information should be obtained in advance of the failure, either through a recent extraction or submission from the bank or through the use of information previously obtained as part of a review process;
- Reconciling the bank's depositor information with the bank's accounting and financial reports;

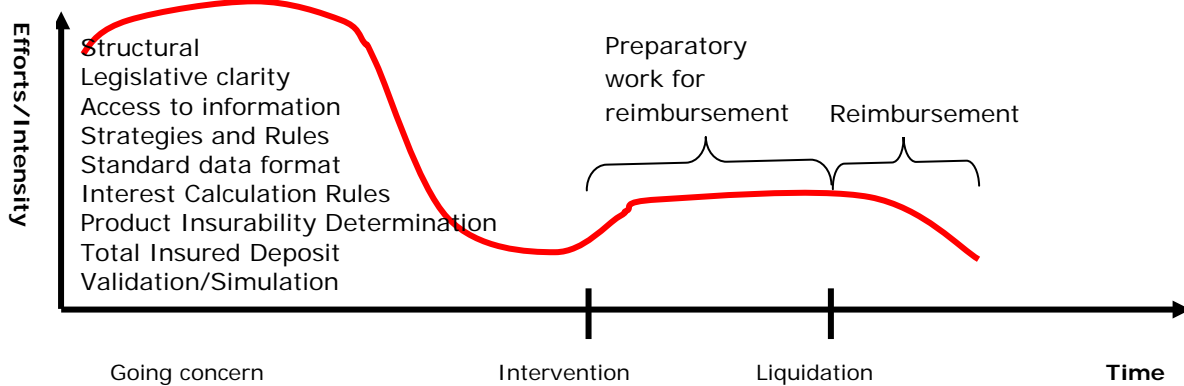
⁷ For example, the FDIC regulations include early intervention activities that under the best case scenario provide at least 90 days' notice before the closure of a bank.

- Confirming the eligibility of products and depositors with differing legal status for insurance coverage and assessing the level of work required for valuation issues, such as interest calculations;
- Confirming the treatment of transit items in the clearing and settlement process;
- Establishing the payment method or methods to be used in making reimbursements, identifying the service providers to be used, and assessing whether to utilise interim payments as part of the reimbursement strategy; and
- Developing the communications strategy for dealing with the failure of the bank, preparing responses to the issues that are characteristic of a bank closure and of the bank, and defining public relations activities including public enquiry lines, websites and media activities.

These preparatory activities are essential for a successful reimbursement process.

Chart 1 depicts the level of pre and post closure reimbursement preparation activities under an effective reimbursement model. Under this model, preparatory activities are carried out ahead of a bank closure to enable a prompt and accurate reimbursement to depositors.

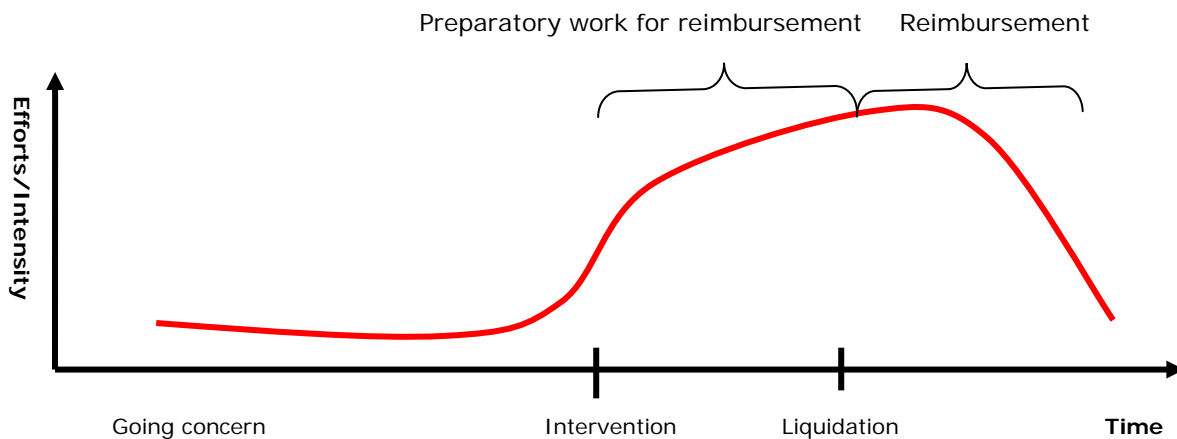
Chart 1: Effective reimbursement model – Pre and post closure preparation activities



Source: IADI Case Study: MDIC's Experience in Designing and Developing an Effective Reimbursement System.

Chart 2, on the other hand, shows the level of pre and post closure reimbursement preparation activities under a traditional reimbursement model, which only start once the decision to liquidate a bank has been made.

Chart 2: Traditional reimbursement model – Pre and post closure preparation activities



Source: IADI Case Study: MDIC’s Experience in Designing and Developing an Effective Reimbursement System.

With limited preparation and time, a deposit insurer could possibly face numerous data quality problems amidst the pressure to complete reimbursements. Working under extremely stressful timelines, errors in computation of reimbursement amounts could occur, leading to delays, reputational risks to the deposit insurer, and costlier resolutions.

There are many impediments to prompt and accurate reimbursements. Table 1 from the IADI Survey on Effective Reimbursement Systems summarises the top six most critical and critical impediments to an effective reimbursement.

Table 1: Key impediments to effective reimbursement system: Top six most critical and critical problems (percentage of total)

Impediments	Most Critical	Critical	Total
Lack of access to depositor records in advance of a failure	28.0%	28.0%	56.0%
Poor quality of depositor records at banks	40.0%	12.0%	52.0%
Inability of banks to provide depositor records within desired time frames	24.0%	24.0%	48.0%
Determining depositors’ claims and related loans/liabilities for complying with netting requirements	12.0%	28.0%	40.0%
Lack of unique identifier	8.0%	20.0%	28.0%
Lack of appropriate IT system reimbursement plans to deal with different sized banks	16.0%	8.0%	24.0%

Source: Information Paper: IADI Survey on Effective Reimbursement Systems.

B. Access to and accuracy of depositor data

Among the deposit insurers surveyed, problems associated with access to accurate information was considered the biggest constraint confronting deposit insurers in carrying out prompt and accurate reimbursements. The survey results revealed that the biggest impediment to an effective reimbursement is the lack of access to depositor records in advance of a failure. In some jurisdictions, deposit insurers do not have access to depositor records until a bank is closed.

Poor quality of depositor records and the inability of banks to provide depositor records within desired time frames were the 2nd and 3rd major impediments. Supervisory regulations or the deposit insurer's capacity to enforce high quality standards in record keeping amongst banks is critical for prompt and accurate reimbursement. Towards this end, one important reform that is being implemented in several jurisdictions is to develop a Single Customer View (SCV). A consolidated view of all deposit accounts eligible for deposit insurance coverage for a single depositor would enable faster determination for reimbursement.

For example, in the UK, the Financial Services Compensation Scheme (FSCS) undertook a program to require its member banks to produce an aggregated balance of a customer's accounts across the bank within 72 hours of a request from the FSCS. Member banks were given 18 months in which to make changes to their electronic and paper-based systems⁸ to comply with this requirement, with completion by December 31, 2010. Included in the SCV program are requirements for dealing with clearing and settlement transit items, dormant accounts, and tagging of certain accounts (e.g., client and trust accounts with beneficiaries) for later special treatment. Along with the SCV requirements, legislative changes were made to increase the FSCS's rights to access information of its member banks. The objective of the SCV solution is to enable the FSCS to make payment to a significant number of depositors within seven days of a failure and within 20 days of a failure for the other depositors with less straightforward banking relationships.⁹

The FSCS's experience points to the need for not only having access to depositor records in advance, but also for undertaking verification work to ensure that the records available at the time of a reimbursement are accurate and usable by the deposit insurer. To this end, the FSCS requires its member banks to submit sample SCV files to allow the FSCS, through an outsourced solution, to perform verification procedures to ensure the SCV files are suitable for use in a reimbursement.

In Mexico, to obtain information on insured deposits, the IPAB has the powers to:

- acquire information on insured deposits directly from the banks, when deemed necessary;

⁸ Financial firms with over 5,000 accounts must hold the SCV file in electronic format; smaller firms with paper-based systems must maintain their records in the SCV format.

⁹ Source: IADI Case Study: Financial Services Compensation Scheme (FSCS) – Faster Reimbursement.

- direct banks to classify information on insured deposits in their own IT systems (or any other means) according to a general regulatory framework issued by the IPAB;
- conduct inspection visits to banks along with the banking Supervisor in order to verify and evaluate the bank's compliance to the said framework; and
- issue rules on joint account coverage.

Once such information is received, it is processed using an automated system developed by the IPAB to validate data layouts and content. An important element of this system is the Depositor ID number (Unique Depositor Key Code - UDKC): a personal identification string of characters to match all accounts belonging to an individual depositor.¹⁰

The CDIC (Canada) has recently issued a Data and System Requirements By-law and technical specifications that require its member banks to provide or make available depositor information to the CDIC (Canada) in specified formats. A verification process will be undertaken subsequent to implementation of the requirements by its member banks, scheduled for June 30, 2013.¹¹

The Malaysia Deposit Insurance Corporation (MDIC) has issued guidelines and regulations requiring its member banks to submit depositor records, at least on an annual basis, for validation of record contents and layouts against the MDIC's requirements. Also, the records would be used for the verification of the banks' total insured deposits and insurability of deposit products against computation by the MDIC's Depositors Liability Information Management System (DLIMS) and the Product Registry System (PRS), respectively.¹²

Such experiences highlight the importance for deposit insurers to have access to depositor records in advance of a reimbursement, either as part of a preparatory review just prior to a reimbursement or as part of an on-going review and verification process. This enables deposit insurers to be aware of the potential data issues that may arise during a reimbursement.

The lack of a bank client-unique identifier ranked 5th, among the top six key impediments to effective reimbursement. This complicates the task of aggregating the relevant accounts held by a depositor where the deposit insurer makes reimbursements based on depositor rather than individual accounts.

Several deposit insurers, such as the Hong Kong Deposit Protection Board (HKDPB) and the MDIC, are able to rely on national identity documents and numbers for individuals and companies. However, even these deposit insurers recognise the need to use combinations of other identifiers, such as birth-dates, addresses, and phone numbers to ensure depositors and their accounts are correctly aggregated before applying coverage rules and limits. Without unique

¹⁰ Source: IADI Case Study: Technical aspects of the inspection visits carried out by the IPAB, in order to evaluate the banks' compliance to the Rules for classifying transactions relating to insured deposits.

¹¹ Source: CDIC Data and System Requirements By-Law (December 8, 2010) and Data and System Requirements - Version 1.0.

¹² Source: IADI Case Study: MDIC's Experience in Designing and Developing an Effective Reimbursement System.

identifiers, deposit insurers would need to utilise approximate approaches, such as combinations of personal information to distinguish a depositor's identity to determine the balances upon which depositor entitlements are to be made.

C. Netting requirements in determining depositor entitlements

The difficulty in setting off a depositor's claim against his/her related loans and liabilities in determining compensation entitlement was the 4th most challenging impediment (40 per cent of survey respondents identified this either as a most critical or a critical issue). The complexities of set-off, or netting, relate not only to matching depositors' deposit accounts with any related loans and liabilities of the depositors to the failed bank, but also to determining the appropriate amounts to set off against the deposit balances. This latter issue arises in situations involving guarantors of debt and contingent liabilities, and is typically the responsibility of parties other than the deposit insurer, such as the liquidator of the failed bank.

These complexities can have a significant impact on the ability to make prompt and accurate payments since set-off introduces the risk of overpayment when netting relationships cannot be quickly identified and determinations of the amounts to be set off cannot be made within short time frames. This could delay reimbursement to the depositor group from the main reimbursement process and require special handling to deal with the depositor to work out the appropriate netting determinations. When the deposit insurer is not able to quickly identify those depositors that have loans and other liabilities with the failed bank and segregate them for special treatment, the deposit insurer should enlist the assistance of the liquidator to identify these depositors. In determining the amounts to set off against depositors' balances, the deposit insurer may consider making conservative estimates of the amounts to set off to allow for some form of payment to be made to these depositors while mitigating the potential for overpayment.

Besides the complexities, some deposit insurers also noted that set-offs are not equitable to depositors with non-collateralised loans, as their claims on the uninsured portion of deposits would be made against the estate of the failed bank and, in many instances, they would receive less than their full amount. However, collateralised uninsured deposits are reimbursed 100 per cent when set-offs take place. This gives collateralised depositors preference over non-collateralised depositors. Reforms have been undertaken in several jurisdictions, notably the UK and Singapore, to streamline the reimbursement determination process by moving to calculations based on gross deposit balances. To change from a net basis to a gross basis for reimbursement would require a change in the insolvency regime to file a claim for the full reimbursement amount to the liquidator of the failed bank.

D. IT systems for reimbursement

Managing depositor reimbursement requires potentially processing thousands of accounts accurately and within tight time frames. To keep within the reimbursement time frame, deposit insurers will have to rely on an information technology (IT) system for reimbursement.

Not having an IT-based reimbursement system to deal with different sized banks is ranked as the 6th key impediment to prompt and effective reimbursement. In the event of a reimbursement, if the eligibility of a depositor and of each deposit product for deposit insurance protection needs to be assessed manually, the deposit insurer may not be able to execute reimbursements promptly and effectively. Even in situations where banks make significant use of paper-based systems, the deposit insurer will still need to make use of an IT-based solution to process data, apply its insurance rules, track payments and minimise the likelihood of errors occurring in the process. An IT-based solution allows the deposit insurer to perform the reimbursement process within the desired time frames.

The options available to deposit insurers for IT-based solutions for reimbursement systems depend on whether the deposit insurer has the authority to access, utilise, and modify a bank's IT systems for use in a reimbursement. When a deposit insurer has such authority, it can develop modules to perform the required insurance determinations and integrate these with the bank's systems to process reimbursements while leveraging the scalability of the bank's systems. There are, however, control risks inherent in using the failed bank's systems as any problems with respect to the integrity and accuracy of the systems, including inaccurate interest rate computations and reconciliation issues between the general ledger and sub-ledgers, would carry through to the reimbursement process. As well, modifications made to the systems for purposes of reimbursement would add an additional layer of testing during a period of tight deadlines to ensure accuracy, completeness and validity of the reimbursement calculations. The Bulgarian Deposit Insurance Fund used to utilise the IT system of the failed banks to conduct reimbursements. However, in most cases, deposit insurers do not have this authority, making it more feasible to develop an IT reimbursement system that will run independently of, and preferably parallel to, a failed bank's systems.

To gather data on transactions relating to insured deposits, the IPAB provides banks the option to either develop an Electronic Layout Form (E-Form) of their own, or utilise the form developed and provided by the IPAB.

Given that the verification and assessment of information provided in the E-Form by the banks involves an audit on the banks' records and systems, the IPAB felt it was essential to have an automated system to expedite this process.

Hence, the IPAB developed a system called Insured Deposits Monitoring (Spanish acronym MOG) to process information submitted by the banks utilising either options. This system is capable of highlighting errors in the E-Form.¹³

It should be noted that having an IT reimbursement system does not preclude the deposit insurer from making use of manual processes in certain circumstances. For example, the HKDPB relies mainly on an automated reimbursement system to process depositor records from banks to determine depositor reimbursement amounts. However, owing to the complexities of

¹³ Source: IADI Case Study: Technical aspects of the inspection visits carried out by the IPAB, in order to evaluate the banks' compliance to the Rules for classifying transactions relating to insured deposits.

certain issues, such as the application of set-off, the valuation of contingent and future liabilities, and the calculation of interest on complex financial products, along with data from smaller banks not being required to be in a specific format and structure, some manual intervention is required.

The HKDPB initially places reliance on the systems of the failed bank to compute interest. If these systems are not able to yield the necessary calculations, the HKDPB uses programming in its reimbursement system to perform interest calculations, as well as manual calculations for the more complicated products, although new authority is being considered to utilise approximate calculations which should minimise the need to resort to manual calculations.

In developing or enhancing its IT reimbursement system, the FDIC, based on its case study, has identified certain high-level key criteria:¹⁴

- Will the system address the needs of stakeholders?
- Will the system provide consistent information throughout the organisation?
- Can the system survive through organisation and management changes?

For the first criterion, it is important to be aware of both internal and external stakeholders¹⁵ and their different individual requirements. Defining all the stakeholders will help ensure that the needs of all affected parties are not overlooked.

The second criterion emphasises the need to know what systems and data are currently available and to understand the deposit insurer's processes. It also emphasises the need to know what data is collected and/or disseminated, and what, if any, other applications support those processes. This allows the deposit insurer to document what works well, identify where duplicate efforts may occur, and determine what data are repeatedly used and shared by others.

The final criterion underscores a requirement for the system to be agile and able to withstand any type of change, ensuring that the system and processes relate to laws, regulations, and policies relevant to the deposit insurer. The system must meet any constraining business rules.

The FDIC case study provides an example of a business analysis and systems review that applied these criteria in determining the requirements for an effective IT reimbursement system. It also includes guidance on developing a Request for Proposal (RFP) for seeking service suppliers to provide technical assistance in developing the system.

The MDIC case study provides useful insights to the decision-making process and approaches taken in developing an IT reimbursement system that meets the

¹⁴ Source: IADI Case Study: Information Technology for Effective Reimbursement of Insured Deposits (Federal Deposit Insurance Corporation).

¹⁵ The internal users include bank resolution specialists, claims specialists, liquidators, attorneys, accountants, managers and consumer protection analysts. The external stakeholders include financial institutions, depositors and creditors of failed institutions, loan servicers and the public.

organisation's needs as well as overcomes the challenges and impediments to a prompt and effective reimbursement. Table 2 highlights actions taken by MDIC and other deposit insurers to address impediments and challenges to an effective reimbursement system.

Table 2: Actions taken to address impediments and challenges to an effective reimbursement system

Impediments and challenges	Actions to address impediments	Organisation
Complexity and size of depositor records	Developed an IT-based reimbursement system that is scalable and expandable	FDIC, HKDPB and MDIC
Different file formats submitted by banks	Issued guidelines to banks requiring the submission of depositor records in a standard file format to MDIC on an annual basis and upon request	MDIC
	Insured banks are obliged to provide the DIA with a SCV for each depositor in accordance with the format requested by the DIA	DIA (Albania)
	The Financial Services Authority (FSA) has introduced rules requiring all banks to introduce a SCV	FSCS
	Banks are required to submit to the DIA depositor information in a standard file format within a seven day time frame	DIA (Russia)
	Issued a final rule (Large-Bank Deposit Insurance Determination Modernisation Rule) requiring Covered institutions ¹⁶ to adopt mechanisms that would, among others, provide the FDIC with deposit account data in a standard format	FDIC
Lack of access to depositor records in advance of a failure	The MDIC Act provides MDIC with unfettered access to depositor information at all times	MDIC
	New powers to request more information in a timely manner and not just before an impending failure	CDIC (Canada)
	The Banking Act 2009 introduced powers for the FSA and FSCS in respect of requesting information from banks to enable the FSCS to undertake its functions effectively	FSCS
	Put in place rules for compensation reimbursement readiness to ensure that it is able to obtain all the necessary data from member banks within 24 hours of notification	SDIC
	Issued to its member banks a guideline which specifies the format, structure and content of data that banks must provide to the HKDPB, including the time frames within which various components of the information are to be delivered to the HKDPB	HKDPB
Unable to undertake early or preparatory	The MDIC Act gives MDIC the authority to undertake early or preparatory examinations of depositor information	MDIC

¹⁶ Covered institutions- defined as any insured depository institution with at least \$2 billion in domestic deposits and either (1) more than 250,000 deposit accounts or (2) total assets over \$20 billion, regardless of the number of deposit accounts.

Impediments and challenges	Actions to address impediments	Organisation
examinations of deposit liabilities in the event of an imminent reimbursement		
Requirement for depositors to submit claims to the deposit insurer delays reimbursement process	Subrogated, by law, to the rights and interests of depositors to the amount reimbursed which eliminates the need for claim forms	HKDPB and MDIC
	Abolished the submission of claim forms	FSCS
Poor quality or incomplete depositor records at banks. Poor quality includes non-updated or inaccurate information	Conducts validation of banks' premium computation annually and requires banks to improve the quality of their depositor information and systems over time	MDIC
	Granted the right to inspect member banks' software, files and accounting maintenance in relation to their compliance with the legislation and the KDIF's requirements on insured depositor records and file keeping	KDIF
	Conducts regular on-site examinations to test bank data quality and accounting techniques	DIA (Russia)
	Verifies that member banks are ready, at all times, to submit complete and accurate data by reconciling account balances submitted during annual simulation exercises to members' accounting records and verifying randomly selected customers' deposit position produced by the SDIC's reimbursement system against member banks' records	SDIC
	Undertakes reviews of banks' compliance with the guideline on information required for determining and paying compensation, on a sample basis, using risk-based criteria	HKDPB
	Developed an audit deposit information software to help the IPAB verify banks' compliance with the classification of information on insured deposits	IPAB
Implement a "live" system that continuously functions	Issued guidelines to banks requiring the submission of depositor records in a standard file format to MDIC on an annual basis as part of the submission for the assessment of premiums	MDIC
Human errors in handling depositor data	The IT reimbursement system provides a seamless and automated process, for verifications and checks, with minimum manual intervention	MDIC
Lacks unique identifier to aggregate a depositor accounts	Uses the national identity card number as the primary identifier. This is supplemented with information on date of birth and addresses	MDIC
	Relies mainly on the Hong Kong identification card, passport and business registration numbers as the primary sources for unique identifiers	HKDPB
Bank secrecy laws which restrict access to depositors' names	Requires banks to mask or use encryption on specific information on depositor records	MDIC

Impediments and challenges	Actions to address impediments	Organisation
Lack of appropriate communication strategies to deal with depositors	<p>Implemented an interactive call centre with access to a SCV of all depositors to provide information, such as the list of deposit accounts and deposit products for each depositor, the insurability status of each deposit product, the insured and uninsured balances, reimbursement status and reimbursement method used depositors' mailing address, etc. The call centre employees would be trained to adequately address depositors' queries and concerns</p> <p>Depositors could also have direct access to the above information via the internet (password protected)</p>	MDIC
	Enhancing access to timely information through its "self-serve" website	CDIC (Canada)
	Measures include an Memorandum of Understanding (MoU) with the regulator to coordinate communication strategies during a reimbursement; Q&As provided to call centre operators, and reimbursement website with template messages prepared in advance	HKDPB
Inability to aggregate the insured and uninsured balances held by an eligible depositor	The IT reimbursement system is able to generate a SCV of insured and uninsured balances	MDIC
Lack of resources within the organisation to conduct a reimbursement	Adopts a Virtual Organisation (VO) resource structure where the core internal employees will be supported by specialised services providers, such as accounting firms, IT contractors, legal firms, payment agents and customer service agents providing reimbursement-related activities	HKDPB, MDIC and SDIC
Difficulty in the reconciliation of in-transit transactions	MDIC is establishing working arrangements with Payment Systems operators to address issues relating to reconciliation of in-transit items	MDIC
Readiness to undertake and complete a reimbursement	<p>Developed comprehensive strategies, policies, processes and procedures and build core competent skill sets to perform reimbursements</p> <p>Conducts periodical simulation and deposit validation exercise, training and development for designated personnel, as well as review of policies and procedures</p>	MDIC
	Carry out annual simulation exercises	IPAB and SDIC
	Developed comprehensive strategies, policies and procedures and built core competent skill sets to perform reimbursements. As part of its continuous improvement process to ensure readiness, annual simulation and insured deposit validation exercises, training and development as well as reviewing of policies and procedures are key aspects of resource management	CDIC (Canada)
Complexity of coverage rules which include the following:	Coverage rules are kept simple to ensure that the computation of depositor entitlements can be made easily and quickly, as follows:	MDIC

Impediments and challenges	Actions to address impediments	Organisation
<ul style="list-style-type: none"> • Netting of deposits against loans; • Computing accrued interest payable; • Splitting and disaggregating of joint deposit accounts; and • Determination of beneficiaries and their share of ownership of trust accounts 	<ul style="list-style-type: none"> • No netting requirement; • Require banks to compute interest on a daily basis; • No disaggregation of joint accounts. The MDIC Act provides that joint accounts are separate and distinct deposits. Reimbursement is made in the joint names of depositors as stated in the joint account; and • Require banks to ensure that they have a data management system to record trust account information, including beneficiaries and their entailments, and that this information be updated frequently 	
	<ul style="list-style-type: none"> • Set-off requirements have been abolished • Removal of claim form • Banks are required to supply figures for interest calculated up to the date of default as part of the SCV • For beneficiary and trust accounts, the banks must flag such accounts on their systems 	FSCS
	<ul style="list-style-type: none"> • The reimbursement system includes built-in interest calculations for simple products while legislative change has been proposed to allow approximate interest calculations for complex products • Member banks are required to indicate trust/client accounts. The HKDPB will request beneficial/client interests from account holders for ownership determination. 	HKDPB
Unable to determine insurability of deposit products during a reimbursement	<p>Banks are required to undergo a product insurability certification process whereby MDIC will verify and certify the insurability status of each and every deposit product prior to its launch</p> <p>Depositors are to be informed by the bank of the insurability status of deposit products at the point of sale</p>	MDIC

Source: IADI Case Study: MDIC's Experience in Designing and Developing an Effective Reimbursement System.
Information Paper: IADI Survey on Effective Reimbursement Systems.

The experiences described in the case studies by the FDIC and the MDIC highlight some common key elements in developing an effective IT reimbursement system. The experiences from these deposit insurers and others can be summarised in the following conclusions:

1. The deposit insurer must determine what mix of technology-based systems and manual systems is appropriate, as well as what is available, to meet the reimbursement objectives, given the authority of the deposit insurer. Within this mix and subject to deposit insurers having an authority to do so, they should also consider which systems can be integrated with the failed bank's systems;
2. The needs of internal and external stakeholders should be taken into account in developing an IT reimbursement system to ensure it addresses the impediments and challenges to an effective reimbursement;

3. A structured approach to development will provide confidence that appropriate resources are being applied to the project and that the process remains on track to achieving the goals and objectives for the IT reimbursement system;
4. The reimbursement “infrastructure”, which includes the legal environment, guidelines for banks, and reimbursement procedures, needs to be considered as part of the design and development process; and
5. Flexibility and scalability are important in ensuring that the IT reimbursement system remains relevant and effective in order to accommodate changes that occur in the legislative environment, organisational policies, and membership profile. The IT reimbursement system should be integrated into other processes of the deposit insurer such as checking data quality and submissions of insured deposit returns from banks to ensure users maintain knowledge of the IT reimbursement system’s functionality.

III. Other Important Elements of an Effective Reimbursement System and Processes

An effective reimbursement system and processes has a number of other important elements.

A. Payment methods and time frames for payment

There are a number of payment methods available for reimbursing insured depositors. Several methods can be used simultaneously, however, each option will have an impact on the timeliness of payment. The options available include:

1. Cheque payments. The advantage of cheque payments must be weighed against the logistical challenges of having to produce a large number of cheques in a secure environment and sending them to depositors, usually through the postal system. The deposit insurer needs to identify an appropriate service provider who could develop the information transfer protocols to process depositor information and, based on this information, produce the requisite number of cheques in the names of the depositors with the correct reimbursement amount within the desired time frame.
2. Electronic transfers. The use of electronic transfers for reimbursements is a feasible and time-saving option if there are appropriate security and depositor verification processes in place. An example of this is the payment method used by the FSCS in paying depositors of Icesave, an Internet-based bank, in which funds from Icesave were transferred electronically into an account at another bank to transact business with Icesave. This option is very efficient, as it only requires depositors to have an account with another bank.
3. Payment agents. Paying agents may include other financial institutions or organisations that regularly deal with payments to the public (e.g. postal

banks, government support payments). However, in order for this method to be efficient, the deposit insurer would need to identify and select its paying agents before a reimbursement takes place and to address issues such as cost arrangements, depositor information transfer protocols, and procedures, as well as the timelines for making reimbursements. Test runs must also be conducted. Effective risk management would suggest having more than one payment agent, to avoid the possibility that the selected paying agent is a resolution target.

4. Cash payments. This is not a preferred method. The security and logistical challenges relating to the management of large sums of cash and the establishment of a sufficient number of centres to address geographically dispersed depositors are significant. Aside from the travel inconvenience to visitors if the centres are located far away, there are other challenges such as crowd management and communication management when the centres become focal points for depositors to express their frustrations. Similarly, the use of Automated Teller Machine (ATM) introduces the same security issues for depositors withdrawing large sums of cash. However, for jurisdictions where payment systems are not well developed, cash payments may be the most feasible. ATMs may also be a feasible method for interim or advance payments. The efficacy of this option will depend heavily on the ability of the deposit insurer to utilise the systems of the failed bank to track payments made throughout the reimbursement process.
5. Transfer of insured deposits through a purchase and assumption agreement. The FDIC's preferred method for reimbursing insured depositors is through a negotiated sealed bid process where the acquiring bank pays a premium to the FDIC to assume the deposits of the failed bank in order to continue the normal deposit banking activities. This method provides for a smooth transition for the depositors and minimal disruption to the normal banking activities. Typically, the acquiring bank operates in the same locations as the failed bank so depositors can continue banking at the same location.

Whatever the payment method, a deposit insurer needs to know when to start and when to complete the reimbursement process. Likewise, depositors need to know when and how they can expect to receive their funds. Included in this consideration of the timing of payments is whether the deposit insurer should make use of interim payments.

Interim payments would relieve the pressure for making full payments too quickly, especially in circumstances where the deposit insurer may be faced with significant risks of overpayment (e.g., incomplete depositor information, incomplete aggregation). When utilising interim payments, the deposit insurer should consider the option of making payments based on separate requests from individual depositors (one-off payments) or providing a small payment to a broad section of depositors, either to the entire depositor base or to a defined group of depositors.

Dealing with individual depositors' cases can be time-consuming and require more resources to investigate eligibility for reimbursement. An across-the-board

interim payment would require resources to focus on controls that mitigate the risk of overpayment. Both methods will have an impact on the timing for completion of the full reimbursement process. However, the one-off approach raises a concern when only a limited number of depositors are provided with funds in advance of others.

Some deposit insurers have incorporated optional interim payments into their reimbursement systems, with a number of them choosing an approach that provides for a broader-based interim payment, such as CDIC (Canada), HKDPB, KDIC and MDIC. The FSCS has the power to make interim payments but no fixed process is currently in place. The FSCS would consider cases on an individual basis.

Similar to interim payments, a deposit insurer may need to consider making groups of payments with different timings as a result of the difficulty in making determinations that involve complex financial products, incomplete mailing information, suspicion of frauds or disputes between a depositor and the bank. For example, the FSCS Faster Reimbursement process allows for a longer period of time (20 days instead of 7 days) to reimburse depositors with less straightforward banking relationships. Reimbursements to a vast majority of depositors should not be delayed because of issues affecting a small sub-set of the depositors.

In many instances, insured depositors do not have to take any action to receive their reimbursement – once the bank's records are processed, the insurer distributes depositor funds. In other cases, however, insured depositors must file a claim and show proof of ownership or identification before being reimbursed. The use of claim submissions introduces delays to the reimbursement process but may be necessary in certain situations where data errors and/or integrity are concerns.

To prevent any loss of public confidence in a deposit insurance scheme, depositors must be made aware of any actions that affect their insured deposits – such as the need to file a claim and how to do so, and details of the reimbursement determination – and when they can expect to be reimbursed. To keep depositors informed, CDIC (Canada) communicates with depositors in writing as well as over the phone and the Internet. CDIC (Canada) has created a "dark" or "cloaked" website, to which it posts information depositors can read on the status of the reimbursement. CDIC (Canada) has also developed a depositor self-serve site, to which depositors can log-on over the Internet to find information on their own claims. Depositors can also get in touch with CDIC (Canada) by phone. MDIC has an interactive call centre with access to a SCV of all depositors to provide information such as the list of accounts that belong to depositors, whether the accounts are insurable or not, the insured and uninsured balances, payment status and payment method used, depositors' mailing address etc. The call centre would be able to adequately address depositors' queries and concerns. Depositors could also have direct access to such information via the internet (password protected).

Given the potential for disputes, an appeal process may need to be established. The appeal process could have several stages, from the internal processes of the deposit insurer to a review by an external independent body when disputes

cannot be resolved with the internal processes. Establishing an appeal process enhances the fairness and transparency of the overall reimbursement process, which contributes to public confidence in the deposit insurance system.

B. Human resource capabilities and capacity

Based upon the survey results, the effectiveness of the reimbursement process is dependent on the level of pre-closure preparatory work carried out by the deposit insurer. This requires skilled human resources with expertise in carrying out the reimbursement functions. The preference as to whether the deposit insurer employs reimbursement personnel or elects to use external service providers depends upon the frequency of reimbursements. In either case, a deposit insurer needs to develop a network, combining internal reimbursement personnel and external service providers, who can deliver the necessary services, when called upon. A deposit insurer should develop contractual relationships with the service providers well in advance of any reimbursements and develop the necessary protocols to ensure the services provided are properly integrated with and supportive of the deposit insurer's reimbursement process.

Some deposit insurers such as MDIC, CDIC (Canada), FDIC and IPAB advocate maintaining an internal core team of reimbursement specialists. This is considered important in maintaining confidence in the deposit insurance system since it demonstrates the deposit insurer's capacity for prompt reimbursement and reduces the reputational and operational risks associated with a delayed or poorly managed reimbursement.¹⁷

C. Coordination with other safety net participants

The deposit insurer, being an integral part of the financial safety net, does not work in isolation. Hence, a framework should be in place for the close coordination and information sharing, on a routine basis, as well as in relation to particular banks, among the deposit insurer and other financial system safety-net participants. Such information should be accurate and timely (subject to confidentiality when required). Information-sharing and coordination arrangements should be formalised.¹⁸

There are a number of coordination issues that have an impact on the deposit insurer's ability to prepare and act promptly. The first issue concerns the conditions under which a reimbursement would be triggered and the notification to be given to the deposit insurer when such conditions have taken place. It is critical for the deposit insurer to have a clear understanding, based on legislative provisions, of when it will be called upon to commence reimbursements and that it will be provided prior notification of this event by the appropriate authority to commence preparatory reimbursement arrangements.

¹⁷ Sources: IADI Case Studies: MDIC's Experience in Designing and Developing an Effective Reimbursement System, and Contingency Planning and Simulations at Canada Deposit Insurance Corporation - A Reimbursement Case Study.

¹⁸ Principle 6 of the Core Principles provides the essential criteria for establishing effective relationships with other safety-net participants.

Another issue is clear delineation of duties amongst the safety net participants. In many situations, the deposit insurer would not have control over the failed bank's systems and personnel, but would require a number of reimbursement processes to be either performed by or with the assistance of personnel of the failed bank and the liquidator. These procedures include reconciliations, searches of files for depositor information not in the data provided to the deposit insurer, and additional information on product features to determine coverage eligibility. To ensure a smooth and timely reimbursement, deposit insurers advocate developing protocols in advance among the various safety net participants, setting out, among others, the responsibilities for performing various reimbursement-related activities. This exercise would also allow the deposit insurer to have a better understanding of its own resource requirements to undertake the reimbursement process.

One other area of critical concern that requires coordination is the treatment of transit items that are caught in the clearing and settlement process. Upon the closure of a bank, clearing system default rules would take effect. This may result in the reversal or unwinding of transit items. How these transit items are dealt with would depend on the rules of the clearing system. However, the status of these items and the processing time needed should be known to the deposit insurer. Whether these transit items are part of the depositor data submission from the failed bank would depend on the timing for processing and unwinding of transit items. If this processing would result in undue delay in the overall timeline for computing the reimbursement amount, it may be necessary to handle these transactions separately, and make adjustments to the reimbursement amounts at a later date.

In light of the above, deposit insurers advocate working early with the clearing and settlement participants, prior to any bank closure, to confirm the treatment of such transactions and to understand the processes in the clearing system and bank systems. This would involve discussions with payment system operators including the clearinghouse operator, clearing banks, and the central banking authority, as well as with the banks.

D. Cross-jurisdictional coordination

A coordination issue arises in circumstances where the deposit insurer provides coverage for its banks operating in another jurisdiction or where another deposit insurance scheme provides coverage to banks operating in the host deposit insurer's jurisdiction (host country schemes). The coverage may take one of the following forms:

- Home country scheme provides full coverage to depositors in the host country, as its banks may have opted-out of coverage under the host country scheme;
- Host country provides coverage to depositors of a home country scheme while the home country scheme provides "top-up" coverage where its coverage levels are higher; and
- Home country scheme provides protection up to its coverage limit while the host country scheme provides "top-up" coverage to the host country scheme's limit where the host country scheme levels are higher.

These situations are especially prevalent in Europe, although they also occur in other jurisdictions that allow branch operations of international banks (e.g., Hong Kong).

To avoid confusion on the part of depositors, both the home and host country schemes should develop coordination protocols in advance. These protocols should specify responsibilities for the reimbursement function in the affected jurisdiction, communication messages and strategies to be employed, depositor information that needs to be exchanged between the schemes, and cross-border claims process between the host and the home country scheme or vice versa.

As the failure of the Icelandic bank Landsbanki illustrated, even having MoU and protocols in place between the deposit insurers does not guarantee certainty. In the case of Icesave (a branch of Landsbanki operating in the UK), the UK authorities, alongside the FSCS, fully compensated the Icesave depositors with their own resources, with the aim to recover from the Iceland authorities at a later stage. This was inconsistent with the MoU between the FSCS and the Iceland Depositors and Investors Guarantee Fund (DIGF), in which both agreed that the FSCS would provide top-up coverage after the DIGF provided initial coverage.¹⁹ This highlights the need for deposit insurers to have contingency plans that include dealing with such unexpected situations. In addition, the enforceability of such MoUs and protocols in a court of law, as well as the capacity and capability of the signatories to honour their financial commitments or carry out a reimbursement, should also be given consideration and reviewed regularly.

E. Verification of the reimbursement process and reimbursed amounts

The reimbursement function is one of the primary tools which the deposit insurer uses to manage public confidence in the banking system. As in all dealings with members of the public, it is important to manage perceptions relating to integrity, internal controls, and governance issues within the reimbursement process. Deposit insurers with reimbursement experience and those who are in the process of building their reimbursement function are mindful of the need to have effective governance practices in place.

One critical function is the verification or audit of the reimbursement process to ensure accurate computation of reimbursement amounts. The audit should be performed by an independent party, such as a government audit agency or an accredited accounting firm that is not involved in the design or the execution of any part of the reimbursement process. The audit itself should also be conducted in accordance with approved auditing standards to provide an opinion on the state of the internal controls and the accuracy of the reimbursement amounts.

The timing for performing the audit is an important consideration, as it may impact the time frame for making reimbursements. The audit should ideally begin at the same time as the reimbursement process and run concurrently. The deposit insurer may prefer to complete the audit before reimbursements are

¹⁹ Sources: Investigating the efficiency of EU Deposit Guarantee Schemes (Cariboni & Uboldi), and Information Paper: IADI Survey on Effective Reimbursement Systems.

released to depositors. While this would provide greater confidence that the reimbursement amounts are correct before funds are committed, it may significantly lengthen the reimbursement period, as the auditing entity may require more time to complete its work. Completing the audit after reimbursements are made would still demonstrate good governance, with any significant errors identified handled through post-reimbursement adjustments to the reimbursement payments.

An audit of the reimbursement process and reimbursement amounts will assist the deposit insurer in having its claim in the liquidation proceedings approved expeditiously. The liquidator may place significant reliance on the audit report, thus minimising the amount of verification work necessary to the deposit insurer's claim, allowing such advances to be made sooner.

F. Operational readiness through simulations

Although infrastructure is important, it is equally important for a deposit insurer to be confident that all the reimbursement processes will perform as expected in a "live" scenario. To achieve this, deposit insurers advocate periodic testing of operational readiness through simulation exercises of all or some aspects of the reimbursement function, including readiness of banks to provide accurate depositor information within targeted time frames.

The objectives for simulation exercises, generally, are to ensure that the personnel involved in the reimbursement function are sufficiently trained, knowledgeable, and able to identify improvements to reimbursement procedures and processes, and that the IT reimbursement system has adequate capacity and functionality to deal with the possible situations that may arise in a reimbursement.

With regard to human resource capabilities, simulation exercises provide the opportunity to determine the appropriate level of resources required for a reimbursement and to assess the ability of the deposit insurer's internal and external resources to work in a coordinated and effective manner. It also provides an opportunity to assess whether the required reimbursement activities can be performed within a constrained time frame and under a stressed environment. Lessons from these exercises will help to determine whether the reimbursement personnel can deal with "straightforward" situations, as well as those outside the norm. Deposit insurers with reimbursement experience advocate regular training through simulations to sharpen skills and maintain a high level of operational readiness and morale during long periods of banking stability as part of the measures used to retain specialist skilled resources.

A simulation also tests the deposit insurer's IT reimbursement system by internal and external reimbursement personnel. When the deposit insurer can utilise actual depositor records from a bank (appropriately masked for purposes of protection of personal information and compliance with banking secrecy legislation), it would be able to verify the functionality of the IT reimbursement system when faced with data that may not fully comply with the deposit insurer's requirements. Also, the deposit insurer can assess the time required for processing data throughout the entire reimbursement process to confirm if the

reimbursement amounts can be paid accurately and within the appropriate time frames.

Finally, simulation exercises and their results may also be published as part of a deposit insurer's communication program to contribute to financial system stability. This is important as such disclosure builds brand confidence in the deposit insurer and affirms its commitment to protecting financial consumers' rights to prompt access to insured funds.

Simulation exercises include a continuum of activities, from testing selected reimbursement processes separately to more integrated tests involving several or all the processes. Testing the entire IT reimbursement system and processes would provide the deposit insurer with greater confidence that the overall reimbursement process will perform as expected when required.

The CDIC (Canada) has conducted extensive simulation exercises with the following objectives:

1. Improving preparedness;
2. Exposing employees and systems to a critical situation with time constraints;
3. Testing process improvements;
4. Testing resource capacity; and
5. Building an effective reimbursement team.

The CDIC (Canada) notes that planning and preparing for a simulation exercise takes considerable time. Decisions must be made regarding the specific objectives to be accomplished, the scope of the exercise, and the level of resources that can feasibly be applied, along with developing the scenarios to be tested. They recognise that it is not feasible to fully replicate the conditions for a reimbursement such as the call volumes from concerned depositors and the activities that require direct interaction with banks (e.g., balancing and reconciliation as at the date of reimbursement determination).²⁰ In Singapore, annual simulation exercises are conducted to help the Singapore Deposit Insurance Corporation (SDIC) keep track of changes on how banks maintain their depositor records and to fine-tune or enhance its own IT system.

In Mexico, one of the strategic initiatives in 2011 for the IPAB was the conduct of a series of bank resolution simulation exercises. The first was an inter-agency simulation exercise, in close coordination with the World Bank. This was carried out to establish a clear delineation of duties and areas for coordination among these authorities during a bank resolution exercise. The second was an in-house simulation exercise to test and validate the systems, processes as well as coordination within the IPAB.

Overall, the common objectives for conducting reimbursement simulations include the following:

²⁰ Source: IADI Case Study: Contingency Planning and Simulations at Canada Deposit Insurance Corporation - A Reimbursement Case Study.

- Involve all personnel, including personnel from external suppliers, to ensure reimbursement policies, procedures, processes, internal controls, and governance practices are well understood by all;
- Test the deposit insurer's organisational reimbursement procedures and processes, including the IT reimbursement system, on a comprehensive basis to ensure they all work well together to meet the deposit insurer's targeted time frames. For simulations that target specific critical procedures, processes and IT reimbursement system functions are also important, especially when stress testing them against standard and unusual scenarios in order for management to assess foreseeable and unforeseeable risks; and
- Apply the lessons learnt from the simulation exercise to fine tune or enhance the overall reimbursement function, particularly to ensure that reimbursements are accurate and made within the targeted timelines. In this regard, regular simulations will enable deposit insurers to be aware of their own level of operational readiness and to identify the problematic areas requiring improvements.

IV. Conclusion

The Core Principle for reimbursing depositors clearly defines the deposit insurers' role in protecting the right of depositors to prompt reimbursement. To achieve this objective, the Core Principle identifies the enabling conditions that must be in place for deposit insurers. Towards this end, IADI members are building effective processes and systems for meeting the deposit insurers' obligation to make timely and accurate reimbursements to depositors.

For a reimbursement system to be effective, deposit insurers and other financial safety-net players are recognising the implications and importance for deposit insurers to have advance access to depositor records, with the authority to ensure that records are available or provided to the deposit insurer within a specified time frame and in a standard file format, and of a level of quality that can be processed quickly and accurately. To process such records accurately and effectively, deposit insurers advocate the use of IT-based solutions to handle the large volume of data and complex insurance rules that must be applied in the reimbursement process. Where feasible within the existing insolvency regime or where changes in the regime can be effected, deposit insurers advocate simplifying and streamlining deposit insurance rules, such as eliminating set-off and reimbursing joint-account holders as a single depositor rather than arbitrarily determining their reimbursement entitlements.

An important start to building an effective reimbursement process is defining the limits, scope, level, and eligibility of products covered, as well as the reimbursement methods and time frames, well in advance of a reimbursement. It is also important that these be clearly communicated to depositors and other stakeholders. The reimbursement methods may include optional interim payments to allow depositors swift access to funds, especially when the reimbursement process may involve a long time frame that is not acceptable to depositors.

To have confidence that they can deliver on their mandate and in the light of the 2008 financial crisis, deposit insurers advocate retaining and training personnel and resources that are knowledgeable in reimbursement policies, processes, and procedures. Also of importance is conducting simulations to test the operational readiness, capacity, and capability of personnel, systems, and procedures to fulfil their reimbursement obligations according to public expectations.

LIST OF ABBREVIATIONS AND ACRONYMS

DIA (Albania) -	Albanian Deposit Insurance Agency
DIC (Bahamas) -	Deposit Insurance Corporation (The Bahamas)
BDIF (Bulgaria) -	Bulgarian Deposit Insurance Fund
CDIC (Canada) -	Canada Deposit Insurance Corporation
AMF (Quebec) -	Autorité des marchés financiers
HKDPB (Hong Kong) -	Hong Kong Deposit Protection Board
NDIF (Hungary) -	National Deposit Insurance Fund of Hungary
DICGC (India) -	Deposit Insurance and Credit Guarantee Corporation
KDIF (Kazakhstan) -	Kazakhstan Deposit Insurance Fund
KDIC (Korea) -	Korea Deposit Insurance Corporation
MDIC (Malaysia) -	Malaysia Deposit Insurance Corporation
IPAB (Mexico) -	Instituto para la Protección al Ahorro Bancario
DNB (Netherlands) -	De Nederlandsche Bank
DGFB (Romania) -	Deposit Guarantee Fund in the Banking System
DIA (Russia) -	Deposit Insurance Agency (Russia)
SDIC (Singapore) -	Singapore Deposit Insurance Corporation
DPF (Slovakia) -	Deposit Protection Fund, Slovakia
SNDO (Sweden) -	Swedish National Debt Office
DIB (Tanzania) -	Deposit Insurance Board of Tanzania
CDIC (Taiwan) -	Central Deposit Insurance Corporation
DIC (Trinidad & Tobago) -	Deposit Insurance Corporation (Trinidad & Tobago)
SDIF (Turkey) -	Saving Deposit Insurance Fund
FSCS (UK) -	Financial Services Compensation Scheme
FDIC (US) -	Federal Deposit Insurance Corporation
DIV (Vietnam) -	Deposit Insurance of Vietnam

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Annex 1: Information Paper: IADI Survey on Effective Reimbursement Systems

I. Introduction

When a troubled bank is liquidated, it is the mandate of a deposit insurance scheme to reimburse insured depositors accurately and within a time frame that meets the expectations of depositors. A reimbursement can be costly. And the cost could go up substantially if a deposit insurer is not prepared or does not have a proper and comprehensive process to handle a reimbursement. The subsequent collapse in public confidence could result in a loss of credibility and encourage runs to spread to other banks.

To mitigate such disruptions, deposit insurers must be able to demonstrate to stakeholders that they have an effective system and processes that would enable them to make prompt and accurate deposit insurance payments. They must be able to step in early, have access to clean and accurate depositor data and see to the prompt and orderly reimbursement to depositors. Also, the scope and level of coverage must be clearly defined while the insurability status of deposit products must be determined and be made known to depositors well in advance of a bank failure.

Given its importance, an IADI Research Subcommittee on Reimbursement Process (the Subcommittee)²¹ was established to conduct research and develop best practices guidance on the development of effective reimbursement systems.

One of our methodologies adopted to assist the Subcommittee in developing best practices and supporting guidance for the development of an effective reimbursement system was a survey conducted among IADI members and other interested participants.

This survey was designed to achieve the following objectives:

- Obtain information and gain better understanding of the key elements of reimbursement systems around the world; and
- Identify the most challenging impediments to effective reimbursement systems.

On Oct 15, 2009, a letter of invitation was sent out to IADI members and other interested participants to participate in the survey. Survey forms were sent out by the IADI Survey Coordinator on January 5, 2010 to organisations that have agreed to participate in the survey. Respondents were asked a variety of questions involving their organisational structure and their reimbursement systems. They were also asked to identify the impediments and challenges of undertaking a reimbursement and how they addressed these problems. They were then asked to rank those impediments identified, in order of criticality, with 1 being the most critical, 2 (critical), 3 (somewhat critical) and 4 (not critical).

²¹ The Subcommittee on Reimbursement Process, chaired by Malaysia, comprised of representatives from the deposit insurance systems of Albania, Canada, Hong Kong, Indonesia, Mexico, Nigeria, Russia, Kazakhstan, Singapore, Taiwan, the UK and the US.

The survey questionnaire was divided into five sections:

- A. Access to prompt and accurate information
- B. Resources
- C. Coverage rules and product insurability
- D. IT System
- E. Mandate and powers

This information paper highlights the key findings from the survey. Section II summarises the demographics of the survey sample. Section III analyses the impediments to an effective and prompt reimbursement and how some deposit insurers addressed the issues. And Section IV concludes.

II. Demographics of the Sample

Participating organisations. 27 organisations²² (above 80 per cent of the total organisations that have indicated interest to participate in the survey) responded to the survey. The 25 organisations which have completed the survey questionnaire are from Albania, Bahamas, Bulgaria, Canada, Canada (Quebec), Hong Kong, Hungary, India, Kazakhstan, Korea, Malaysia, Mexico, Netherlands, Romania, Russia, Singapore, Slovakia, Sweden, Taiwan, Tanzania, Trinidad & Tobago, Turkey, UK, US, and Vietnam.

Geographic location. Europe and Asia have nine respondents each, while North America has three respondents. There are two respondents from the Caribbean and one each from Africa and Latin America.

Mandate. Close to half (12 respondents) of all respondents classified themselves as payboxes. Seven, meanwhile, are risk minimisers and another six remaining organisations classified themselves as payboxes with extended powers (Attachment A).

Mandated and targeted reimbursement period. Given the variation in powers and design structure, and the legal arrangements of deposit insurance systems, the timing of reimbursements to depositors also varies across jurisdictions. Not all deposit insurers have a legislated/mandated period for reimbursing depositors. The survey showed that 17 respondents have a mandated reimbursement period while the other eight do not. The mandated period for reimbursement ranged from “as soon as possible” for the CDIC (Canada) to “not later than six months” for the DIC (Bahamas), which relies on the central bank to conduct a reimbursement (Attachment A).

Notwithstanding that, almost all have a targeted period within which they plan to reimburse depositors of a failed bank. For many of the deposit insurers surveyed, the targeted reimbursement period is generally shorter than the mandated reimbursement period. The FDIC (US) is the most efficient with the ability to advance full payments within the next business day, typically two days. The CDIC (Taiwan) is not far behind with plans to reimburse depositors three days after a failed bank is closed. The CDIC (Canada)’s system allows for partial payment within five days after a bank failure and full payment of most accounts within 14 days. Slovakia too plans to reimburse its depositors within five days although the mandated period is three months. Mexico, meanwhile, plans to reimburse depositors within seven days. In the UK, although the Deposit Guarantee Schemes Directive requires payment to eligible depositors within 20 business days from December 31, 2010, the FSCS aims to pay the majority of depositors in any bank failure within seven days, starting January 2011.

Reimbursement approaches. There are three basic types of reimbursement approaches: an automated IT system, a non-automated manual system, and utilising the system of a third party, either the system of a failed bank or a member bank acting as a service provider. The choice of approach depends on factors such as the state of maturity of IT system usage, the level of

²² Two responses, however, were not complete.

sophistication, record keeping and size of the banking systems, the stage of economic development, the geographical dispersion of depositors in the banking system, and whether a deposit insurer has powers to utilise a bank's system. In practice, there is a wider range of approaches applied (Attachment B).

Some deposit insurers, such as the MDIC (Malaysia), the CDIC (Taiwan), the DIA (Russia) and the SDIC (Singapore) utilise only an automated IT reimbursement system to compute depositor entitlements. On the other hand, the AMF (Quebec), the DIC (Bahamas), the DIC (Trinidad & Tobago), the SDIF (Turkey), the FSCS (UK) and the DIV (Vietnam) rely solely on a non-automated manual system while the DPF (Slovakia), and the SNDO (Sweden) find it a better option and more cost effective to utilise the IT infrastructure of the failing bank or the agent bank.

The FDIC (US), on the other hand, utilises a combination of manual, IT and reliance on the system of the failing bank. The HKDPB (Hong Kong) is an example of an organisation that utilises both automated and manual systems. The HKDPB relies mainly on an automated reimbursement system to process the data from banks and calculate the determination of compensation payments. However, owing to the complexities of certain issues, such as the application of set-off, the valuation of contingent and future liabilities, and the calculation of interest on complex financial products in making those determinations, along with data from smaller member banks not required to be in a specific format and structure, some manual intervention is required to complete the determinations of compensation. The HKDPB would initially place reliance on the systems of the failed bank to perform interest calculations. Where these systems would not be able to yield the necessary calculations, the HKDPB would use programming in its Reimbursement System to perform interest calculations as well as manual calculations of interest for the more complicated products, although new powers to utilise approximate calculations should minimise the need to resort to manual calculations.

III. Impediments to an Effective Reimbursement

The survey identified the impediments to carrying out an effective reimbursement. Based on the ranking provided by the respondents on the impediments identified, Table 1 shows the top six most critical and critical impediments to an effective reimbursement.

Table 1: Key impediments to effective reimbursement system: Top six most critical and critical problems (percentage of total)

Impediments	Most Critical	Critical	Total
Lack of access to depositor records in advance of a failure	28.0%	28.0%	56.0%
Poor quality of depositor records at banks	40.0%	12.0%	52.0%
Inability of banks to provide depositor records within desired time frames	24.0%	24.0%	48.0%
Determining depositors' claims and related loans/liabilities for complying with netting requirements	12.0%	28.0%	40.0%
Lack of unique identifier	8.0%	20.0%	28.0%

Lack of appropriate IT system reimbursement plans to deal with different size banks	16.0%	8.0%	24.0%
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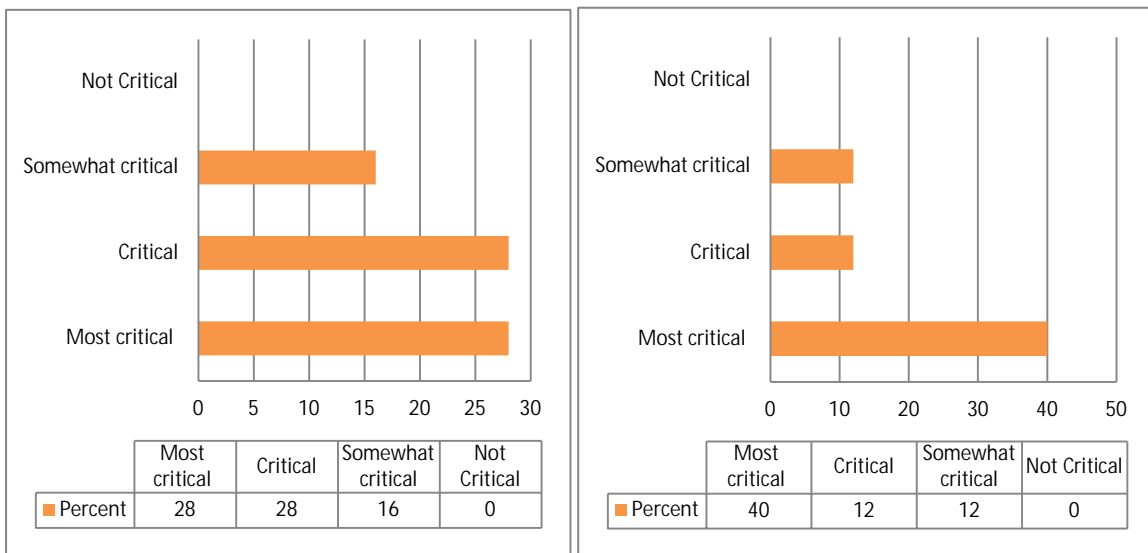
Source: Information Paper: IADI Survey on Effective Reimbursement Systems

The rest of this paper analyses the results of the survey, based on the layout of the survey questionnaire, starting with (A) Access to prompt and accurate information, to be followed by (B) Resources, (C) Coverage rules and product insurability, (D) IT System, and (E) Mandate and powers.

A. Access to prompt and accurate information

Among the deposit insurers surveyed, problems associated with access to prompt and accurate information, which have attracted the most responses, were considered the largest threat to prompt reimbursements. In fact, four of the top six key impediments to effective reimbursement systems fall under this broad category. Reimbursements are complex. And a lot of pre-closing preparation needs to be carried out ahead of a bank closure to ensure a prompt and accurate reimbursement.²³ This would require advance notice of an impending closure. Upon notification of an impending failure, deposit insurers must have ready access to clean and accurate depositor information. This is to enable the deposit insurer to assess the scope of the reimbursement process, the funding requirements and draw up plans to deploy its resources effectively to conduct a reimbursement, once the bank is closed.

Chart 1: Lack of access to depositor records in advance of a failure (%) Chart 2: Poor quality of depositor records at banks (%)



Source: IADI Survey on Effective Reimbursement Systems.

Source: IADI Survey on Effective Reimbursement Systems.

²³ For example, FDIC regulations include early intervention activities that under the best case scenario provide at least 90 days' notice before the closure of a bank.

Impediments associated with access to prompt and accurate data are as follows:

- 1. Lack of access to depositor records in advance of a failure.** This is the biggest impediment to an effective reimbursement. In some jurisdictions, deposit insurers do not have access to information on depositor records until a bank is closed. Shortcomings in this area impair the ability of a deposit insurer to reimburse eligible depositors promptly and accurately. This is a key obstacle affecting 56 per cent of the assessed organisations which considered this problem either as most critical or critical (See Chart 1).

To overcome this problem, in Bulgaria, regulations requiring banks to provide the BDIF with depositor records in advance of failure are being drafted by the Bulgarian National Bank and the BDIF. The CDIC (Canada) has new powers to request more information in a timely manner and not just before an impending failure. In the UK, the FSCS is working closely with the UK Tripartite Authorities (HM Treasury, Bank of England and Financial Services Authority (FSA)) in order to ensure the FSCS is aware of any problems in the market, both generally and in relation to specific banks. The Banking Act 2009 also introduced powers for the FSA and FSCS in respect of requesting information from banks to enable the FSCS to undertake its functions effectively.

In Hong Kong, an MoU (Memorandum of Understanding) with the regulator provides the HKDPB with early warning of a trigger event. The MoU provides that the regulator will use its best endeavours to inform the HKDPB of the regulator's decision to appoint a manager to administer the affairs of a bank (which could lead to the triggering of compensation payments), as well as its intention to make a decision that compensation be made from the Deposit Protection Scheme Fund. Thus, the early warning is only shortly before the trigger event occurs as there is concern that information regarding an impending action against a bank should be kept within a narrow group of stakeholders.

Although the HKDPB would lack access to the up-to-date records of a failing bank until the trigger event, through the HKDPB's reviews of banks' compliance with the HKDPB's guideline on information required for compensation, it would have access to previous information on customer profiles, products, systems, and data issues that would allow for effective planning of a compensation payment.

- 2. Poor quality of depositor records.** This is the 2nd most challenging impediment the respondents have identified. About 52 per cent of the respondents said that this is most critical or critical (Chart 2). Out of the 52 per cent, 40 per cent considered this a most critical problem.

To handle the problem, the KDIF (Kazakhstan) was granted the right to inspect member banks' software, files and accounting maintenance in relation to their compliance with the legislation and the KDIF's requirements on insured depositor records and file keeping. In Malaysia, the MDIC conducts annual validation of member banks' premium computation which is based on total insured deposits to improve the

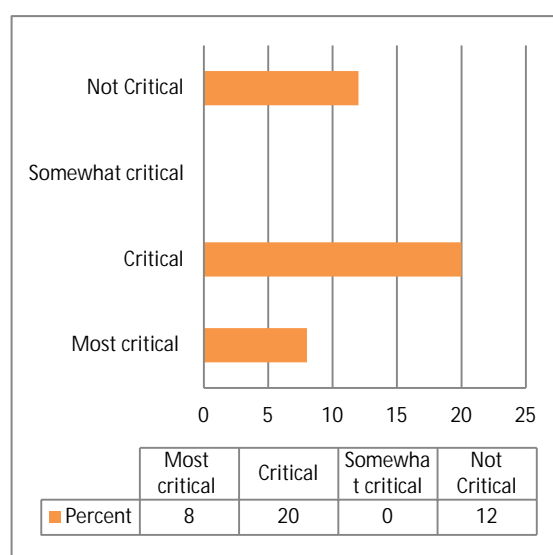
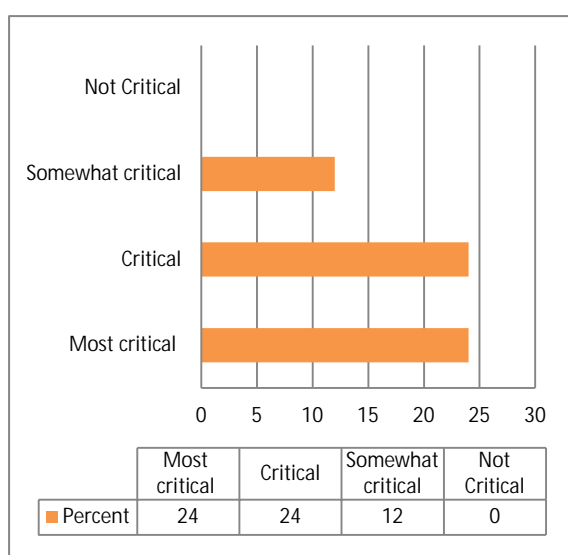
quality of their depositor information and systems over time. In Russia, the DIA conducts regular on-site examinations to test bank data quality and accounting techniques. In Singapore, the SDIC verifies that member banks are ready, at all times, to submit complete and accurate data by reconciling account balances submitted during annual simulation exercises to members' accounting records and verifying randomly selected customers' deposit position produced by the SDIC's reimbursement system against member banks' records.

One important reform among deposit insurers, to speed up payment to depositors, is to develop a Single Customer View (SCV), which provides a consolidated view of all deposit accounts eligible for deposit insurance coverage. Having such a system will enable faster determination of accurate compensation for each depositor, hence facilitating a prompt and accurate reimbursement.

In Albania, insured banks are obliged to provide the DIA with a SCV for each depositor in accordance with the format requested by the DIA. In the UK, the FSA has introduced rules requiring all banks to introduce a SCV. Similar initiatives are currently underway in SDIF (Turkey) and NDIF (Hungary). In Malaysia, the MDIC's IT reimbursement system is able to generate a SCV.

3. Inability of banks to provide depositor records within desired time frames. 48 per cent of the respondents noted that this problem is either most critical or critical (Chart 3). This is ranked as the 3rd biggest obstacle to a prompt reimbursement.

Chart 3: Inability of banks to provide depositor records within desired time frame (%) Chart 4: Lack unique identifier (%)



Source: IADI Survey on Effective Reimbursement Systems.

Source: IADI Survey on Effective Reimbursement Systems.

To handle this issue, the DNB (Netherlands) is currently working to improve banks' capability to provide accurate data in a short period of

time. In Singapore, the SDIC has put in place rules for compensation reimbursement readiness to ensure that it is able to obtain all the necessary data from member banks within 24 hours of notification. In Russia, banks are required to submit to the DIA depositor information in a standard file format within a seven day time frame.

In the US, the FDIC issued a final rule (Large-Bank Deposit Insurance Determination Modernisation Rule) in July 2008. Covered institutions²⁴ will be required to adopt mechanisms that would, in the event of the institution's failure:

- Allow automatic posting of provisional holds on large deposit accounts in any percentage specified by the FDIC on the day of failure;
- Allow automatic removal of the provisional holds and posting of the results of insurance determinations as specified by the FDIC; and
- Provide the FDIC with deposit account data in a standard format.

This initiative is part of the FDIC's efforts to provide the best possible service to insured depositors by minimising uncertainty about their status and avoiding costly disruptions that may limit their ability to meet financial obligations; mitigate the spill-over effects of a failure, such as risks to the payments system, problems stemming from depositor illiquidity and a substantial reduction in credit availability; and retain, where feasible, the franchise value of the failed institution (thus minimising resolution costs). The standard data set required in this rule will considerably help the reimbursement process with large and complex financial institutions, shortening the time to reconcile and clean data.

In Hong Kong, the HKDPB has issued to its member banks a guideline on information required for determining and paying compensation. The guideline not only specifies the format, structure and content of data that banks must provide to the HKDPB, but also the time frames within which various components of the information are to be delivered to the HKDPB. To gain confidence that banks can deliver the required information, the HKDPB undertakes reviews of banks' compliance with the guideline on a sample basis using risk-based criteria.

- 4. The lack of a unique identifier.** This issue, ranked 5th among the top six key impediments to effective reimbursement system, is one of being able to apply the limits and scope of coverage to ensure depositors receive timely and accurate reimbursements. This would complicate the task of aggregating the relevant accounts held by a depositor. The lack of a unique identifier is seen as either a most critical or critical problem by 28 per cent of the respondents (Chart 4).

²⁴ Covered institutions - defined as any insured depository institution with at least \$2 billion in domestic deposits and either (1) more than 250,000 deposit accounts or (2) total assets over \$20 billion, regardless of the number of deposit accounts.

The HKDPB relies mainly on the Hong Kong identification card, passport and business registration numbers as the primary sources for unique identifiers. Through its reimbursement system, the HKDPB would also look for potential links of customers based on automated matching of components of name, date of birth, address and phone numbers, usually requiring matching on at least two criteria to be considered for linking with reference to source documents to confirm the link. The MDIC also utilises the national identity card number, which is issued to every citizen age 12 and above, as the primary identifier and supplemented with information on the date of birth and address.

B. Resources

To ensure a prompt reimbursement, the level of resources required in executing a reimbursement needs to be identified in advance. Having **sufficient and ready access to funding** is critical when dealing with reimbursing depositors of troubled banks. This is a most critical problem for the BDIF (Bulgaria) and the DPF (Slovakia) and a critical problem for the DIA (Albania) and the HKDPB (Hong Kong).

In Hong Kong, the HKDPB's Deposit Protection Scheme Fund is being built up to absorb potential losses from reimbursements, as well as provide initial funding requirements, supplemented with a standby credit facility that provides access to sufficient liquidity for simultaneous failure of two medium-sized member institutions. In Slovakia, the DPF has access to funds from the Ministry of Finance, the Central Bank or/and commercial banks, in the event that the deposit insurance fund is insufficient. In the UK, following the banking crisis, the FSCS now has access to funds from the National Loans Fund that ensures the FSCS has funding and liquidity in place, if required, to deal with failure.

The **lack of experience and expertise to undertake and complete prompt reimbursement** is also an obstacle for some deposit insurers. In India, the lack of experience and skills on the part of the liquidator and staff is seen as a challenge. Meanwhile, the ability to mobilise reimbursement resources at short notice is critical in Singapore.

To overcome this issue, some deposit insurers, like the HKDPB (Hong Kong), the MDIC (Malaysia), and the SDIC (Singapore) have set up virtual organisations. While maintaining a core reimbursement team, formal arrangements have been established to allow deposit insurers quick access to an extensive pool of external resources, such as accounting firms, IT contractors, legal firm, payments agents and customer services agents, when resolving a failed bank. Establishing working agreements and putting in place processes would ensure that their resource needs are met on a timely basis and their response time in mobilising reimbursement resources is minimised. These respondents will also conduct periodic/annual training programs and simulation exercises involving the virtual organisation to maintain readiness to conduct a reimbursement and to smooth their reimbursement operations.

The CDIC (Canada) has developed comprehensive strategies, policies and procedures and built core competent skill sets to perform reimbursements. As

part of its continuous improvement process to ensure readiness, annual simulation and insured deposit validation exercises, training and development as well as reviewing of policies and procedures are key aspects of resource management. In Singapore, information obtained during annual simulation exercises has allowed the SDIC to compile a reimbursement profile and a reimbursement resource and budget plan for each member bank. The profiles and plans would include information, such as, number of cheques to be printed and number of call operators needed. In due course, a data repository will be implemented to contain such reimbursement information.

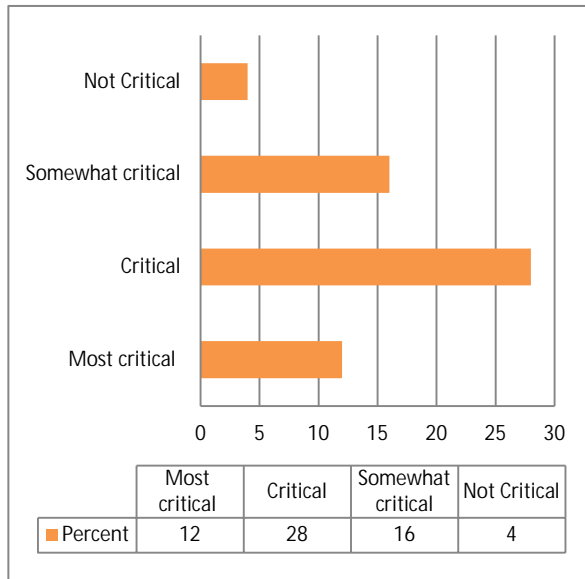
C. Coverage rules and product insurability

Complex coverage rules are another barrier to a prompt reimbursement. The MDIC (Malaysia)'s coverage rules, which are discussed in the following paragraphs, are kept simple to ensure that the computation of depositor entitlements can be made easy and quickly. Similarly, in the Bahamas, the Protection of Depositors Act and its By-Laws provide simple rules for the computation of deposit payment. In Hungary, amendments were proposed to the Deposit Insurance Section of the law with a view to simplifying the coverage rules.

Setting off the deposit claim of a depositor of a failed bank against his related loans and liabilities in determining compensation entitlement is the 4th most challenging impediment to an effective reimbursement. A set-off is always complex and time consuming. This could impede the speed of a reimbursement process, especially if the deposit insurer and liquidator is not the same entity. This problem is most critical for the DNB (Netherlands), the CDIC (Taiwan) and the DIC (Trinidad and Tobago). Some other countries, or 28 per cent of the organisations surveyed, such as the DIA (Albania), the BDIF (Bulgaria), the HKDPB (Hong Kong), the NDIF (Hungary), the DGFB (Romania), and the FSCS (UK) also find this a critical problem (Chart 5).

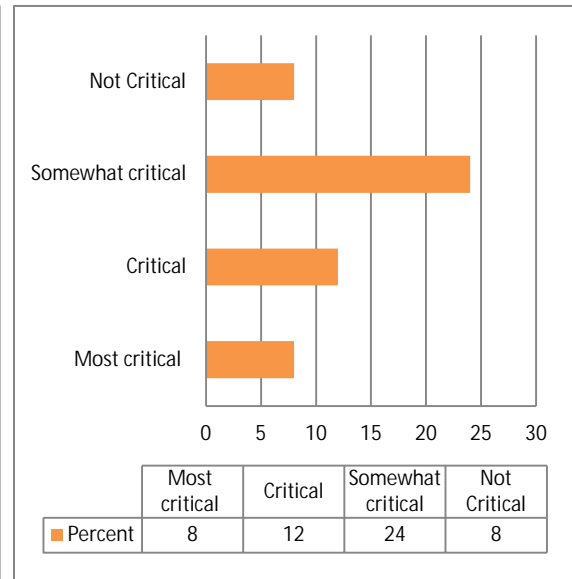
The HKDPB takes a conservative approach. Once linking of liability accounts has been established, the HKDPB will apply the full amount of debt in complex cases such as joint and guaranteed liabilities, thus allowing some payment to be made in these cases until such time as a determination can be made to establish the correct net balances upon which a final compensation payment will be made. In the UK, set-off requirements have been abolished so the FSCS will get a gross aggregated balance position from the banks. The CDIC (Taiwan) is planning to modify the netting requirements stipulated in the Deposit Insurance Act to simplify the regulations and rules regarding set-off and withholdings.

Chart 5: Determining depositors' claims and related loans/liabilities for complying with netting requirements (%)



Source: IADI Survey on Effective Reimbursement Systems.

Chart 6: Computing accrued interest payable (%)

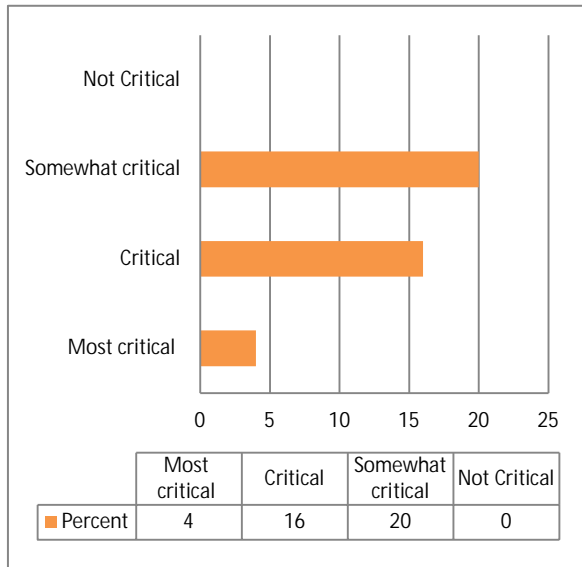


Source: IADI Survey on Effective Reimbursement Systems.

Problems related to the **computation of accrued interest payable** are most critical for the DNB (Netherlands) and the DIC (Trinidad and Tobago). It is critical for the DIA (Albania), the DGFB (Romania) and the FSCS (UK) (Chart 6). In Hong Kong, the reimbursement system includes built-in interest calculations for simple products while legislative change has been proposed to allow approximate interest calculations for complex products (and, therefore, approximate valuations for contingent liabilities). In the UK, banks are required to supply figures for interest calculated up to the date of default as part of the SCV. Banks will also be required to only include eligible accounts and products within the SCV. The onus, therefore, is on the banks to ensure they are aware of which products and accounts are eligible for deposit insurance protection for FSCS purposes.

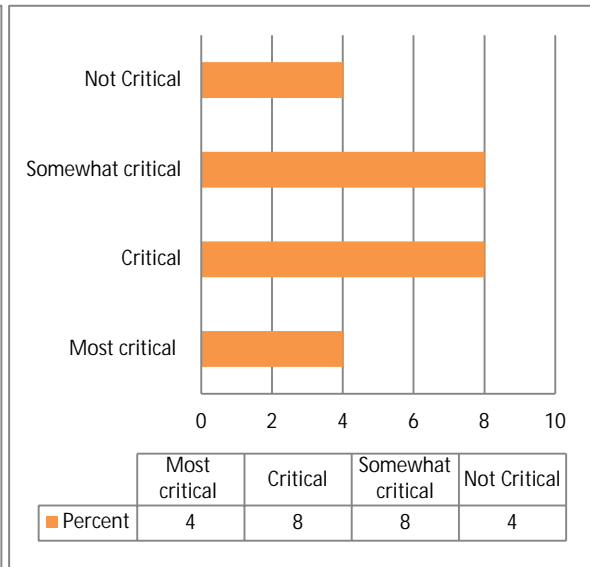
The DIC (Trinidad and Tobago) also finds problems associated with **the splitting and disaggregating of joint deposit accounts** most critical. It is critical for another 16 per cent of the respondents (Chart 7). The MDIC (Malaysia) addressed this issue by making payment in the joint names of the depositors without any reference to their share in the deposit joint account. Hence, joint account holders will be responsible for sorting out their share of deposit payment.

Chart 7: Splitting and disaggregating of joint deposit accounts (%)



Source: IADI Survey on Effective Reimbursement Systems.

Chart 8: Requirement for the submission of claim forms (%)



Source: IADI Survey on Effective Reimbursement Systems.

For beneficiary and trust accounts, the banks in the UK must flag such accounts on their systems but the FSCS will still need to check the underlying eligibility of the beneficiary. In Hong Kong, member banks are required to indicate trust/client accounts. The HKDPB will request beneficial/client interests from account holders for ownership determination. In Malaysia, the MDIC requires trustees to file details of trust accounts and their beneficiaries annually with their banks.

If the quality of the data is poor, deposit insurer might **require depositors to submit claim forms** in order to prove ownership of the account. The other possible reason why a claim form would be required, aside from strict bank secrecy laws, is the absence of a standard common unique individual customer identifier. This is generally not a major issue for deposit insurers. However, it is a most critical problem for Turkey and a critical problem for Mexico and the UK (Chart 8).

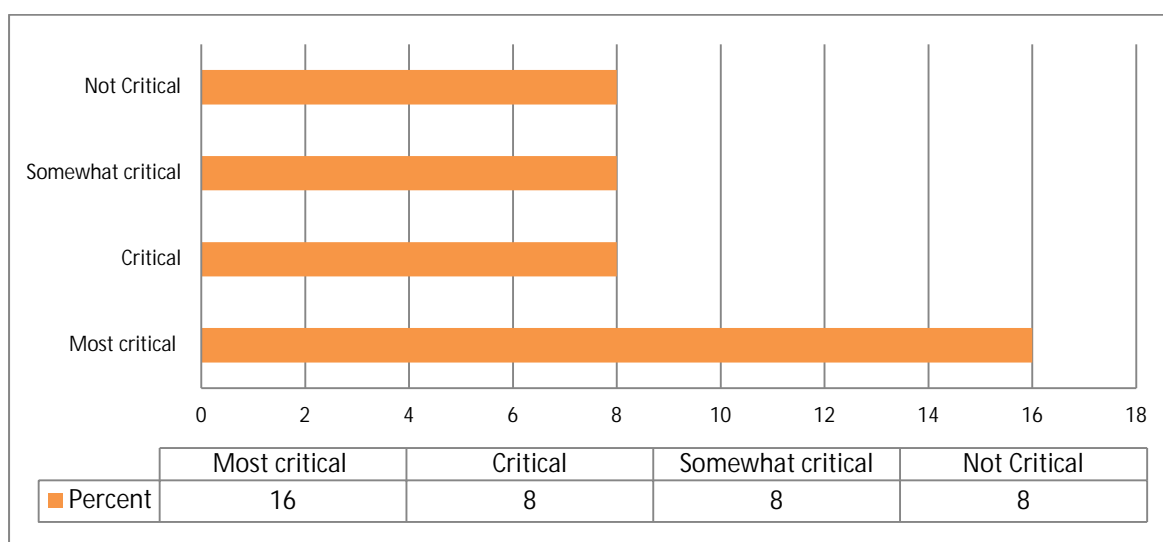
In Mexico, there is a proposal to reform the banking legislation to eliminate the need for claim forms. Claim forms will only be required when the banks' records are not accurate or when the depositor disagrees with the amount and/or the accounts paid by the IPAB. In the UK, the FSCS can now disregard the need for a claim form. In Malaysia, the MDIC Act sets out a process for subrogation which eliminates the need for claim forms. In addition, the MDIC Act allows MDIC to rely on the records of the banks in making determinations of the balances upon which compensation payments are made. In Hong Kong, the HKDPB too relies on the books and records of the failed bank in making its determinations of entitlement to compensation. Hence, there is no need for depositors to submit claim forms unless those records prove to be manifestly incorrect.

D. IT system

In the event of a reimbursement, if the eligibility of a depositor for deposit insurance compensation needs to be assessed manually, the deposit insurer may be limited in their ability to meet the challenges of executing prompt and effective reimbursements, especially in the event of a failure of a large bank. The DIA (Russia)'s IT system was created five years ago as an off-line reimbursement accounting system with file exchange capabilities to and from the agent bank's retail automation systems and, therefore, cannot handle large reimbursements promptly.

Not having an IT based reimbursement system plans to deal with different size banks is ranked 6th in the key impediments to effective deposit insurance system. 24 per cent of the respondents considered this problem either as most critical or critical. Deposit insurers, such as the DIA (Albania), the DICGC (India), the DIC (Trinidad & Tobago) and the SNDO (Sweden) disclosed this as a most critical problem. It is also critical for the CDIC (Canada), the CDIC (Taiwan) and the DIV (Vietnam) (Chart 9).

Chart 9: Lack of appropriate IT system reimbursement plans to deal with different sized banks (%)



Source: IADI Survey on Effective Reimbursement Systems.

Although developing an automated IT reimbursement system involves significant costs, some deposit insurers with manual systems have indicated that they see the benefits of developing such a system. Being able to accurately identify eligible accounts through electronic means is particularly important to reducing errors and ensuring a prompt and accurate reimbursement.

In Albania, insured banks are obliged to develop in their IT system special modules for keeping depositor information, in compliance with the regulations set out in the deposit insurance legislation. However, without an automated IT system, the DIA cannot verify the accuracy of these data.

Some deposit insurers cannot migrate to an IT based system because of the poor state of IT system usage within the banking system. In India, for example, many of the bank branches, particularly in rural areas, are not computerised. For others like Kazakhstan, member banks have different approaches in maintaining records and the capability of the deposit insurer's IT system to handle such a range of IT systems is a major challenge. And Sweden, which relies on its own IT system and runs parallel with that of the failed bank's system, finds the lack of regulatory control and standardised demand on the IT systems of member banks a most critical problem.

In Hong Kong and Singapore, guidelines have been issued for member banks to provide data in standard structure, format and content within specified time frames. Similarly in Malaysia, the MDIC has issued "Guidelines on Deposit Information and Submission" to member banks requiring the submission of each member bank's deposit liability information in a standard file format to the MDIC on an annual basis and upon request.

The MDIC has developed a robust reimbursement system. It has flexible features which allows for the enabling of multi-functions such as parameter settings, advanced payment, financial adjustment, holdback and the ability to include new insurable products. Some of the special features include a flexible internal control authority matrix which allows the setting of authorisation levels for adjustments to depositor information, and complete and full audit trails for all activities within the system. The system is scalable and expandable. The HKDPB's reimbursement system has similar features to that of the MDIC. The SDIC (Singapore)'s reimbursement system is also linked to a national financial network to allow for seamless transmission of reimbursement files between the SDIC and its agent banks to speed up the reimbursement process.

While the DIC (Trinidad & Tobago) and the BDIF (Bulgaria) are planning to automate its reimbursement process, others are enhancing their systems. NDIF (Hungary) is enhancing its IT reimbursement system to handle a SCV. The DICGC (India) has developed an Integrated Claims Management System that would minimise the time taken to process the claim list and make payments directly to a large number of depositors. Mexico, meanwhile, has developed audit deposit information software to help the IPAB verify banks' compliance with the classification of information on insured deposits. Romania is planning to create a reimbursement application that would be able to assist payments through more than one paying agent using a single central database. And CDIC (Taiwan) plans to use the IT infrastructure of the failed bank that will run parallel with its own IT reimbursement system. In the UK, where a shorter reimbursement period has underscored the need for an automated IT reimbursement system, the FSCS is reviewing its IT specifications and has budgeted to make changes to its existing CLAIMS system (For an account of FSCS's Icesave reimbursement experience, please see box article in the following page).

FSCS Icesave reimbursement experience.

There were three Icelandic banks operating in the UK in October 2008. Landsbanki Islands Hf, the Icelandic parent company, had a UK subsidiary Heritable Bank Plc which was fully authorised by the UK regulator the FSA. Landsbanki also operated an internet based branch operation which traded under the name 'Icesave'. Kaupthing Bank Hf Limited operated a UK subsidiary which traded as Kaupthing Singer & Friedlander.

Deposit Guarantee Scheme Directive 94/19/EC

The European Union Deposit Guarantee Scheme Directive 94/19/EC requires all European Economic Area (EEA)²⁵ member states to have in place a deposit guarantee scheme and also laid down the minimum requirement for such schemes. In order to encourage the single market in financial services across the EEA, all EEA member state banks had the right to passport into another member state on a branch basis. This is referred to as the home/host state arrangement with the home state of the bank having responsibility for regulation, as well as deposit guarantee scheme coverage.

However as the Directive was on a minimum harmonisation basis and only required EEA deposit guarantee schemes to provide minimum coverage of €20,000 (figure valid until October 2008) levels of coverage and scope across the EEA varied between member states. In order to protect consumers and ensure there was no barrier to entry for banks wishing to operate on a branch basis in another EEA member state the Directive allowed banks to 'top-up' into the host state scheme and therefore provide the same level of protection to depositors as banks regulated by and based in the host state. EEA regulated banks had the right to top-up branches into another EEA member states deposit guarantee scheme. Landsbanki's UK branch operation was topped up into the FSCS.

The Icelandic deposit guarantee scheme, the Iceland Depositors and Investors Guarantee Fund (DIGF) offered coverage to its member banks on a per bank per depositor basis with a minimum limit of €20,887.

The FSCS and the DIGF had entered into a MoU which, at a high level, had agreed the principles in relation to home state/host state deposit guarantee scheme responsibilities. The Directive and the MoU were based on the understanding that the home state deposit guarantee scheme would be responsible for paying their amount of cover (available in Iceland to €20,887) and the host state deposit guarantee scheme FSCS would then provide compensation up to the host state limit (£50,000).

As Landsbanki had topped-up into the FSCS in the event of the failure of Landsbanki's UK branch, Icesave, the DIGF should have covered at least the first €20,887, with FSCS covering the remaining balance for each depositor up

²⁵ All European Union member states plus Norway, Liechtenstein and Iceland.

to the FSCS limit of £50,000.

During 2008 it became clear the Icelandic economy and the banking system were in real difficulties. Unable to fulfil liquidity and risk thresholds, on 7 October, 2008, the Icelandic regulatory authorities FME took control of Landsbanki and appointed a resolution committee. It became clear to the UK Authorities and the FSCS that the DIGF was unable to meet its obligations under the Directive 94/19/EC to cover the first €20,887 of any eligible claim against Icesave. The UK Authorities alongside the FSCS decided to proceed with the reimbursement, with FSCS acting as the paying agent for all claims with funding from HM Treasury.

The Icesave branch was an internet based bank with its website operations and data management outsourced to Newcastle Building Society, a fully authorised UK deposit taker, who hosted and ran the Icesave operations for Landsbanki. The fact the operations were UK based meant the FSCS had no problems obtaining access to the data necessary to prepare for the reimbursement. Immediately, post failure, the Icesave website was amended to only allow viewing access to depositors who could no longer initiate any transfers of monies held to another bank or change any of the personal data held.

The Icesave database included over 300,000 accounts, and approximately 200,000 depositors, of which the vast majority were savings account comprising instant access and fixed-term accounts, (to which the depositor would not have access to the funds during the fixed term agreed). There were also a large number of Individual Savings Accounts (ISAs) a UK tax-free savings account which allows an amount of money to be saved annually on a tax-free basis subject to an annual limit set by the UK Government.

In order to open an account with Icesave, a depositor had to have an existing UK bank account to which payments could be made and received. All Icesave customers also had an e-mail address as all Icesave correspondence with customers was via e-mail.

FSCS senior operational staff travelled to the UK base of the Icesave operations to review the data quality and consider the best option for reimbursement. A decision was made early on to use an electronic solution which was judged to be ideally suited to an internet based operation. However stringent planning and testing had to be undertaken to ensure the data was accurate and to ensure robust security measures were in place.

The FSCS had no experience of undertaking an electronic reimbursement and therefore substantive testing was undertaken before the process began. On 3 November 2008, the Icesave reimbursement process began.

The reimbursement process

The electronic process was set up to work in the follow sequence:

1. E-mails sent to all account holders.

2. Account holder logs in as normal to Icesave account screen.
3. Screen confirming electronic application process.
4. Account summary screen shows list of all products/accounts.
5. Account details (for each account).
6. Screen showing option to transfer to nominated bank account or keep Fixed Rate Savings account to maturity.
7. Screen confirmation of instruction screen (including details of assignment of rights and any other terms or conditions).
8. Confirmation page to confirm that request to be processed.
9. Automatic email to confirm payment made to nominated account.

FSCS made the decision to action the reimbursement in batches in order to ensure the internet and payment systems could cope with the number of transactions. In order to control the flow of depositors accessing the system accounts were unlocked ready to transact as the second e-mail was sent. If a depositor tried to access their account/s before receiving the second e-mail instruction from FSCS, which invited them to access the system and transfer their funds, the depositor found they could only view the web pages but could not initiate the transfer.

Restrictions were built around the system as security measures including:

- All depositors had to sign onto the Icesave website using the same name and password already in use for their Icesave account; and
- Money could only be sent electronically to the other UK bank account already connected to the Icesave account. The details of this bank account could not be amended in any way.

Although some depositors did not receive the FSCS emails, the system worked well with few technical problems and by the 14 November the FSCS had paid £0.25billion through the electronic payment system. The Bankers Automatic Clearing System was used to make the transfers and this ensured the depositor received the money three days after completing the electronic claim process.

Icesave and the non-electronic reimbursement

There were around 17,000 Icesave customers who are unable to claim compensation through the online process. This was due to a number of issues including problems with the data held by Icesave for these customers. Some of the accounts did not hold a valid e-mail address even though this was a condition of opening the account, other depositors insisted on non-electronic communication from Icesave despite the fact Icesave only offered internet access.

There were also problems around depositors who had closed or amended the connected account but not advised Icesave. As a security precaution FSCS would not allow depositors to change these details and these consumers had to go through the manual process. The same was true for those consumers who had changed their e-mail address as again as a security precaution FSCS would not allow amendments to any of the data held on the Icesave database as at the date of failure.

There were also a number of depositors who, for whatever reason, chose not to access the electronic system even though they had been invited to do so. Some of these may have been due to the small amount of money on deposit but other accounts had substantial balances which had not been accessed by the cut-off date for the electronic reimbursement of December 30, 2008.

All of the above depositors were sent a paper claim form to complete and return to the FSCS.

FSCS rules in place at the time in respect of fixed term deposits also allowed depositors, if they so choose, to let their Icesave fixed term account run to maturity at the contracted rate of interest. If they chose this option the FSCS was required to pay the contractual interest rate as at maturity date. Whilst the majority of depositors chose to take their funds immediately some did choose to retain the fixed term deposit. They could use the electronic system to select this option and this generated a notification to the FSCS advising them of the payments to be made at a later date. The fixed term deposits run until October 2011 and were offering deposit rates up to 7.06 per cent gross. This has therefore meant FSCS has a continued obligation to issue payments as and when these retained fixed term deposits mature.

Both the electronic and non-electronic processes required a great deal of support from the Newcastle Building Society who ran the IT and Call Centres for Icesave. FSCS used these existing arrangements as well as its own staff resources, both in-house and outsourced to successfully deal with the Icesave collapse.

The cost of the Icesave failure

As detailed in the last FSCS annual report for the financial year 2009/10 the FSCS has paid 292,579 claims for Icesave at a cost of £4.41 billion. Of these monies £2.24 billion is attributable to the DIGF, £1.4 billion being covered by the FSCS, and the remaining £0.77 billion being covered by HM Treasury (for balances above FSCS's limit of £50,000).

There remain 3,897 accounts to be paid the majority of which relate to fixed term deposits, the rest are where no valid claims has been made. The value of these claims stands at £99.2 million.

The failure of Landsbanki is the subject of court action in Iceland. As at December 31, 2011, FSCS has received recoveries of circa 30 per cent in relation to Icesave.

The repayment by the DIGF and creditor claims is a matter of negotiation between the Icelandic and British Governments, and the FSCS is a party to these discussions.

E. Mandate and powers

Issues relating to mandate and powers with respect to effective reimbursement are, generally, not a major problem for most deposit insurers. The **lack of statutory and legislative mandate to determine when and how to conduct a reimbursement** is most critical only for the DIC (Trinidad & Tobago). Meanwhile, the issue of **the difficulty to undertake prompt reimbursement as a result of poor operational independence from other safety net players** is critical for the DICGC (India), which has no say in bank resolution, and the DPF (Slovakia), which, like the DIV (Vietnam), also finds inadequate time frame provided to conduct and complete a reimbursement a most critical problem.

The DICGC (India) is in the process of proposing amendments to existing laws for the enhancement of mandates from a “paybox” to a “paybox with extended powers” which would enable greater involvement in bank resolutions. In Trinidad and Tobago, dialogue between the DIC and the Central Bank facilitates a greater level of information sharing on a potential failure prior to the Central Bank initiating actions to close a member bank. And in Taiwan, although the CDIC does not have the authority to determine when to close failing banks, the CDIC, as one member of financial safety net, will be invited to attend the meetings to discuss the resolution strategies of failing banks. In the UK, the Banking Act 2009 introduced the Special Resolution Regime which enables the Tripartite Authorities and the FSCS to form a much more effective safety net for failing and failed banks and their customers.

Providing advance partial payments to depositors has the advantage of speeding up depositors’ access to their funds and meeting depositors’ needs. This is a problem for DPF (Slovakia).

To manage public expectation and maintain public confidence, especially in the event of a bank failure, it is critical for deposit insurers to have a well thought-out, comprehensive and coordinated crisis management communications plan. This would include, among others, effective channels of communication. The depositing public would need to know with certainty as to when and how they can expect to be reimbursed, the mode of payment and what they are required to do to receive their compensation. They would also need to know who to contact if they have questions and whether the submission of claim forms is required.

Many deposit insurers are well aware of the importance and have invested heavily over the long term on public awareness campaigns. **Appropriate communication strategies to deal with depositors** have been reported as critical only by three deposit insurers surveyed. The CDIC (Canada) finds it most critical while the DIA (Albania) and the HKDPB (Hong Kong) rated this problem as critical.

The CDIC (Canada) has done extensive public awareness since 1992. Currently, it is enhancing access to timely information through its "self-serve" website. In the UK, the FSCS and the FSA are also undertaking a consumer awareness campaign to highlight the existence of the FSCS in 2010. In Hong Kong, a number of steps have been taken. These include an MoU with the regulator to coordinate communication strategies during a reimbursement; Q&As provided to call centre operators; reimbursement website with template messages prepared in advance; and protocols with a failed member bank are being developed for preparing adjustments to depositors' balances and providing netting information within specified time frames.

IV. Conclusion

Although there is a wide range of practices in conducting deposit insurance reimbursements, there are some common key impediments to effective reimbursement systems. This survey has highlighted some key impediments to effective reimbursement systems. To be effective, deposit insurers must overcome these impediments. Among the key criteria of an effective reimbursement system are early access to reliable and accurate deposit liability information, adequate resources to handle and complete a reimbursement, simple coverage rules, early and advance determination on the insurability of deposit products which must be well understood by depositors, and, preferably, an automated IT reimbursement system that is able to generate accurate reimbursement promptly, and have in place proper process and procedures in handling reimbursement events effectively.

Attachment A: General Survey Results

Country	Name of DI	Mandate	Legislated/mandated Reimbursement Period			IT Reimbursement System
			Is there a legislated/mandated period for reimbursing depositors?	If yes, how many days?	What is the period within which your organisation plans to reimburse the depositors of a failed bank?	How many deposit accounts/records can your IT system deal with?
Albania	Albanian Deposit Insurance Agency	Paybox	Yes	90 days	Not later than 3 months from the day DIA is notified on bank liquidation by the Central Bank.	
Bahamas	Deposit Insurance Corporation	Risk Minimiser	Yes	Section 6(8) of the PDA provides for reimbursement to commence no later than six (6) months following the closure of an insured institution.	Section 6(8) of the PDA provides for reimbursement to commence no later than six (6) months following the closure of an insured institution.	Reimbursement of claims outsourced to central bank. As such, coverage of all accounts in the system can be accomplished
Bulgaria	Bulgarian Deposit Insurance Fund	Paybox with extended powers	Yes	20 business days from the date of BNB resolution for license revocation of a bank. In exceptional circumstance, this term can be extended by not more than 10 business days.	20 business days	
Canada	Canada Deposit Insurance Corporation	Risk Minimiser	Yes	As soon as possible.	Partial payment of demand accounts within 5 days after failure and full payment of most accounts within 14 days.	1.3 million accounts 500,000 depositors
Canada (Quebec)	Autorite des marches financiers	Paybox	No			

Country	Name of DI	Mandate	Legislated/mandated Reimbursement Period			IT Reimbursement System
			Is there a legislated/mandated period for reimbursing depositors?	If yes, how many days?	What is the period within which your organisation plans to reimburse the depositors of a failed bank?	How many deposit accounts/records can your IT system deal with?
Hong Kong	Hong Kong Deposit Protection Board	Paybox	No		14 days for interim payment. 28-42 days for final payment.	2 million accounts 4 million records
Hungary	National Deposit Insurance Fund	Paybox	Yes	20 days	10 days	1 million accounts
India	Deposit Insurance and Credit Guarantee Corporation	Paybox	Yes	2 months from the date of receipt of claim list from the Liquidator (in case of liquidation) or from the insured bank (in case of amalgamation/reconstruction). The Liquidator/Insured bank is required to submit claim list within 3 months from assuming charge/taking over. The statutory maximum permissible period for submission of the claim list to the DICGC & its settlement by the latter, is 5 months.	Within a few days of failure.	
Kazakhstan	Kazakhstan Deposit Insurance Fund	Paybox with extended powers	Yes	According to the Kazakh legislation, reimbursement process should be started by the KDIF in 14 working days after the enactment of the Court's decision on bank'	N/A	

Country	Name of DI	Mandate	Legislated/mandated Reimbursement Period			IT Reimbursement System
			Is there a legislated/mandated period for reimbursing depositors?	If yes, how many days?	What is the period within which your organisation plans to reimburse the depositors of a failed bank?	How many deposit accounts/records can your IT system deal with?
				forcible liquidation. Since that date depositors are given six months to claim the coverage amount through a declared agent-bank. When the claim is received by the agent-bank, it should provide a reimbursement within 5 working days. After six months depositors have right to apply directly to the KDIF for the coverage reimbursement. The commitments of the KDIF for coverage reimbursements shall be terminated after one year since the date of its entry to the state register of forcible liquidated legal entities.		
Korea	Korea Deposit Insurance Corporation	Risk Minimiser	No		Interim payments are made within 4 days after suspension of operation and it normally takes 3 or 4 months to make full claim payment.	Unlimited accounts Unlimited record
Malaysia	Malaysia Deposit Insurance Corporation	Risk Minimiser	Yes	Within 3 months from the commencement of date of winding up of the bank.	MDIC has an internal target of reimbursing depositors promptly upon the liquidation	20 million accounts

Country	Name of DI	Mandate	Legislated/mandated Reimbursement Period			IT Reimbursement System
			Is there a legislated/mandated period for reimbursing depositors?	If yes, how many days?	What is the period within which your organisation plans to reimburse the depositors of a failed bank?	How many deposit accounts/records can your IT system deal with?
					of a member bank, and this is conditioned upon certain factors, including the level of data cleanliness and whether preparatory examination has been conducted in preparation for a potential reimbursement.	
Mexico	Instituto Para La Proteccion Al Ahorro Bancario	Paybox with extended powers	Yes	90 days	Immediate to 7 days	1.5 million accounts
Netherlands	De Nederlandsche Bank	Paybox	Yes	90 days	No explicit planning. In 2 previous cases, the MOF promised that DNB would pay out most depositors within 2.5 months of the bank failure.	Able to process at least 40,000 records per day though maximum capacity is not clear.
Romania	Deposit Guarantee Fund in the Banking System	Paybox	No		20 working days	

Country	Name of DI	Mandate	Legislated/mandated Reimbursement Period			IT Reimbursement System
			Is there a legislated/mandated period for reimbursing depositors?	If yes, how many days?	What is the period within which your organisation plans to reimburse the depositors of a failed bank?	How many deposit accounts/records can your IT system deal with?
Russia	Deposit Insurance Agency	Paybox with extended powers	Yes	2 weeks (to collect bids from agent banks and to contract the winners) plus 3 business days since an individual depositor applies for reimbursement (in person or by registered mail with valid ID and written application form with payment details).	In 60 days after launch of payments, more than 80% in volume terms should be reimbursed.	1 million accounts 1 million records
Singapore	Singapore Deposit Insurance Corporation	Paybox	No		Within 21 days	10 million accounts 30 million records
Slovakia	Deposit Protection Fund	Paybox	Yes	3 months	5 days	Unlimited accounts Unlimited record
Sweden	Swedish National Debt Office	Paybox	Yes	90 days (3 months)	20 days	
Tanzania	Deposit Insurance Board	Paybox	No		30 days	
Taiwan	Central Deposit Insurance Corporation	Risk Minimiser	No		3 days after a failed bank is closed.	5 million accounts 50 million records
Trinidad &	Deposit Insurance	Paybox	Yes	3 months	3 months	

Country	Name of DI	Mandate	Legislated/mandated Reimbursement Period			IT Reimbursement System
			Is there a legislated/mandated period for reimbursing depositors?	If yes, how many days?	What is the period within which your organisation plans to reimburse the depositors of a failed bank?	How many deposit accounts/records can your IT system deal with?
Tobago	Corporation					
Turkey	Saving Deposit Insurance Fund	Paybox with extended powers	Yes	3 months. If needed an additional 3 months plus 2 times 3 months extension.	20 working days	
UK	Financial Services Compensation Scheme	Paybox with extended powers	Yes	The European Deposit Guarantee Scheme Directive (DGSD) specifies a reimbursement period of 20 working days. The Government has a stated aim for the FSCS to pay the majority of claimants their funds within 7 calendar days from 1 January 2011.	7 day target with a deadline of 20 days from 1 January 2011.	Scalable to meet largest failure
US	Federal Deposit Insurance Corporation	Risk Minimiser	No		Next business day, typically 2 days.	Unlimited accounts Unlimited record
Vietnam	Deposit Insurance of Vietnam	Risk Minimiser	Yes	60 days	60 days	

Attachment B: Types of Reimbursement Approaches

Country	Name of DI	Manual or Automated Reimbursement System		
		Manual processes	Integrated IT Reimbursement system	IT modules developed by the organisation that run parallel to a failed bank's system
Albania	Albanian Deposit Insurance Agency	•	•	
Bahamas	Deposit Insurance Corporation	•		
Bulgaria	Bulgarian Deposit Insurance Fund			•
Canada	Canada Deposit Insurance Corporation	•	•	•
Canada (Quebec)	Autorite des marches financiers	•		
Hong Kong	Hong Kong Deposit Protection Board	•	•	
Hungary	National Deposit Insurance Fund		•	•
India	Deposit Insurance and Credit Guarantee Corporation	•		•
Kazakhstan	Kazakhstan Deposit Insurance Fund	•	•	
Korea	Korea Deposit Insurance Corporation	•	•	
Malaysia	Malaysia Deposit Insurance Corporation		•	
Mexico	Instituto Para La Proteccion Al Ahorro Bancario	•	•	•
Netherlands	De Nederlandsche Bank	•	•	•

Country	Name of DI	Manual or Automated Reimbursement System		
		Manual processes	Integrated IT Reimbursement system	IT modules developed by the organisation that run parallel to a failed bank's system
Romania	Deposit Guarantee Fund in the Banking System	•	•	
Russia	Deposit Insurance Agency		•	
Singapore	Singapore Deposit Insurance Corporation		•	
Slovakia	Deposit Protection Fund			•
Sweden	Swedish National Debt Office			•
Tanzania	Deposit Insurance Board	•	•	
Taiwan	Central Deposit Insurance Corporation		•	
Trinidad & Tobago	Deposit Insurance Corporation	•		
Turkey	Saving Deposit Insurance Fund	•		
UK	Financial Services Compensation Scheme	•	• (some automation for reimbursement via SCV)	
US	Federal Deposit Insurance Corporation	•	•	•
Vietnam	Deposit Insurance of Vietnam	•		

Annex II: IADI Case Study: Financial Services Compensation Scheme (FSCS) – Faster Reimbursement

This paper is intended to give a brief explanation of the work undertaken by the UK Authorities, including the FSCS, to introduce faster reimbursement for consumers in the event of a bank²⁶ failure.

I. Introduction

Following the run on Northern Rock in September 2007 the UK Government, represented by HM Treasury (HMT), acknowledged that the UK and global financial system had come under pressure. In October 2007 HMT, the Financial Services Authority (FSA) and the Bank of England issued a discussion paper 'Banking reform - protecting depositors: a discussion paper'.

The paper began a process of public consultation with both industry and consumer groups looking at banking reform and depositor protection which resulted in three consultation papers²⁷ being published during 2008. The Financial Services Compensation Scheme (FSCS) was closely involved in the work on all of the above papers.

This extensive consultation process resulted in the introduction of a Special Resolution Regime in the UK and numerous changes to the FSCS. One of the major changes is a publicly stated aim that the FSCS should aim to make compensation payments within one week of a bank closing.

II. European Dimension

The UK as a member of the European Union (EU) is bound to implement Directives issued by the EU. The Deposit Guarantee Schemes Directive (DGSD) 94/19 originally issued in May 1994 requires all EEA Member States to have in place a deposit guarantee scheme (DGS) and lays down the minimum requirements for DGS including limits of compensation, eligibility criteria and reimbursement timescales.

Following the global financial crisis, the Commission, with input from European Member States, reviewed the DGSD and implemented a number of changes, including a requirement for deposit guarantee scheme to pay compensation within 20 days of the determination of the default of the bank. This requirement came into force on 31 December, 2010.

²⁶ For the purpose of this paper bank should be read include banks, building societies and credit unions as the FSCS covers all firms authorised by the FSA to accept deposits.

²⁷ Financial stability and depositor protection: strengthening the framework (published January 2008); Financial stability and depositor protection: further consultation (published July 2008); and Financial stability and depositor protection: special resolution regime (published July 2008).

III. FSCS Faster Reimbursement – What Changes Have Been Made?

From January 1, 2011 the FSCS has a publicly stated aim to pay the majority of depositors within seven days and must pay all eligible depositors within 20 days to comply with the DGSD requirements.

To ensure the above challenging timescales can be met major changes have been implemented to FSCS rules, and both banks and Insolvency Practitioners have also been subject to legislative and regulatory requirements to assist in the aim of faster reimbursement.

A. Insolvency practitioner – requirement to assist the FSCS

The rules governing bank insolvency have been amended and the insolvency practitioner has been given a new objective as defined in the Banking Act 2010:

Under Section 99 a bank liquidator has two objectives.

- (2) Objective 1 is to work with the FSCS so as to ensure that as soon as is reasonably practicable each eligible depositor:
 - (a) has the relevant account transferred to another financial institution, or
 - (b) receives payment from (or on behalf of) the FSCS.
- (3) Objective 2 is to wind up the affairs of the bank so as to achieve the best result for the bank's creditors as a whole.
- (4) Objective 1 takes precedence over Objective 2 (but the bank liquidator is obliged to begin working towards both objectives immediately upon appointment).

This amendment supports the FSCS, as it requires the bank liquidator, immediately upon failure, to assist the FSCS in the payment of compensation, by actions such as the production of the single customer view (SCV) records and other necessary bank depositor data.

B. Single customer view

The most high profile requirement relating to faster reimbursement is that all banks are required to have a SCV in place from December 31, 2010. The requirement is defined in the FSCS rules as:

"A firm must be able to provide to the FSCS a single customer view for each eligible claimant, except to the extent that the eligible claimant is the beneficiary of an

account held on his behalf by another person or if the account is not active, within 72 hours of a request by the FSCS."

For firms which have over 5,000 accounts held by eligible claimants, the SCV file must be held in an electronic format. This distinction was made as the FSCS covers all deposit taking firms including credit unions and it was felt the requirement for firms to hold the data in an electronic format was overly burdensome for smaller firms who may still operate on a paper based system. However, these firms must hold their records in a SCV format.

Firms were given 18 months' notice of the rule to ensure they had time to implement the rule change, which in many cases required large IT change programmes to enable their systems to produce an aggregated balance of a customer's accounts across the bank within 72 hours of a request from the FSCS. The FSCS compensation limit of £85,000²⁸ must be applied to the SCV file to ensure the FSCS can use the file as a basis for reimbursement.

FSCS has responsibility for the reimbursement and as part of the faster reimbursement project we considered how the SCV file would be used in the event of a bank failure. FSCS undertook a public procurement exercise, which included 'in-house' and outsourced services. A decision was made to outsource the SCV file verification to Experian and FSCS has worked closely with them to develop the solution. Verification of the SCV file involves a number of data checks including reviewing the data to ensure the compensation limit has been applied, the required data fields have been completed, the aggregated accounts add up to the compensable balance and that the file is secure and can be run through the verification system. The decision to outsource the solution was made on a number of criteria including security considerations and ability to have a solution which may not be active on a regular basis but must be capable of being used immediately upon notification of a bank failure.

A verification programme was included in the regulatory rules governing SCV. This requires all firms with electronic SCV solutions to submit a sample SCV file, containing a representative sample of 10 per cent of their records or 10,000 records, whichever is less, to the FSCS by January 31, 2011. FSCS and Experian will run the sample SCV files through the verification solution to ensure the SCV file is fit for use. The FSCS completed the verification programme during 2011 and results have been shared with the relevant banks and the FSA.

During 2012, a thematic review of SCV is being undertaken involving both the FSA and FSCS. This review will require on-site visits to a range of deposit firms, of varying sizes, to conduct a review of the deposit firm's implementation of the rules relating to SCV (FSA Handbook COMP 17). The deposit firms involved will also be required to run a complete SCV file for review.

Whilst the SCV will be used for reimbursement, it is clear that not all accounts which are FSCS eligible can be paid immediately upon failure of the firm. The

²⁸ Limit in place from December 31, 2010 and applies per depositor per authorised firm.

largest categories of these accounts are likely to be accounts where no valid address is held for the deposit holder, and accounts which hold a “stopped” status due to suspicion of fraud or dispute between account holder and the bank. Banks have been asked to “flag” these accounts as “not fit for straight through reimbursement” and whilst they will be included within the SCV file Experian and FSCS will separate these SCV records and further manual checks will be undertaken, where possible, to assess suitability of payment.

SCV records within the file which are not marked should be paid within seven days of the failure of the bank whilst those marked not fit for straight through reimbursement are payable within 20 days. It is acknowledged some accounts may test these timescales, such as where no valid address is held and contact cannot be made with the depositor or where fraud risk requires the bank liquidator to undertake checks before authorising payment.

There are also three excluded categories of account which are not included in the SCV and will not be paid by FSCS and these are defined as: accounts under HMT sanction, dormant accounts as defined by the Dormant Accounts Act and legally disputed claims. These accounts will be marked on the bank’s data records but will only be paid compensation when the bank liquidator provides evidence to the FSCS, such as settlement of the legal dispute.

C. Tagging eligible accounts

It was clear from FSCS and industry experience that banks hold accounts which may be FSCS eligible but where the beneficiary is not always identifiable. The most obvious examples in the UK are client accounts or trust accounts and therefore these accounts are not included in the SCV file.

The regulatory rules require banks to tag these accounts on their system in order that the FSCS and insolvency practitioner can identify and extract the relevant data. The FSCS has undertaken an extensive project known as the Deposit Process Review (DPR) to come up with a solution to paying these claims within 20 days. The solution has resulted in major changes to internal processes and systems including the implementation of a new IT system.

The payment of these claims will require manual intervention and requests for evidence of beneficiary details from client account managers and trustees.

D. Payment of claims

As part of the overall review of the deposit process, FSCS has also considered its payments methods to ensure there are a variety of payment solutions in place to allow the payment of a claim. Cheque provision has been outsourced to two external providers capable of producing large quantities of cheques quickly, “cash over the counter” is a solution via the UK Post Office network which can be used by FSCS for smaller payments and FSCS is currently in discussions with a

number of external suppliers about an electronic web-based payments system which is anticipated to be in place during 2012.

E. Other changes to assist faster reimbursement

In order to assist both the FSCS in achieving the seven-day target, other changes have been made which assist in this aim.

- **FSCS access to information.** Legislative changes have been made to strengthen the rights of FSCS to request information from firms and regulatory authorities in order to assist the FSCS in the execution of its duties.
- **Removal of set-off.** Set-off has been removed which means depositors will receive all of their credit balances from the failed bank, subject to the compensation limit of £85,000. Any outstanding loans or mortgages will remain the responsibility of the depositor. This change to the FSCS rules has also been reflected in the relevant insolvency rules for banks so FSCS is not penalised on recoveries.
- **Removal of claim/application form for compensation and automatic assignment of rights.** The rules governing the FSCS have been amended giving the FSCS the right to pay compensation to eligible claimants without an application from the depositor. The claim form used by FSCS included a formal assignment of rights from the depositor to the FSCS. FSCS will now be deemed to have an immediate and automatic assignment on payment of compensation where no claim form is required from the depositor.
- **Eligibility.** All individuals are now eligible to receive compensation. The large company exclusion remains (for the time being).
- **Access to liquidity.** Regardless of the speed of the payment system it is a fundamental requirement for a compensation scheme to have the monies available to fund the payments. FSCS may borrow from the National Loans Fund, part of the National Debt Office. This provides the FSCS with access to large amounts of funding.

IV. Conclusion

All of the above changes have been required in order to assist the FSCS in meeting the challenging seven-day reimbursement target. Equally a great deal of work has been undertaken by the FSCS to ensure all depositors' claims can be met within the DGSD 20-day target, including a complete review and amendment of the depositors' claims process. The introduction of the SCV and account tagging requirements has been fundamental in this work and whilst costly, both to the FSCS and the industry will assist not only the FSCS but the Bank of England, as the UK

Resolution Authority. For example, this data could be used by the Bank of England for a transfer of insured deposits.

FSCS also acknowledges the close collaboration between the FSCS and the FSA, the main trade associations in this area including the British Banking Association, Building Societies Association and the credit union movement as well as the individual banks who worked with both the trade associations and the FSCS in working groups and pilot exercises. This collaboration has been vital in meeting the December 31, 2010 deadline for faster reimbursement.

Annex III: IADI Case Study: Technical aspects of the inspection visits carried out by the IPAB, in order to evaluate the banks' compliance to the Rules for classifying transactions relating to insured deposits

I. Introduction and Overview of the Deposit Insurance System (DIS) in Mexico

On January 19, 1999, the Banking Savings Protection Act (Spanish acronym LPAB) was published on the Official Gazette and went into effect the next day. This Act creates the Institute for the Protection of Banking Savings (Spanish acronym, IPAB), a decentralised agency of the federal government, and, unlike prior legislations, establishes a limited and explicit deposit insurance system.

The IPAB, as the agency in charge of managing the deposit insurance in Mexico, guarantees banking deposits up to a coverage limit of all depositors, particularly small and medium-sized ones. Additionally, the current legislation allows the IPAB to perform certain activities to resolve banks with solvency problems at the least possible cost, thus contributing to the stability of the banking system and ensuring the proper operation of the national payments system.

Part of its mandate is to reimburse depositors who have fulfilled the requirements, up to the covered amount of insured deposits (400,000 UDIs²⁹) within 90 days of publication in the Official Gazette of the reimbursement procedure.

II. Power to Obtain Information

A. Relevant aspects and rationale

By Law, the IPAB has several powers related to obtaining information and treatment of insured deposits, and these, among others, include:

- The power to acquire information of the insured depositors, directly from the banks whenever it is deemed necessary.
- The power to compel banks to classify information on insured deposits in their own information technology (IT) systems (or any other means) according to a general regulatory framework issued by the IPAB.
- The authority to request for inspection visits to banks along with the Supervisor -- the National Banking and Securities Commission (Spanish acronym CNBV) -- in order to verify and evaluate the bank's compliance to said framework.
- The power to issue rules to determine the insurance on joint accounts.

²⁹ Unit of Investment or UDI are inflation-adjusted units of account. Its value is updated according to variations presented by the National Consumer Price Index every two weeks. The Bank of Mexico publishes in the Official Gazette the value of the unit of investment in local currency for each day of the month.

In 2007, the IPAB issued General Rules applicable to joint accounts or accounts having more than one owner (Joint Account Rules), whose purpose is to determine how the IPAB will insure these accounts, if a resolution method is to be implemented.

The definitions relevant to these Joint Account Rules which are used from this point on throughout this paper are:

Account: a valid contract, which the bank identifies by a series of digits, to formalise any of the operations considered to be a deposit.

Joint Account: an account with more than one owner (solidarity account or underwriter account).

Individual Account: a single-owner account.

Underwriter Account: a joint account where it is required the signature of all owners or Joint owner to make withdrawals, cancellations or, where appropriate, modifications to the account.

Solidarity Account: a joint account in which any of the owners or co-owners may draw indistinctly on the balance of the account.

IPAB Guaranteed Owner: the person(s) entitled to reimbursement through any resolution method employed by the IPAB:

- The owner of an Individual Account
- First owner or first co-owner of a Solidarity Account
- Owners and co-owners of a Underwriter Account

Additionally, the Joint Account Rules establish that banks must perform all the necessary actions to have the contracts for each account expressly stating who is the person(s) considered as the IPAB Guaranteed Owner(s).

In the event of a reimbursement, the rules state who is the person(s) entitled to request the IPAB reimbursement of the insured deposits from joint accounts; these are:

1. In Solidarity Accounts, the IPAB will pay the balance of the insured deposits resulting from the respective accounts, up to an amount equivalent to 400,000 UDIs, to the IPAB Guaranteed Owner.
2. In Underwriter Accounts, the IPAB will determine the amount corresponding to each of the IPAB Guaranteed Owners, as follows:
 - (a) The balance of the account will be divided proportionally to the percentage specifically stated by the owner or co-owners in the

account itself, or, if not stated, according to the information the bank keeps in its own systems.

- (b) In the event that no percentage was established, the IPAB will divide the balance of the account in equal parts among the co-owners.

In any case, payment of the balance of insured deposits deriving from the same Underwriter Account shall not exceed an amount of 400,000 UDIs, regardless of the number of IPAB Guaranteed Owners holding such Account.

Also, in the case of a Purchase & Assumption (P&A), the respective Accounts will be transferred observing the terms and conditions agreed upon by the transferring bank and the respective owners according to the information available in the bank's systems.

Finally, in the event that a person holds the status of the IPAB Guaranteed Owner in two or more Individual and/or Joint Accounts in the same bank, and the sum of the balances of insured deposits deriving from Individual Accounts, Solidarity and, where appropriate, of his/her share in Underwriter Accounts exceed the amount of 400,000 UDIs, the IPAB will only pay up to that amount, dividing it in pro rata among the balances of the guaranteed accounts.

B. Rules for classifying insured deposits

In order to achieve the objectives of the Banking Law (Spanish acronym LIC), in 2007 the IPAB also issued the "Rules for classifying insured deposits" (Rules).

In addition to the definitions provided in the Joint Account Rules, the following concepts were established:

Depositor ID number (Unique Depositor Key Code-UDKC): a personal identification string of characters to match all accounts belonging to a same person.

Systems: to any of the automated data-processing and preserving systems, used by the banks to safeguard, manage and operate all information on the accounts.

These Rules impel the banks to automatically classify and process through their own IT Systems the information on transactions related to insured deposits, and allow, among others:

1. Identify every IPAB Guaranteed Owner through the UDKC.
2. Record name and address of the IPAB Guaranteed Owner, and the rate of withholding tax or tax regime applicable to the account or to the IPAB Guaranteed Owner itself.
3. Identify the type of account - Individual Account, Solidarity Account or Underwriter Account.

4. Calculate the balance in the account, including interest and other accessories, as well as the currency the funds are held in.
5. Identify accounts related to transactions excluded from coverage, based on the banks' own information.

In addition, the IT Systems must calculate, to any given date, the accounts' balances including accrued interest and other accessories, and, if it were the case, the corresponding withholding tax.

In order for the IPAB to gather the data on transactions relating to insured deposits, the Rules grant the banks the option to choose, whether to develop an Electronic Layout Form (E-Form) of their own, or apply the suggested layout form provided by the IPAB.

The suggested layout form provided by the IPAB has been accepted and put into use by 75 per cent of the banks holding insured deposits; the remaining 25 per cent have implemented their own layout form (**Attachment 1**).

The Rules, give the IPAB the power to participate, along with the CNBV, in actual visits to the banks to review, verify and assess compliance with these Rules.

C. Information Exchange and Inspection Visits Agreement

Administratively, banks are regulated by guidelines and rules issued by the CNBV and the Central Bank -- *Banco de Mexico* --, while oversight is performed by the CNBV. Additionally, in order to contribute to Mexico's financial stability, there is an appropriate coordination and information sharing agreement among the financial safety net members.

For instance, with respect to the current global financial crisis, the CNBV developed stress scenarios and shared the results of such exercises with the IPAB. Furthermore, with the World Bank's close coordination, authorities have carried out banking resolution simulation exercises with the financial safety net members, in order to establish a clear differentiation and coordination of duties among authorities such as execution, evaluation and information sharing tasks.

Additionally, simulation exercises have other objectives such as providing analysis and identifying elements to assess the financial status of banks and, if necessary, notify the IPAB's top management, on a timely basis, regarding any potential sign of distress or bank insolvency that could trigger a banking resolution process.

Nevertheless, the IPAB's responsibility of executing the reimbursement of insured deposits implies carrying out a comprehensive follow-up of banks' performance based on information provided by the CNBV and *Banco de Mexico*. In the same way and as mentioned before, the IPAB signed with the CNBV an "Information Exchange and Inspection Visits Agreement" (Agreement) which has the two following objectives: i) set the mechanisms whereby the CNBV will share financial

information of banks' liabilities transactions, and ii) establish the terms and conditions through which the IPAB may require the CNBV to carry out inspection visits in order to examine, verify and evaluate information given by the banks to the IPAB. The Agreement establishes that banks must comply with the guidelines about the classification of insured deposits information on their automated processing and data storage systems, as well as gather the necessary information to carry out the technical analysis to perform a liquidation process at the least possible cost.

Additionally, regarding the Agreement signed on September 2007, it is important to mention that it was updated with two amendments in October 2008 and December 2009.

The Agreement was designed to achieve the following objectives:

1. Set the mechanisms whereby the CNBV:
 - (a) Will share financial information of banks with the IPAB, as mentioned in the Agreement.
 - (b) Will inform the IPAB, on a timely basis, when a banking institution does not meet the capitalisation requirements as established in the Law, and shall make available to the IPAB relevant information, in order for the IPAB to be able to determine the liquidation processes that must be performed, based on the least cost rule.
2. Establish the terms and conditions whereby the IPAB may require the CNBV to carry out inspection visits in order to:
 - (a) Examine, verify and evaluate information given by banks, as established in the LIC.
 - (b) Examine, verify and evaluate banks' compliance with the set of general guidelines mentioned in the LIC, about the classification that banks must perform concerning information on insured deposits.
 - (c) Gather the necessary information to carry out the technical analysis, as mentioned in the LIC.
3. Establish the terms of collaboration to allow the IPAB's authorised personnel to participate in the inspection visits, based on the IPAB's request and when it determines the participation of its staff on such visits.

Under this Agreement, each November, the IPAB will submit to the CNBV the schedule of inspections visits that would be carried out throughout the following calendar year.

III. Implementation of Inspection Visits

A. Initial aspects

From April 2008 to September 2011, 49 visits to audit the banks have been carried out. The first four were considered "field tests" that, depending on the results and experience gained, would confirm or allow modifications, if it were the case, on the following:

- The number of people needed to conduct the inspection visits or audits.
- The estimated time frame for carrying out the fieldwork.

1. Human resources

- (a) Depending on the size of the bank, a team of three to six persons, with the required experience in auditing, accounting, finance, legal and IT systems, was considered suitable for conducting the audit.
- (b) For the 41 banks operating in Mexico, the team was made up of 17 staff members, divided between four project leaders, three systems experts and a pool of 10 auditors.

2. Time frame

A period of three to four weeks was deemed appropriate to carry out the fieldwork, depending on the magnitude of information and the size of the bank, in terms of the number of Accounts and the IPAB Guaranteed Owners.

3. Terms of reference

In order to achieve the objectives of the inspections visits in a timely, expeditious and uniform manner, the IPAB developed the "Terms of Reference for auditing records and systems". The objective, focus and scope of this paper are:

(a) Objective of audit of systems and records

To review, verify and evaluate that the information available in the banks' systems complies with the Rules.

(b) Focus

- (i) To ensure that the bank's Systems automatically process the data as required by the Rules.
- (ii) To verify that the E-Form fulfils the required technical specifications.

- (iii) To confirm that the E-Form is made of text files according to the requested specifications.
 - (iv) To review the contents of the E-Form in order to assess if the required personal and proprietary information on the IPAB Guaranteed Owners is included.
 - (v) To verify that the string of characters in which the personal and proprietary information on the IPAB Guaranteed Owners is set in the electronic layout form fulfils the requested specifications (type, size and format).
 - (vi) To validate the reliability of references of the text files that make the E-Form which identify the Account's data related to the IPAB Guaranteed Owner.
 - (vii) To confirm that the bank generates the UDKC for all Accounts of the person identified as the IPAB Guaranteed Owner.
 - (viii) To confirm that the personal and property information included in the E-Form corresponds to the information applicable to the IPAB Guaranteed Owner.
 - (ix) To verify that the System performs calculations on any historic or future date Account balances, including interest accrued or estimated and other accessories; and, if it were the case, the respective tax withholdings.
 - (x) To validate that in the E-Form correctly identifies the transactions excluded from the coverage scheme.
- (c) Audit scope on records and systems

The confirmation process described in the preceding subsection (i), will be carried on through direct physical visits to the bank in order to inspect whether their Systems automatically generate the information as required in the Rules and by taking a representative sample of the total number of UDKC contained in their Systems, which is obtained at the beginning of the audit.

Given the volume of Accounts, in some banks, it is impossible to review the total registrations, so the audit team conducts this review based on a statistically representative sample of the universe, which is taken according to the assumptions described in **Attachment 2**.

The revision processes described in subsections (ii), (iii), (iv), (v) and (vi) will be implemented through the sampling procedure previously indicated.

The confirmation process described in subsection (vii), will be carried out through any tests deemed necessary, which include: a) the verification that the amount of total balance of the E-Form corresponds to the total balance of the liabilities' transactions of the Balance Sheet of the bank on the same date, or b) the verification that the 100 per cent of UDKC correspond to the total universe of accounts that the Bank holds to a given date.

The revisions described in subsections (viii), (ix) and (x), will be carried out through the representative sample procedure described above.

Particularly, the revision of the transactions excluded from coverage (subsection (x)) shall consider a list of accounts and persons whom the bank considers related to said transactions.

B. Technological tools developed in the visits

Given that the envisioned scheme for verifying and assessing information provided by the banks involves conducting an audit on the banks' records and Systems, it was essential to have an automated tool allowing the IPAB to expedite the validation and reliability of the information provided by the Banks in the E-Form.

To this end, the IPAB developed a system called Insured Deposits Monitoring (Spanish acronym MOG), which has the capacity to process information provided by both, the banks who adopted the layout form suggested by the IPAB, and those which generated their own layout form.

It is noteworthy that the MOG, displays the "warnings" on the "errors" in which the E-Form might incur, that would entail additional procedures to confirm the results and thus be able to generate conclusions that might correspond.

Likewise, the MOG allows for the processing of the information reported by banks as a whole or in a statistically representative sample during the audits. The system processes, depending on the size of the bank, either 100 per cent or a sample of the bank records on text files within the defined layouts and validates the data by column.

The validation process consists of:

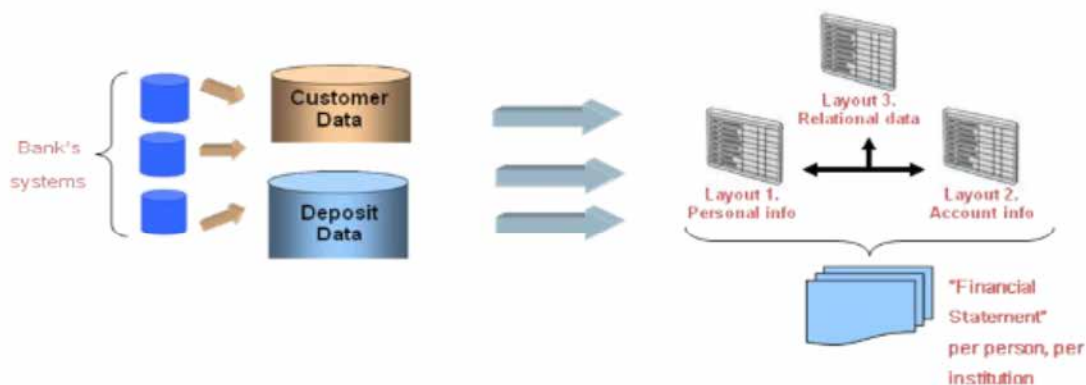
1. Initial validation
 - (a) Data identification, validation of the files' format.
 - (b) Validation of data type and length.
 - (i) Validation of numerical data: the data contained in this string of characters should be composed solely of digits.

- (ii) Validation of Alphanumeric data: checking the length of the string of characters.
- (iii) Validation of dates: checking that dates are set appropriately in the specified formats to allow for a correct conversion procedure.

2. Referential integrity³⁰ validation

- (a) Specific validations defined for each column in the format.
- (b) Validation of duplicate records.
- (c) Validation of referential integrity among the three table files (owners, accounts, and owners' accounts).
- (d) Validation of referential integrity against the pre-defined catalogues (states, currency, etc.).

3. Information flow



4. Information output

- (a) Report on errors (critical or warnings, and control figures).
- (b) Cover page for holder for validation of rules.

On another matter, the main technical features of the MOG include:

- Stand-alone application (runs from a PC or a laptop, with a local database).
- System specifications:
 - Windows XP – OS.

³⁰ Referential integrity is a concept meaning the absence of repetitive unnecessary data and the guarantee that every existing record is always related to another valid record.

- Microsoft .NET – Development tool.
- Crystal Reports – Reporting tool.
- SQL Server 2000 – Local database.

- Two basic functions:
 - On-site management of the information of the banks: layout loading and business rules validation.
 - Information reporting and exporting under predefined filters.

- Input: the bank's information:
 - Three main input files: Holder, Accounts and Holder Account matching.

- Features:
 - Projected balances of the Accounts on future dates.
 - Uninsured deposits or special conditions marks.

- Report on rejections and clarifications (warnings and errors).

IV. Output

A. Final report on inspection visit:

In accordance to the Agreement, the IPAB will submit to the CNBV a report detailing its involvement in the inspection visit, within 25 working days of the conclusion of the inspection.

This Report includes:

The first section is a description of the technical aspects of the audit, which covers:

- A description of the main features of the bank's Systems.
- The detailed description on the procedure that the bank followed for outputting the electronic layout form.
- The series of tests that were conducted to verify compliance of the bank to the focus and the breadth of the Audit Process on Records and Systems.
- The description of gained results.
- Conclusions.

The second section encompasses the quality aspects of Audit Process on Records and Systems; and may contain the following items:

- The procedures that were conducted to validate the quality of information included on Records and Systems provided by banks.
- The description of situations detected.
- Main findings.

An Executive Summary, which includes at least, the most relevant findings and conclusions.

V. Conclusion

A. Information cleanliness

In order to accomplish the objective of acquiring complete and trusted information, there are two main factors to be taken into consideration:

- **Correctly assigning the UDKC.** This procedure enables the IPAB Guaranteed Owner to have all his/her accounts assembled through a single identification number thus allowing the system to identify duplicities, same-name inconsistencies and similar errors. The work team detects said errors and informs the bank in order to have them cleaned-out guaranteeing the singularity of the UDKC.

The adoption of the “scrub-match” systems among banks is being promoted; as well as the periodic revision process and data cleanliness.

- Obtaining the Guaranteed Owner’s right address in order to allow contacting the beneficiary in the event of a banking resolution.

To accomplish this, the MOG is prepared to identify the following:

- Home address with special characters (XX, *, #, etc.).
- Missing information in any demographic field.

During the inspection visits, the team requires the bank to provide all the documentation that supports the location of the Guaranteed Owner in order to validate all relevant personal and demographic information, and, should it be the case, requires the necessary corrective and preventive measures.

1. Corrective actions by the banks

As a result of the inspection visits, the CNBV, along with the IPAB, notifies the banks of any findings that were not taken care of during the visits and which are to be addressed by the banks themselves in a reasonable time frame.

2. Working plan

In this document the bank establishes the time frame and the activities to be carried out in order to address the above-mentioned findings. This document allows the authorities to oversee the stages and follow the attention given to said findings.

3. Legal measures

The CNBV has the power to apply punitive measures to those banks in which the detected observations/findings reveal that the bank has failed to comply with the Rules for classifying insured deposits.

Currently, the CNBV is the only authority entitled to impose the respective sanctions.

B. Information reliability in case of banking resolution

When a bank experiences financial problems that require the IPAB to access the bank's information on insured depositors and its deposit balance, the time frame, resources and related costs to build a database with information enabling the IPAB to deploy a bank resolution, will be based on the quality of the data the bank holds.

In this regard, inspections visits and the working plans by banks to address issues identified during such inspection visits, allow: i) to find out the quality of the banks' information, prior to any problem that the bank could face; ii) to confirm that banks have standardised processes to extract, transform and load the information required by the IPAB to carry out a banking resolution and to assess such processes; and iii) to identify the banks' progress to address and solve, the findings of inspection visits based on the working plans agreed upon with the IPAB.

These on-going visits will allow the IPAB to receive banks' information promptly, shortly and with greater accuracy, thus greatly decreasing time length, costs and resources that the IPAB may bear in order to carry out a banking resolution process.

Quality of information in the bank's system is the key element to any scheme of banking resolution to be employed.

- Clean, trusted and precise data is indispensable in a reimbursement process in order to accurately issue checks and make the electronic transfers with the certitude that in the receiving end is the Guaranteed Owner.
- In a P&A transaction, timely delivered data allows an acquiring bank to be certain about the information of its new customers, low costs in information review, and to confidently identify how disperse is this customer base due to the ample demographics information included in the database.
- For the IPAB, building a Bridge Bank with accuracy and timely delivered data guarantees insured deposits by efficiently identifying this lot; and afterwards being able to transfer or sell said Bridge Bank.
- It should be noted that in the Project to introduce reforms to the following Laws³¹: LIC, Commercial Bankruptcy, Bank Savings Protection and *Amparo*³² - in which the IPAB is currently working alongside the CNBV and the Ministry of Finance-it is intended to grant the IPAB:

³¹ Ley de Instituciones de Crédito, Ley de Concursos Mercantiles, Ley de Protección al Ahorro Bancario y Ley de Amparo.

³² Proceedings which serve to guarantee the inviolability of constitutional rights.

- The power to review, additionally, all assets of any given bank; and
- To perform a set-off with insured deposits of the IPAB Guaranteed Owner, that is, the IPAB will net deposit and loan accounts before paying insured depositors (it may be applied only if the insured depositor has fallen in default on his/her loan).

ATTACHMENT 1

Table 1: The IPAB Guaranteed Owner personal information

#	Concept	Description	Type	Length	Format
1	Unique Depositor Key Code (UDKC)	A personal identification string of characters to match all Accounts belonging to the same person.	Alphanumeric	10	10(A)
2	Legal regime	Natural or legal person.	Alphanumeric	1	A
3	Name	Full name in the case of a natural person. If the owner of the account is a legal person the company's name that the bank registers on the account's contract.	Alphanumeric	100	100(A)
4	Last Name	IPAB Guaranteed owner's last name.	Alphanumeric	40	40(A)
5	Mother's maiden name	IPAB Guaranteed owner's mother's maiden name.	Alphanumeric	40	40(A)
6	Street and number	IPAB Guaranteed owner's mailing address (street and number) is registered in the bank's Systems.	Alphanumeric	75	75(A)
7	Neighbourhood	Neighbourhood in which IPAB Guaranteed owner's address is registered.	Alphanumeric	30	30(A)
8	Municipality	Smallest political unity in which IPAB Guaranteed owner's address is registered.	Alphanumeric	30	30(A)
9	City/Town/Village	City/Town/Village in which IPAB Guaranteed owner's address is registered.	Alphanumeric	30	30(A)
10	Postal Code	Postal Code (ZIP code) in which IPAB Guaranteed owner's address is registered.	Numerical	5	5(X)
11	Country	Country in which IPAB Guaranteed owner's address is registered.	Alphanumeric	50	50(A)
12	State	Key Federal Entity of the Mexico, according to the catalogue that is appended (Catalogo 1), which is located the address of IPAB Guaranteed owner.	Alphanumeric	4	4(A)
13	Tax regime	If the bank will retain taxes.	Alphanumeric	1	A
14	Percentage of tax withholding	Specify the percentage of withholding tax being applied to IPAB Guaranteed owner.	Numerical	6	3(X).XX
15	Causal revision	Identification if the ownership is under the insured deposits exceptions.	Numerical	1	X
16	RFC	ID personal number (tax ID) as used in Mexico.	Alphanumeric	13	4(A)6(X) 3(A)
17	CURP	ID personal number (like medical care or license number) as used in Mexico.	Alphanumeric	18	4(A)6(X) 6(A)2(X)
18	Phone number	Home or work phone number, when needed.	Alphanumeric	30	30(A)
19	E-mail address	E-mail provided by the depositor.	Alphanumeric	50	50(A)

Table 2: Account information

#	Concept	Description	Type	Length	Format
1	Account number	Account's identification number issued by the bank.	Numerical	20	20(X)
2	Investment number	Identification number regarding the type of the investment	Alphanumeric	20	20(A)
3	Type of account	"CI" Individual Account; "CS" Joint Account. "CM" Underwriter Account,	Alphanumeric	2	2(A)
4	Tax regime	If the bank will retain taxes for the Account.	Alphanumeric	1	A
5	Percentage of ownership	Account's percentage of ownership of the IPAB Guaranteed Owner.	Numerical	6	3(X).XX
6	Causal revision	Identification if the Account is under the insured deposits exceptions.	Numerical	2	2(X)
7	Name of product	Commercial names associated with the account.	Alphanumeric	50	50(A)
8	Number of branch's institution	Number or ID that the bank uses to identify the branch where the depositor opened the account.	Numerical	7	7(X)
9	Account Balance	Total balance of the account, including accessories.	Numerical	16	13(X).X X
10	Currency	Currency regarding a specific list [catalogue]	Numerical	1	X
11	Balance Date	Date of last balance Account applicable in the case of time deposits and savings	Date (Numerical)	8	YYYYMM DD
12	Hire date	Date on which the Account was documented in the case of time deposits or maturity date pre-term, loans and credits	Date (Numerical)	8	YYYYMM DD
13	Period terms	Original period term that the depositor contract with the institution.	Numerical	4	4(X)
14	Type of rate	Fix rate or adjusted rate. "1": Fix rate "2" Adjusted rate	Numerical	1	X
15	Rate	Rate value for fix rates.	Numerical	6	3(X).XX X
16	Basis points	In the case that use adjusted rate.	Alphanumeric	20	20(A)
17	Percentage points	Percentage points to add or to multiply the rate value register in adjusted rate accounts.	Numerical	6	3(X).XX X

18	Arithmetic operator	Arithmetic operator that is used to calculate the rate accounts agreed at variable rates "+": Sum; "-": Subtraction, or "*": Product. Not applicable to fixed rates	Alphanumeric	1	A
19	Next balance Date	Date of next balance Account applicable in the case of deposits and savings	Date (Numerical)	8	YYYYMM DD
20	Average balance account	Savings accounts and sight deposits such as checking accounts.	Numerical	16	13(X).X X

Table 3: Personal - Account Information

#	Concept	Description	Type	Length	Format
1	Account number	Account's identification number issued by the bank.	Numerical	20	20(X)
2	Investment number	Identification number regarding the type of the investment	Alphanumeric	20	20(A)
3	Unique Depositor Key Code (UDKC)	It is a personal identification number that allows the matching of all the Banks Accounts when the same person is insured ownership.	Alphanumeric	10	10(A)
4	Percentage of ownership	Account's percentage of ownership of the IPAB Guaranteed Owner.	Numerical	6	3(X).XX

Catalo 1: Mexico States

Key	Description
AGS	Aguascalientes
BCN	Baja California
BCS	Baja California Sur
CAM	Campeche
COA	Coahuila
COL	Colima
CHP	Chiapas
CHI	Chihuahua
DF	Distrito Federal
DUR	Durango
EM	Estado de México
GUA	Guanajuato
GUE	Guerrero
HID	Hidalgo
JAL	Jalisco
MICH	Michoacán
MOR	Morelos
NAY	Nayarit
NL	Nuevo León
OAX	Oaxaca
PUE	Puebla
QUE	Querétaro
QR	Quintana Roo
SLP	San Luis Potosí
SIN	Sinaloa
SON	Sonora
TAB	Tabasco
TAM	Tamaulipas
TLAX	Tlaxcala
VER	Veracruz
YUC	Yucatán
ZAC	Zacatecas

Catalo 2: Currency

Key	Description
1	Mexican Pesos
2	US Dollars
3	Units of Investment (<i>Unidades de Inversión</i> – UDIs)
4	Euro
5	Pound Sterling
6	Mark
7	Yen

ATTACHMENT 2

Sampling methodology for the audits of records and systems established in the Rules

The universe of all UDKC contained in the Systems segment should be as stated in the initial data (Stratum 1, Stratum 2 and Stratum 3).³³

To do this, we suggest the following steps:

1. Identify UDKC associated with more than one account and segregate the original universe, the segmentation corresponds to Stratum 3;
2. Of the remaining UDKC (those that are only associated with a single account) should be identified through the field in the table 2 of the layout called "Number of Investment" those keys to record the value of zero and segregate this sub-universe, such segregation corresponds to Stratum 2, and
3. Finally, residual UDKC will be considered as a Stratum 1.

The selection(s) sample(s) for each stratum should consider that the level of confidence shall be 95 per cent and the expected error level should be set at a range between three per cent and five per cent.

Sample Size by group of Banks in accordance with the number of Unique Depositor Key Codes

Sample 1: Max Error 3%

Sample 1: Max Error 3%

Banks with less than 100,000 UDKC				Banks with more than 100,000 UDKC			
	Stratum 1	Stratum 2	Stratum 3		Stratum 1	Stratum 2	Stratum 3
Confidence level	95.0%	95.0%	95.0%	Confidence level	95.0%	95.0%	95.0%
Max Error	3.0%	3.0%	3.0%	Max Error	3.0%	3.0%	3.0%
Proportion	0.5	0.5	0.5	Proportion	0.5	0.5	0.5
Z Value %/2	1.96	1.96	1.96	Z Value %/2	1.96	1.96	1.96
UDKC (N)	40,000	40,000	20,000	UDKC (N)	400,000	400,000	200,000
Sample size (n)	1,039	1,039	1,013	Sample size (n)	1,064	1,064	1,061

³³ Stratum 1. UDKC that only have one time deposits or with advanced notice of withdrawal, such as certificates of deposit or deposits that could be withdrawn on established dates.
 Stratum 2. UDKC that are associated exclusively one sight or saving Account.
 Stratum 3. UDKC associated with more than one Account.

Sample 2: Max Error 5%

Sample 2: Max Error 3%

Banks with less than 100,000 UDKC			
	Stratum 1	Stratum 2	Stratum 3
Confidence level	95.0%	95.0%	95.0%
Max Error	5.0%	5.0%	5.0%
Proportion	0.5	0.5	0.5
Z Value %/2	1.96	1.96	1.96
UDKC (N)	40,000	40,000	20,000
Sample size (n)	381	381	377

Banks with more than 100,000 UDKC			
	Stratum 1	Stratum 2	Stratum 3
Confidence level	95.0%	95.0%	95.0%
Max Error	5.0%	5.0%	5.0%
Proportion	0.5	0.5	0.5
Z Value %/2	1.96	1.96	1.96
UDKC (N)	400,000	400,000	200,000
Sample size (n)	384	384	383

Annex IV: IADI Case Study: MDIC's Experience in Designing and Developing an Effective Reimbursement System

"In striving to be the best, setting standards is one way but setting an ideal and striving to meet that ideal is, for me, the best way forward. And if we know what can possibly derail us then we are already half way to reaching our ideal."

*Jean Pierre Sabourin
Chief Executive Officer
2007*

I. Introduction

To be able to reimburse depositors promptly and accurately when a bank fails is one of the most critical functions of any deposit insurance system, regardless of its mandate. Inability to meet such obligations would destroy the credibility and reputation of any deposit insurance system. It could also trigger financial contagion or other severe spill-over effects onto the banking system. The ability to conduct a reimbursement function has taken on greater urgency in recent years due to the vulnerability in the banking sector as seen during the financial crisis.

We recognised that having the capability and capacity to conduct a reimbursement effectively and efficiently is a key building block in fulfilling our mandate of promoting and contributing to the stability of the financial system. Hence, the Malaysia Deposit Insurance Corporation (MDIC) started developing its reimbursement function as soon as it had addressed the early operational issues in implementing the deposit insurance system. The project to develop the IT reimbursement system started in early 2007, two years after MDIC was established and was completed in 2011.

This case study details the MDIC's key learning points in developing its reimbursement system, provides insights into the thinking process behind key decisions and approaches adopted and describes how we mitigated the impediments to a prompt and effective reimbursement in Malaysia. This study is intended to be of practical value to deposit insurers looking to develop a comprehensive, robust and effective reimbursement system.

The project was divided into three phases:

- Phase 1 (from January to December 2007) which involved the design of the reimbursement system, strategies and approach;
- Phase 2 (from January 2008 to 2011) which involved the development of the IT reimbursement system; and
- Phase 3 (from January 2008 to 2011) was launched almost concurrently with Phase 2 as it involved the review of the necessary legislative authority,

policies and procedures to support the reimbursement system. This included the development of an audit program to assess the adequacy of the reimbursement system internal controls.

II. Phase 1: Designing the Reimbursement System, Strategies and Approach

We recognised that building the reimbursement system would require a systematic and methodical approach. Our approach was to undertake the development of the reimbursement system as a key performance initiative which requires the performance and budget allocated to the initiative to be tracked and reported under our Corporate Plan.

As with all our key performance initiatives, our first step was to involve the right people to plan and manage the development of the reimbursement system. A Payout Working Group (the PWG), which consisted of representatives from various divisions of MDIC, was established to discuss, deliberate and recommend strategies and policies relating to the development of the reimbursement system to Management.

One of the first issues confronting a deposit insurer is to decide on the type of reimbursement system to be developed. There are three basic types of reimbursement systems to choose from, i.e. (i) an IT system which processes depositor information received from a troubled bank; (ii) a manual system which computes reimbursement amounts from information available at the troubled bank; and (iii) an IT module which overlays the troubled bank's system that is developed by a deposit insurer. There is no one-size-fits-all IT reimbursement system. In practice, deposit insurers choose either one or a combination of the above types of IT reimbursement systems. But, given the complexities of selecting what is appropriate IT reimbursement system, it is easy for a deposit insurer planning to develop an IT reimbursement system to be overwhelmed by the diversity of approaches used by other deposit insurers.

There are also other issues to consider such as: Should it be a stand-alone system? What are the features of an effective IT reimbursement system? What IT platform should be utilised? What are the criteria for system selection? How much of the reimbursement processes should be outsourced to service providers and what are the selection criteria? How much to invest in the system? Should the focus only be on the development of an IT reimbursement system?

A. Setting the scope of the reimbursement system

From the beginning of the project, the PWG was aware that the development of the physical IT reimbursement infrastructure would not, by itself, ensure the promptness and effectiveness of the reimbursement function. As such, the PWG agreed that the scope of the reimbursement system would encompass the design

and development of the IT and physical infrastructure, the review and establishment of the legislative authority, the development of policies and practices, regulations and guidelines, and the talent necessary to support and facilitate the reimbursement function.

The PWG's first step was to clarify, from the very beginning, the capability and capacity of the proposed reimbursement system. With the complexity and the size of deposit accounts in the Malaysian banking system, we decided that an IT system which would shorten the preparation time for calculating depositor entitlements and speed up the reimbursement process, would be the most appropriate.

We started the project by coming out with a "wish list" of desired features for our ideal reimbursement system. And our wish list included the following "must have" features:

- Capable of processing depositor information within 48 hours of MDIC receiving depositor information from a troubled bank;
- A live system that is ever ready for use and scalable and expandable;
- Be seamless and fully automated with minimum manual input of depositor information. For example, an encashment of a cheque by a depositor would be captured and updated automatically by the system;
- Possess a single, robust and integrated database of current depositor information which is accessible online by multiple users simultaneously so that all authorised users of the system would have access to the same depositor information database;
- Depositors must be able to have online access to information on reimbursement and the details and status of their deposits and personal data; and
- Bulk of a reimbursement preparatory work would be carried out in advance of a bank failure.

These features became our end-in-sight goals which guided the PWG in designing and developing our reimbursement system. When these goals were first developed, it was agreed that the goals would not be changed except if costs were a factor. These goals were agreed by the Board. The PWG then proceeded to gather intelligence and information to get a better perspective of requirements as Malaysia has yet to experience a reimbursement experience. We recognised the need to learn from the rich experience of other deposit insurers who had developed IT reimbursement systems, and especially from those with reimbursement experience. Members of the PWG made study visits to the Canada Deposit Insurance Corporation and the Federal Deposit Insurance Corporation in 2007. They also visited the Hong Kong Monetary Authority and Singapore Deposit Insurance Corporation, which started developing their IT reimbursement systems before us. With help from fellow members of the International Association of Deposit Insurers (IADI), MDIC was able to understand and identify many of the challenges faced in building an effective reimbursement system.

Several brainstorming and consultative sessions were also conducted with external stakeholders like Bank Negara Malaysia, the central bank of Malaysia, and representatives from selected member banks to test and obtain feedback about the proposed requirements for the reimbursement system.

The PWG also conducted in-depth research into the selected member banks' IT infrastructures, their data structure and the quality and availability of depositor information. The PWG also studied the payment, clearing and remittance rules and practices of the Malaysian banking system as well as the supporting IT systems. The knowledge was important in helping MDIC to design and develop a robust IT reimbursement system.

The PWG also adopted project management best practices as part of MDIC's project management discipline to ensure completion of the intended reimbursement project. Among others, these practices required the PWG to set clear reporting lines and ownership of goals, clear deliverables, strict conformance to schedule with regular progress reports and project meetings, strict documentation of processes and rationale of decisions made and application of User Acceptance and Performance Tests involving users across all divisions.

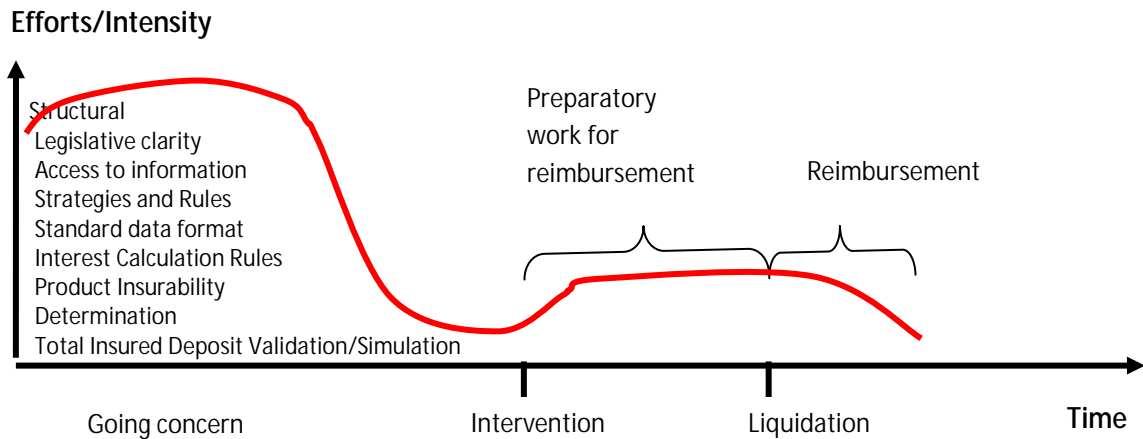
While research was carried out, other members of the PWG identified impediments or challenges that could potentially hinder us in developing a reimbursement system that would meet our goals in making prompt and effective reimbursements to depositors. This was one of the key challenges faced by the PWG. It required the PWG to understand all aspects of the reimbursement process. Some of the key impediments that were identified included the following:

- Poor quality of depositor records at member banks;
- Inability of member banks to provide data within desired time frame;
- Different member banks with different file formats of depositor information;
- Difficulty to reconcile in-transit transactions;
- MDIC's lack of experience to undertake a reimbursement function;
- Bank secrecy laws which restricts access to depositor information;
- Time needed to determine beneficiaries of trust accounts and their respective interests;
- Complexity of coverage rules, such as application of set-off rules, determination of joint account holders' share of deposits and computation of interest payable which can delay the reimbursement process;
- Requirement for depositors to submit claim forms;
- Time needed to determine depositor insurable entitlements due to difficulty in determining the insurable status of deposit products; and
- Treatment of unclaimed depositor payments as unclaimed monies.

As the PWG compiled its research findings and study reports and compared these against the list of impediments, several important issues were identified. First, an effective reimbursement approach is one that would minimise the time taken to process depositor information promptly and accurately. Chart 1 depicts the level of pre and post reimbursement preparation activities under an effective

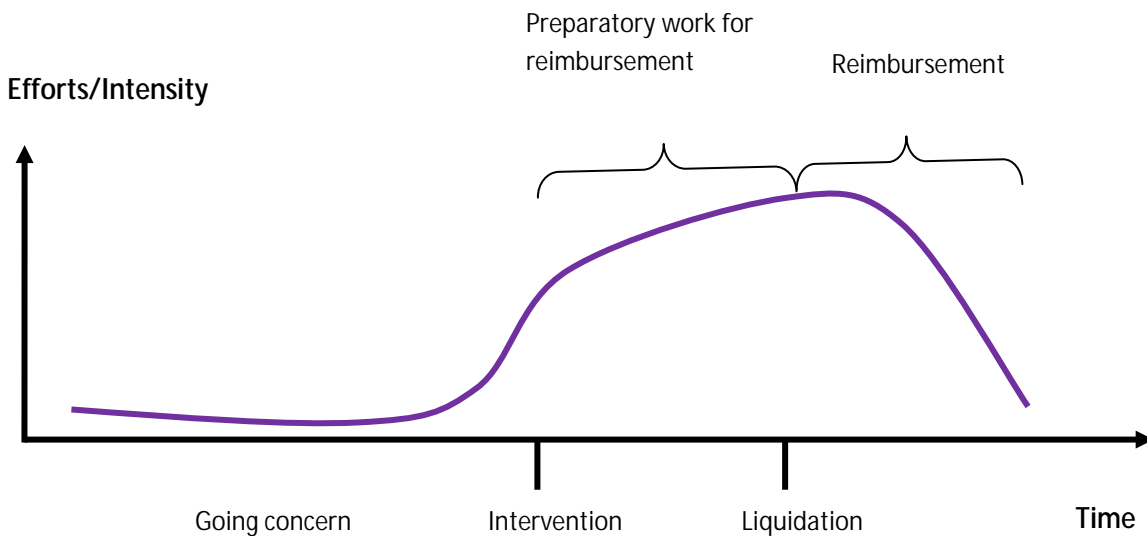
reimbursement model while Chart 2 shows the level of pre and post reimbursement activities under a traditional reimbursement model.

Chart 1: Pre and post reimbursement activities under an effective reimbursement model



The reimbursement activities under a traditional reimbursement model only start once the member bank has failed. Hence, a deposit insurer could possibly face numerous data quality problems amidst pressure to complete the payments promptly. Working under extreme stress, errors in computation of reimbursement amounts could be committed, leading, eventually, to possibly costlier resolutions.

Chart 2: Pre and post reimbursement activity under a traditional reimbursement model



Second, it became clear to the PWG that the effectiveness of the reimbursement system is dependent on removing the identified impediments since many of the impediments can affect the speed and accuracy in computing depositor entitlements or delay the time taken for depositors to access their deposit

entitlements. How does one go about eliminating or mitigating them? Our solutions to removing the list of impediments identified are set out below.

Table 1: Impediments and challenges to an effective reimbursement system

Impediments and challenges	Actions to address impediments
Complexity and size of depositor records	Developed an IT based reimbursement system that is scalable and expandable
Different file format submitted by banks	Issued guidelines to member banks requiring the submission of depositor records in a standard file format to MDIC on an annual basis and upon request
Lack of access to depositor records in advance of a failure	The MDIC Act provides MDIC with unfettered access to depositor information at all times
Unable to undertake early or preparatory examinations of deposit liabilities in the event of an imminent reimbursement	The MDIC Act gives MDIC the authority to undertake early or preparatory examinations of bank deposits, whenever a reimbursement is imminent
Requirement for depositors to submit claims to MDIC delays reimbursement process	The MDIC Act provides for subrogation of rights and interest of depositors which eliminates the need for claim forms. MDIC is also empowered under the MDIC Act to make payments based on the depositor records of member banks
Poor quality or incomplete depositor records at banks. Poor quality includes non-updated or inaccurate information	Conducts validation of member banks' premium computation annually and requires member banks to improve the quality of their depositor information and systems over time
Implement a live system that continuously functions	Issued guidelines to member banks requiring the submission of depositor records in a standard file format to MDIC on an annual basis as part of the submission for the assessment of premiums
Human errors in handling of deposit data	The IT reimbursement system provides a seamless and automated process with minimum manual intervention
Lacks unique identifier to aggregate a depositor accounts	Uses the national identity card number as the primary identifier. This is supplemented with information on date of birth and addresses
Bank secrecy laws which restricts access to depositors' names	Requires banks to mask or use encryption on specific information on depositor records
Lack of appropriate communication strategies to deal with depositors	Implemented an interactive call centre with access to a Single Customer View (SCV) of all depositors to provide information such as the list of accounts that belong to depositors, whether the accounts are insurable or not, the insured and uninsured balances, payment status and payment method used, depositors' mailing address etc. The call centre would be able to adequately address depositors' queries and concerns Depositors could also have direct access to such information

Impediments and challenges	Actions to address impediments
	via the internet (password protected)
Inability to aggregate the balance held by an eligible depositor	The MDIC IT reimbursement system is able to generate a SCV
Lack of resources within the organisation to conduct a reimbursement	Adopts a virtual organisation resources structure where the core internal staff will be supported by specialised services providers such as accounting firms, IT contractors, legal firm, payment agents and customer services agents in the conduct of reimbursement related activities
Difficulty in the reconciliation of in-transit transactions	MDIC is establishing working arrangements with Payment Systems operators such that the issues surrounding reconciliation of in-transit items could be resolved
Lack of experience to undertake and complete a reimbursement	<p>Developed comprehensive strategies, policies and procedures and build core competent skill sets to perform reimbursements</p> <p>Conducts periodical simulation and insured deposit validation exercise, training and development for designated resources as well as reviewing of policies and procedures</p>
<p>Complexity of coverage rules which include the following:</p> <ul style="list-style-type: none"> • Netting of deposits against loans • Computing accrued interest payable • Splitting and disaggregating of joint deposit accounts • Determination of beneficiaries and their share of ownership of trust accounts 	<p>MDIC coverage rules are kept simple to ensure that the computation of depositor entitlements can be made easy and quickly, as follows:</p> <ul style="list-style-type: none"> • No netting requirement under the MDIC Act; • Require banks to compute interest on a daily basis; • No disaggregation of joint accounts. MDIC Act provides that joint accounts are separate and distinct deposits. Reimbursement is made in the joint names as stated in the joint account; and • Require member banks to ensure that they have a proper data management system to record trust account information including beneficiaries and their entitlements and that these information be updated frequently
Unable to determine insurability of deposit products during a reimbursement	<p>Member banks are required to undergo a product insurability certification process where MDIC would verify and certify on the insurability status of each and every deposit product prior to its launch</p> <p>Depositors are to be informed by the member bank of the insurability status of deposit products at the point of sale</p>

III. Phase 2: Developing the IT Reimbursement Infrastructure

The PWG commenced this phase of the reimbursement system on schedule, in early 2008. There are two key aspects in developing an effective reimbursement system. The first is laying the groundwork to facilitate an effective reimbursement system and the second involves the actual designing and development of the IT

reimbursement system. We reviewed each of the two key aspects in greater detail below.

A. Laying the groundwork to facilitate an effective reimbursement system

1. Enabling legislative environment

Legislative authority can greatly influence the final design and capability of the reimbursement system. Hence, an important pre-condition to an effective reimbursement process is to have in place legislative authority that supports and facilitates a prompt reimbursement. It is noted that in some jurisdictions, due to strict bank secrecy rules, deposit insurers do not have access to depositor information until the troubled bank is closed. This would restrict the ability of the deposit insurer to reimburse depositors promptly. Indeed, the IADI Survey on Effective Reimbursement Systems results showed that this is the biggest impediment to a prompt reimbursement process. Also there is a risk that depositor information could be manipulated if the period between a bank closure and the deposit insurer's access to depositor records is too long, thus complicating the reimbursement process.

The PWG thus conducted a review of the MDIC Act which already provides MDIC with the following legislative authority to support a prompt and effective reimbursement:

- (a) Unfettered access to depositor information, at all times;
- (b) Authority to undertake early or preparatory examinations of bank deposit liabilities whenever a reimbursement is imminent. This provides adequate time for MDIC to determine the resources required to execute the reimbursement, roll out communication strategies, prepare for and complete a reimbursement;
- (c) MDIC is subrogated by law to all the rights and interests of depositors to the extent of the payment value;
- (d) Authority to issue reimbursement rules to facilitate the reimbursement process; and
- (e) Treatment of joint-account holders as a single depositor, eliminating the need to de-aggregate joint account holders and to investigate their respective share of deposits.

Based on the legislative authority, the information gathered by the PWG, the research carried out, the impediments and challenges that were identified, the PWG then decided that MDIC's IT reimbursement system would be a fully automated and integrated system with five function-specific modules.

Integration of the related modules was necessary to ensure smooth and effective reimbursement to support various payment methods. These modules are:

- (a) Depositors Liability Information Management System (DLIMS) that processes deposit data, including reconciliation, aggregation and generation of the final list of reimbursement payments to be made to depositors;
- (b) Product Registry System (PRS) which captures information on all deposit products offered by member banks. The PRS is also a repository of all deposit products certified by MDIC as eligible for deposit insurance coverage. MDIC as well as the banks are able to access the PRS online to validate, at any point in time, the list of insurable deposits. Hence, at the time of a reimbursement, there would not be any confusion as to which deposit products are insured and which are not;
- (c) Depositors Support Management System (DSMS) which interfaces with DLIMS to enable call centre operators to access depositor information. This module will provide call centre operators with an aggregated or SCV of each depositor's accounts and his deposit insurance entitlement so that they have up-to-date depositor information to deal with depositors' queries or concerns;
- (d) Payout Payment Management System (PPMS) that processes payments to support various payment methods, such as cheques, transfer of deposits to another bank to make payments and payments through automated teller machine (ATM) system; and
- (e) Request Management System (RMS) which interfaces with DSMS, PPMS and DLIMS, will process requests or queries received from depositors via DSMS/Call Centre. This sub-system records, tracks and updates the status of these requests to DSMS at each processing stage. Depending on the type of request, after manual verification and investigation done by the Request Management Team, the request will be channelled to DLIMS for recalculation of total insured deposit or will be directed to PPMS for reissuance of payment.

Please see Box Article in the following page which describes the process flow and integration of the IT reimbursement system.

Box Article: Process Flow and Integration of the IT Reimbursement System

The overall process flow and integration of the IT reimbursement system are as follows:

- A bank submits the depositor information in standard file format which is uploaded to the DLIMS. This is the core reimbursement engine designed to extract, validate and load depositor information (both financial and non-financial). The DLIMS will generate the depositor payment list based on the information uploaded.
- The depositor information is then extracted into two separate Islamic and conventional streams, if necessary. Within each stream, the data is then extracted into five separate standard file formats according to account types, namely individual, joint, trust, and sole proprietorship and partnership accounts. This segregation allows the DLIMS to simultaneously process and aggregate data to obtain the SCV of depositors within each of the account types and within the Islamic and conventional streams.
- During the processing of the SCV, the DLIMS will cross-check the insurability status of each deposit product against the PRS. This is an automated insurability validation process which minimises time required to perform manual checking of deposit product insurability.
- The Call Centre plays a crucial role in providing communications and managing depositors' queries. Call Centre operators will be able to access depositor information to enable them to answer depositors' queries. Call Centre operators can use the DSMS module to access online a depositor's current SCV. In computing the SCV, MDIC uses the national identity card number issued to every Malaysian as the primary unique identifier, supplemented with the date of birth and mailing addresses. Amongst other functions, the DSMS enables the Call Centre operators to validate caller identity and also allows updating of depositor non-financial information such as correspondence address and contact telephone numbers. At a glance, a Call Centre operator can view the list of accounts belonging to a depositor, whether the deposit products within each account type are insurable or not, the amount of insured and uninsured balances, payment status and payment method, correspondence address, etc.
- Queries or complaints relating to discrepancy on reimbursement amount will be investigated separately. All request received will be transmitted to RMS which will record and update the request on each processing stage. All requests are verified and investigated by the Request Management

Team. Findings from the investigation would be communicated and updated to the DSMS and the Call Centre will then be alerted by the system to contact the affected depositors to update them on their status of their query. If the investigation requires an adjustment to the payment amount the updated payment information will be updated to the DLIMS to generate a payment file and after that, it will be transmitted to the PPMS for payment.

- The payment list generated by the DLIMS will be transmitted to the PPMS. The PPMS will generate the payment file, payment statement file, maintain the payment status records and update the payment records in MDIC's accounting system.
- If payments are made through a payment agent, the PPMS will transmit the payment file and the payment statement file to the relevant payment agent. The payment agent will make payments based on the payment method instructed by MDIC, such as cheques or bank transfer to another member bank.
- With regard to bank transfers, as all the necessary identification and payment details would be transferred to the agent bank and new temporary deposit accounts will automatically be created for the insured depositors. Depositors need only to provide identification to the agent bank to have access to their insured deposits. Depositors have a choice of opening a deposit account with the agent bank or to move their funds elsewhere.
- MDIC is evaluating the feasibility of effecting payments via the ATM network. If found feasible, MDIC would make the necessary arrangements with ATM system operator to keep a troubled bank's ATM system operational for depositors to withdraw the insured portion of their deposits from failed bank's ATM network or the national ATM network.
- The PPMS will also generate a deposit account statement. The account statement will provide comprehensive information to enable depositors understand how the reimbursement amount was computed. The information in the account statement will include the listing of all a depositor accounts, principle and interest balances, insurability status of each deposit product, insured and uninsured balances, advanced payments (if any), adjustments made (if any) and the final payment amount. With this detailed account statement, depositors would have the necessary information to understand how the final payment was calculated. This is a pre-empt measure that will result in higher depositor confidence and minimise the number of depositors' queries. With regard to printing and mailing of account statements, these will be outsourced to a service provider.

The PWG began developing the IT reimbursement system through a phased approach. The team also wanted to focus time and attention on the IT development process and to develop the reimbursement procedures and processes to be done in parallel with the IT reimbursement system.

Sub-phase 1 began in 2008 and was completed in 2009. This phase involved the development of the DLIMS and DSMS modules. Sub-phase 2, which involved the development of the PPMS, PRS and RMS, were completed in June 2010. In August 2011, the PPMS was integrated with DLIMS, DSMS and RMS. The system is also capable of enabling the PPMS module to integrate with the IT system of payment agents.

To meet the PWG's end-in-sight goal of having a live system that will be available at any time, it was decided to leverage on the IT reimbursement system as a tool to carry out other functions. One function that will be carried out is the validation of the computation for determining the annual premiums based on total insured deposits. This will be done on an annual basis where deposit liability information, submitted in the standard file format to MDIC, is fed into our reimbursement system to generate the figures for total insured deposits. Another function of the IT reimbursement system is to access depositor information for the purpose of research, the conduct of comprehensive simulation and testing for reimbursement system readiness, and provide data for MDIC to observe trends in deposit liability balances.

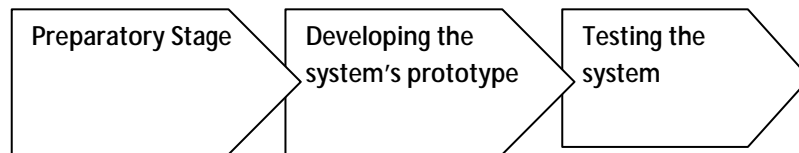
In designing the IT reimbursement system platform, the system had to be flexible and capable of handling depositor information of small to very large banks. As such, the PWG decided that the IT reimbursement system will have the following features:

- Supportability – First, the system platform should be commonly used in Malaysia and could be easily supported. The Microsoft-Dot-Net platform was identified as meeting that requirement. This allowed for MDIC to source from a wider pool of service providers that could support this platform. Second, services and support for the system used must always be available;
- Scalability – The system capacity should be expandable without much change to the technical and architectural design;
- The intellectual property of the system must belong to MDIC. This was a major factor in the selection process as it would ensure that MDIC is free from limitations on the use of the system and royalty fees. MDIC could then market and offer the system to interested parties; and
- System design and architecture must be based on best practice standards. MDIC appointed Microsoft Malaysia as advisors to ensure

that System Quality Assurance with system design and development were benchmarked to best practices and standards.

B. Development of the IT reimbursement system

There were three key stages in the actual development of the MDIC's reimbursement system.



1. Preparatory stage

At MDIC, the selection of a vendor is a key process which is subjected to strict internal controls and governance standards. MDIC used an open tender process with clearly specified selection criteria. A comprehensive Request for Proposal (RFP) document was issued to interested vendors, highlighting clearly MDIC's expectations and critical requirements of the proposed IT reimbursement system. The RFP was developed based on the comprehensive Business Requirement Specification (BRS), which was developed using information gathered from other deposit insurers during study visits. The RFPs submitted by vendors were evaluated and scored based on the technical proposal. Specific weighted criteria were established, such as financial standing and company background, understanding of requirements, Proof of Concept (POC) demonstration, legal compliance and intellectual property rights.

The financial proposal, which was reviewed only by the Audit and Consulting Services (ACS) Division of MDIC, was not disclosed to the PWG during the scoring process. The ACS's scoring results and the proposal on financial details were then tabled to MDIC's internal Information Technology Steering Committee (ITSC). Based on the technical and financial scoring, the ITSC then shortlisted five potential vendors and invited them to present their proposals. The PWG then evaluated and gave a scoring on the POC of each bidding vendor and the results were tabled to the ITSC which is charged with recommending the successful vendor to the ACS.

Guided by the BRS and RFP documents, the User Requirement Specification (URS) was then developed after thorough discussion with the users of the system and the selected vendor. The URS contains details of the system requirements and the process flow. After the completion of the URS, technical specification and system architectural design were developed.

(a) Developing the system's prototype

The system design was developed based on the URS. Upon completion of the system design, the vendor presented the 1st System prototype, which contained the look and feel of the system, including the functions and screens for feedback and comments. These comments were incorporated into the 2nd system prototype. Further comments and views were consolidated and signed off for system development.

(b) Testing the system

The system was tested in August 2009 based on a test plan, test scope and the test script. To test the system, 200,000 dummy deposit accounts were created. Each sample data contained information as per the standard file format. The sample data were created based on positive and negative test cases and four contract employees with banking experience were hired for four months for this exercise. Problems that arose during the testing were rectified by the vendor and the system was retested. The end-to-end system testing was completed and signed-off within six weeks. A system walk-through was done for the benefit of Management and the PWG.

Next, the system was stress-tested on September 2009. For this exercise, the sample of 200,000 accounts was replicated to 20 million accounts. This test was based on the depositor information being fully compliant to data format requirements and subject to zero error. The system was successfully tested for 20 million accounts where the processing time took 15 hours, from uploading depositor standard file format data to the generation of the depositor payment list based on the SCV.

IV. Phase 3: Developing Guidelines, Policies, Reimbursement Procedures and Processes

The PWG recognised that early access to adequate reliable data is critical for prompt and effective reimbursements. Hence, it was important to require member banks to collect depositor information and keep these up-to-date in a standardised format that can easily be assessed by MDIC's IT reimbursement system. To achieve this, MDIC issued various policies and guidelines to member banks. These involved critical issues, such as standards on data cleansing and submission, and interest computation rules to facilitate prompt and effective reimbursements. Many of these issues have already been identified by the PWG in the early design stage as impediments and challenges that could impact the effectiveness of a reimbursement system (see Table 1). For completeness, the scope of the guidelines and regulations are set out below. These guidelines and regulations required member banks to:

- (a) Submit their deposit liability information in a standard file format to MDIC on an annual basis and upon request (within 48 hours upon request by MDIC) to ensure that data could be easily and quickly processed on MDIC's reimbursement system;
- (b) Mask depositors' names and submit depositor information using encryption to ensure confidentiality is maintained;
- (c) Maintain clean and proper records such that depositor information is accurate and current. The depositor liability records must be reconciled with the general ledger. This reduces the time needed for reconciliation and validation of member banks depositor records;
- (d) Be subjected to a validation process in regard to their total insured deposits position. Under the validation process, a bank's total insured deposits would be verified against the computation of insured deposits generated from MDIC's reimbursement system, using the bank's depositor information which would be submitted annually. This validation is aimed at ensuring that banks have clean, accurate and complete depositor information. Repeated validation over a period of years will progressively reduce the processing time required to compute an accurate depositor payment list;
- (e) Compute interest/return on each deposit account on a daily basis and be able to accrue this amount to the principal balance at any point of time. This is aimed at reducing the time needed to compute interest/return on deposit products to ensure accuracy of amounts owed to depositors;
- (f) Comply with a product insurability certification programme whereby MDIC must certify the insurability status of each deposit product before the product can be offered for sale. To track insured deposit products, a unique product code is issued to each product which is recorded in the PRS. This allows verification of the insurability status of each deposit product throughout the lifespan of the product. When the product is withdrawn from the market, the product code will still be maintained. It will only be removed from the PRS when the specific deposit liabilities are no longer on the books of the issuing member bank; and
- (g) Provide updated information and documentation on their deposit liability system and IT infrastructure.

In addition to the above, to enable faster reimbursements, it is important to have in place comprehensive documentation of policies and procedures for the reimbursement processes. The policies and procedures have been developed and are reviewed continuously to ensure that they remain current and relevant.

V. Human Resource Capability

At MDIC, we also recognised that it is not easy to source for talent with experience and skill in conducting a reimbursement. Our human talent management approach is to build a core group of reimbursement specialists with the right competency and

skill set to conduct and manage a reimbursement. We have already in place a team of reimbursement specialists who are dedicated solely on reimbursement preparation and management. Having a dedicated team of reimbursement specialists has a number of advantages. In the event of a bank failure, MDIC has the capability and capacity to carry out preparatory examination and do whatever is necessary to undertake reimbursement preparation well before MDIC is required to carry out its mandate. Such a level of operational readiness is vital for managing depositor confidence in MDIC. With a dedicated team of specialists, MDIC is able to effectively mitigate the risks, such as reputational and operational risks caused by a delayed or poorly managed reimbursement.

The reimbursement team is trained on various aspects of the reimbursement process. Training and development include periodic simulation and insured deposit validation exercises, review of policies and procedures to ensure these continue to be relevant. And to further equip MDIC with knowledge and understanding of banks' core deposit system and IT infrastructure, the reimbursement team can undertake a systemic process of documenting banks' IT systems, policies and banking practices as well as reviewing their effect and implications for the reimbursement process.

VI. Conclusion

MDIC has adopted a comprehensive approach in developing a reimbursement system which not only includes building the IT infrastructure but also the legislative authority, the policies and procedures and the talent required to ensure a prompt and effective reimbursement.

Going forward, MDIC will conduct a comprehensive simulation exercise for the reimbursement process which would include testing the reimbursement system as well as the related policies and procedures.

Annex V: IADI Case Study: Information Technology for Effective Reimbursement of Insured Deposits (Federal Deposit Insurance Corporation)

I. Introduction

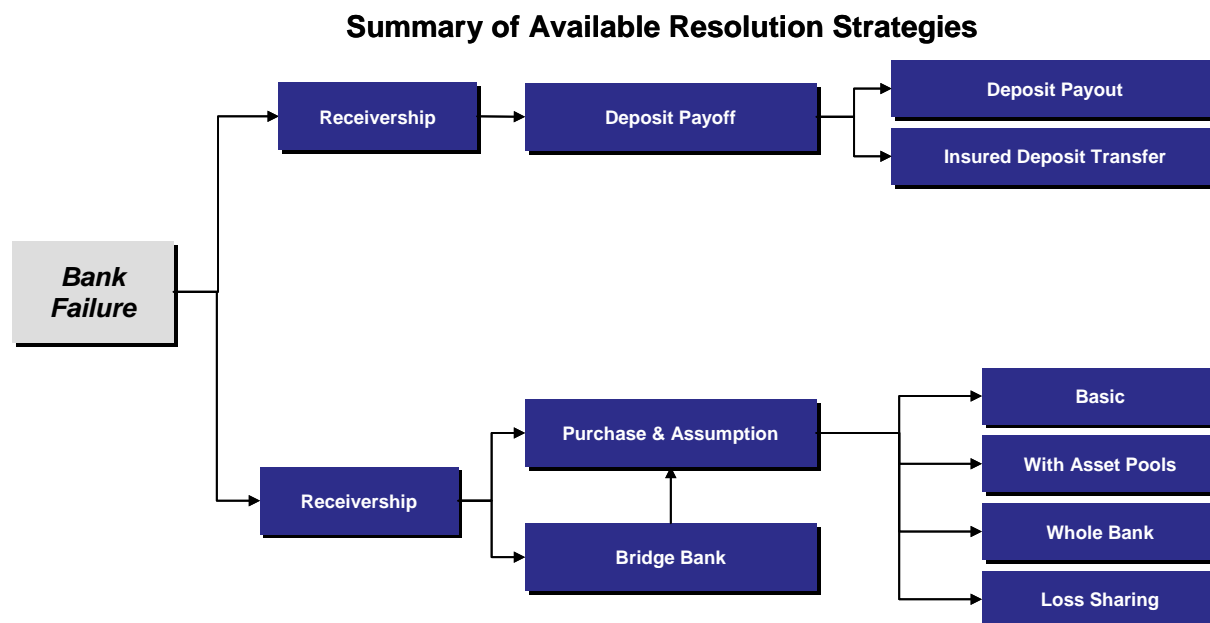
The Federal Deposit Insurance Corporation (FDIC) is an independent federal bank regulatory agency whose primary function is to promote public confidence in the nation's banking system by administering a federal deposit insurance system covering the almost 8,000 insured banks and savings associations in the United States.

The FDIC was established under the authority of the Banking Act of 1933, as an agency to assist in bolstering confidence of the US public in its banking system. Since the first day of FDIC insurance on January 1, 1934, no depositor has lost a single cent of insured funds as a result of a failure. The FDIC receives no Congressional appropriations and is funded via premiums paid by insured institutions and from earnings on investments in US Treasury securities. The FDIC is managed by a five person Board of Directors, all of whom are appointed by the President and confirmed by the Senate.

The FDIC has three primary functions – insuring deposits, examining and supervising insured state-chartered banks that are not members of the Federal Reserve System, and resolving failed or failing banks. The FDIC insures deposits based on the ownership rights and capacities of each account; it does not insure securities, mutual funds, or similar types of investments that banks and thrift institutions may offer. Pursuant to provisions of the Dodd-Frank Act of 2010, the statutory standard maximum deposit insurance amount is \$250,000, retroactive to January 1, 2008. In its role as a deposit insurer, the FDIC is responsible for evaluating the eligibility of applicants for deposit insurance coverage, and collecting and investing deposit insurance assessments from fund members.

In every failing institution transaction, the FDIC assumes two roles. First, the FDIC, in its corporate capacity as an insurer, protects all of the failing institution's depositors for the amount of their insured deposits by using one of the various resolution techniques. Second, the FDIC acts as the receiver of the failed institution and administers the receivership estate for all creditors. The FDIC as receiver is functionally separate from the FDIC acting in its corporate role as a deposit insurer, and the FDIC as receiver has separate rights, duties, and obligations from those of the FDIC as insurer. Protecting insured deposits in the event of a bank or thrift failure is one of the FDIC's most significant roles.

II. FDIC Resolution Options



FDIC has a number of tools by which it is able to resolve a failed bank. The methodology used to resolve a failed bank determines the scope of the insured deposit reimbursement and claims process. The methodology is determined by employing the Least Cost Test which identifies the most cost effective means of resolution. The FDIC currently uses the following resolution types:

- Purchase & Assumption (P&A)
- Insured Deposit Transfer
- Deposit Reimbursement
- Bridge Bank/Conservatorship

In the P&A agreement:

- The acquirer purchases assets and assumes liabilities from the receiver.
- Assets that pass to acquirers generally are limited to cash and cash equivalents, overdrafts, and share loans.
- The acquirer will pay interest on non-transaction deposit liabilities at a deposit rate not lower than the lowest rate offered by the acquirer to its depositors for non-transaction deposit accounts.
- The acquirer agrees to administer certain receivership assets for an interim period.
- The premises of failed banks and thrifts (including furniture, fixtures, and equipment) are often offered to acquirers on a 90-day purchase option; the price is based upon a post-closing appraisal that is mutually acceptable to the FDIC and the acquirer.

While there are a number of different ways a P&A can be structured, P&A agreements fall under three general categories:

1. Whole bank P&A - The acquirer purchases the majority of the assets at book value.
2. P&A (with Optional Loan Pools, Optional Loss Share Asset Pools, and Potential Multiple Acquirers) - The acquirer purchases Required Assets³⁴ at book value; however, securities are purchased at fair market value.
3. Clean P&A – The Clean P&A includes the same terms as the P&A described above, except it may exclude any or all of the following: optional loan pools, loss share pools, option to purchase fixed assets, interim asset servicing agreement, any other standard terms. This type of transaction may be offered in an expedited resolution process or in a second round bidding. In a second round bidding, the same terms may be offered to a wider market, depending on the situation and the nature of bidders' interest in the institution.

III. Reimbursement Alternatives for Insured Deposits

A. Insured deposit transfer

In 1983, the FDIC introduced a new type of transaction; the Insured Deposit Transfer (IDT), also referred to as a Deposit Insurance Transfer Agreement (DITA). In contrast to a straight deposit reimbursement, the IDT allowed for the transfer of insured deposits to a healthy institution who agreed to act as the FDIC's agent. The agent bank made available to the insured depositors of the failed bank a "transferred deposit" account, which the depositor may continue to maintain at the agent bank.

In an IDT, the FDIC transfers the insured deposits of the failed institution to one or more insured depository institutions called an Agent Bank(s). The Agent Bank does not assume the direct liability in regard to these deposits and all other categories of liabilities do not pass. The Agent Bank acts as Paying Agent for FDIC on the insured deposits. It agrees to:

- Accept the transferred deposits
- Open an account in the name of the depositor that owns the account
- Make the deposit immediately available to its owner

The Agent Bank does not purchase any assets although it may assume the 'safe deposit box' business. No option to purchase the fixed assets is provided. The Agent Bank is paid the dollar amount of deposits assumed minus the premium paid to obtain deposit relationships and branch locations. Customers have the option of receiving payment or maintaining the account at the Agent Bank. A major advantage to this Agency-type agreement over reimbursement is that customer

³⁴ Required assets include - cash and due from, loans secured by deposits, possibly overdrafts, investment grade securities.

accounts are transferred without disturbing items in transit; the Agent Bank clears these items.

An IDT also reduces the FDIC's costs to handle the failure because the Assuming Institution acts as the paying agent on behalf of the FDIC and disburses insured funds to depositors. The Assuming, or Agent Institution, generally pays a premium for this right, although there have been rare instances where FDIC paid an Agent Bank to perform this task.

B. Reimbursement

If marketing efforts are unsuccessful, then the final alternative is to pay off insured deposits of the institution. This may be done directly, using a Deposit Insurance National Bank (DINB), or through an insured depository institution or other contractor (Paying Agent). This resolution type is used as a last resort due to it being the most disruptive to the failed bank's depositors and being the most costly to the FDIC. In a reimbursement, items in transit do not clear and are returned to the payee and there is no transaction agreement because the FDIC is the only party to the resolution.

C. DINB

The FDIC is authorised by federal statute³⁵ to organise a new national bank or Federal savings association with limited life and powers to assume and pay off the insured deposits of failed insured depository institutions. Commonly known within the FDIC as DINB, such newly chartered institutions provide an alternative to other resolution and deposit reimbursement methods, and allow the orderly liquidation of failed insured depository institutions with minimal disruption to their local communities and the financial markets. By statute, DINBs may not hold assets, unless otherwise authorised by the Office of the Comptroller of the Currency (OCC). DINBs are rarely used vehicles for deposit payoffs. As part of the 2009 bank failure crises, The FDIC Division of Resolutions and Receiverships (DRR) was challenged with new DINB resolutions and the task of updating the specialised resolution responsibilities to accommodate the changing banking environment since the last DINB resolution in 1982.

D. Paying agents

Paying Agents are also sometimes used to liquidate a failed institution. The FDIC contracts a third-party banking institution, or Paying Agent, to disburse reimbursement checks to the depositors. The Paying Agent does not assume any deposits, but serves as a reimbursement contractor to the FDIC.

³⁵ 12 U.S.C. § 1821(m) (Supp. 2009).

E. Bridge banks/Conservatorships

With larger institutions particularly, the FDIC has made effective use of its "bridge bank" and conservatorship authority to act rapidly to take over a troubled bank or thrift while it determines how best to sell its assets or businesses of the institution to one or more buyers. The FDIC can transfer some or all of the failed institution's assets and liabilities to a newly chartered institution, either as a "bridge" bank to continue its operations, and manage its assets and liabilities, or as a vehicle to transfer all insured deposits and other selected assets and liabilities to an existing depository institution. A bridge bank is a national bank chartered by the OCC and controlled by the FDIC. It should be noted that in the case of a failed savings association, such as IndyMac³⁶, a conservatorship is used as the vehicle for this interim arrangement because the statutory "bridge bank" provisions do not encompass savings institutions.

IV. Determining Deposit Insurance Coverage

On the date of closure, the FDIC makes its final reimbursement determinations. If not all of the deposits in the failed bank have been sold to an acquiring institution, FDIC staff must prepare a list of accounts identifying which deposits are fully insured. In order to do this, the FDIC receives a final download of the bank's deposit information. In a typical bank closure, the FDIC takes possession of the premises and records of the bank and works over the weekend. Determinations regarding the insured status of deposits are made and the FDIC prepares either to make payment to insured depositors or to transfer the insured deposits to an acquiring bank. Since the FDIC is the receiver of the bank, it also processes the claims of uninsured depositors and other creditors. The payment to insured depositors and the processing of claims that exceed the insurance limit begin on the next business day after closure.

The process for determining coverage is complex and time-consuming. The FDIC staff has to identify and define ownership rights and capacities according to law before applying the insurance limit. Those depositors with fully insured accounts are then separated from depositors whose accounts appear to exceed the coverage limits. Accounts identified as fully insured will either be passed to an acquiring institution in an insured deposit transfer or paid to depositors in the form of a check mailed to the depositor's address of record. For accounts that appear to exceed the coverage limit or about which other questions exist, the FDIC contacts depositors directly and may require that an affidavit be filed before the claim is paid. The FDIC relies primarily on the bank's records in determining the status of depositors' claims. The FDIC makes insurance payments available to depositors for 18 months, after which time all remaining unclaimed funds are escheated³⁷ to the appropriate state. The state can attempt to locate the depositors for 10 years before the funds revert to the FDIC.

³⁶ IndyMac was a \$32 billion thrift institution that was closed in July of 2008.

³⁷ Process of reverting property to the state in the absence of any claimants.

V. Communication with Depositors and Other Stakeholders

The FDIC also endeavours to work with the local media during the pre-closing and closing stages as a means of helping to maintain public confidence during the transition period. Announcements through television, internet, and the local newspaper provide failed institution customers with information about how the resolution will be handled. In some cases, especially those in small towns or where there has not been a closing for some time, it can be beneficial to conduct a town meeting to answer questions about the failure, the resolution process, the closing process, the transfer of insured deposit accounts, and other general questions.

Occasionally and even recently, reporters have asked to observe the FDIC as it goes through a resolution and closing process. These reporters are required to sign confidentiality agreements regarding any institution or borrower-specific information they might see. In the Corporation's experience, it has proven beneficial to have knowledgeable, experienced reporters familiar with the resolution and closing process, because these reporters can be especially positive resources in helping to keep the public informed.

VI. Automation Opportunities for Timely Reimbursement and Claims Management

An important aspect of conducting a timely and efficient reimbursement of insured deposits involves having effective information technology (IT) systems in place. Recently, the FDIC went through the process to replace its existing IT reimbursement system - Receivership Liability System with the development of a new IT claims system called the Claims Administration System (CAS) to support the payment of insured depositors. The following outlines the process that the FDIC used to support development of the new claims system and the key requirements needed to make the system effective.

The fundamental building blocks for an effective system should:

1. Address the needs of stakeholders.
2. Provide consistent information throughout the organisation.
3. Survive through organisational and management change.

Using these criteria an organisation can assess the basic business requirements of the system.

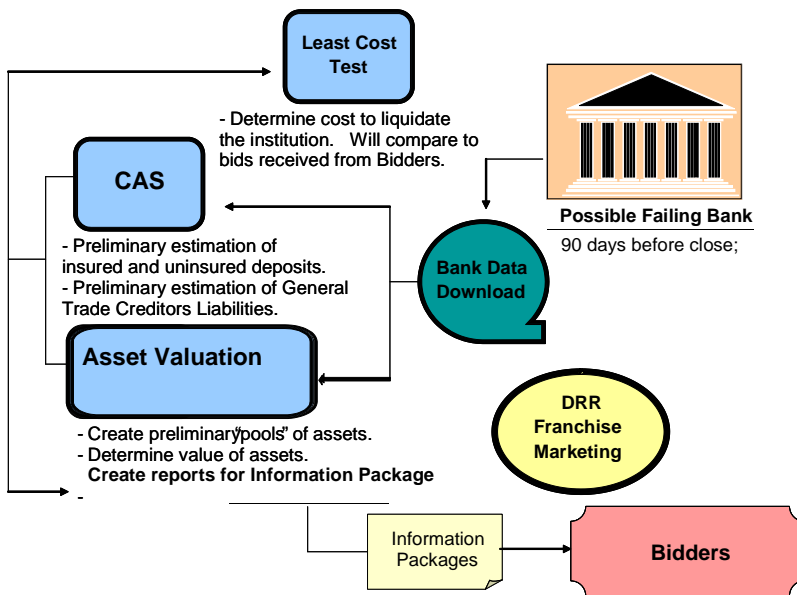
1. Will the system address the needs of stakeholders?

It is important to be aware of both internal and external stakeholders and their individual requirements. The internal users at the FDIC include: bank resolution specialists, claims specialists, liquidators, attorneys, accountants, managers and consumer protection analysts. FDIC external stakeholders include financial institutions, depositors and creditors of failed institutions, loan servicers and the public. Defining all the stakeholders will help ensure

that the needs of all affected parties are not overlooked. It is important to remember that requirements are different depending upon each user's role within the organisation.

2. Will the system provide consistent information throughout the organisation?

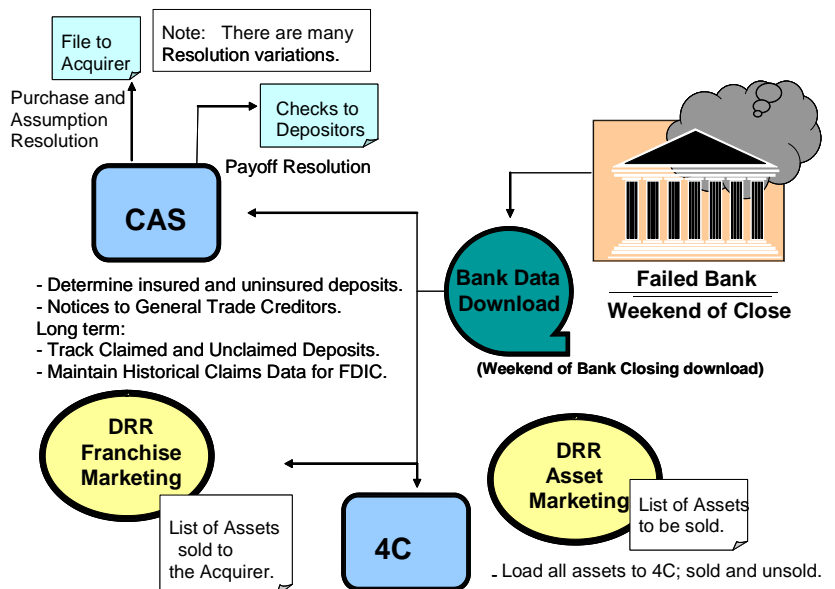
To develop an effective system that provides consistent information throughout an organisation, one must know what systems and data are currently available. It is important to understand the organisation's processes, what data is collected and/or disseminated, and what other applications support these processes. This practice enables an organisation to document what works well, identify where duplicate efforts may occur, and determine what data are repeatedly used and shared by others.



The above and adjacent diagrams illustrate the systems the FDIC has in place to support the receivership process before a bank failed and after its failure.

3. Can the system survive through organisational and management change?

Lastly, a good information system must be able to survive



through any organisational and/or management changes that may occur. Systems must be agile and able to withstand any type of change. It is imperative that the laws, regulations, and policies governing an organisation are connected to its processes and that constraining business rules are met.

VII. CAS

The FDIC business analysis and systems review occurred over several years and resulted in a phased development of CAS. A clear Statement of Objectives is a crucial step to help an organisation solicit the appropriate services to successfully accomplish their task. For CAS, the Statement of Objectives was as follows:

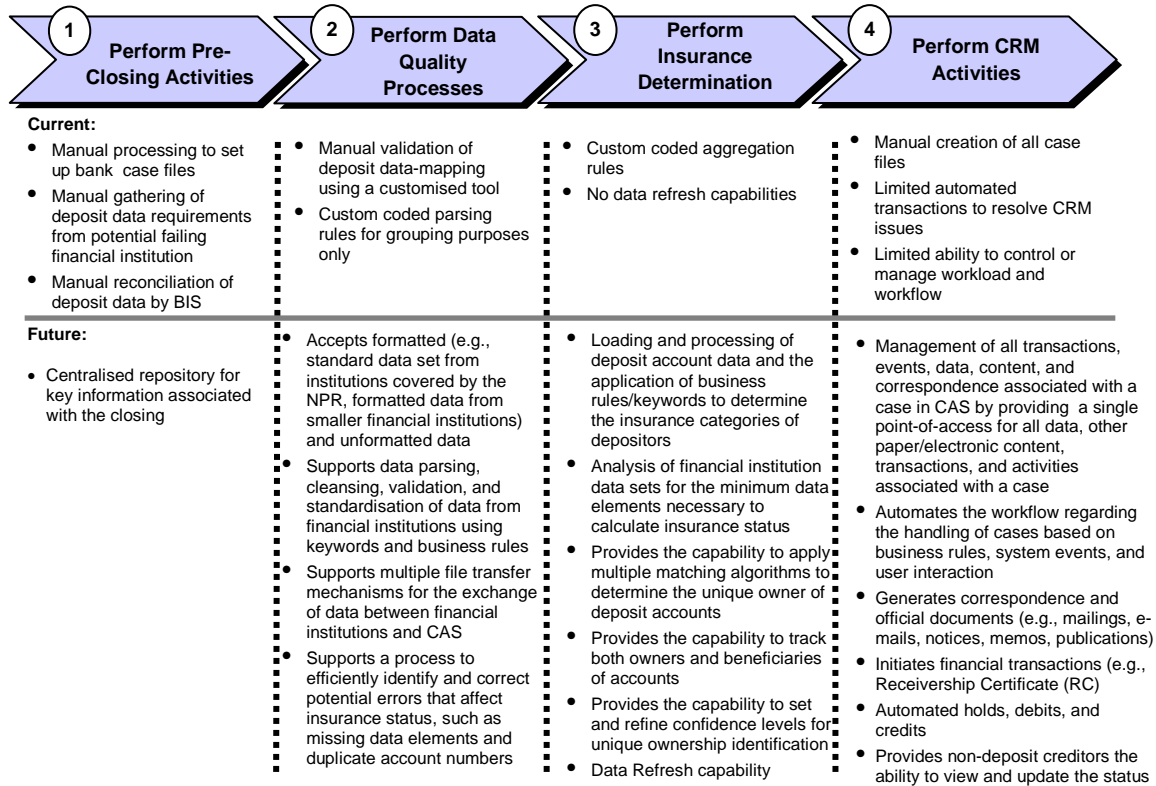
The objective of CAS is to handle deposit insurance determination and related functions and the processing and payment of the deposit and non-deposit claims for a financial institution of any size. The CAS initiative shall support the goal of minimising the potential for FDIC losses, reducing any spill-over effects that could lead to systemic risks, preserving franchise value, and producing deposit insurance results in a timely manner so as to quickly provide funds to claimants.

Based on this statement, the following three IT specific tasks were developed to explain what needs to be accomplished in order for the system to be successful.

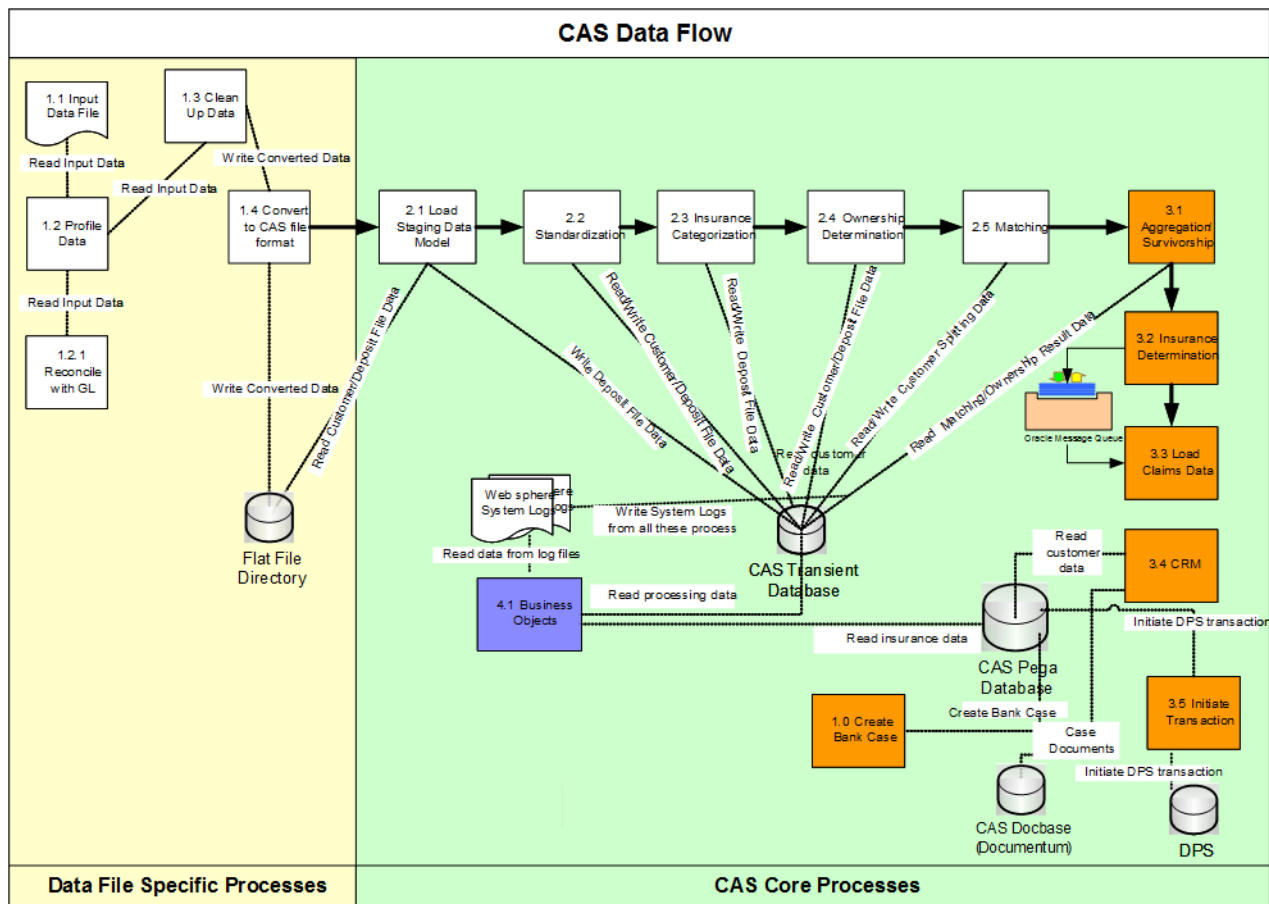
1. The system must provide increased automation by using technology to automate the processes to perform an accurate insurance determination, administer claims, and facilitate the deposit holds process for institutions of any size, consistent with FDIC corporate goals, statutes, and regulations.
2. The system must provide scalable and flexible insurance determination workload management. The CAS solution must provide information that will allow FDIC management to analyse, prioritise, and select the appropriate alternative among the quick release of funds, the use of limited resources, and the FDIC's costs.
3. The system must provide improved internal and external customer service capacities by allowing stakeholders of all types to interact with CAS in an automated, paperless, and secure environment, to the extent practicable, while supporting manual processes if necessary.

To further delineate the needs of the CAS solution and the current capabilities of the FDIC, the FDIC's DRR conducted an exercise outlining the business processes as they are today and how they will be after the implementation of CAS. The diagram below depicts that analysis.

CAS: Business Process Performance



Based on the analysis of the business processes, CAS is able to perform the Claims Business Process Lifecycle through its data flow. The following diagram demonstrates the CAS data flow from beginning to end. The left side of the diagram shows how data is prepared, transformed and ultimately loaded to CAS. It efficiently identifies and corrects potential errors that effect insurance status, such as missing data elements or duplicate account numbers. It also supports data parsing, cleansing, validation, and standardisation of data received from financial institutions using keywords and business rules.

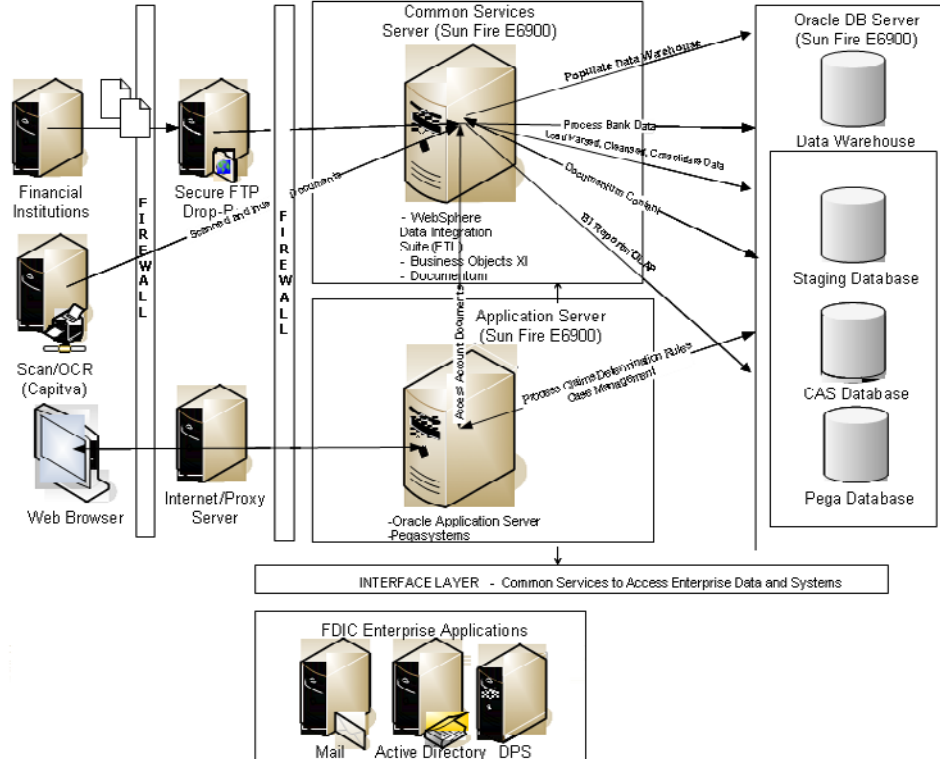


The right side of the diagram demonstrates processes 2, 3, and 4 of the claims business lifecycle. It loads and processes deposit account data and applies business rules/keywords to determine the insurance categories of depositors. The system has built in intelligence that determines the unique owner of deposit accounts. It also performs customer relationship management activities where all transactions, events, data, content, and correspondence associated with a case are centrally managed. The system has automated the following activities:

- Generation of correspondence and official documents (e.g., emails, notices, memos, publications)
- Initiation of financial transactions (e.g. Receivership Certificate – RC)
- Execution of holds, debits, and credits to accounts

Lastly, DRR identified the technologies that already exist at the FDIC and requirements necessary to comply with the FDIC’s IT architecture, which can be seen in the diagram below.

CAS Technical Architecture



The culmination of these exercises allowed the FDIC to plan for and structure the new CAS system to effectively and efficiently support its needs.

VIII. Structuring a Request for Proposal (RFP) for Technical Assistance

Once the FDIC determined its overarching needs it began the process of developing a RFP, which is a document used to solicit bids from IT companies. For the FDIC's new claims system, the RFP was structured in the following manner.

1. Identify the business goals of the system. The FDIC's business goals included the following:
 - Determine which depositors are insured and uninsured.
 - Determine the placement and release of deposit account hold.
 - Administer claims for uninsured depositors, general trade creditors and other non-deposit creditors.
2. Define the key solution characteristics of the system. The FDIC determined that the system should:

- Have the scalability to support financial institutions of varying sizes and accounts.
- Automate manual and paper-intensive processes for insurance determination, claims administration, and deposit holds process for institutions of any size.
- Be able to perform Electronic Document Management and Case Management.
- Be streamlined and improve existing processes.
- Centralise data sharing and data integrity.
- Have advanced data analytics capabilities.
- Have scenario modelling capabilities that allow management to analyse, prioritise, and select the appropriate alternative that balances between the quick release of funds, the use of limited resources, and cost.

3. Identify the key functional requirements of the system.

The FDIC concluded that to make an insurance determination the system must:

- Automate the cleansing, aggregation and determination processes to reduce the manual labour necessary during the Pre-closing and Closing phases.
- Be flexible in the closing and pre-closing technology so that business rules for insurance determination can be refined over time.
- Provide a scalable solution that can accommodate up to x-number of accounts and y-number of account owners.
- Provide off-line data capture for field work.
- Have the ability to capture and store information during the pre-closing process to accelerate the closing process.
- Automate the insurance determination steps and allow the analysts to focus on the exceptions.

To effectively conduct the management of claims, the system must:

- Make timely information available to the claims agents from one application, simplifying automated claims processing.
- Make information available in an automated, paperless, and secure fashion.
- Provide web-based forms in addition to existing paper forms for Proof of Claims.
- Provide customer self-service functionality on the Internet and/or telephone for claimants.
- Create a corporate-wide data repository to provide individuals across the corporation with the ability to access and process claims cases.
- Streamline the imaging and archiving process.
- Improve audit and accounting.

To enhance reporting, the system must:

- Provide better reporting capabilities about the Closing and Pre-Closing phases.
- Provide flexible reports and exports during the Pre-Closing and Closing phases to expedite the process of placing holds on accounts, particularly if the financial institution is capable of doing so in an automated fashion.
- Provide better auditing and reporting functionality for the purposes of refining business rules and anticipating workloads.
- Provide workflow functionality throughout the closing lifecycle to enable better reporting, metrics measurement and protecting from lost information.

The overall system must be able to:

- Provide secure access to appropriate stakeholders throughout the closing lifecycle.
- Provide improved security since it will be designed with security in mind.
- Provide automated dispatch functionality for issues through the closing lifecycle, to maximise the effectiveness of the determination and claims processes.
- Provide a single point-of-truth to avoid reconciliation between multiple data sources.

4. Identify the key technical requirements of the system. The FDIC determined that the system must be able to:
 - Have efficient **data transfer and control**.
 - Maintain a **shared data repository**.
 - Be able to provide **decision support**.
 - Effectively conduct **data analysis, reporting, and processing**.
 - Support data cleansing, standardisation, and transformation.
 - Provide reliable **case management**.
 - Reliably support **system hosting, security, performance, and scalability**.
 - Support **software validation testing**.
 - Contain a **historic data management and archiving plan**.³⁸

IX. Conclusion - Streamlining the Process

The use of technology is critical to the timely reimbursement of insured deposits. Using the RFP and aforementioned exercises the FDIC was able to successfully design and acquire the resources to develop its robust new IT reimbursement system. CAS was able to successfully meet the FDIC's business needs by providing a scalable and flexible system that increases the level of automation in the reimbursement process, simplifying the insurance determination process, and providing improved internal and external customer service capacities.

³⁸ Detailed definitions for these requirements can be found in the attached attachment.

The FDIC is continually looking for methods to improve our reimbursement process in a manner that ensures that insured depositors are always paid their deposits promptly and accurately. Since its creation, the FDIC has looked for ways to better its methods for reimbursing insured depositors, not only through its own internal processes but also the laws governing the system. Under the Banking Act of 1933 the FDIC's only means of paying the depositors of a failed institution was through the creation of a DINB. A payoff of depositors, either directly or through an existing bank, wasn't authorised until the Banking Act of 1935. This Act also allowed the FDIC to, among other things, purchase assets, which added flexibility to the resolution process.

In December 1991, the Federal Deposit Insurance Corporation Improvement Act (FDICIA) was signed into law. While the law touched a wide range of regulatory areas, certain provisions had profound effects on the way the FDIC conducted failed bank resolutions. Under FDICIA, if the FDIC does not liquidate a failing institution (conducting deposit reimbursement), then it must pick the least costly resolution transaction available. The Act mandated that all bids for a failed institution must be considered together and evaluated on the basis of comparative cost. The FDICIA legislation compelled the FDIC to consider more transaction options than in the past to make certain that all plausible least cost structures are considered.

Since then a number of additional measures have been taken to make paying out depositors simpler. These include:

- National Depositor Preference³⁹
- Eliminating the need for depositor to submit Proof of Claim forms, access to their accounts and their identification serve as their proof
- Changing ownership rules on trust accounts, simplifying the account grouping process
- Increasing the coverage limit, tremendously reducing the number of uninsured depositors
- Implementing the Large Bank Insurance Determination Modernisation, which requires the largest institutions⁴⁰ to modify their deposit systems so that in the event of failure, the FDIC can provide depositors prompt access to funds and calculate deposit insurance coverage quickly

The FDIC has leveraged its technical and human resources to achieve its goal of protecting insured depositors. By applying a comprehensive planning and implementation effort in the use of automation, a deposit insurance organisation can improve the efficiency and effectiveness in its role in supporting financial stability.

³⁹ The National Depositor Preference Amendment was enacted on August 10, 1993. This standardised the asset distribution plan for all receiverships that gives priority payment to depositors, including the FDIC as "subrogee" for insured deposits.

⁴⁰ Any insured depository institution with at least \$2 billion in domestic deposits and either (1) more than 250,000 deposit accounts or (2) total assets over \$20 billion, regardless of the number of deposit accounts.

Attachment: Key Technical Requirements

I. Data Transfer and Control

Refers to a mechanism that facilitates the connection, the communication, and exchange (sent and/or received) of data among one or more entities within the system. This includes the connection to financial institutions, outside service providers, and relevant systems internal to the DI.

The solution should:

- Provide for automated data loading (download/upload), import/export, extraction, and record population capabilities from system data tables.
- Support web-based access, electronic data transmission, and communications internal and external to the DI.
- Interface with current legacy systems.
- Support data transfer specifications (formats) for multiple media including text and image scanning, as well as encryption, and file compression technologies.

II. Shared Data Repository

Refers to a component that provides the physical and structural data storage for the solution.

The solution should:

- Support the ability to search, view, add, modify, and maintain data as necessary.
- Enable the storage of multiple file formats (including digitised and ANSI text files) and media in a centralised repository.
- Store a high volume of data, including electronic forms.

III. Decision Support

Refers to a mechanism that provides a process-driven framework based on business rules, priority, and workflow structures.

The solution should:

- Capture and compile metrics for analytical purposes.
- Provide ability to identify and prioritise time-sensitive tasks on the basis of cost and other mission critical elements, enabling the manager to skip or delay low priority tasks.
- Incorporate a parameter driven, modifiable business rules engine.
- Provide business process workflow prioritisation.

IV. Data Analysis, Reporting, and Processing

Refers to the conversion of data and reporting capabilities, and also data quality and/or ETL products to be used within the system.

The solution should:

- Support data parsing, cleansing, and categorisation as directed by business rules.
- Validate, analyse, and report on the accuracy of data coming in from financial institutions.
- Support data aggregation and/or grouping according to pre-set business rules.
- Support a user friendly reporting capability that can also compare data and files for structural accuracy.
- Predict the items (e.g., unique account owners, insurance category) necessary to calculate insurance status.
- Support a process to efficiently identify and correct potential errors that affect insurance status.
- Accommodate standard and ad hoc reporting.
- Perform and support audit functionality.

V. Data Cleansing, Standardisation, and Transformation

Refers to the means by which data is divested of errors, formatted and combined to increase its inherent quality and usability. This again includes any data quality and ETL tools needed within the system.

The solution should:

- Enforce data standardisation rules as set by the DI.
- Support a flexible data conversion tool.

VI. Case Management

Refers to a Case Management system that will automate case workflow based on actions taken by the system or representatives. Such a system will deliver cases to be worked on, moves them through the case resolution process, and tracks case activities, status, and work time.

The solution should:

- Capture and maintain account transactions and customer information (history of actions/updates).
- Be able to update customer records, create mailings (electronic or paper-based), and issue parameter driven reports.
- Support workflow prioritisation and establish work queues for appropriate personnel.

VII. System Hosting, Security, Performance, and Scalability

Refers to the components that establish system accommodation, protection, and operation measures required. This includes security protocols for remotely logging in, system access based upon predetermined restrictions, scalability, and the ability to operate the solution remotely.

The solution should:

- Support a data warehouse, available 24 hours per day and seven days per week.
- Provide for stringent security protocols to gain access to data, perform tasks and provide authorisation to users.
- Handle a baseline volume of up to five million deposit accounts. Each account may have multiple owners, such as joint personal accounts or trust/beneficiary accounts. Therefore, the number of owner records for an institution with X million deposit accounts could be as high as Y million records, which the solution will need to process. For failing financial institutions with more than X million accounts, the solution will need additional capacity to administer this increased volume.

VIII. Software Validation Testing

Provide independent application software validation testing services in support of the delivery of reliable, effective information systems that meet application requirements and development standards.

IX. Historic Data Management and Archiving Plan

As part of the overall project plan, develop a plan for the DI to retire the key legacy applications within 90 calendar days of the acceptance of the solution. Also, the plan should address the migration and/or archiving of the data currently residing on the legacy platforms.

Annex VI: IADI Case Study: Contingency Planning and Simulations at Canada Deposit Insurance Corporation - A Reimbursement Case Study

I. Introduction and Overview of CDIC

Canada Deposit Insurance Corporation (CDIC) is a federal Crown corporation. That is, a federal state-owned enterprise. It was founded in 1967. Over the course of the past forty three years, CDIC's mandate has changed, most significantly in 1987, when CDIC evolved from a "paybox" to a "loss minimiser". Most recently, CDIC was given the ability to establish a "bridge bank" as a further resolution tool to preserve critical functions and help maintain financial stability in the event a CDIC member institution is no longer viable. Currently, CDIC's statutory objects are the following: to provide deposit insurance; to contribute to the stability of the financial system in Canada; and to do the foregoing for the benefit of depositors and in a manner that minimises CDIC's exposure to loss.

Since 1967, Canada has borne witness to 43 failures of deposit-taking institutions. Some of these institutions were trust companies; some loan companies; and a few were banks. But to make matters simple, let's lump these institutions together and call them all banks. Doing so will, in no way, change the narrative of this case study.

In sum, CDIC's has protected CAD\$26 billion in insured deposits at these 43 failed member banks. Of those 43 failures, 24 were resolved through liquidation and reimbursement. It is about those 24 that we are concerned. Together, CDIC has paid out CAD\$5.4 billion in insured deposits.

Fortunately — or rather, unfortunately, depending on how you look at it — the last failure in Canada resolved by reimbursement was in 1996. The world has changed since 1996. Banking has changed. And so, too, has CDIC.

Let's take a look at CDIC today. Today, CDIC provides coverage for CAD\$100,000 per depositor, per bank, with separate coverage provided for joint accounts, accounts held in trust, accounts held in registered retirement savings plans, accounts held in registered retirement income funds, tax-free savings accounts, and mortgage tax accounts. CDIC has 83 member institutions, including banks, trust companies, and cooperative credit associations. As at April 30, 2011, those "banks" held CAD\$1.8 trillion in deposits on their books, of which CAD\$622 billion are insured by CDIC. But insured deposits are highly concentrated at Canada's six largest banks. Those banks hold 78 per cent of insured deposits.

By 2003, CDIC realised it had a lot of experience dealing with past failures, but there had been no failures in the recent past. CDIC had lost suppliers, experience and corporate memory. The CDIC membership had changed. Technology had changed, and depositor expectations increased over time. CDIC needed to rebuild.

II. Contingency Planning at a High Level: the Bird's Eye View

But what would rebuilding involve? On a day-to-day basis, CDIC monitors, assesses and manages the risk of its member banks. Monitoring and managing risk can help prevent a failure, but if a failure were to happen in spite of its best efforts, CDIC would have to be ready for it.

Being ready involves contingency planning and simulating bank failures. CDIC is a small organisation with less than 100 employees. All staff would have to work diligently — and in addition to their day-to-day jobs — in order to make a reimbursement successful. They would all have to work within a broad contingency plan.

CDIC's contingency plan involves five essential elements: **governance, people, systems, processes and data**. First, let's start with **governance**. CDIC's management has established a number of policies that help identify roles and responsibilities, including those of the board of directors. These include a board intervention risk policy and other management policies. Management has set up an operational readiness group (ORG) to deal with the operational and technical aspects of a reimbursement. The ORG is a cross-functional group comprised of technical, financial, legal, internal audit, communications and risk assessment personnel. The ORG sets out who will do what in a reimbursement resolution, and it follows a tight chain of command right up to the Senior Vice-President of Insurance and Risk Assessment.

Next, let's look at **people**. They include CDIC employees, who form the core of the reimbursement team and external service providers to supplement the team. These service providers include external professionals, such as professional accountants, lawyers, tax specialists, business appraisers and others. They also include people to carry out back-office functions, such as printing, answering phones, and providing information management. Training is essential, both for the core reimbursement team and for the hired help. But so is work-life balance. The significant time demands of a reimbursement resolution can strain employees' personal welfare and that of their families for the duration of the reimbursement. Consequently, a focus on reducing the time from bank closure to reimbursement not only helps provide faster insurance payments to depositors but also mitigates disruption to employees and families.

In terms of **systems**, CDIC has developed technology that is secure and that can deliver services to virtually any region in Canada. These systems can be scaled up or scaled down, according to the size of the member bank failing.

CDIC has also developed, documented and tested **processes**. It also modifies them on an on-going basis where observations show there are better ways to provide services to depositors. **Data** is also required for a simulation, and is subject to strict

privacy and security requirements. To produce this data, CDIC has built a data generator, which we will discuss later in this document.

III. Contingency Planning in More Detail: Getting into the Nuts and Bolts

At a high level, contingency planning consists of governance, people, systems, processes, and data. But to understand the latter three elements, we need to go into a bit more detail.

First, let's consider systems. The Information Technology infrastructure in a failure resolution must be adequate to serve many users on the system at the time of reimbursement. CDIC has a secure remote access network set up for its own use as well as the use of standby firms. To carry out the reimbursement itself, CDIC uses a reimbursement system called, ROADMAP. ROADMAP is the acronym for CDIC's proprietary computer application to perform insurance determinations and carry out the payment of insured deposits [**R**eports, **O**perator Response (renamed to *Customer Care*), **A**justments, **D**ata Load, **M**aintenance, **A**ggregation and **P**ayment]. ROADMAP is tested in simulations and it undergoes continuous enhancements, primarily to increase capacity and speed. ROADMAP performance enhancements are now being made to expand capacity to the largest members and to include bridge banking. Of course, ROADMAP needs depositor information in order to do its work. In a real bank failure, this data obviously comes from the failed bank. But in a simulated bank failure, this information must come from somewhere else.

For simulations and testing, CDIC has used a data generator called the Financial Institution Payout Simulator (FIPS). FIPS generates synthetic depositor information and products with similar characteristics to what one finds in the real world. Parameters can be set for the data, such as number of products, types of products, number of accounts and number of depositors. Based on these parameters, FIPS generates the data. But as simulations are meant to portray the real world - and not some theoretical model of the world - FIPS can also generate inaccurate and incomplete data. This keeps the reimbursement team alert and forces them to deal with the types of data flaws and related challenges that often accompany a bank failure.

During a reimbursement, CDIC communicates with depositors in writing as well as over the phone and the Internet. CDIC has created a "dark" or "cloaked" website, to which it posts information depositors can read on the status of the reimbursement. CDIC has also developed a depositor self-serve site, to which depositors can log-on over the Internet to find information on their own claims. Depositors can also get in touch with CDIC by phone.

Next, let's take a look at processes. CDIC's reimbursement processes and procedures are contained in reimbursement guidelines. These guidelines explain step-by-step the reimbursement process and include project plans, roles and responsibilities, authority matrices, templates, sample budgets, and summary sign

off forms, among other things. The reimbursement guidelines are available electronically on the Corporation's portal, and are periodically reviewed by CDIC's internal audit and the Auditor General of Canada.

CDIC has also developed authority matrices, which outline authority delegated to each level of the operational readiness group in terms of financial authority and actions required. CDIC has communications plans for dealing with the depositors of the failed bank, the media and the public at large. These plans address matters relating to depositors' queries, content and extent of information to be shared with the press, and training of call centre staff.

CDIC has two sources to fund a reimbursement: an investment portfolio of highly liquid government treasury bills and bonds and access to a statutory line of credit with the Government of Canada. CDIC's fund stands at roughly CAD\$2.4 billion, and the statutory line of credit at CAD\$18 billion, an amount that is indexed to growth of insured deposits.

Finally, let's consider data. In good times, CDIC does not normally collect data directly from its member banks except for the new CDIC Data and System Requirements. CDIC has recently issued a Data and System Requirements By-law and technical specifications that require its member banks to provide or make available depositor information to CDIC in specified formats. Implementation of these requirements by member institutions will enable CDIC to perform an insurance determination over a weekend in both a liquidation and bridge bank resolution.

For risk assessment purposes, CDIC relies on data collected by the Superintendent of Financial Institutions and other data provided to the Bank of Canada for its Financial Institutions Committee database. CDIC uses this data to prepare risk assessment profiles of each of its member banks on a yearly basis. The risk assessment profile analyses the bank's financial statements, reviews the on-site examination carried out by the supervisor as well as available market information from rating agencies, and considers the industry and environment in which the bank is operating. Based on this analysis, the risk manager assigns an overall score to the bank that reflects the risks and ratings in each area: financial, regulatory, market and environment. The risk manager may also nominate the bank to be placed on CDIC's watch list.

The information requirements for watch list members are much more stringent. CDIC requires information about their deposit products, system specifications, and accounting procedures. Watch list members must also provide a sample of their deposit database, which CDIC feeds into its ROADMAP application. This sample of depositor information helps CDIC understand how the bank's deposit database is structured. It also provides an early indication of possible problems that could arise should the bank's condition worsen and CDIC is forced to extract all depositor data.

IV. Reimbursement Simulation: Dress Rehearsal for a Bank Failure

A reimbursement simulation has a number of objectives. They include: improving preparedness; exposing employees and systems to a critical situation with time constraints; testing process improvements; testing resource capacity; and building an effective reimbursement team.

In a sense, a reimbursement simulation is a dress rehearsal for a bank failure. Since CDIC's last reimbursement resolution was roughly 15 years ago — and much of the institutional memory has since left the organisation — a simulation gives CDIC and its external suppliers the chance to experience a reimbursement. It provides a chance for employees who might normally work individually to work as a team. It identifies the organisation's strengths — and weaknesses, where preparedness can be improved. It gives the opportunity to test improvements made upon previous simulations. It tests the coordination of internal and external resources, and it pushes those resources to the limit: each simulation involves an increasing number of depositors, and products, more complexity and even more inaccurate and incomplete data in order to test capacity of the people, processes and technology.

Nevertheless, a simulation — like a Broadway production — is not conceived overnight. Development of the simulation must begin about four to six months in advance. This involves decisions on timing, length of the simulation, participants, types of resources required, and the objectives CDIC wants to achieve. It is also necessary to decide who will play the role of the failed bank and what roles will fall to various staff on the reimbursement team.

Full simulations take place once a year, typically in June. In the past, simulations have lasted two to three weeks. Recent efforts focussed on reducing the length of the simulation to a week in order to reflect expectations for a fast reimbursement.

Prior to the simulation, CDIC trains the reimbursement team on certain aspects of ROADMAP and provides them tools for analysing information provided by the failed institution. A bank failure simulation is developed with challenges for the team, which could include new products or missing information. The aim is to make each new simulation - like each bank failure - different from the last. With the parameters set, FIPS then goes to work generating the data. In the future, consideration will be given to the potential use of de-identified data from implementation by member institutions of the CDIC Data and System Requirements.

The simulation begins with a kick-off meeting to provide information about the failed bank. The teams responsible for individual functions within the reimbursement have daily meetings to discuss courses of action. Post-Mortems are held at the end of each day to assess the progress achieved and address the issues confronting each team and participant, and these issues are tracked. The reimbursement simulation also tests the approvals process for tranche and final payment to individual depositors.

Since 2004, CDIC has carried out eight full simulations, in which all processes were tested, and eight limited-scope simulations, which have tested specific processes, like communications. So far, what are the results? The last simulation was held in June 2011. Its aim was to pay out a bank with 1 million customers and 2 million accounts, providing a limited tranche payment for demand accounts within two days and full payment within a week. The 2011 reimbursement simulation was the most comprehensive and challenging of the series of simulations and exceeded objectives. The simulation data of 1 million depositors included errors, by design, to reflect a real scenario. The simulation team systematically identified those errors, developed team solutions and authorised corrections. This reflected a sound problem-solving process, critical to resolving unexpected challenges during an actual reimbursement.

Like the simulations before it, this one was largely successful. Over the course of eight full simulations and eight partial simulations, however, some difficulties were noted. First, creating realistic scenarios is challenging: no one knows exactly what the next bank failure will look like. Second, it is not really possible to simulate fully the volume of communications with depositors. Third, simulations can be expensive. The price can range from CAD\$20,000 for a simulation that involves only employees' travel to CAD\$200,000 that requires the services of external consultants and third-party suppliers. Fourth, simulations can be a drain on employees' time. A full simulation, for example, can take up about 20 per cent of the time of the entire CDIC staff. This takes staff away from their normal jobs, and the objective to pay out quickly requires them to work long hours under considerable pressure. And fifth, heavy usage of systems, including ROADMAP, reimbursement team portals and other applications requires adequate hardware, connectivity, and network security.

But, in the absence of a bank failure, there are few ways a deposit insurer can build operational readiness and maintain its employees' skills. CDIC's experience has shown that simulations are an effective way of doing so.