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Implementation of a  
**CREDIT SCORING CENTRE**

Prepared for:

**Kazakhstan Mortgage Company**

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Prepared By: **Norm Masters**

Senior Consultant  
The Pragma Corporation  
Financial Sector Initiative

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## 1 Executive Summary

The JSC “Kazakhstan Mortgage Company” was established in 2000 (hereinafter, the “KMC”). KMC is a well run, well set up and well organized company with excellent leadership. The goals and vision of the company have been researched, documented and implemented with a great deal of professionalism.

KMC should be very proud of achievements to date. The current operation is not one of problems requiring attention before proceeding to the next level. As such, KMC is in a position to move forward now. All existing automation is sufficient to handle current volumes. The company has enjoyed excellent financial performance in the area of growth. The volume projections for KMC indicate explosive growth in the number of applications, and new mortgages purchased, KMC intends to manage over the next three years.

KMC leadership has identified the need to implement changes now in order to meet future growth objectives. A new *Credit Scoring Centre* has been identified as the most cost effective way to meet the increasing demands. The implementation of credit scoring software in order to automate the processing, workflow and decision functions is required.

The purpose of this study was to examine the existing processing functions in order to see how best to introduce credit scoring and workflow automation at KMC. The following is a summary of the findings within this report:

- Existing processing methodologies are thorough and sound
- Existing application parameters are adequate for decision making
- Workflow automation will deliver the most benefit immediately
- Credit *risk* scoring will deliver some benefit, but it is not mature enough in Kazakhstan to support the decision making process alone
- A combination of sound lending policies and practices – combined with the proper mix of technological tools (software) is mandatory to success
- KMC should move forward immediately with a project to evaluate workflow automation (loans origination) and credit scoring software vendors

The report addresses the future vision, the current situation, the proposed solution and recommendations for implementation of a credit scoring software application at the KMC *Credit Scoring Centre*.

## 2 Scope of Work

In accordance with the SCOPE of WORK for, copy attached as Annex 4, I am pleased to submit the following report.

During the period from September 19, 2005 to October 7, 2005, most of the time was spent at the JSC “Kazakhstan Mortgage Company” office. Numerous meetings were held with senior management of the company including the Chairwoman, Deputy Chairmen, Deputy Directors, Director of Centre of Processing and various underwriting staff. Much of the time was spent with the Chief of Information Technology. Meetings were also held with the two primary partner banks, CentreCredit and BTA. Lastly, a meeting with KMC and the First Credit Bureau took on October 4, 2005.

In addition to work performed under the scope of work, the Kazakhstan Mortgage Company provided a document titled ***Questions for the Advisor which Need to be Addressed in the Final Report***. Refer to Annex 5 for both the questions posed as well as the responses.

A further report was provided to KMC on October 7, 2005. This report addressed each of the following sub headings:

- The Company KMC and general observations and findings:
- The KMC processes and underwriting
- Recommendations for the software KMC requires
- The Information technology department

The Request For Proposal (RFP) will follow this report under a different heading. The RFP will be in draft format and KMC will be required to confirm that the proposal meets all legislative requirements for procurement.

### 3 JSC “Kazakhstan Mortgage Company” Strategic Vision

#### 3.1 General Overview

To ensure practical implementation of the tasks assigned by the National Bank of the Republic of Kazakhstan, the JSC “Kazakhstan Mortgage Company” was established in 2000 (hereinafter, the “KMC”). This company refinances partner banks by purchasing demand rights on residential mortgage loans. The KMC commenced its operations in 2001 and as of now is one of the largest non-bank financial institutions of the country.

Since commencement of their operations, the KMC’ scope of lending exceeded 31 billion KZT, KZT-denominated interest rates on loans fell from 24% to 13%, and down-payment – from 30% to 10%. This resulted in 16,000 households’ raising of mortgage loans for home improvements and home acquisition. Out of the entire volume of mortgage securities issued in Kazakhstan, 91% falls on the KMC’s bonds.

The significance of the KMC’s operation is mainly associated with social designation of mortgages:

- To provide wide-scale access for the population to mortgage loans;
- To speed up the activity aimed at supplying such national wealth as residential real estate to the overwhelming portion of the population;
- To facilitate the establishment and development of middle class in the Republic.

On the background of development of market approaches, the KMC has embarked on implementing the State Housing Construction Development Program for 2005-2007. The main goal of this Program is commissioning of 12 million square meters of affordable housing and creating conditions for home acquisition and construction by households, using advanced lending forms. According to experts’ evaluations, the mortgage lending market may grow in 4,5 times over the period of 2005-2007. Putting this in a different way, the development of mortgage resources will grow from 127 billion to 600 billion KZT.

#### 3.2 The KMC’s Developmental Strategy for 2005-2007

Determining the Main Goals and Principles of the KMC’s Development

The KMC’s main goals are refinancing of second-tier banks by acquisition of demand rights on mortgage loans, creating incentives for the origination of affordable mortgage loans by putting down interest rates and reaching acceptable lending conditions in the country for households making earnings at a medium level and at a level lower than medium.

To ensure further evolution of the mortgage lending market and to make mortgage loans available for wide masses of the Kazakhstani population, the KMC has scheduled the following arrangements for a period 2005-2007:

- Extending the terms of lending up to 30 years on mortgage loans provided in the framework of the KMC's market program;
- Increasing the “specific weight” of mortgage loans with down-payment in the amount of 10% in the KMC's loan portfolio (provided that such loans are supported by a guarantee of a special Fund);
- Further reduction of the ultimate interest rate on mortgage loans originated in the framework of the KMC's Market Program.

The KMC intends to achieve the aforesaid parameters provided that a favorable market environment prevails, and to fulfil the following conditions that include:

- Decreasing the inflation level;
- Funding of the purchase of loans for the account of raising of borrowings with adequate repayment terms at acceptable market rates;
- Reducing bank margin for the account of minimization of credit risks and the cost of servicing of the loans;
- Expanding the range of offered mortgage loans;
- Improvement of the legislative framework.

In the framework of this Strategy, the KMC intends to introduce new mortgage products and to differentiate the existing mortgage loans by targeting them at different segments of the consumer market. This will enhance the sales performance by creating a line of mortgage loans that do not compete with each other. Besides, the work aimed at expediting of the credit scoring process (determining the borrower's creditworthiness) due to establishing concise criteria of borrower's creditworthiness with respect to each product under design (the application of the scoring models).

Moreover, the Company is going to activate the work with specialized credit companies originating residential mortgage loans that will become serious competitors to banks due to their mobility, because the expansion of competitive environment or introduction of commercial market companies to the mortgage market is an additional measure aimed at reducing the margin of partner banks.

### **3.3 The KMC's Development Trends**

Implementing the Program for Housing Construction Development in the Republic of Kazakhstan for 2005-2007

So far, only people that have adequate earnings can use the mortgage lending facility. However, the housing constraints remain to be vital for all layers of the population. This conditioned the design of a State Program with the main objective of comprehensive resolution of the issues relevant to housing construction development to make the housing available to the wide masses of the population.

Pursuant to the State Program for Housing Construction Development in the Republic of Kazakhstan for the years 2005-2007:

- In 2005, the scheduled commissioning of the housing amounted to 3 million square meters;
- In 2006 – to over 4 million square meters;
- In 2007 – to over 5 million square meters.

It is expected that about 195,000 households will be covered with the housing over the years of implementing the housing program.

In addition to this, the KMC plans to issue mortgage bonds:

- In 2005 – for the amount of 34,9 billion KZT;
- In 2006-2007 – for the amount of 111,2 billion KZT.

According to the KMC's special program developed in compliance with the State Program, 47 thousand mortgage loans will be originated and extended for acquisition of the housing with the total area of 3 million square meters (25 % of the commissioned housing).

As the practice demonstrates, citizens willing to purchase an affordable home today are lacking comprehensive information on the procedures, schemes and the principles of mortgage lending on the whole.

The overwhelming portion of loan applications is submitted by the workers of educational and medical institutions, and state establishments, for whom mortgage lending is a new and unknown financial product. Thus, it is necessary to undertake the following measures for successful implementation of the set tasks:

- Efficient clarification and educational work including holding of presentations, “round tables” and seminars;
- Dissemination of information material in mass media sources;
- Building up the quantity of partner banks;
- Expanding the regional network;
- Developing a uniform scheme for all stakeholders involved in the implementation of the 2005-2007 State Housing Construction Development Program and informing the population of this scheme.

### **3.4 New Products and Services**

A) The possibility for the change in basic lending parameters

The classical model that provides for loan repayment throughout the entire term of a loan agreement in equal installments is not convenient for everyone. Repayment installments on a mortgage loan may be very burdensome for young couples during the first several years of a loan term. However, as they get promoted on their jobs, their earnings climb up and debt repayment

ceases to be a problem. In such situation happen to be those whose earnings are not very high, while there is a realistic opportunity to build them up.

- *The mortgage with periodic increase of installment amounts.* In this scheme, the size of an installment is increased for a certain amount based on a schedule that has been previously agreed upon (for example, once every three years).
- *The loan with the growth of payments.* In this scheme, the size of payments is increased each month for a certain amount during several years and then remains fixed until expiry.
- *The loan with deferred payments.* In this scheme, the amount due may be deferred for a period of several months to several years.
- *5-year loan with an extension option.* This scheme gives an opportunity to repay debt beginning from the first year of mortgage or to refinance the loan in 5 years for a longer term.

B) Expanding the market of mortgage products with additional segments due to redesign of the existing mortgage products.

- Using the basic lending parameters under the KMC's Program:
- Loan amount – from 600 thousand to 50 million KZT
- Loan Currency - KZT
- Maximum size of a loan – up to 90% of the cost of the housing being purchased
- The interest rate - floating
- Loan term – up to 20 years
- It is intended to differentiate the mortgage products by targeting them at various segments of the consumer market.

***The “Elite” Loan.*** This product is designed for people of rich fortune. Entering more than 40% of the value of the housing, the borrower will be entitled to raise a residential mortgage loan amount in excess of standard restrictions.

***The “Youth” Loan.*** This product is designed for young people at the age 21 - 29 years. If a potential borrower can prove that he/she has a stable income but is lacking adequate savings, he/she will be provided with an opportunity to purchase the housing by paying only 5% of its value.

### **3.5 Improving the Organizational Structure**

The KMC's Organizational Structure Improvement Strategy is aimed at ensuring stable activities in the conditions of the growing market of mortgage lending and increasing availability of mortgage loans for the population. To implement the 2005-2007 State Housing Construction Program, the KMC is planning to expand the activities almost 3-times as much.



The main objectives for the improvement of the KMC's organizational structure are:

- Determining the direction of the work of the KMC's subdivisions to develop the qualitative and quantitative structure of the personnel;
- Planning the requirements for labor resources, and formation of the structure;
- Further development of the organizational structure in compliance with the growing requirements of the KMC.

To reach the goals and objectives for the improvement of organizational structure, it is supposed to:

- Determine the volume of operation of newly instituted subdivisions and their demand for qualified staff;
- Develop the structure and staffing table of the Company jointly with the managers of subdivisions;
- Review and forecast on staff development for improvement of the Company's organizational structure.

To support the KMC activities, the chart of the Organizational Structure for 2005-2007 has been recently developed, with due regard to the volume of work and establishment of regional rep offices in the cities of Kazakhstan.

The system of the KMC's organizational structure has been formed in such a way as to provide for the best possible performance.

### **3.5.1 Expansion of the Regional Network**

Due to increasing the scope of acquisition of demand rights on mortgage loans, as well as implementation of the State Program for Housing Construction Development for 2005-2007 in the Republic of Kazakhstan, it has been scheduled to establish regional rep offices of the KMC. In 2005, the plan is to open rep offices in all regional centres of the Republic. As of September 2005, there are 16 regional offices.

## **3.6 Risk Management System Formation**

The purpose of the KMC's Risk Management Strategy is not avoiding risks (except those that are unacceptable or detrimental to the company), but establishing effective risk management system providing for active risk management to mitigate negative implications.

The main goal of an integrated risk management system is to find the best correlation between the risk and profitability at full scale of the KMC.

The directions of the Risk Management System development for 2005 – 07:

- Establishing the data system to support middle and top manager decision-making process and to enable evaluation of a progress and performance results;

- Introducing the system to evaluate performance of responsible persons that would generate effective incentives for resignation of unacceptable and detrimental risk;
- Risk management at different levels of KMC's operations;
- Improving the internal controls system;
- Adequacy and distribution of capital among different risk categories;
- Establishing an efficient organizational structure for risk management that will enable to maintain the existing net profit margin.

To reach the set goals and to continue developing the risk management system, the plan is to:

- Determine a short-term, medium-term and long-term policy and main trends of the KMC's activities;
- Identify the proneness to risks and select a risk profile for the KMC based on activity lines and geographic regions;
- Further improvement of the risk management methodology with the nature of the KMC's operations and prospective development taken into account;
- Develop methods and models for quantitative assessment of KMC's total risks and for separate risk categories;
- Establish and maintain databases required for the purposes of risk management;
- Develop and introduce the methodology for setting limits, breaking down of net worth into different risk categories;
- Design risk assessment models used to price financial instruments and products of the KMC;
- Develop the risk hedge method.

### **3.6.1 Internal Control System Improvement**

The Internal Control System is called to secure the safety of the KMC's assets and to prevent the likely risks of bursting out of a conflict of interests.

In order to improve the internal control system, the controls should be identified and introduced at each level:

- Enhancing control over corresponding distribution of responsibilities so that duties allowing for the conflict of interest are not entrusted to the staff. Revealing the areas of potential conflict of interests, their minimization and exercise of diligent monitoring;
- Enhancing control over the safety of assets (appropriate authorization and control over made payments, daily account verification, periodic verifications to ascertain the fact of availability of inventories (tangible assets), etc.);

- Enhancing control over the KMC's all subdivisions' compliance with the internal regulations, policy and the requirements of the Republic of Kazakhstan legislation;
- Determining and introduction of appropriate methods of control of activities of the KMC's structural subdivisions;
- Analysis at the highest level – the KMC's on-going monitoring of general effectiveness of the internal control mechanisms.

To ensure data security, the informational systems encompassing all KMC's activities and expected to be implemented and their dependability will be ensured. The data systems storing and using information in electronic format needs to be periodically tested.

Improve the documented organizational procedures to identify a complete range of restrictions and functional responsibilities of departments, and a plan of action in a non-typical situation.

Ensure regular inspections by the actuaries of the Internal Audit Service of the KMC's structural subdivisions, evaluation of a follow-up control of all sectors that were identified as problematic.

The KMC's management requires regular evaluation of the internal control system performance based on the reports of internal audit department, evaluation of performance of the Management Information System and performance of the organizational structure.

### **3.7 The IT Development**

The KMC's strategic goal in the area of computerization for 2005-2007 is establishing and developing Integrated Computerized Information System (hereinafter, "the ICIS") that will be applied in all its subdivisions.

The main mission of the ICIS designed is to improve the performance and enhance the effectiveness in reaching the tasks the KMC has been faced with, due to automation of functions and assignments and enhancement of analytical processes needed to make decisions at all managerial levels. The major ways to provide for accomplishment of the set task are:

- Introduction of up-to-date information technologies ensuring integration of newly designed and implemented systems (subsystems) into a uniform integrated automated data system of the KMC;
- The ICIS' exposure to external links and the potential for expanding these links provided that the established data security requirements are met;
- The maximum relief from reliance on a human factor, or possibility to receive information notwithstanding whether a certain officer of the KMC is available at the work place or is not;
- Enhancing the quality and efficiency of the KMC's subdivisions' accomplishing of the functions and tasks that they are charged with;
- Establishing common data space for partner banks of the KMC;

- Maximum reduction of hardcopy circulation and the use of e-documents;
- Increasing accuracy and precision in reflecting the KMC's operations in the books;
- Improving investment management to keep low risk level;
- Automation of the internal operations and business functions;
- Providing for ICIS secure and dependable operation.

To support the KMC's activities in terms of prompt data processing the Automated Informational System of the KMC has been presently designed (hereinafter, the "AIS") that needs to be improved for further reduction of hardcopy document flow between partner banks and the KMC. The AIS current status in the conditions of rapid growth of loan acquisition rates fails to meet the KMC's requirements due to additional manual input of the data from paper carriers (hardcopies) submitted by partner banks, the lack of automated generation and linking of accounts to a loan "ticket", the lack of uniform enumeration of contracts at the KMC and STBs (second-tier banks), the lack of exchange of e-documents with the partner banks, the lack of archiving system and multi-language support. Therefore, in developing and upgrading the KMC's AIS all the above requirements must be taken into consideration.

Establishing the Data Processing Centre at the KMC (hereinafter, the "DPC") to be equipped with the up-to-date technical facilities with operating automated data system should allow for creating prerequisites for active development of such modern settlement devices as internet-banking and card system. Payments made as repayment of mortgage loans via payment cards may be introduced through the payment card systems of second-tier banks.

Owing to the fact that the overwhelming portion of partner banks lack their own software for the servicing of mortgage loans, the Centre's services in implementing of unified software products will also enhance the quality of service for the borrowers and to minimize the corresponding costs of the banking sector and to expand the circle of the partner banks.

Besides, assumption of a portion of the functions of the partner banks that are related to the servicing of their clients and processing of payments will also demand software upgrading and regulation on behalf of the authorized agencies.

Due to the requirement to obtain a license for transfer operations for the DPC, in order to avoid the conflict of interests that emerge in the event of combination of lending operations with transfer operations, the DPC must be detached from the composition of the KMC and granted a status of a separate legal entity.

Designing an electronic archive system for payment documents and electronic copies of the documents (scanned credit files), as well as the management of their corporate content is another important aspect in using up-to-date information technologies for the KMC.

The e-archive system should enable to integrate various data from unstructured documents into a data repository and provide for their efficient use for resolution of the set tasks.

### 3.7.1 Ensuring Information Security

There is a need for institution of a Backup Centre to mitigate the data loss exposures. To computerize the process of delivery of account statements to their clients, there is a need for establishing their internal printing shop with a facility for printing and packing into envelopes of account statements, printing of standard contract and other document forms.

Credit risk review (credit scoring) or assessment of creditworthiness of loan applicants is one of the most critical components in the process of mortgage loan origination and extension.

Introduction of the modern credit scoring system in the KMC' DPC is a strategic solution opening opportunities for:

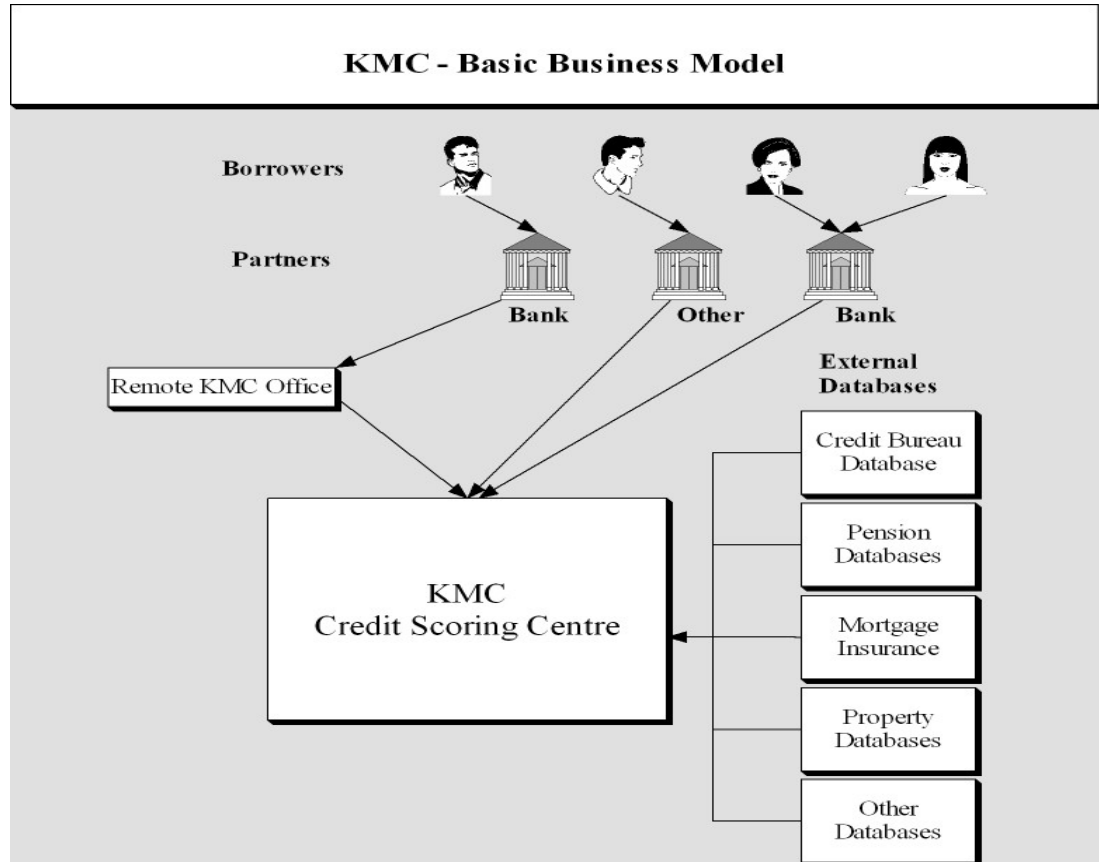
- Large-scale consumer lending,
- Efficient monitoring of the level and quality of demand for consumer credit services,
- Timely and adequate management of credit risks in retail lending,
- Reduction of operating costs to be incurred through the credit scoring process,
- Diversifying the range of credit products.

To provide for data security of operated subsystems of the KMC ICIS, taking of the following measures within a period of 2005-2007 must be provided for:

- Preparation and approval at KMC's Board meetings of appropriate Regulations concerning data security provision;
- Analyzing and selecting a system of centralized administration of antivirus protection facility or application that is installed on the users' work stations;
- Upgrading Internet security system (software and hardware platform), expanding Internet access channels;
- Creating one common center for generation and distribution of the keys of cryptoprotection to exchange the ICIS subsystems' data;
- Establishing in the IT subdivision a sector that will provide for the operation of the means of cryptographic protection of data in a corporate network;
- Building a cryptographic module into the functioning subsystems of the ICIS based on the one common center of distribution of the "PKI" keys;
- Preparation and distribution of a plan for ensuring a non-stop operation of the KMC AIS in the event of emergency situations.

### 3.8 Analysis and Recommendations to Support Strategic Direction

As identified in the KMC strategy and vision, the establishment of a modern credit scoring system as part of KMC's total Data Processing Centre has been identified. This project has been named the *CREDIT SCORING CENTRE*. The following diagram illustrates the basic business model.



#### 3.8.1 Primary functions of the KMC Credit Scoring Centre:

- Access the creditworthiness of loan applicants
- Manage the status of all new applications
- Manage and control the collection of all documentation required
- Screen and quality applications according to specific products
- Apply pricing methodologies based on risk
- Deliver on-line, real time, decisions to remote offices and partner banks
- Expedite and automate the purchase and acquisition of approved mortgages

The business case for acquiring a Credit Scoring System has been fully evaluated by KMC management. Credit Risk Scores (often referred to as the FICO credit score) are used to make billions of credit decisions each year, including more than 75 percent of mortgage loan originations in the USA. In addition, more than 40 of America's 50 largest financial institutions rely on the FICO score to help them determine an individual's credit risk.

Credit Risk Scoring is an instrument widely used by companies for the internal processes of portfolio risk measurement and management. It indicates the probability of future insolvency of a person requesting credit (or a client already in the portfolio) based on their past history.

Credit scoring, in addition to being a tool to evaluate levels of risk, has also been effectively applied in other operational areas, such as:

- Streamlining the decision-making process, that is, higher-risk and borderline applications being given to more experienced staff for more scrutiny, while low-risk applications are assigned to junior staff. This can be done in KMC remote branches, credit adjudication centers such as the KMC Credit Scoring Centre, and collections departments.
- Reducing turnaround time for processing applications through automated decision making
- Apply consistency by creating a centralized underwriting environment applying institution policies
- Evaluating quality of portfolios intended for acquisition
- Setting economic and regulatory capital allocation
- Setting pricing for securitization of receivables portfolios
- Comparing the quality of business from different channels/regions/partner banks
- Lower delinquency and default
- Pricing - lower risk borrowers can be attracted by lower rates and higher risk borrowers will pay a premium rate to offset the higher risk
- Automated origination, full integration and document management

## 4 Implementation of Credit Scoring at KMC

### 4.1 Overview

Based on an evaluation of the main requirements of the JSC KMC applied in the acquisition of the rights of demand on mortgage loans, the current processes for both the acquisition and the maintenance meets international best practices. A thorough review of KMC's operating procedure named *Instructions On Verification of the Credit File of the Borrower by Specialist of the IPC Credit Support Department* as approved by S. Sarzhanova, Director of Information Processing Centre (IPC) as well as numerous meetings with KMC staff clearly indicates an excellent level of understanding the basic requirements. A copy of the current procedure is included as Annex 2.

However, all purchases to date have been with recourse to the partner bank who assume the responsibility for screening the credit risk as they are ultimately responsible in the event of a loss. In order to KMC to move to a model of "non recourse" and assume the credit risk, there is a need for additional Credit Risk Management policies and procedures.

KMC intends to use the Credit Scoring Centre in order to thoroughly access and analyze all factors of the borrowers risk in order to provide credit decisions. Implementation of a credit scoring software system in order to make credit decisions will be a challenge at KMC based on the lack of adequate past credit histories, especially as it pertains to mortgage lending. There is much more to decisioning and underwriting than just a credit score.

In general there are different interpretations of credit scoring and what credit scoring will accomplish. This has been partially brought about by the number of terms and various meanings of credit scores used by the software vendors – Application scoring, behavioral scoring, risk scoring, analytical scoring, expansion scoring, judgmental scoring and statistical scoring to name a few.

The same applies to Scorecards – what they are, where they come from and how they are used? These have numerous types – custom scorecards, generic scorecards, industry specific and pooled scorecards to name a few.

### 4.2 Terms Used

In order to bring about clarity and complete agreement, there is a need to clearly define each of the terms implied when discussing the overall concept of credit scoring and it's components. By having a total understanding, KMC will be in a much better position to provide specific business requirements to potential respondents to their Request for Proposal (RFP). Definitions may vary from vendor to vendor. The following describes exactly what is implied to when discussing each term in this report:

***Credit Scoring*** - This is a process. It is a statistical means of providing a quantifiable risk factor for a given borrower. When referring to generic term credit scoring, we are really talking about application scoring. For the purpose of this document, credit scoring and application scoring can be interchanged.



***Credit Risk Scoring*** - This is a product. It is a numerical value that ranks individuals according to their credit history at a given point in time. Credit risk scores are based on past payment history, the amount of credit outstanding, the amount of credit available, and other factors. Often referred to as a FICO score<sup>1</sup>, a *credit risk score is a computation of the odds (probability) that a borrower will repay a debt in the future based on their history of dealing with credit in the past.* It is important that we understand the differences between overall credit scores (or application scores) and credit RISK scores (or FICO scores). A credit risk score is only ONE of the scores that contributes to an overall credit score (or application score).

***Behavioral Scoring*** - This is a process. It is used to determine a credit risk score - if generates the odds of a borrower repaying based on previous history as outlined in the credit risk score above.

***Application Scoring*** - This is both a product as well as a process. This is the product that KMC requires in order to meet the needs of the scoring centre. This is the focus. The process of application scoring works by taking all the relevant details of an application and giving each piece of information a value (or 'score'). When all the individual scores have been added together, the total score gives the level of risk associated with the application.

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1 All references to FICO SCORE (developed by Fair Isaac) are illustrative only as different providers of different risk scores use different names. FICO is the mostly widely used term and referred to within as an example only.

### 4.3 Application Scoring – Scorecards

The application score (application SCORECARD) should consist of at least the following scores:

- The Product Score
- The Credit Risk Score
- Financial Score
- Character Score
- Collateral Score

#### 4.3.1 Sample Characteristics (parameters) of an Application Scorecard

##### *The Product Score (Product Business Rules)*

- Purpose of loan
- Deposit / Down Payment
- Product Rules for loan type and amount requested
- Term and amortization, Loan to Value (LTV), interest rate, insurance

##### *The Credit Risk Score*

- See notes below regarding credit risk score

##### *Financial Score (Solvency)*

- Assets
- Liabilities
- Monthly Repayment
- Total Monthly Income

##### *Character Score (Solvency)*

- Time at current employment
- Time at current residence
- Position held
- Residential status

- Educational status

### ***Collateral Score (Security)***

- Documentation regarding property
- Type of property
- Construction of property
- Location of property
- Condition of property

### ***Credit Risk Score***

In order to properly build reliable credit risk scores, a large database of history is required. The implementation of the new entity – First Credit Bureau of Kazakhstan (FCB), will provide valuable information mandatory to the establishment of credit risk scores. However, it will take time for the credit bureau database to grow to a level of maturity which will enable it to properly apply the mathematical calculations for determination of a credit risk scores. At this time, there will not be a credit risk score available from the FCB. Many of the larger financial institutions have taken this task “in house” and built their own internal custom credit risk scores based on data provided by the credit bureau as well as their own internal data.

The best source for building risk scores is a large database of defaulted loans. By reviewing the characteristics of defaulted loans, key parameters and common attributes can often be identified and built into risk score models. Companies who specialize in building risk scores validate the accuracy of their models on a regular basis by reviewing tens of thousands of files. KMC will need to analyze their defaults on a regular basis in order to make adjustments to their scoring models.

While a credit risk score normally comes directly from the various Credit Bureau reporting agencies who represent the best source and largest quantity of data, credit risk scores can also be calculated in house. When the bank uses only a sub set of the credit bureau data, the behavioral patterns are not as sophisticated as credit bureau credit risk scores which rely heavily upon the complete behavioral analysis. In such cases, the bank will normally weight the score differently to reflect the behavioral pattern of the borrower based primarily on the banks past history with the same borrower.

Companies such as Fair Isaac Inc., out of California, developed the models used by the three major bureaus in North America. They have tested millions of consumers. The model has been validated and re-validated every other year. The three most recognized credit reporting agencies include [Equifax](#), [Experian](#) and [TransUnion](#). Known as a BEACON® score at Equifax, EMPIRICA® score at TransUnion and the Experian/Fair Isaac Risk Score at Experian, all use formulas developed by Fair Isaac & Co. Experian-Scorex

has recently developed Scorex PLUS to provide a high-performance scoring alternative.

### ***How are Credit RISK Scores established??***

It is important to have a complete understanding of a overall Credit Score (application score) and a Credit Risk Score (such as a FICO score). The following information addresses the where and how credit risk are scores derived and the complexity of applying behavioral scoring to calculate risk scores. The credit risk score is normally a number between 300 to a perfect 850.

There are approximately 50 characteristics (parameters) of credit risk scoring models. The credit bureaus will not tell you all of the characteristics they use as they are a trade secret. In general terms, the FICO® score evaluates five main categories of information:

- Payment history (35% of the overall score)
- Amounts owed ( 30% of the overall score)
- Length of credit history ( 15% of the overall score)
- New credit (10% of the overall score)
- Type of credit used (10% of the overall score)

### ***Payment history (35% of the overall credit risk score)***

- Account payment information on specific types of accounts (credit cards, retail accounts, installment loans, finance company accounts, mortgage, etc.).
- Presence of adverse public records (bankruptcy, judgments, suits, liens, wage attachments, etc.), collection items, and/or delinquency (past due items).
- Severity of delinquency (how long past due).
- Amount past due on delinquent accounts or collection items.
- Time since (recency of) past due items (delinquency), adverse public records (if any), or collection items (if any).
- Number of past due items on file.
- Number of accounts paid as agreed.

### ***Amounts owed (30% of the overall credit risk score)***

- Amount owing on accounts.

- Amount owing on specific types of accounts.
- Lack of a specific type of balance, in some cases.
- Number of accounts with balances.
- Proportion of credit lines used (proportion of balances to total credit limits on certain types of revolving accounts).
- Proportion of installment loan amounts still owing (proportion of balance to original loan amount on certain types of installment loans).
- Escalating Debt/Rapid Spending – Consumers who take on a lot of debt in a short period of time will have lower scores

***Length of credit history (15% of the overall credit risk score)***

- Time since accounts opened.
- Time since accounts opened, by specific type of account.
- Time since account activity.

***New credit (10% of the overall credit risk score)***

- Number of recently opened accounts, and proportion of accounts that are recently opened, by type of account.
- Number of recent credit inquiries.
- Time since recent account opening(s), by type of account.
- Time since credit inquiry(s).
- Re-establishment of positive credit history following past payment problems.

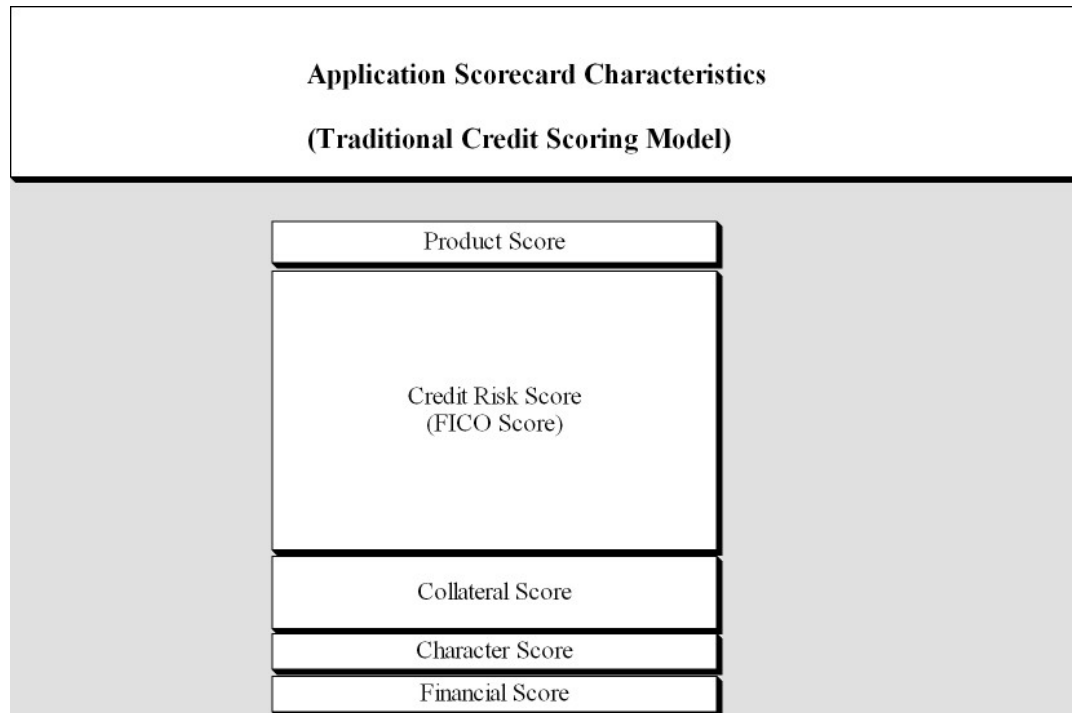
***Type of credit used (10% of the overall credit risk score)***

- Number of (presence, prevalence, and recent information on) various types of accounts (credit cards, retail accounts, installment loans, mortgage, consumer finance accounts, etc.).

Refer to Annex 1 for an example of an ODDS SUMMARY TABLE.

**4.3.2 Application Scorecard Characteristics**

In a traditional scoring model, the following diagram is an example of weighting that many lenders adopt. As the illustration clearly identifies, the model is heavily weighted toward credit risk scoring (FICO Score).



In the traditional model above, the best single indicator of the overall application score (credit score) will be the credit RISK score. A well established risk score, built from large quantities of data over an extended period of time, will normally place the borrower in the risk category most applicable to their individual circumstances. If a borrower has a good to excellent FICO score (credit risk score), they will normally have good income, good job stability, good net worth and generally have good character. Normally the character score and financial score are direct reflections of the credit risk score. As such, they play a lesser role in the overall decisioning process and the credit risk score is the one most heavily weighted score used.

In Kazakhstan the availability of reliable credit risk scores is a challenge for the following reasons:

- There is limited access to the large quantities of data required to establish a history of past repayment.
- Access to a single database of default loans (the best source for risk scores) is limited.
- Mortgage lending (and defaults) has not been in place for a long time and data is not available
- Credit card use, a major contributor to risk scores, are not yet widely used in Kazakhstan

- Many of the population of Kazakhstan have not yet discovered the value of credit and have no credit history or credit experience
- The First Credit Bureau of Kazakhstan is new and does not have a credit score product available at this time. It is estimated they will have one in 18 months.

***How does this impact the introduction of credit (application) scoring at KMC?***

It is critical the KMC recognizes most credit decisioning software is heavily weighted toward CREDIT RISK (FICO) SCORES. Most scorecards depend on the risk score (FICO) score.

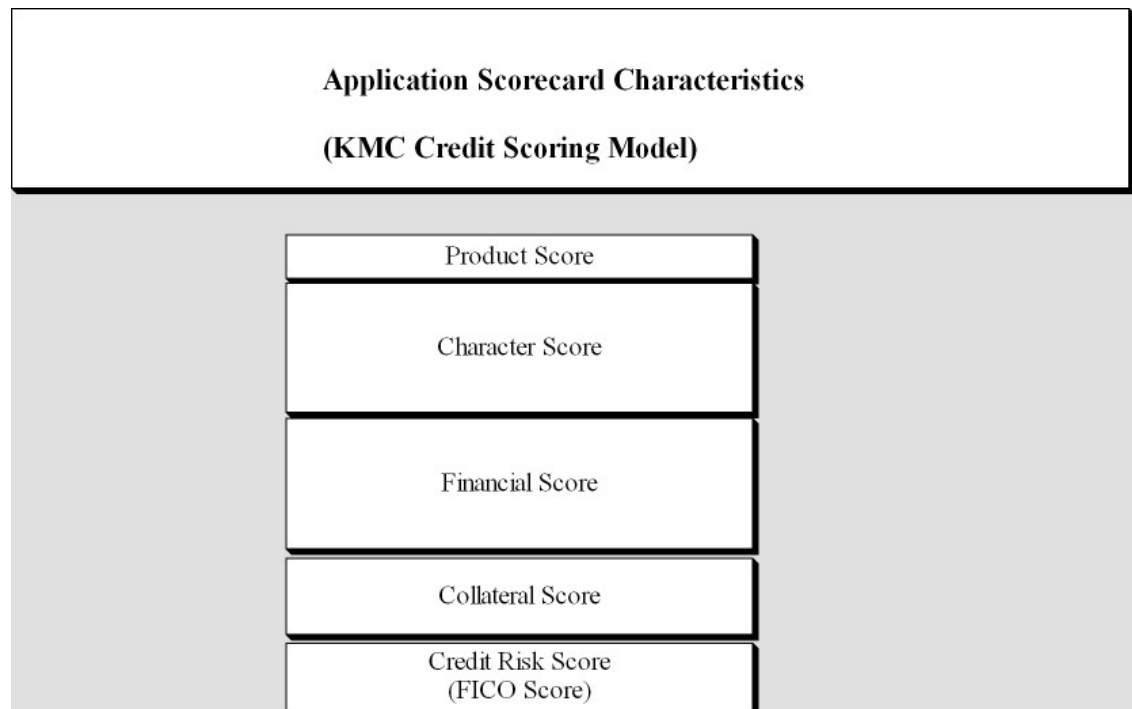
As a result KMC will need to modify the weighting applied to credit risk scoring until such time as credit risk scores are more widely available AND have proven record of their dependability. In the meantime, weighting needs to be stronger on the remaining application scores such as the character and financial scores (solvency) as well as the collateral scores.

In addition, KMC should take the establishment of credit risk scores “in house” and calculate their own credit risk score whenever there exists sufficient data to do so. As databases grow, both at the credit bureau as well as KMC, the quality of the credit risk scores will improve. KMC should challenge any provider who suggests they have the ability to provide credit risk scores without data.

KMC should seek out a business partner who has access to large quantities of data, in similar markets, for similar mortgage products. A software partner with this information should be able to provide basic scorecards which identify the characteristics of borrowers with the highest risks based on experience in the similar markets. This single added value of the best partner selected will bring the most benefit to KMC if they are in fact able to provide such scorecards as KMC’s starting point.

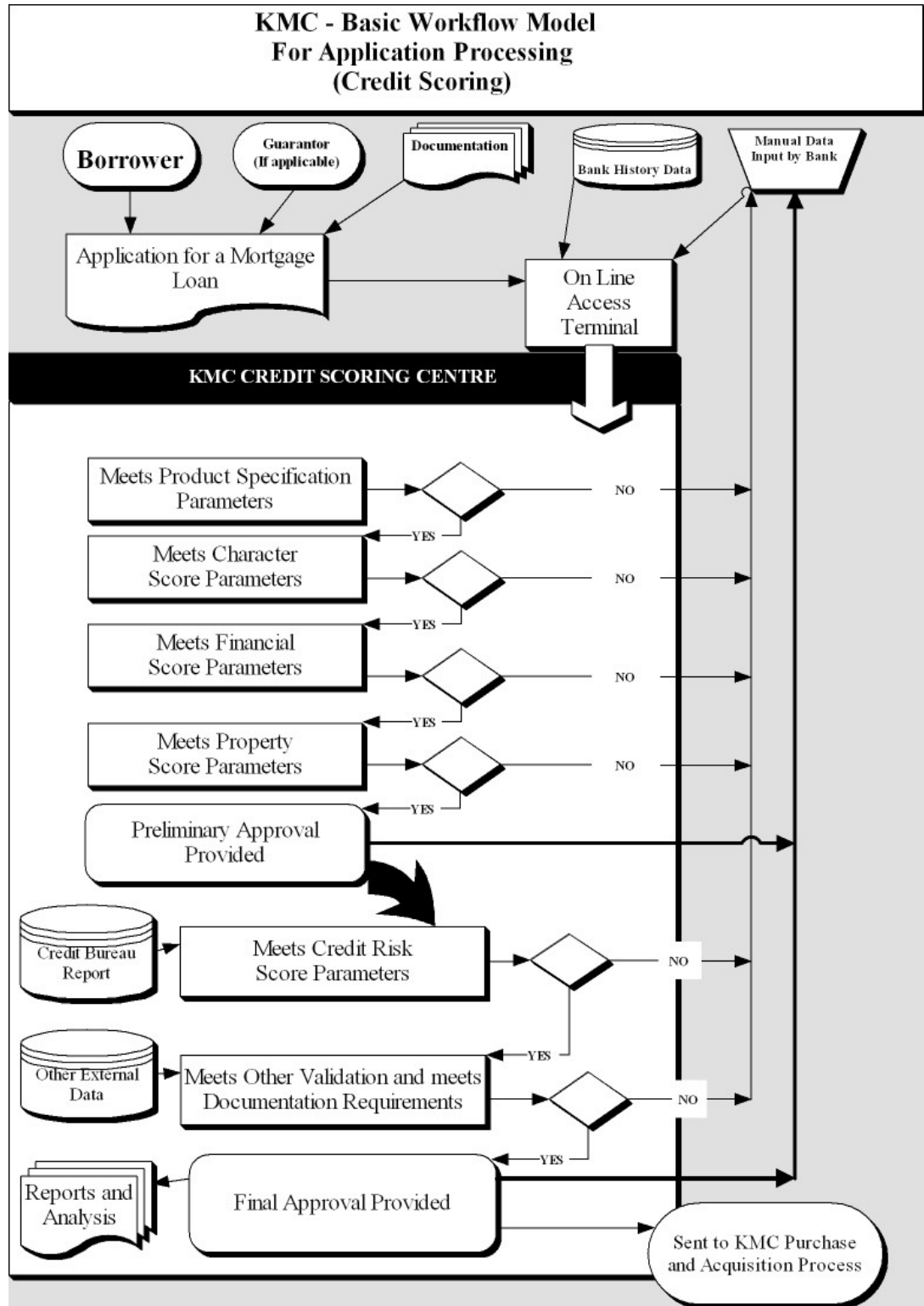
Lastly, but most importantly, KMC must find the right combination of non-technical resources (experienced mortgage lending personnel) and technical resources (scoring software) in order to operate a successful Credit Scoring Centre.

The following diagram illustrates an example of the weighting KMC needs to apply to their overall credit scoring (application scoring) model in the Credit Scoring Centre. The model needs to be reviewed on a regular basis (by the experienced mortgage lending personnel) and on going modifications to the weighting, based on experience as it is acquired, is critical to the success of scoring.





### 4.4 The proposed KMC Work Flow Model



As illustrated in the proposed model, all applications would be sent into the Credit Scoring Centre for processing. Both internal and external data sources are used to validate information provided on the application. At every step a further evaluation is performed before proceeding to the next evaluation stage. These evaluations would be performed by the credit scoring (application scoring) software. When an attribute, characteristic or parameter fails to meet a minimum threshold the software application will provide one of two steps – refer the application for manual handling or to automatically reject the application based on all evaluations at that point.

During the implementation stage close review of all applications will be required to confirm the software has properly categorized the application as a reject versus a referral. It is recommended that all applications be referred, not rejected, during the implementation phase of the project.

#### Data sources used during the processing of applications

The primary source of electronic data is the *First Kazakhstan Credit Bureau (FCB)*.

As the credit bureau becomes more mature, it will have additional data and the value of the credit reports will improve. In the meantime, KMC will require the detailed credit report in order to calculate an internal credit risk score. As the FCB introduces it's own risk score product, KMC should monitor closely for comparisons and validity of FCB scores with the intent of eventually replacing in house risk scores with credit bureau risk scores. That evaluation is a minimum of two years away.

While Pension databases have been listed below as a possible source, there question of access will need to be addressed first. There is currently no access to Pension data. Pension data is a valuable source for determining borrower income as the pension contribution is 10% of income in all cases.

Other government and public record databases are not listed below as it must be assumed that the FCB will collect any data available from any source who is willing to provide it (assuming it is related to either credit or public records).

Employer databases (internal to KMC) are discussed in more detail under the risk mitigation section following. The same applies to property databases.

#### ***Potential Data Sources used in Application Processing:***

##### The Product Score

- Data supplied on application for mortgage loan
- Business Rules of KMC
- Mortgage Insurance Databases

##### The Credit Risk Score

- Credit Bureau Data

- Existing KMC databases
- Partner Bank Databases
- Scorecard Databases

#### Financial Score

- Pension Databases
- Credit Bureau data
- Certificates provided by borrower

#### Character Score

- Certificates provided by borrower
- Credit bureau data
- Pension databases
- Employer databases (internal)

#### Collateral Score

- Appraisal reports
- Property databases

Note: List of potential sources of data is subject to their availability.

### **4.5 Roles and users of the workflow/scoring system**

The following highlights the users and their roles of the workflow / scoring system:

#### ***Partner Banks***

- Assist KMC IT staff with interfaces to bank systems where required
- Assist KMC IT staff with all communications and security requirements
- Setup and install client workstations to access the KMC credit score software application
- Train users, with KMC support, on the use of the software
- Collect data from borrowers and input ALL data required into software
- Monitor status of application and acquire additional information / documentation as requested by KMC
- Validate borrowers identity and confirm accuracy of information provided
- Ensure accuracy of information provided from bank internal systems
- Maintain first line of all borrower contact and keep borrower informed

- Enter all manual data required to meet the specifications for each application
- Collect and forward documentation when requested
- Handle all other requests from KMC underwriting staff as needed

### ***Remote KMC Staff***

- Act as first line of communication between the KMC Credit Score Centre and the partner banks (or insurance company)
- Encourage additional participation from existing partner(s)
- Establish business relationships with new partner(s)
- Monitor economic conditions of local area and inform KMC Senior Management of adverse conditions (employers, properties)

### ***Underwriting Staff***

- Refer to ANNEX 2 - “On Verification of the Credit File of the Borrower by Specialist of the IPC Credit Support Department”. This document outlines the existing processes and documentation validation currently required by KMC underwriting staff. There should be NO changes to the minimum verifications and cross checks.
- In addition to the visual inspection and validation of documentation described above, the underwriting staff will utilize the credit scoring software system as a tool.
- Review queues for new applications requiring attention (referrals)
- Monitor approved applications and follow for documentation
- Monitor and review all new applications where the decision has been “referred” for additional manual handling
- Follow partner banks (or remote office staff) for additional information / documentation as required
- Approve / Reject decisions, within pre-assigned approval limits, for the above
- Monitor system generated decisions for faulty scorecards and/ or system errors
- Other duties and responsibilities as they are in place at KMC now

***Managers of Underwriting & Managers of Risk Management***

- Establish and monitor all business rules in order to support business strategies
- Communicate to IT staff the logic required to convert the business rule into a logical statement that can be converted into code or parameters for scoring software
- Monitor all reports, daily, weekly, monthly and look for adverse trends and items requiring action
- Propose changes to the scorecard process where required
- Review and validate new scorecard models prior to implementation
- Monitor number of referrals and review lending “judgement” of underwriting staff
- Adjust approval limits of underwriting staff as needed
- Train and monitor underwriting staff
- Approve all external appraisers
- Other supervisory duties as are already in place at KMC

***Financial and Accounting Staff***

- Monitor operational reports (lending) as provided and as they apply to financial operations
- Ensure all regulatory compliance is met
- Provide regulatory reporting where required
- Contribute to scorecard analysis

***Technology Staff***

- Implement and monitor all access security requirements
- Set up users - add / edit / delete individual users with assigned rights
- Set up new partner banks with all access rights and data required
- Ensure system availability
- Monitor system for performance
- Backup procedures as well as a disaster recovery plan
- Setup and monitor all external links (credit bureau)

- Setup and monitor all communication needs (FASTI , email messages & other)
- Add and update any internal databases as required (employer, property)
- Test all new program releases prior to implementation
- Test any parameter or scorecard changes before implementation
- Run all regular reports on daily, monthly, annual bases (approval reports, statistics reports, portfolio analysis reports, and other operational reports as defined)
- Run ad-hoc reports as requested
- Run Management Information Reports (MIS) as requested
- Other functions required to ensure system availability, security & performance

### ***Senior Management***

- Establish the business strategy for acquisition of mortgages
- Set or approve policy and parameters for new products
- Monitor implementation of business rules by staff (as identified above)
- Monitor economic, market, regulatory and competition conditions for changes requiring new or altered business strategies
- Review operational, ad-hoc or MIS reports and react as appropriate

#### **4.5.1 Recommendations Related to Roles**

As indicated above, there are many roles for many players in the Credit Scoring / Workflow system. Purchasing mortgages is by it's very nature a very highly administrative task. While the decision process will be supported by the credit score (application scoring), the visual confirmation of document accuracy will not go away. As the technology improves, the registration of mortgages may become an electronic process as it is in some western regions now.

The key to streamlining is twofold:

1. Populate the input screens with all available data
2. Enter new data at source and only once

There is no replacement for good judgement. The responsibility for the overall mortgage portfolio quality needs to be owned by a single individual. That individual must play a key role, with the support of all underwriting and risk management supervisors, in monitoring and controlling the volumes and quality of new mortgage purchases.

It is strongly recommended that that individual identified above play a leading role in the credit scoring software system evaluation and selection. If they are to be held accountable for the overall quality of the portfolio, profitability of the portfolio and losses incurred from within the portfolio, then they need to be a part of the decision process now.

The individual responsible for the portfolio quality will also need to establish a collection centre as well introduce as collection policies and procedures for collection of defaulted mortgages, including litigation specialists. Alternatively, the collection task can be outsourced. A strong and effective collection centre will play a critical role in managing risk and minimizing potential losses. The need to act quickly on mortgage defaults is supported by a common expression in the collection world - *your first loss is your least loss*. The implication there is to act quickly and not procrastinate before the equity deteriorates. Establishment of a collection centre is no mundane task.

#### 4.6 Data evaluation criteria in order to determine risk levels

##### ***"Mortgage lending is rules-driven at every stage of the lending process and in every system"***

As described in the workflow process map, there are a number of stages at which each application is evaluated against the rules before proceeding to the next step. Mortgage processing normally has a very high rate of approval - between 85% and 90% of mortgages are approved. The biggest reason for slowing the process is the lack or documentation or accurate documentation requiring follow up.

The best strategy for approval processing is to follow a methodology that every application is approved - until it fails to meet a specific rule at one of the evaluation stages. At that stage the application is referred for manual handling. Depending on the circumstances, there may be alternatives or changes from the original request that can be made while still meeting the needs of the borrower. For example a smaller mortgage amount or a longer term of mortgage may be enough to reduce monthly payments (PTI or LTI ratios) which will then meet the criteria. The application is then resubmitted.

When evaluating the data, we are really evaluating two specific areas:

1. The strength of the borrower
2. The strength of the collateral (the property)

In addition to individual application evaluation criteria, corporately KMC needs to have a policy in place that provides an overall guideline for the mix of assets. By spreading the risk, the company will hedge itself against a negative issues in specific areas. For example, a guideline for the types of property KMC will mortgage. Currently, in order to avoid a well documented high risk category, KMC has a policy that they will only mortgage owner occupied property. At this time, that policy is sound. However changes to the market and / or competition may require a re-evaluation of that policy. In that case,

KMC may be willing to hold up to 10% of the total mortgage portfolio in non owner occupied property. The same applies to mortgaging commercial property, low value property and other categories of property.

The most important guideline at this time is the mix of rural property KMC will hold which is normally a higher risk mortgage. Even at much lower loan to value ratios, this is still a much higher risk than urban properties. A good mix and variety will mitigate the overall portfolio risk.

### ***Evaluation of the borrower***

Referred to as SOLVENCY, the strength of the borrower(s) is the primary basis on which all mortgages are evaluated. The solvency of the borrower is determined by adding the financial score, the character score and the credit risk score.

In order to provide additional data for determination of financial score, it is recommended that individual assets and liabilities be added as new parameters to the application for loan. The difference between the assets and liabilities is a net worth calculation. Borrowers with a high net worth represent very low risks and as such can be categorized into the elite group. Character scores are determined by employment data as well as personal data and demographic data.

In order for the credit scoring software to purge high risk borrowers, we must first identify those classifications of borrowers who historically represent high risk. In a rules based application scoring system, following the strategy every application is approved until it fails an evaluation test, KMC will focus on segregating high risk as opposed to segregating low risk (the 85% to 90% approval rate). As KMC acquires more data, including defaulted mortgages, the identification of higher risks will surface. These changes must then be immediately reflected in revised scorecards.

Traditionally the credit risk score is used. If the borrower scores low, there is a high risk they will not pay. Many lending institutions use a bar of 640 as the credit score. If the applicant scores below the bar, they fail to meet the first rule and are immediately rejected or refereed for manual handling. Remember, manual handling might identify an alternative to mitigate the risk. Some lenders will offset a poor risk score with a guarantor. While that may mitigate the risk of loss, it seldom mitigates the risk that the borrower will require significant collection efforts. To offset this risk, the rate is normally higher.

The KMC credit scoring system needs to have a long range plan to weight the credit risk score as the heaviest overall determining factor. For reasons discussed earlier, the risk scores are not a dependable source at this time as the database of positive data is not large enough to calculate a reliable risk score. However, the risk score that is calculated can be heavily weighted toward negative information. It is recommended that any negative information on payment habits result in an automatic referral (not an automatic rejection) of the application.



Demographics are easiest done by age bands. The lower the age, the higher the risk. This has been proven in many scorecard models in the past. However, the State Program is targeting this group for home ownership and there is no doubt that the mix of young borrowers should be expected to be high. They normally have very little positive, or negative, information on which to make a decision. Length of time of the job is usually short, incomes are modest to low, and payment habits have not been established. Many lenders will automatically insist on a guarantor for this group. Following that strategy represents the lowest risk to KMC and it is recommended.

However, if it creates a problem with the State Program, consideration will be required to waive the condition. In those cases, the education and the type of position (or the career path) the young borrower has chosen will need to be weighted. What KMC will be doing is taking a risk on the future earnings of the borrower.

The amount, and the source, of the down payment can also offset the risk to young borrowers. Those who have saved a significant amount for a deposit represent a lower risk category. In most cases, these mortgages will need to be insured with MI insurance at a premium price to borrowers.

As a word of caution, education is of a lesser importance on any other demographic category than young borrowers. Often older borrowers lack education, as do some self employed borrowers, but those are usually very hard working and honest individuals that KMC will not want to discriminate against.

After handling of young borrowers separately, the most important evaluation criteria is the capacity (income or earnings) of the borrower to pay. Both the amount of the income as well as the security (probability of keeping the job) are critical. When evaluating an application, it does not matter how strong the character of the borrower is, it does not matter how good the credit is and it does not matter how good the collateral is (how low the loan to value is) IF the borrower lacks the capacity to pay. They would be theoretically entering into the agreement without the resources to make the first payment. There are lenders who will take this type of risk - called equity lenders. They charge a premium rate and normally have strong arm collection tactics. It is not recommended that KMC be an equity lender. Equity lenders usually build negative reputations as their number of legal actions is high.

In order to evaluate income, complex scorecards will be required. The first level of evaluation criteria should be the type of employment of the borrower. The following categories are recommended:

- Public Sector
- Ministry
- Non Government Employers
- Own enterprise
- Sole Proprietorship

- SME

Each of the above has a different risk category with sole proprietorship representing the highest risk. These should require special attention and a more detailed analysis of income. In Kazakhstan, there are groups that earn income and do not report it. This group will not have substantiating income verification methods. It is strongly recommended that any applicant who can not confirm income by any source be referred and be required to obtain a strong guarantor who is willing to pledge their own property as additional collateral. History has proven this group represents the highest risk in lending.

On the opposite side are borrowers who can confirm high levels of income with a good length of time on the job. This group represents the lowest risk category and should be approved with much less verification of data (after providing income verification). This group can be labelled elite borrowers and will normally be looking for lower than market interest rates as they represent a lower risk.

Collecting information and categorizing employer groups is difficult. In order to manage the task it is recommended that a database (internal to KMC) be created. This database should have the name of every employer that has an employee with a loan at KMC. For each individual employer, there may be a need to build specific classifications of job types. For example, management or labor etc. For each job type, the maximum amount of income as verified by the documentation should be entered. At that point subsequent borrowers working at the same employer, with similar job types, can have their declared income validated against the database. Each category can be assigned a specific “risk” weighting that should be incorporated into the KMC internal risk scoring program. For example, some types of employers represent higher risks than others. The larger the employer is, the lower the risk is.

In addition to assisting with the evaluation of individual borrowers as above, KMC would also have the data available to measure the risk of the overall portfolio. For example, if an employer comes upon hard times and requires either downsizing or closing, KMC could immediately identify their exposure by isolating the number of mortgages with employees at the specific employer. This type of information supports collection efforts as well - given that KMC would likely allow some tolerance in payment delinquency to this specific group.

It is not possible to write a good lending practices manual within the scope of work of this document. The above examples represent only a sample of the considerations required. When building the scorecards, it is recommended that emphasis, and weighting, be placed upon the borrowers capacity (income / probability of keeping the job) as the key criteria in evaluating the overall solvency of the borrower. The development of a KMC internal employer database should be recommended.

Lastly, KMC will need to ensure that it does not use parameters that are discriminatory in the eyes of the regulators in the credit scoring application.

### ***Evaluation of the property***

While less important than the strength of the borrower, the amounts of loans dictate that good security be taken to support the overall risk. Property (collateral) needs to be scored the same way the borrower is scored.

In the KMC credit scoring system, the preliminary approval must be “subject to appraisal” and confirmation of all other data and documentation as provided. Failure to meet appraisal standards will result in either a referral or a rejection of the application.

The key to good property evaluation is the strength of the appraiser. While the appraiser must hold a licence and be properly recognized by the regulators, it is recommended that KMC take additional steps to validate and screen appraisers. There are good appraisers and there are bad appraisers. Nothing will increase the level of risk as much as using a bad appraiser. KMC should approve each appraiser and should black list any appraiser who demonstrates poor judgement in evaluating property. Loan to value should always be calculated on the lesser of the appraised value or the purchase price. Appraisals should be conducted for mortgage purposes. The implication is that the value might be less than the market value. Foreclosures and distress sales will not normally attract purchasers willing to pay market value as most lenders desire a quick sale over holding onto property for longer periods in order to attract the right buyer willing to pay the right market price.

The first step in the collection process should be a re-evaluation of the property. Only in that way can the actual exposure be properly calculated. The extent of the exposure will often dictate the strategies used in collection. For example it may be more advantageous to permit the owner to stay longer while making token or partial payments as opposed to taking possession of the property and selling it.

When evaluating the property risk, a good quality appraisal will take all items requiring attention into consideration. For example the amount of time for a resale will reflect in the total price. Properties that take longer, should have lower values. If the property requires significant repairs, that also should be reflected in the appraised value. The most important part of a good evaluation is to locate similar properties in similar locations that sold recently. They are the best indicator of value. The final appraised price is the most important number required for the purpose of calculating loan to value. Going beyond the value into specifics of the individual properties is normally not required. The only other criteria recommended is that the property does not have any features that fail to meet the business rules. For example KMC has a policy of not mortgaging property constructed from certain building materials. By simply putting a YES / NO indicator on the mortgage application, these properties can be screen before they even hit the credit scoring application.

In addition to providing an opinion as to the value, it is recommended that appraisers make notes of living conditions directly on the appraisal. A neat and well kept home is normally as indication of a stronger character than a home requiring significant repairs that appears to be poorly maintained. Of

coarse loans for the purpose of repairs will need to take this into consideration.

In Kazakhstan, there is access to a database of property information. This database provides information regarding the original construction of the property as well as other key data. It is recommended to use this resource of information. (BTA can supply the details from the provider)

One concern identified during the information gathering stage of this report is the right of ownership to a property as it relates to disabled persons and children. Without question, KMC MUST have the first right of possession to a property and that needs confirmation. Examples of other persons claiming a right to a property in front of KMC were provided and in one case a daughter living in North America for over eight years had a claim to the property ahead of the mortgage company. Complete investigation and analysis to mitigate this risk is mandatory.

The existing limit of a 70% loan to value ratio is good and no change is recommended for mortgages not covered by insurance. It is consistent with best practices for variable rate mortgages. Advances up to 75% are considered by most lenders for fixed rate mortgages. The credit scoring software should take into consideration a worst case scenario (interest rate spike to maximum levels) when evaluating PTI and LTI ratios as the higher payments may put the borrower into ranges exceeding the limits.

Rural properties require closer evaluation as they are normally not as saleable as urban properties at mortgage value or market value. Properties that are difficult to appraise because of a lack of comparable sales should have a lower loan to value limit when purchasing a new mortgage.

### ***Evaluation of Guarantors***

This is a special category requiring attention.

A guarantor needs to meet the same qualifications as the primary borrower. Taking a weak guarantor to support a credit decision to a weak borrower is a high risk and history has proven them to be very problematic. Often parents are persuaded by children to guarantee, and to pledge security. It is recommended that guarantors seek independent legal advice in order to be made fully aware by an independent third party of the risk they are taking. In cases where the parents have equity, but low or disability types of income, it is recommended that these guarantors be declined. Throwing a disabled person out onto the street because of a loan a sibling defaulted on can result in nothing but poor image of the company. As responsible lenders, KMC should look at all guarantors very closely before agreeing to accept them based on the image that will be portrayed in the event of a default.

A guarantor can support a credit decision where the credit is weak, the character is weak or the collateral is weak. Weak implies that it meets a minimum threshold, it does not imply that it mitigates the risk where the falls below the minimum. However, a guarantor does not support a borrower with a

weak capacity to repay. These are historically high risks. This excludes applications where the guarantor is a contributor to the payments and their total income has been included in the PTI or LTI ratio calculation. Where the guarantor is not a participant in the property and the income will not support the payments, PTI and LTI calculations should be based on the borrower(s) income only.

### ***Summary of Evaluation Criteria***

Aside from comments made above, there is no data available for KMC that would enable them to categorise groupings of borrowers into high risk categories. It is expected that a supplier of credit scoring software has access to large databases of information in similar areas for similar products.

The income (capacity) is the most important criteria. Traditionally a good credit risk score has been the best indication that the borrower lives within their means and does not over extend themselves. KMC needs to focus on income as it is the number one cause of mortgage delinquency. Loss of income or reduced income.

## **4.7 Existing and developed credit products**

### ***Volume Projections (Number of new Mortgage Purchases Required)***

Based on the growth expectations, as provided by KMC, the following chart represents the number of new mortgages (\*\* Volume Requirements) KMC will need to approve on an annual basis. The company has grown from 30 to approx. 120 employees over the past few years and in 2005, it is expected to purchase approx. 23,000 new mortgages or just under 2,000 per month. Within two years, that figure will triple to approx. 67,000 mortgages or 5,600 per month and by 2008, KMC will need to process 84,000 purchases. While the new volume (new mortgages purchased) figure includes an allowance for mortgages pre-paid - it does not include the number of mortgages that will be rejected. As a general rule, one of every ten applications will be rejected. The biggest impact will be the number of new mortgages from the State Program in 2007 as the State Program ends it's third and final year.

The demands upon the staff and the credit score system will be a challenge.

	KMC Projections For # Mortgages outstanding:			Volume Requirements	% Increase
	Market Program	State Program	Total # Outstanding		
2004	10,569	-	10,569	12,140	
2005	18,646	1,061	19,707	22,707	87%
2006	24,108	4,160	28,268	32,768	44%
2007	34,988	25,709	60,697	66,697	104%
2008	50,228	25,709	75,937	83,937	26%

\*\* Note: above figures exclude applications that are rejected. (While the percent of declines will vary for a wide variety of reasons, generally it is estimated at 1 reject for 9 approvals)

#### 4.7.1 Mortgage Loans - General Terms and Conditions:

There are three basic types of MARKET products currently offered. They are defined by purpose. While the State Program mortgages are for property acquisition, they will be tracked and monitored in a separate sub ledger.

##### ***Products currently offered:***

- Property Acquisition
- Property Repairs and Improvements
- New Construction

The following applies to all products:

- Currency of the loan – tenge;
- Term of the loan – 3 - 20 years;
- Interest rate - floating
- Availability of insurance: life, property, 15%GPO (if necessary) or KMGF(MI)
- Co-borrowers may be spouses and close akin of the borrower, i.e. son, daughter, mother, father, brothers and sisters
- Guarantor may be both a physical or a legal person
- Form of payment – annuities

##### ***Property Acquisition:***

- The amount should not exceed 50 million tenge
- The minimal amount should be 600 thousand tenge
- LTV – 70% and the maximal LTV should not exceed 90% of the property's estimated market value
- Any property including the property under repairs can be pledged as security

***Repairs & Improvements:***

- The amount should not exceed 3 million tenge
- The minimal amount is 300 thousand tenge
- The maximal LTV should not exceed 50% of the estimated market value
- Any property including the property under repairs can be pledged as security
- The property is re-evaluated twice: prior and after the repairs

***New Construction and Shared Participation in Construction***

- The amount should not exceed 50 million tenge
- The minimal amount should be 450 thousand tenge
- The LTV should not be higher than 70% of the property' s estimated market value
- Any other property may be provided as security with the potential to be replaced by the property under construction when it is commissioned

***The State Program (The Mortgage Lending System)***

The main objectives of the mortgage lending system development shall be:

- taking measures to lower the inflation levels, which will enable to decrease the mortgage lending rates;
- issuance of long-term governmental securities in order to support the benchmark;
- development of the mortgage guarantee system. For these purposes, it is possible that the capital of KMGF will be increased.

In order to increase the access to mortgage credit, the State shall take action to improve the mortgage credit parameters. During the Program implementation period, the following targets of mortgage lending shall be achieved:

- interest rate - 9–10 %;
- downpayment - 10 %;
- mortgage loan term - 20 years.

In the market, currently, some banks offer mortgage loans, which have only one of the above mentioned criteria. No bank has yet offered loans with all the three parameters. The objective of the State shall consist in focusing the market on the compliance with the said criteria.

This objective shall be realized by means of existing financial development institutions' involvement, such as Kazakhstan Mortgage Company.

To achieve the posed objectives, it is necessary that within the period of 2005 – 2007 the following activities need to be implemented:

1. Planned disinflation, which, in the long run, will lead to the planned lowering of the mortgage loan basic terms and conditions, and, in particular, the interest rate. When calculating the mortgage loan rate, the dominant factor shall be the rate of inflation, which currently amounts to 6.4%. In accordance with the National Bank's forecasts it is anticipated that in 2005 – 2007 the inflation rate will amount to 4–6 % annually. In accordance with the National Bank's long-range predictions it is anticipated that the inflation rate will decrease to 3.5 % by 2015.
2. Development of the Special affordable housing mortgage program within the framework of the current KMC mortgage lending program approved in 2000 (hereinafter – the Special KMC's program), which envisages the mortgage loan refinancing according to the above said targets. The annual inflation rate will not be used as the basis index in the Special KMC's program, but the KMC's weighted-average rate. It will be envisaged that the KMC's spread will diminish from 3.1 % to 0.5–1.0 % and the partner banks' maximal margin will reduce from 4.0 % to 3.0 %. Also, in the Special program the maximal mortgage loan size will be determined of 5 million tenge. The KMC quotation rate must not exceed 6 – 7 %.
3. The KMC's capitalization of 26.8 billion tenge. With due account of the leverage applied to the second-tier banks, the KMC will be able to increase the lending volumes in the capital market from year to year. The KMC's capitalization shall assure the increase in the volume of the rights of demand acquired, which will ultimately lead to the decrease of the KMC's quotation rate and will enable the second-tier banks to lower their mortgage interest rates to 10 %. At the same time these mortgage loans should be extended only for the affordable housing acquisition within the KMC's framework.

The above activities shall be implemented in two stages.

1. The initial stage – 2005;



2. The second stage – 2006-2007.

***During the initial stage (2005):***

Taking measures towards further lowering the inflation level that will enable the reduction of the mortgage loan rate;

- KMC's capitalization of 6.4 billion tenge for the purposes of ensuring the Company's financial soundness;
- KMC's mortgage-backed security issuance for 34.9 billion tenge with the term of up to twenty years for the affordable housing demand financing;
- KMGF' capitalization of 1.5 billion tenge in order to decrease the downpayment to 10 %;
- Issuance of long-term (up to twenty years) governmental securities by the Ministry of Finance for the purposes of supporting benchmark prior to KMC mortgage-backed securities issuance.
- Incorporating amendments into the Republic of Kazakhstan's current legislation concerning setting the provision on banning the prepayment of the mortgage loans during the initial three years.

***During the second stage (2006 – 2007):***

- KMC's capitalization of 20.4 billion for the purposes of ensuring the Company's financial soundness along with the significant expansion of mortgage lending;
- Issuance of mortgage-backed securities totaling to 111.2 billion tenge for the term of up to 20 years for the purposes of financing the demand for the affordable housing to be built in 2006 - 2007;
- KMGF's capitalization of 2.3 billion tenge with the aim to reduce the downpayment to 10% of the housing value;

At the same time, prior to the Program's enforcement the following preparatory measures shall be taken:

- drafting of KMC's Special Program;
- transfer of the right of possession and usage of the State block of shares in KMC from the National Bank to the Ministry of Finance of the Republic of Kazakhstan;
- Issuance of the long-term (up to twenty years) government securities by the Ministry of Finance for the purposes of supporting the "benchmark" prior to KMC's mortgage-backed securities issuance.

***Results***

During the Program implementation period, the entire newly-built affordable housing offer will be covered by the effective demand of the citizens, participating in the mortgage lending system. In accordance with the estimates, forty-nine thousand families will be able to benefit from the mortgage lending system.

#### 4.8 Matrix, based on the evaluation criteria to separate risk

International best practices has been following the basic four C's of mitigating credit risks for many years and the most experienced credit underwriters have been trained to identify and analyze the:

**Character** (Solvency of the borrower)

**Collateral** (the security being pledged for the loan)

**Capacity** (the ability and stability of the income to repay(Solvency))

**Credit** (the past history of payment)

In order to provide a matrix only the sub groupings above have been used in the example. Each of the primary four criteria above have many individual parameters to examine in order to determine the overall strength of the characteristic. For example, when analysing Character, the borrower's demographics (age, marital status etc) and the employer, (employer type, position held, income and length of employment) ALL contribute to the determination of the strength of the character. For the purposes of the example below, weak implies that the attribute exceeds minimum thresholds, it does not imply that it fails the evaluation in which case the application is referred or rejected.

The following matrix examines the level of risk based on the strength of each of the above four attributes. There are four individual matrix, each using ONE of the four characteristics. The first four lines deal with a weak characteristic and the next four deal with a strong characteristic. Within each of the four matrix, the strength of the individual characteristic is matched with every combination of the remaining three characteristics.

The end result is an evaluation of the overall risk where L = Low risk, M = Medium risk and H = High risk.

*Every loan is a risk.* High risk loans as identified in the matrix should be referred or rejected. Referrals should require a guarantor, with or without pledging additional security depending on individual circumstances. In most cases, a low risk requires at least three of the four characteristics to be strong. When building scorecards, weighting for each characteristic requires consideration. It will not be appropriate to add scores for each of the four characteristics, and average them to determine a final score. Each characteristic should have minimum requirements or thresholds.

Noteworthy in the risk matrix is the impact of the capacity characteristic. It is really the only one that does not follow a pattern. As documented earlier, a weak capacity implies a high risk (or at best a medium risk), regardless of the strength of other characteristics. This again supports the primary scoring requirement to focus on a borrowers ability to repay based on current situation as well as the odds of continuous employment.

Unless the KMC business strategy adopts a position of equity lending, the criteria applies to all products, across all customer segments. Equity lending implies that if the equity is exceptionally strong, the other characteristics are not relevant. The impact of equity lending is normally seen in the high collection efforts. The risk of loss is low, but the risk of investment in staff time for collections is high.

**4.8.1 Risk Matrix Based on Evaluation Criteria**

Attributes of Application

Weak	Collateral	X	x	x	x	x	x	x							
Weak	Character		x				x	x		x				x	x
Weak	Credit			x	x		x	x			x	x		x	x
Weak	Capacity			x		x		x			x		x		x
Strong	Collateral								x	x	x	x	x	x	x
Strong	Character	X		x	x	x			x		x	x	x		
Strong	Credit	X	x			x			x	x			x		
Strong	Capacity	X	x		x		x		x	x		x		x	
<b>RISK</b>		<b>L</b>	<b>M</b>	<b>H</b>	<b>M</b>	<b>M</b>	<b>H</b>	<b>H</b>	<b>L</b>	<b>L</b>	<b>M</b>	<b>L</b>	<b>L</b>	<b>M</b>	<b>H</b>

Weak	Character	X	x	x	x	x	x	x							
Weak	Collateral		x				x	x		x				x	x
Weak	Credit			x	x		x	x			x	x		x	x
Weak	Capacity			x		x		x			x		x		x
Strong	Character								x	x	x	x	x	x	x
Strong	Collateral	x		x	x	x			x		x	x	x		
Strong	Credit	x	x			x			x	x			x		
Strong	Capacity	x	x		x		x		x	x		x		x	
<b>RISK</b>		<b>M</b>	<b>M</b>	<b>H</b>	<b>M</b>	<b>M</b>	<b>H</b>	<b>H</b>	<b>L</b>	<b>L</b>	<b>M</b>	<b>L</b>	<b>L</b>	<b>M</b>	<b>H</b>

Weak	Credit	x	x	x	x	x	x	x							
Weak	Character		x				x	x		x				x	x
Weak	Collateral			x	x		x	x			x	x		x	x
Weak	Capacity			x		x		x			x		x		x
Strong	Credit								x	x	x	x	x	x	x
Strong	Character	x		x	x	x			x		x	x	x		
Strong	Collateral	x	x			x			x	x			x		
Strong	Capacity	x	x		x		x		x	x		x		x	
<b>RISK</b>		<b>M</b>	<b>M</b>	<b>H</b>	<b>M</b>	<b>M</b>	<b>H</b>	<b>H</b>	<b>L</b>	<b>L</b>	<b>M</b>	<b>L</b>	<b>L</b>	<b>M</b>	<b>H</b>

# Implementation of CREDIT SCORING CENTRE

## – Final Report

Weak	Capacity	x	x	x	x	x	x	x							
Weak	Credit		x				x	x		x				x	x
Weak	Character			x	x		x	x			x	x		x	x
Weak	Collateral			x		x		x			x		x		x
Strong	Capacity								x	x	x	x	x	x	x
Strong	Credit	x		x	x	x			x		x	x	x		
Strong	Character	x	x			x			x	x			x		
Strong	Collateral	x	x		x		x		x	x		x		x	
	RISK	M	H	H	H	H	H	H	L	L	M	L	L	M	H

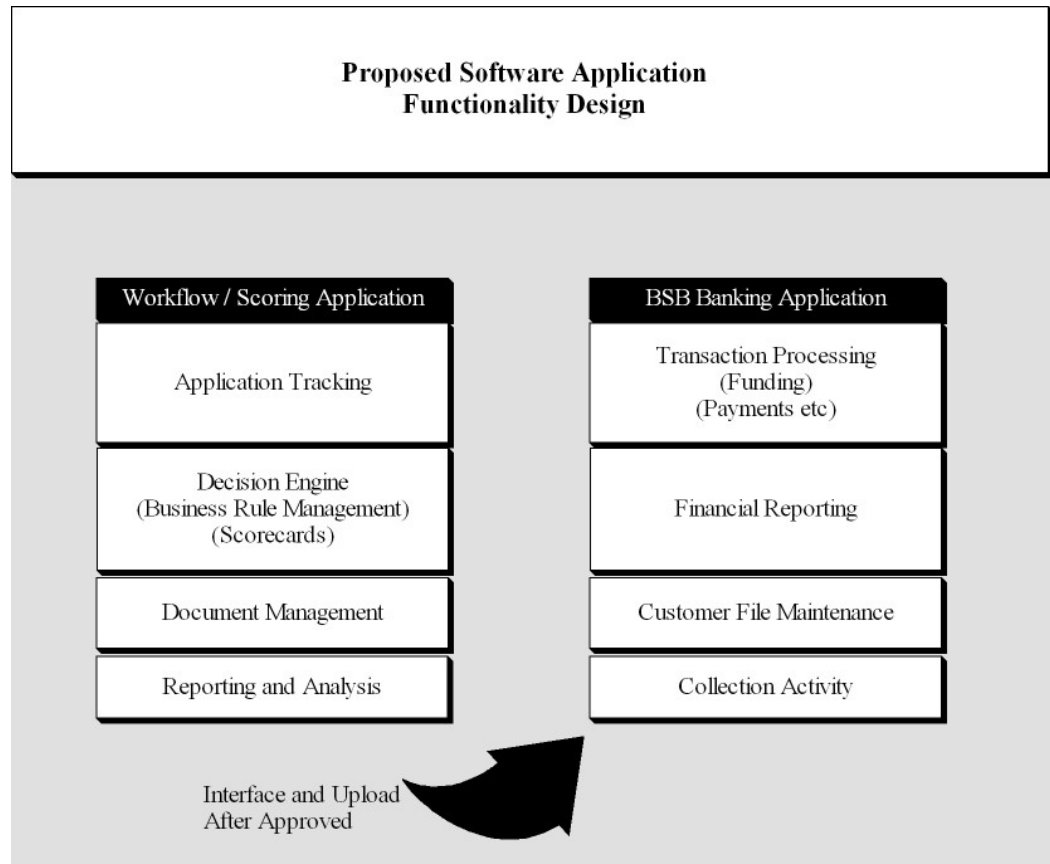


## 5 Final Recommendations and Next Steps

The first issue that will require complete agreement is the scope and magnitude of the Credit Scoring Software System.

It is recommended that KMC look towards implementing a new stand alone software application for a complete and total management of mortgage processing.

It can be referred to as Loans Origination Software or Workflow Software. In both cases, the credit scoring software and decisioning engine needs to be tightly embedded into the application as a module. Interfaces at both ends, input and output, will be required. The database layer and the communications layer should both capitalize on KMC’s existing systems – Oracle (database) and FASTI (communications) and be fully integrated wherever possible.



## 5.1 The functionality required in the workflow / scoring system :

### Architectural Requirements

- Ability to install multi company implementations each with independent database and set-ups
- Ability to use Oracle database
- Ability to co-exist with existing FASTI communication layer
- Ability to interface to electronic messaging systems

### Interface Requirements

- Credit Bureau
- Partner Banks (as well as Insurance or other partners)
- KMC Regional Offices
- Other external sources
- Other internal sources
- Ability to interface to KMC existing financial system - BSB

### Client (User) Requirements

- User-friendly interface
- Automatic assignment of all new applications to designated underwriting staff
- Immediate notification of new application in the queue to the underwriter
- Tracking of the status of each application in the queue with dates and name of underwriting staff assigned
- Prioritized application regime
- Tracking of all activity during the underwriting process with capability to add free form notes
- Ability to recall an existing application from achieved data
- On line real time access
- Batch or off line access and processing
- Interface to existing bank databases for data entry of new applications
- Drop down boxes for data input where possible
- Preliminary approval functionality
- Final approval after document verification and appraisal
- Automatic communication (messages) of above approval status to partner banks or remote KMC office



- Investigation and underwriting on the basis of the predefined product requirements
- Investigation and underwriting on the basis of the preliminary score

#### Credit Decisioning Requirements

- Decisioning and analytical software to calculate CREDIT RISK values based on data supplied by the Credit Bureau as well as apply specific scorecards for determining BORROWER total overall risk (Application Scoring).
- An eligibility screening application to ensure the loan being requested meets KMC corporate PRODUCT rules and specifications
- Standard scorecard templates (for similar products in similar geographical areas)
- Application of the score algorithms, rules, filters, segmentation for the automated decision making
- Functional set up of modules (score cards, rules, filters, and environment) by means of manual and system parameters
- Ability to add and edit existing scorecards without impacting approved business
- Ability to add, edit and delete parameters to the database
- Ability add and edit new screens to incorporate above changes

#### Volume and Capacity Requirements

- Processing of 500 new applications per day
- Up to 1,000 users with capacity to scale beyond if required
- Ability to manage 25,000 applications in queue
- Ability to archive unlimited number of approved applications either off line or with extended response times
- Response time of screen painting in less than 30 seconds
- Response time to decision of less than two minutes, ideally shorter response time

#### Security Requirements

- Limitations of the access of users into the system with specified rights for each user
- Easy administration of the users and the system (user-friendly)
- Back up (archiving) of data
- Complete audit trails for all changes made to new and pending applications

- No changes to processed applications or data after purchase and funding has occurred (unless authorized at highest level of security)
- Assurance of information security (safety)

### Reporting Requirements

- Standard set of activity based reports
- Ability to add, edit and delete standard reports
- Ability for ad-hoc and custom reports
- Statistical monitoring of the score card, potential of introducing changes into the score card;
- Setting up of the score card levels in points (Level “Yes”, Level “No” and the Referral level).
- Monitoring and reporting
- Release of the data for monitoring of the score card and reports
- Availability of the generator of reports for the formation of exceptional requests

The above requirements represent the outline of the Request for Proposal for a Workflow / Scoring Software application.

### Next Steps

- Confirm concurrence with the preliminary report
- Prepare DRAFT Request for Proposal (RFP)
- KMC will be required to edit the draft RFP to ensure conformity with legislative and mandatory requirements for procurement.
- KMC will need to evaluate their organization structure to support the introduction of a Credit Scoring Centre - (addition of collection centre)
- KMC will need to review current lending policies and procedures to ensure all rules support the business strategies for the level of risk they are prepared to assume

## **5.2 BSB Automated Information System**

KMC uses the BSB Automated Information System for the management of the mortgage portfolio. At this time they are the only users of the exact release of the software system. The BSB application is supported by a subsidiary of the National Bank who originally developed the application.

The existing automated information system appears to be meeting the current needs. However, based on the anticipated increases in volume, it is recommended that the system be thoroughly tested to confirm the ability to handle increased volume. Stress tests should be conducted with three to five times the number of accounts and three to five times the number of users.

The primary purpose of the stress tests should be to confirm that the response times are acceptable. (Acceptable implies determining a benchmark in advance).

Equally important will be the results of the batch cycles - open, close and monthly batch processes to ensure system availability within the fixed amount of time (over night). Based on the amount of time required at existing volumes, there is a high risk that these processes will not be able to complete within the fixed amount of time allotted.

It is highly recommended that this type of testing should be completed as soon as possible and that it is completed in future on a regular basis in order to identify capacity problems in advance.

Based on the analysis of the existing Information Technology infrastructure, consideration should be given to taking the support of the BSB application in house for the following reasons:

- KMC will have more control over the response time for addressing bugs and fixes
- KMC will be better positioned to prioritize new system enhancements
- KMC is currently in a better position to address interface requirements including new requirements to the Workflow / Scoring application
- KMC will be able to monitor and manage system capacity
- KMC has the skillsets and leadership needed to be able to assume responsibility of supporting the BSB system

Prior to proceeding, a thorough business case is required. The total cost of support needs to be compared to the projected cost of support. Additional resources, staff, will be required as well as additional hardware in order to build a complete duplicate testing environment. In addition, the following items need review:

- Proper training of new programming staff. It is recommended that an extended transition take place
- Availability of contract resources (National Bank) if required
- Availability of documentation for the existing system
- Implementation of certified software development and deployment methodologies
- Documentation of new software releases and implementation

## 6 ANNEX 1 - Credit Risk ODDS Summary Table - Example

Once the model has evaluated all the characteristics, the total credit risk score is then computed. Ranges are then determined for the overall score. As an example, the Empirica model then tells us, based on the range, the following information:

- The number of records in each range which, when totalled, tells us the size of the total test.
- What percentage of the number of records are represented in each range.
- How many records in each range that had negative performance
- The percentages of negative records of the total base
- The odds value, or simply put, what are the odds the consumer will or will not default.

The higher the score, the greater the consumer will not default

The lower the score, the greater probability the consumer will default

Refer to the following ODDS Summary Table. (the probability that the borrower will repay on time) for a testing of almost 1,000,000 borrowers as was completed by Trans Union.

The odds of repayment for a borrower with a credit risk score of 800 are 57.2 to 1 in favour.

The odds of repayment for a borrower with a credit risk score of 640 are 2 to 1 in favour.

Many lenders use the 640 credit risk score as the bench mark and the cut off point where they will normally not take a risk below this score unless the risk is mitigated with other security and/or a guarantor.

**CREDIT RISK SCORE ODDS SUMMARY TABLE**

Paper	Empirica Score Range		Base Category				Odds (Value to 1)	
	From:	To:	# of Records	%	Cumm Negative Records	%		
A	800 +		96,728	9.88%	9.88%	1,662	0.99%	<b>57.2</b>
	780 - 799		117,797	12.03%	21.91%	2,945	1.76%	<b>30.0</b>
	760 - 779		123,403	12.60%	34.51%	4,886	2.92%	<b>24.3</b>
	740 - 759		114,841	11.73%	46.24%	6,480	3.88%	<b>16.7</b>
	720 - 739		100,064	10.22%	56.46%	8,307	4.97%	<b>11.0</b>
	700 - 719		89,899	9.18%	65.65%	10,337	6.19%	<b>7.7</b>
A	680 - 699		80,829	8.26%	73.90%	13,695	8.20%	<b>4.9</b>
B	660 - 679		69,185	7.07%	80.97%	16,186	9.69%	<b>3.3</b>
	<b>640 - 659</b>		<b>47,970</b>	<b>4.90%</b>	<b>85.87%</b>	<b>15,501</b>	<b>9.28%</b>	<b>2.1</b>
C	620 - 639		35,551	3.63%	89.50%	15,148	9.07%	<b>1.3</b>
	600 - 619		25,831	2.64%	92.14%	13,682	8.19%	<b>0.9</b>
D	550 - 599		45,914	4.69%	96.82%	31,374	18.78%	<b>0.5</b>
E	549 or less		31,088	3.18%	100.00%	26,883	16.09%	<b>0.2</b>
Total			979,100	100.00%		167,086	100.00%	<b>4.9</b>

## 7 ANNEX 2 - KMC Existing Underwriting Requirements

### Instructions

#### On Verification of the Credit File of the Borrower by Specialist of the IPC Credit Support Department

1. IPC Specialist shall accept the Credit files of the Borrowers submitted by the Banks-Partners pursuant to the delivery-acceptance certificate envisaged for Credit Files.
2. Each Credit File shall be verified with a view of compliance with the “Main requirements to the mortgage loans provided that the right in action shall be acquired by the JSC “Kazakhstan Mortgage Company”.
3. **Title page** shall state the name of the bank, extending the mortgage loan; full name of the Borrower (shall be verified with that of ID/ Passport); the name of the town where the loan is extended, the year of the extension of the loan).
4. Credit file shall be enumerated and contain the following documents:
  - a. ID/ Passport/ Birth certificate of the Borrower/co-Borrower(s), and pledger (s) (copy shall be verified by the Bank Specialist);
  - b. Taxpayer’s certificate of the Borrower/co-Borrower(s), pledger (s) (copy shall be verified by the Bank Specialist);
  - c. Certificate of the preliminary qualification of the Borrower (original copy signed by the Bank specialist);
  - d. Labor contract/employment records book (shall be submitted by the bank, if the amount of the loan exceeds 5, 000, 000 tenge) (copy shall be verified by the Bank Specialist);
  - e. Abstract on income (shall be submitted by the bank, if the amount of the loan exceeds 5, 000, 000 tenge) (original);
  - f. Report on appraisal of the mortgage property (original copy);
  - g. Ownership documents on the mortgage property (original);
  - h. Abbreviate from the Bank’s credit commission minutes (verified by the Bank specialist);
  - i. Loan agreement with the Bank with all the necessary supplements attached (original);
  - j. Mortgage contract (original);
  - k. Insurance contract (insurance policy) ;
  - l. Mortgage certificate or Deed of assignment (Cession contract) (original);

m. Delivery - acceptance certificate (original).

5. **ID/ passport** shall be valid as at the date of extension of the mortgage credit (the relevant documents shall be renewed on attaining of age of 25 years, 45 years, 90 years).
6. **Certificate of preliminary qualification of the Borrower** shall be completed in full:
  - a. General data on the Borrower and co-Borrower (s);
  - b. Info on the monthly expenditures of the family;
  - c. Assets of the Borrower;
  - d. Info in the premises to be acquired or refurbished ;
  - e. Terms and conditions of the mortgage loan requested by the Borrower;
  - f. Purpose for which the premises are purchased;
  - g. Additional securing;
  - h. Loan parameters;
  - i. Info on monthly income;
  - j. Factor L/A –is ratio of the amount of the mortgage loan to the market price of the premises pursuant to the appraisal of the mortgage loan, and when the L/A is lower than 70%, the life and property insurance contract is required, for factor from 71% through 85% there civil-legal liability insurance is additionally required, and when the security from the JSC “Kazakhstan Fund for Guaranteeing Mortgage Credits” is available the value of the factor can reach 90%;
  - k. Factor P/I –is ratio of the monthly payment under the mortgage loan and the amount of monthly net aggregate income. Factor P/I shall not exceed 35%; P/I can be adjusted up to 45% provided there is sufficiency of the residual income per each family member of the Borrower and the co-Borrower; 55% is permitted when the Borrower submits two or more units of the mortgage property;
  - l. Factor O/I – ratio of the total amount of obligatory monthly payments and the amount of monthly net aggregate income. Factor O/I shall not exceed 40%; O/I is adjusted up to 50% provided that there is sufficiency of residual income per head of the Borrower’s and Borrower’s families, and factor of 60% is acceptable for the case when the Borrower submits two or more mortgage properties;
  - m. Date of completion and signature of the executor.

7. If the loan amount exceeds 5,000,000 tenge, the Credit file shall contain the copy of the **employment history book/ employment contract/ labor contract** and the original copy of the **abstract on income**. A copy of the employment history book shall be certified by the HR specialist of the relevant company the Borrower works for. The copy of the labor contract shall be verified with the original copy by the Bank specialist, and contract shall be valid as at the date of approval of extension of the mortgage loan by the Credit commission of the Bank. The abstract on income shall state the name of the company, first, full name of the Borrower/Co-Borrower, his/her position, the amount of income accrued, amount of pension deductions, amount of social deductions, net income, and shall be signed by the chief accountant, signed and sealed by the top manager.
8. **Mortgage property appraisal report shall state :**
- a. Date of appraisal (shall not be earlier than 30 days prior the date of approval of extension of the mortgage loan);
  - b. Full mail address of the mortgage property;
  - c. Description of the plot surrounding the mortgage property;
  - d. Full description of the condition of the mortgage property;
  - e. Year of construction (operation life shall not exceed 50 years);
  - f. Total and living space/net room area;
  - g. Plottage;
  - h. Construction material of walls (light constructions, such as unit-built houses, adobe, clay, clay-hay and cane-fiber-frame houses and others of the type shall not be qualified);
  - i. Construction material of the foundation;
  - j. Availability of separate kitchen and bathroom (multifamily units shall not be qualified for pledge);
  - k. Availability of utilities network (heating; hot/cold water supply, sewerage, electric power supply);
  - l. All buildings shall have a permit for construction issued by an authorized agency, a permit for alteration of the flat's plan, as well as a permit for re-planning;
  - m. Market value of the mortgage property.
9. **Ownership documents are:**
- a. Purchase and sale contract;
  - b. Deed of gift;
  - c. Privatization agreement;
  - d. Covenant on succession to property (inheritance);



- e. Barter contract;
- f. Registration taxpayer's document ;
- g. Certificate of acceptance (into operation);
- h. Patent-right for private property on the plot (in case the real estate has a plot)

All legal documents shall be notarized and registered with RSE "Real Estate Center" under the Registration Commission of the Ministry of Justice at the place of location of the property and shall have official seal. Ownership documents shall be accompanied by the technical passport which shall be officially sealed by the RSE "Real Estate Center".

Name of the pledger (s) in the ownership documents shall be reconciled with that in the ID/ passport/ Birth certificate;

mail address of the Real Estate, number of rooms, total and living rooms area envisaged in the ownership documents shall match those in the technical passport of the Real Estate;

designated purpose of the land plot stated in the patent-right for private property on plot shall be worded as "for operation and maintenance of the living premises".

10. The abstract from the minutes of the **Credit commission** shall contain:

- a. decision on approval of mortgage credit extension (shall state the full name of the Borrower);
- b. amount of the mortgage loan;
- c. term of the mortgage loan;
- d. interests rate;
- e. mail address of the pledged premises stated as security.

11. **Banking Loan agreement** shall comply with the approved format.

There are 8 types of Contracts: A) one borrower, designated purpose : acquisition of the living premises, initial installment: not less than 30%, B) there is a co-Borrower (s) available, designated purpose: acquisition of the living premises, initial installment not less than 30%, C) one Borrower, designated purpose – acquisition of the living premises, initial installment – from 15% up to 30%, D) there is a co-Borrower (s) available , designated purpose – acquisition of the living premises , initial installment – from 15% to 30%, E) designated purpose – refurbishment of the premises, F) designated purpose – acquisition of the living premises , the amount of the mortgage loan equals to 100% of the premises to be acquired, G) designated purpose – construction of premises, provided that the ratio L/A shall not exceed 70%, H) designated purpose – acquisition of the living premises, and liabilities of the Borrower are secured by the JSC "Kazakhstan Fund for Guaranteeing Mortgage Credits". Depending on the initial installment

and availability of the co-Borrower the formats A, B, C, D can be used for the purpose of– acquisition of the living premises and refurbishment thereof.

While verifying the Contract one should pay a close attention on the following:

- a. Such data stated in Preamble and Details of Parties to the Contract as full name, ID/Passport data, Taxpayer’s certificate number of the Borrower and co-Borrower (s) shall match those in the copies of the documents (ID/passport, certificate of the taxpayer);
- b. Amount, terms, interest rate shall match those in the abstract from the Credit commission minutes;
- c. Info on the mortgage property/premises shall be reconciled with that stated in the abstract from the Credit commission minutes and ownership documents;
- d. Inflation rate and the spread of Bank shall match as at the date of the decision of the Credit commission;
- e. Amount of the mortgage loan as a share of the value of the mortgage property shall be calculated as follows: ratio of the amount of the mortgage loan to the market value of the immovable property pursuant the Report on appraisal of the pledge property;
- f. The Banking loan agreement shall be attached with the following documents Supplement N 1 (Schedule of repayment), Supplement N 2, Supplement N 3, Supplement N 4/3 (“Co-Borrower’s checklist” if any co-Borrower(s) available);
- g. Banking loan agreement and Supplement N 1 shall be signed by the authorized specialist of the Bank, as well as Borrower and co-Borrower (if any), and Supplement N2, Supplement N3, Supplement N 4/3 shall be signed by the Borrower and co-Borrower (s) (if any).

**12. Mortgage contract** shall comply with the approved format. There are 2 types of a contract: one person is a borrower and a pledger at the same time; collateral guarantor (other person) called as a Pledger. Mortgage contract is registered at the Republican State Enterprise “Real Estate Center” at a place the mortgage property is located. During the examination of a contract the following points shall be paid special attention:

- a. In a preamble and the details’ section: full name (family name, first name and patronymic name), ID/Passport/Birth certificate data, Tax Registration Number of a borrower(s) and a pledger(s) must coincide

with the submitted copies of documents (ID/Passport/Birth certificate, tax payer certificate);

- b. Reference to a number and a date of a bank loan contract must correspond to the data of the current effective contract;
  - c. The date of a mortgage contract must not be earlier than the date of a bank loan contract;
  - d. The amount and the term of a mortgage residential loan shall be verified with an extract from the minutes of the Credit Committee and bank loan contract;
  - e. The data of all title documents, attesting to ownership's right to real estate must be complete and authentic;
  - f. The information on mortgage property must be consistent with the data specified in title documents: address of the mortgage property, usable (total) and living areas, number of the rooms, availability of a land lot ;
  - g. The mortgage contract shall be signed and sealed by an authorized person of a bank , as well as by a borrower(s) and a pledger(s);
  - h. If the rights of demand are assigned by virtue of a Mortgage certificate, then the following handwritten inscription "Me, full name, the pledger has issued this Mortgage certificate", as well as the signature of a pledger(s) shall be included in the mortgage contract.
13. The borrower must purchase life and property insurance. In case, the down payment is 15% - 30% then liability insurance will be required against a failure to make down payment. In case the borrower insures his/her liabilities with the JSC "Kazakhstan Mortgage Guarantee Fund", the civil liability insurance will not be obligatory.
14. The bank may assign the rights of demand by registering the **Mortgage Certificate** or **Contract on assignment of rights of demand (Assignment agreement)** in the Republican State Enterprise "Real Estate Center". Mortgage certificate must be completely filled out and signed by a pledger(s). There must be an endorsement for a specified cost, the signature and the seal of a person who makes the endorsement, as well as the marks that the borrower met obligations as of the date of assignment of rights of demand. It's not permissible to make corrections in Mortgage certificate. When carrying out an examination of Contract on assignment of rights of demand (assignment agreement) the following points deserve special attention:
- a. Number and date of a bank loan contract;
  - b. Number and date of the Mortgage contract;
  - c. Address of the mortgaged property;
  - d. The cost of the assignment of rights of demand;
  - e. The contract shall be signed by the authorized persons of a partner-bank and the KMC, and signatures shall be certified by seals of the organization.

15. The act of transfer and acceptance must be in approved format. The act must include: by which partner- bank, to which organization and which documents are being assigned, title and number of documents; originals and copies of documents; name of a company, departments, the employees' full names and signatures, who have transferred and received a credit file with the borrower and pledger documents.

**Shabanov A.Zh.**

**Deputy Director of**

**Mortgage Data Processing Center**

**Chief of Loan Servicing Department**



## 8 ANNEX 3 - KMC Existing Parameter Requirements

### *Parameters Required on all mortgage applications*

Partner bank	1	Bank Identification Code (BIC) of a partner bank
	2	Unique loan code of a partner bank
	3	Type of a lending program
	4	Priority
The data on a borrower	5	The borrower's surname
	6	The borrower's name
	7	The borrower's patronymic
	8	The borrower's date of birth
	9	The borrower's sex
	10	The borrower's tax payer number
	11	Identification document
	12	The number of an id doc
	13	The date of issuance of an id doc
	14	The authority that has issued the id doc
The data on a co-borrower	15	The co-borrower's surname
	16	The co-borrower's first name
	17	The co-borrower's patronymic
	18	The co-borrower's date of birth
	19	The co-borrower's sex
	20	The co-borrower's tax payer registration number
	21	Identification document
	22	Number of identification document
	23	Date of issuance of identification document
	24	The authority that has issued the id doc
The data on a pledger	25	The pledgor's surname
	26	The pledgor's first name
	27	The pledgor's patronymic
	28	The pledgor's date of birth

	29	The pledgor's sex		
	30	The pledgor's tax payer registration number		
	31	An id doc		
	32	The number of an id doc		
	33	The date of issue of an id doc		
	34	The body that has issued the id doc		
Income and expenses	35	Type of income		
	36	The amount of income		
	37	Type of expenses		
	38	The amount of expenses		
Insurance	39	Type of insurance		
	40	The amount of insurance policy		
	41	The date of issue of insurance policy		
	42	The date of expiry of insurance policy		
The data on a housing	43	The number of the housing in the register (list)		
	44	The status of the housing		
	45	The housing's address		
	46	The quantity of rooms		
	47	The total area of the housing		
	48	The living area		
	49	The date of purchase and sale contract		
	50	The organization that has registered the housing		
	51	The cadastre number of the housing		
	52	The data on appraisal of the housing	The price of the housing under purchase and sale contract	
	53		The price of the housing according to an appraisal act	
	54	Mortgage Contract	The number of a mortgage contract	
	55		The date of a mortgage contract	
	56	Mortgage Certificate	The number of mortgage certificate	
	57		The date of mortgage certificate	
The data on a loan	58	The number of master agreement		
	59	The number of contract on trust management (beneficial ownership)		

60	The code of loan use goal (from the directory)	
61	The loan amount on the bank loan contract	
62	The amount of the rights of demand to be ceded (assigned)	
63	Loan period	The date of decision of a credit commission on origination of a loan
64		The date the loan is extended
65		The date of expiry of the loan
66		The date of first instalment on a loan
67		The date of a month a monthly payment on a loan is to be effected
68		Loan rates
69	The company's spread	
70	Partner bank's margin	
71	The inflation rate as of the date the credit commission adopts a decision to extend a loan	
72	Prepayment fee	
73	Loan documents	
74		The number of a bank loan agreement
75		Contract on cession (assignment of rights)
76		The number of a cession contract
		The date of a cession contract

The above requirements are sufficient for meeting the needs on the credit scoring application.

It is recommended that additional data related to the employment be obtained to include the name and address of employer, position held, length of time employed. Where employment is less than two years, the names of previous employers should be obtained.

It is recommended that a balance sheet type of application be used - one that collects a borrowers assets (vehicles, other property, other assets) in detail as well as a list of all liabilities (name of creditor, balance, payment) in detail in order to establish the NET WORTH of a borrower.

It is recommended that guarantor's provide the same amount of information as borrowers need to provide. All guarantors must be treated as the principal borrower during the qualification and approval phase.

## 9 ANNEX 4 - SCOPE OF WORK:

1. In close consultation with the KMC, the consultant would complete the following tasks:
  - Analyse and understand the Mortgage Company's strategic vision and short term objectives as well as workflow/scoring system requirements and outputs. The consultant will:
  - Describe data sources which will be used during the processing of applications coming from banks and insurance companies
  - Determine different roles and users of the workflow/scoring system
  - Lay out data evaluation criteria in order to determine risk levels and lending tolerances.
  - Describe existing and developed credit products as well as potential segments of mortgage customers
  - Develop a matrix, based on the evaluation criteria, which would segregate potential borrowers into separate "risk buckets" based on internal risk criteria.
  - Criteria would be tied to different products and customer segments.
2. The consultant will prepare a Request for Proposal (RFP) for distribution to data processing "solution" providers with expertise in mortgage lending.
  - In addition to the material outlined in point 1 above, the RFP would include expected times lines and delivery dates.
  - RFP will specify clearly the content of the proposals and conditions, which any provider has to fulfil by his proposal.
  - RFP will specify the structure of the prices and business conditions in order to make further proposals comparable.
  - Together with RFP the consultant will prepare the list of potential providers, to whom the RFP document will be addressed
  - Prepare for the KMC a memo, based on the RFP, with additional recommendations, observations, and work flows that go beyond the information contained in the RFP. The memo would be for the KMC's internal use.
  - The consultant will participate in final negotiations and evaluation of collected proposals. The KMC will make all final decisions.



## 10 ANNEX 5 - Scope of Work as provided by KMC

### Questions for the Advisor which Need to be Addressed in the Final Report

#### 1. Business processes associated with the purchase and maintenance of mortgage loans in JSC Kazakhstan Mortgage Company (JSC KMC)

##### 1. Questions Regarding the Process of Acquisition of the Right of Demand on Mortgage Loans

- 1.1 Evaluation of the main requirements of the JSC KMC applied in the acquisition of the rights of demand on mortgage loans. – **existing underwriting requirements are very good.**
- 1.2 To which extent they provide for the credit scoring and whether additional parameters are necessary? – **they provide 95% of the basic parameters.**
- 1.3 What is the significance of the parameters required in making decision on the loan extension? – **they are all important and are all required**

##### 2. Questions Regarding Credit Maintenance.

2.1. In case of data processing in a computerized manner what will be the part, which is still necessary to be processed manually by analysts and at which stage the analytical work will be necessary. – **the amount of manual processing can be reduced but not significantly. Instead of performing manual calculations, the AIS will perform them. However, there will still be a need to confirm all documentation has been provided as well as the need to cross check the accuracy and completeness of the information in the document as it compares to the scoring application.**

2.2. Your assessment of JSC KMC concerning the following: IT, information processing rate; a two stage division of the transaction approval; transaction reversal process. – **information processing rate appears to be slow. Two stage division of transaction approval is required and in line with international**

best practices. Transaction reversal process appears satisfactory with no suggestions for changes.

2.3. Is it possible that the credit officer will work at a distance, how does this method work in practice, the efficiency of this method? – yes, with software the credit officer will be able to review and approve transactions based on the scoring system. There will still be a need to handle some applications manually and refer them to higher authorities for approval.

2.4. To which extend the existing PTI and LTI ratios describe the borrower's solvency? – they are adequate based on information available. With the deployment of credit scorecards, the ratios will vary for different sub groups as the ability to create and monitor sub groups is established.

2.5. The optimal limit of LTV? – same response as 2.4.

2.6. Is there a need to introduce other ratios? One additional suggestion is the calculation of NET WORTH – the amount of assets a borrower has in excess of their liabilities.

2.7. To which degree the existing insurance programs diminish credit risks? Insurance diminishes risk. However the lender must NOT depend upon insurance to mitigate risk as an unacceptable level of losses from insurance companies will drive up the premiums.

2.8. Which frequency should be used in the revaluations of the pledged property? – this will depend largely upon the collection process. If the mortgage is not in default, and the total economy of the area does not change drastically, then no real need for frequent revaluations. However, in the case of a default, it should be one of the first steps to collection and measurement of current exposure.

2.9. Decrease/increase of the main requirements to the pledged property – existing requirements are satisfactory. Suggest a very strict and rigid process for approving those who are authorized to perform appraisal reports. The appraisers need to be monitored for accuracy in their evaluations. There are

some very good bench marks currently available to test reasonableness of appraisal reports.

### **3. Questions Regarding the Methodology of the Credit Scoring.**

3.1 What credit scoring methods exist? – basically there are two - credit RISK scoring and credit SCORECARDS. Many different variations and terms used to describe the types of each of these two.

3.2. The quantity/quality of parameters of the score card? – the existing parameters meet basic requirements. The lack of a CREDIT RISK score in any scorecard diminishes the value of the scorecard. There are additional parameters such as age demographics, employment types, income, and net worth that will assist with the evolution of industry specific scorecards until KMC has collected enough data to move to a CUSTOM scorecard exclusively for KMC. A “custom” scorecard is the ultimate goal.

3.3. What additional parameters we have to use in conjunction with our legislation based on the local specific properties. – was not able to identify additional parameters.

3.4. Division of the approved parameters into 3 stages of the scoring program – there are different definitions of the three stages of the scoring program. This section is the single biggest part of the final report and will address all stages needed during the underwriting and decision processes. Please refer to the final report for a more detailed analysis of this section.

3.5. Underwriting criteria used in JSC KMC, their assessment and comparison with the world practices. – KMC has excellent underwriting processes and is definitely well within the scope of any international mortgage lending institution. While their approach can be described as somewhat conservative, I fully support the conservative methodology until such time as data is available to empower KMC to depend on credit risk scoring in their underwriting process.

### **4.0. Findings and Proposals.**

## **2. IT Technologies on the Computerized Processing of the Mortgage Loan Data in JSC KMC**

2.1. Analysis of the technical requirements regarding the establishment of the automated information system (AIS) of JSC KMC. Findings and proposals. – findings indicate a well thought out framework. Proposals to be included in the final report.

2.2. Analysis of JSC KMC's AIS performance. Analysis of the existing level of automation of business processes compared to international practices. – there is a lack of automation in the existing levels of automation. Opportunities exist for additional automation.

- Level of the equipment and software used; - client server environment used and has met the need to date. There is a concern that existing software will not be capable of keeping pace with the KMC growth requirements
- Capacity of the server equipment; - no analysis other than a brief conversation of server requirements was performed. Based on the leadership and the management of the IT Department, there is no question that the current management has an outstanding grasp of hardware requirements.
- Velocity of the information processing in AIS of JSC KMC; - a concern that the existing infrastructure will not meet future requirements
- Software support and maintenance practices compared to the international practices; - all are within best practices of international software providers.
- Other; - additional comments will be included in the final report.

2.3 Analysis and the evaluation of the electronic information exchange system (FASTY) between JSC KMC and the partner banks. Conclusions based on the evaluation. – existing FASTI handles the communication and security layers of the existing infrastructure adequately. In the longer term, there is a need to move to a web based application only after the security requirements and risks can be addressed.

2.4 Proposals on the improvement of the computerized processing of the information in the JSC KMC. – numerous suggestions and proposals. To be detailed in the final report but will include:

1. Business Rules Managements Systems to address specific KMC business rules
2. A complete Automated Underwriting System to manage and monitor the mortgage lending process from application to final purchase.
3. Introduction of Industry Specific Scorecards to mitigate credit risk
4. Implementation of a Decision Engine to make credit decisions.
5. A document management system.
6. A Management Information System for portfolio analysis and on going scorecard modification

7. Lastly, a clearly defined roles and responsibilities of those ultimately responsible for the overall portfolio quality.

### 3. Establishment of the Scoring Center in JSC KMC

- 3.1 The main provisions and requirements associated with the establishment of the JSC KMC Scoring Center.- refer to responses above, including but not limited to 2.4
- 3.2 Analysis of the operational scheme between the JSC KMC Scoring Center and the partner banks. –adequate but there is a need for clear definitions of roles and responsibilities for data collection as well as credit investigation. Evaluation of the proposed scheme. – appears sound, more detail to follow in final report.
- 3.3 Requirements on the cooperation between the credit scoring system and the automated systems of the Credit Bureau and other sources of information (the Pension Funds, Tax authorities and others – required, the better the data, the better the decision.
- 3.4 Review of the existing the mortgage loan automated scoring systems in significant international companies, their analysis and comparison. – there is currently lots of variation. The new KMC AIS will be a world class leading application.
- 3.5 Steps in the selection and introduction of the scoring system in JSC KMC.- collect business requirements, prepare business case and tender, and send to prospective providers.
- 3.6 Technical requirements to the selection of the credit scoring system for JSC KMC.- will depend upon platforms of suppliers.
- 3.7 Selection criteria regarding the credit scoring system.- refer to RFP (tender) for detail as this will be a complete and a comprehensive requirements document
- 3.8 Practical application of the credit scoring system for the mitigation of the JSC KMC's credit risk.-will be mandatory if KMC is going to be able to meet volume expectations.
- 3.9 Evaluation of offers of SAS, EXPERIAN, SNOUCACTUS. Findings and proposals. – too soon, need to go through the complete RFP (tender) process. Review of Experian indicates a complete and total system but have concerns related to the complexity of the system. Will be in better position to evaluate at a later date.
- 3.10 Findings and conclusions regarding the establishment of the Scoring Center in JSC KMC.- A good way to go. Well thought out by senior management. Has tremendous opportunities in a variety of ways.