



## Business Process Improvement and Capital Budgeting Analysis to Develop the Digitalization Process of Loan / Financing in Bank Sumsel Babel

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**ABSTRACT:** PT Bank Pembangunan Daerah Sumatera Selatan dan Bangka Belitung (brand name: Bank Sumsel Babel) is one of the regional state-owned enterprises (SOEs) engaged in the banking sector. As a local company with a great purpose, Bank Sumsel Babel has a big responsibility to support all industries in the region province of South Sumatera and the Bangka Belitung Islands. This study examines the downward trends in credit and financing activity over the previous five years, particularly in working capital and investment credit at Babel Sumsel Babel branches. These two credits assess how successful regional banks are at boosting the local economy. On the other hand, the Bank has seen a decrease in market share in its multi-purpose credit products to civil servants in the South Sumatra and Bangka Belitung islands, where this credit is the primary source of income for Bank Sumsel Babel. This research utilizes qualitative information to determine the root cause and improve business processes by using the digital revolution of credit and financing to speed up the process and increase microfinance in Bank Sumsel Babel. Furthermore, the capital budgeting analysis to build the digitalization process will be calculated in this study to determine whether the investment is feasible. Based on the findings of this study, it is possible to conclude that Bank Sumsel Babel can use digitalization as a process improvement to secure its niche market and increase lending activities. Finally, this study makes recommendations for internal management on implementing the credit and lending digitalization process.

**KEYWORDS:** Business Process Improvement, Capital Budgeting Analysis, Digitalization, Regional State-owned Enterprises.

### INTRODUCTION

Time values are more important than before, and modern consumers require a service for equivalent time-saving options in a similar way to reduce operating or daily costs. Because of shifts in consumer behavior, establishing digital services is more than just a trend for the financial industry. As a result, the banking industry has evolved to meet modern consumers' needs better. In addition, traditional banking methods must evolve to accommodate mobile-led digital banking, which is increasingly important in customer service. Since the epidemic, the digitalization business has become crucial for sustaining the overall economy. As the Indonesian economy grows, it will require digital support to maximize service and performance. According to 2021 data from the Indonesian Central Bureau of Statistics, smartphone penetration in Indonesia has gradually increased over the past five years. Furthermore, according to data from the website [www.newzoo.com](http://www.newzoo.com), Indonesia jumped from 46th to fourth place on the global list of countries with the most Internet users. This information demonstrates how Indonesian residents' behavior is evolving quickly and responding to the demands of modern living.

Modern digital technologies are rapidly evolving. However, due to the high cost of establishing an Information Technology system, not all banking institutions can equip their plans with the most advanced technologies. Satisfying customers with the latest high technologies is a requirement for the Indonesian big four banks (KBMI 4 (Bank Groups based on core capital 4): Bank Mandiri, Bank BCA, Bank BRI, and Bank BNI). Because their competition is entirely different in level compared to other banks, these banks are already providing services to their customers at the fourth (augmented product) or fifth (potential product) level. On the other hand, hundreds of Indonesian banks classify as middle-low, according to POJKN0.12/POJK.03/2021. Furthermore, most banks serve similar product levels, offering customers third level (expected product) or second level (primary outcome) products. Therefore, many have needed help to maximize their services through cutting-edge digital technologies. In addition, many banks need help to keep up with the most recent technologies due to the rapid change in customer behavior brought on by digital applications. They primarily focus on the ROI or efficiency of establishing Information technology systems and whether to invest in technological advancements. As a result, maximizing efficiency through digital technology has emerged as the key to increasing bank efficiency across all bank categories. However, middle-class, and low-class banks must determine whether investing in an



Information Technology system will positively or negatively impact their performance efficiency before making a decision. As a result, before implementing the newest advanced technologies, banks must compute their investment decision using a complete financial measurement.

P.T. Bank Pembangunan Daerah Sumatera Selatan and Bangka Belitung (brand name: **Bank Sumsel Babel**) is one of the regional state-owned enterprises (SOEs) engaged in the banking sector. One of Bank Sumsel Babel's missions is to support the local economy by providing adequate funding for all sectors, especially local industries (SMEs). In South Sumatra and Bangka Belitung, Bank Sumsel Babel Loan / Financing had a market share of around 19%. Furthermore, the consumption sector accounts for approximately 33%, while the industrial sector accounts for roughly 8%.

**Table 1:** Credit Market Share in South Sumatera & Bangka Belitung

	2017	2018	2019	2020	2021	CAGR
<b>Total Credit / Financing in South Sumatera and Bangka Belitung Province: Data OJK</b>						
Productive	52,024	55,802	55,627	55,628	57,779	3%
Consumptive	35,222	38,245	41,539	42,911	44,647	6%
<b>TOTAL</b>	<b>87,246</b>	<b>94,047</b>	<b>97,166</b>	<b>98,539</b>	<b>102,426</b>	<b>4%</b>
<b>Total Credit / Financing Bank Sumsel Babel</b>						
Productive	2,784	3,397	4,224	4,623	4,518	13%
Consumptive	10,757	11,341	12,990	13,934	14,726	8%
<b>TOTAL</b>	<b>13,541</b>	<b>14,738</b>	<b>17,214</b>	<b>18,557</b>	<b>19,243</b>	<b>9%</b>
<b>Market Share Bank Sumsel Babel</b>						
Productive	5%	6%	8%	8%	8%	10%
Consumptive	31%	30%	31%	32%	33%	2%
<b>TOTAL</b>	<b>16%</b>	<b>16%</b>	<b>18%</b>	<b>19%</b>	<b>19%</b>	<b>5%</b>

Source: Data OJK 2021 and Annual Report of BSB: 2018 - 2021, processed by author 2022

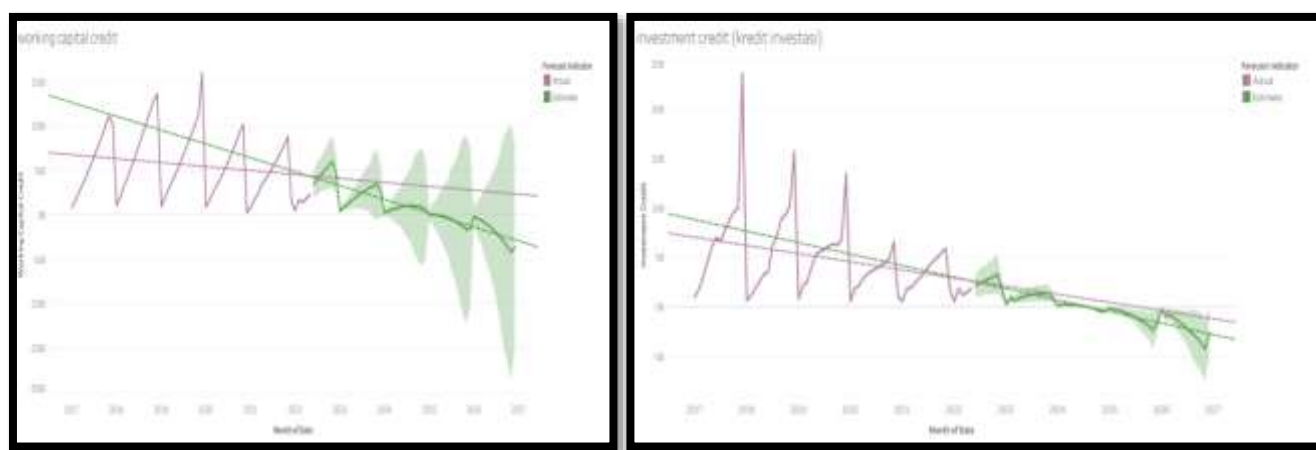
Otherwise, when Bank Sumsel Babel's credit/financing data divides into several categories, the data shows that issues cause irregular performance—starting with Bank Sumsel Babel Credit/Financing data that has been adjusted for impairment losses. This table summarizes credit/funding data after impairment. Government programs, on the other hand, have the highest CAGR of more than 100%. Credit KUR and assistance to citizens in purchasing new homes are two government programs primarily aimed at the lower-class economy (credit FLPP). Otherwise, because the government can limit the interest rates offered to its customers, this category needs to provide an adequate net interest margin to Bank Sumsel Babel. Syndicated loans came in second, with a 57% CAGR. The headquarters staff handled syndicated loans, typically large, with the corporate level as the category's target customer.

**Table 2:** Bank Sumsel Babel Credit / Financing (After adjustment of allowance of impairment loss)

	2017	2018	2019	2020	2021	CAGR
	<b>Total</b>	<b>Total</b>	<b>Total</b>	<b>Total</b>	<b>Total</b>	<b>CAGR</b>
Consumer	10,579,288,978,781	10,867,789,093,814	11,800,237,511,302	12,607,607,901,106	12,899,988,237,062	5%
Syndicated	373,904,672,567	765,752,188,061	1,411,922,565,983	1,600,033,075,026	2,273,179,296,872	57%
Working capital	1,572,756,427,284	1,664,501,332,224	1,776,818,051,407	1,230,369,248,001	1,212,889,371,453	-6%
Investment	795,044,542,558	782,690,346,416	645,854,253,455	720,186,470,449	569,602,549,867	-8%
Employees	149,931,392,187	139,549,364,570	266,528,022,633	330,187,333,388	326,219,265,492	21%
Govt. program	89,793,744,597	266,945,905,762	670,401,437,004	1,054,743,275,139	1,633,715,611,347	107%
<b>Jumlah/ Total</b>	<b>13,560,719,757,974</b>	<b>14,487,228,230,847</b>	<b>16,571,761,841,784</b>	<b>17,543,127,303,109</b>	<b>18,915,594,332,093</b>	<b>9%</b>
Less :						
Allowance for impairment loss	-446,060,738,098	-554,730,712,722	-516,722,805,257	-684,579,876,537	-599,196,804,587	8%
<b>Total - Net</b>	<b>13,114,659,019,876</b>	<b>13,932,497,518,125</b>	<b>16,055,039,036,527</b>	<b>16,858,547,426,572</b>	<b>18,316,397,527,506</b>	<b>9%</b>

Source: Annual Report of Bank Sumsel Babel: the Year 2018 -2021, processed by author 2022)

On the other hand, **working capital and investment loans and financing decreased**. Furthermore, unlike government programs, these two productive loans/finances have no restrictions, allowing the Bank to create these products based on the needs, processes, and even interests of its niche market. As a result, branches are more likely to run in these two categories. However, the trend of credit distribution and revenue for these items has slowed in the last few years. Therefore, management must address this issue to stimulate the local economy by offering appropriate solutions for increasing working capital and investment credits. In addition, Bank Sumsel Babel also has significant problems with consumer credit. Furthermore, when the consumer credit data is broken down into several categories, the data show that multi-purpose credit (credit Serba Guna (KSG)) has dominated consumer credit for the last five years, accounting for approximately 90% of the total. Outstanding consumer credits, particularly multi-purpose credits (kreditSerba Guna (KSG)), clearly appear to be very good, with the outstanding amount increasing yearly. **However, there is a significant issue in disclosing data on the number of accounts (market share was declining), and total revenue has continued to grow negatively over the last five years.**



**Chart 2 : Revenue of Working Capital Credit and Investment Credit**

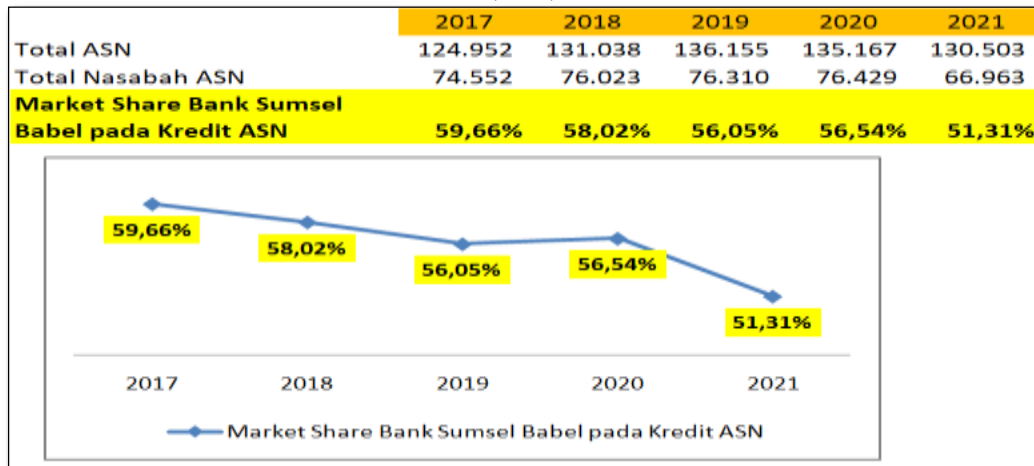
**Source :** Data of Bank Sumsel Babel: the Year 2017 - 2022, processed by author (2022)

**Table 3: Bank Sumsel Babel Consumer Loan**

Consumer Loans	2017		2018		2019		2020		2021	
FLPP Loans	66,261	0.7%	146,224	1.4%	252,655	2.1%	428,596	3.4%	652,518	4.9%
Multipurpose Loans (KSG)	9,675,675	96.3%	10,088,248	95.0%	11,202,833	93.8%	11,656,381	91.3%	11,739,600	87.5%
Griya Sejahtera Loans (KGS)	303,001	3.0%	375,389	3.5%	464,537	3.9%	649,867	5.1%	820,271	6.1%
Vehicle Ownership Loans (KPK)	4,498	0.0%	7,892	0.1%	4,529	0.0%	5,251	0.0%	5,794	0.0%
Other Consumer & Intern Loans		0.0%	267	0.0%	18,269	0.2%	33,780	0.3%	191,073	1.4%
<b>TOTAL</b>	<b>10,049,435</b>	<b>100%</b>	<b>10,618,020</b>	<b>100%</b>	<b>11,942,823</b>	<b>100%</b>	<b>12,773,875</b>	<b>100%</b>	<b>13,409,256</b>	<b>100%</b>

**Source:** Annual Report of Bank Sumsel Babel: the Year 2018 -2021, processed by author (2022)

Table 4: Bank Sumsel Babel Market Share of Consumer Loan (KSG)



Source: Internal data BSB 2021 and Government: Statistics, processed by author 2022)

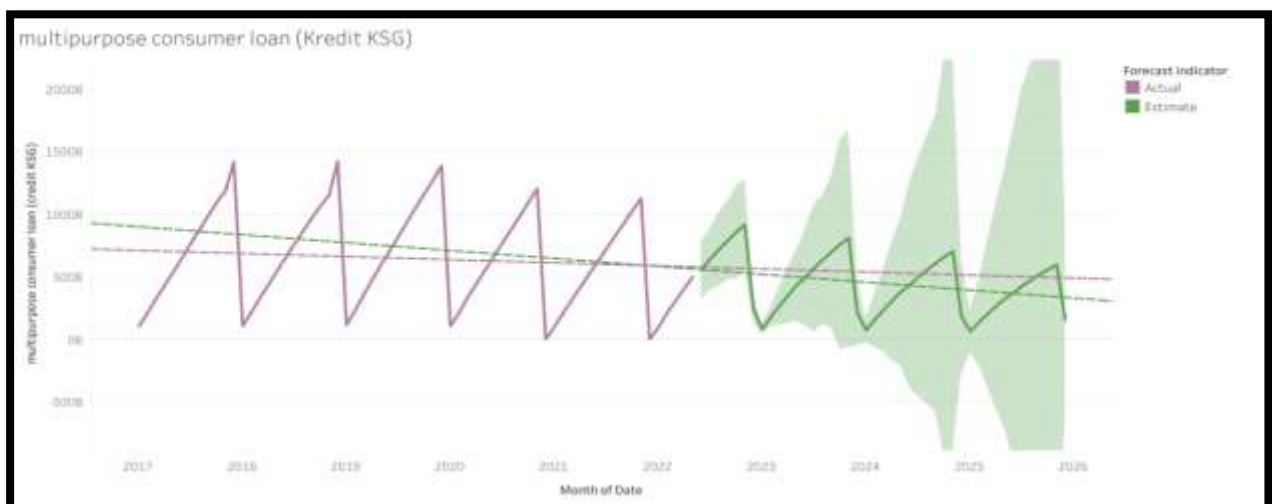


Chart 3 : Revenue of Consumer Loan: Kredit Serba Guna

Source : Data of Bank Sumsel Babel: Year 2017 - 2022, processed by author 2022)

Following these trends, the authors surveyed branch employees quickly (levels of administration officers, credit/financing/risk analysts, and legal officers). According to the data, the following:

1. **88,7% of respondents said that the current constraint in marketing credit/financing products of Bank Sumsel Babel is a process of credit/financing.** Furthermore, they assumed that the customer potential is enormous. Still, the process from analysis to decision, which includes customer data entry, L.O., consulting, SLIK, guarantees, risk analysis, and repayment ability calculation at the main body, takes a significant amount of time.
2. **91,1% of respondents said that the current constraint process of credit/financing needs to be improved so that services can be maximized/targets can be achieved.** The procedure is divided into several steps, such as the first step of entering customer information, the second step of analyzing the process after the file is completed, and the third step of decision-making authority.
3. **78,5% of respondents said that when Bank Sumsel Babel digitally changes their loan application system via web/application, it adds value to the process** (analytical process, committee decision-making process, up to loan agreement).



As a result, Bank Sumsel Babel's top management should focus on resolving these issues so that Bank Sumsel Babel can increase its market share of government employees for consumer loans and increase the capacity of productive loans/financing without negatively impacting revenue. Furthermore, because numerous factors contribute to the problem, this final project focuses on improving the business process by implementing a digitization strategy and calculating the investment in the capital budgeting framework. Digital methods help Bank Sumsel Babel provide the best possible service to its customers, including explaining any products that meet their needs, requirements, and procedures. Then, it also helps customers to know the amount of financing they require and whether or not their specific payment capacity is appropriate, credit analysis, digital signing (e-signature agreement), and so on.

## LITERATUR REVIEW

### I. Business Process Improvement

Improving business processes was intended to increase efficiency in providing value to customers. Furthermore, in Bank Sumsel Babel terms, reducing wait times, reducing queues, speeding up analytical processes mandated by procedural standards, and integrating online reporting processes and digital signatures using technology devices. Therefore, business process improvement is an essential component of organizations and a significant driver of business digital transformation. According to Eric Kimberling, CEO of Third Stage Consulting Group, there are five steps to improving business processes, according to [www.thirdstageconsulting.com](http://www.thirdstageconsulting.com).

1. **An appraisal of the current state.** This stage investigates the current operation to identify its strengths and weaknesses, emphasizing its problem areas.
2. **Define future state.** Identifying the current and future state of business processes is critical to improving them. It starts with the bottleneck, which analysts identified as a source of pain in the current state assessment. This is the outcome of process mining and analysis, which identifies and recommends opportunities for improvement.
3. **Define Performance Metrics.** Performance metrics are integrated into a business case, which assists analysts in describing future states, the benefits achieved, and the overall business value of the project. Finally, consider how business processes can benefit from process improvement.
4. **Identify and prioritize improvement.** Make a list of all potential business efficiency improvements the company could implement. Prioritizing possible process improvements will allow it to be determined which aspects of phase deployment should be prioritized and how.
5. **Create a process improvement plan.** This procedure involves determining where the list will be prepared and the characteristics of those improvements. This step is just as crucial as creating the documents because it also entails creating a more specific plan for putting these changes into practice and fully understanding potential correlations between job duties and responsibilities.

### II. Capital Budgeting Analysis

1. **The Cost of Capital.** It represents the cost of raising capital for investment purposes, also known as the target rate of return or the hurdle rate. The terms cost of capital and the weighted average cost of capital (WACC) are similar:
  - a. **Cost of Corporate long-term debt.** The financing costs associated with funds raised through long-term borrowing are referred to as long-term debt costs. Typically, funds are raised through the sale of corporate bonds.
  - b. **Cost of Preferred stocks.** Preferred stock is a type of company ownership share that differs from common stock. Preferred stockholders have the right to receive their stated dividend payments before the company distributes any earnings to common stockholders.
  - c. **Cost of equity (common stock).** The cost of common stock is the return required in the stock by market investors. Common stock can be financed in two ways: (1) through retained earnings and (2) through (new) common stock issues.
    - (1) Cost of Retained Earning. Earnings retention is accepted by stockholders only if they believe the company will earn at least the required return on reinvested funds:



(2) **Cost of (new issues of) common stock.** The rate at which investors discount the firm's expected ordinary stock dividends to determine share value is known as the cost of common stock equity. The following are two approaches to calculating the cost of common stock equity:

(a) **The Constant-Growth Valuation (Gordon Growth) Model.** It assumes that the value of a share of stock equals the present value of all future dividends (assumed to grow at a constant rate) that it is expected to provide over an infinite time horizon.

(b) **The Capital Asset Pricing Model (CAPM).** It describes the relationship between the required return,  $r_s$ , and the non-diversifiable risk of the firm as measured by the beta coefficient,  $\beta$ .

**Risk-Free Rate Investment Instruments in Indonesia**

In Indonesia, there are many options for risk-free rate investments, but typically deposits and state bonds are considered part of risk-free investments.

- (1) Deposit
- (2) Government Bonds
- (3) BI-7 Day Reverse Repo Rate (BI7DRR)

2. **Weight Average Cost of Capital.** Multiply each financing form's individual cost by its portion in the firm's capital structure and sum the weighted values.

3. **Capital Budgeting Cash Flows**

- a. **Finding the Initial Investment.** The initial investment associated with a capital expenditure is calculated using the installed cost of the new assets, the after-tax proceeds (if any) from the sale of an old asset, and the change (if any) in net working capital.
- b. **Finding the operating cash flows.** Operating cash flows are the additional, after-tax cash flows that develop following new investment.
- c. **Finding the Terminal Cash Flows.** The cash flow generated when a project is terminated and liquidated at the end of its economic life is referred to as terminal cash flow. It is the after-tax cash flow, excluding operating cash flows, that occurs in the final year of the project.

4. **Capital Budgeting Techniques.** Investments are made in both short-term and long-term assets, and capital budgeting is primarily concerned with significant investments in long-term assets. There are two types of capital budgeting techniques under certainty:

a. **Non-discounted Cash Flow Techniques**

- (1) Pay Back Period (PBP)
- (2) Accounting Rate of Return (ARR)

b. **Discounted Cash Flow Techniques**

- (1) Discounted Payback
- (2) Net Present Value (NPV)
- (3) Profitability Index (PI)
- (4) Internal Rate of Return (IRR)
- (5) Modified Internal Rate of Return (MIRR)

5. **Risk and Refinements in Capital Budgeting**

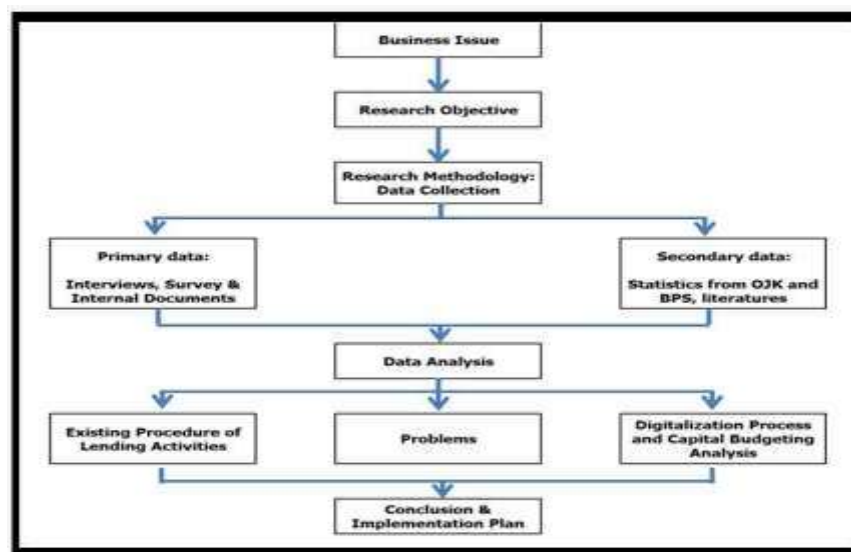
- a. **Sensitivity Analysis.** Sensitivity Analysis is a methodology for analyzing changes in a project's NPV (or IRR) for a given change in one of the variables. It investigates the effect of changing any of the input variables on the NPV or IRR (e.g., the initial outlay, selling prices, sales volume, project life span, and so on).

- b. **Scenario Analysis.** It examines the impact of various variable combinations, known as scenarios, on the project's net present value (NPV) (or IRR). The various methods created for this purpose are as follows: (1) Pessimistic; (2) Optimistic; (3) Most likely.

**CONCEPTUAL FRAMEWORK**

The research framework is a sequence that incorporates theories, hypotheses, assumptions, or principles that contribute to the research process. By delivering the series to readers in stages, the framework helps them interpret the research. The diagram below shows the exploration system used in this review.

**Diagram 1: Research Framework**



**RESEARCH METHODOLOGY**

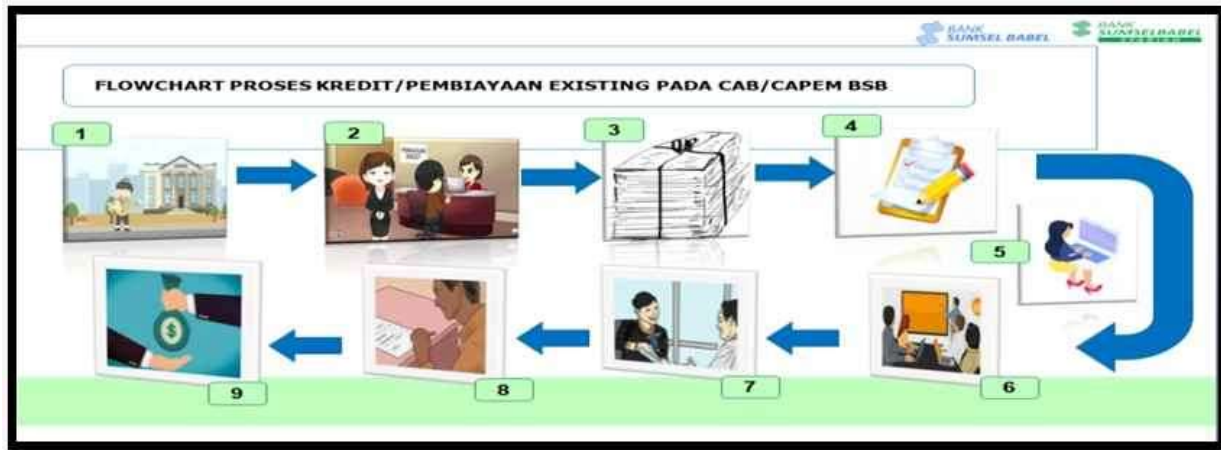
The researcher gathered both primary and secondary information. Data that have recently been collected for a specific goal or research project are referred to as preliminary data. Secondary data, on the other hand, are data that were collected for another purpose and already exist somewhere. To identify business issues, the author uses secondary data analysis to identify reports from the Bank Sumsel Babel annual report, internal financial reports, Standard of Procedure, and so forth. Secondary data give a starting point and details about the various credit/financing trends that took Bank Sumsel Babel along the different paths. Meanwhile, the primary data sources are internal Bank Sumsel Babel data, interviews with Bank Sumsel Babel specialists and other project participants, and questionnaires to the employee. After gathering data, the next step is to create a new solution as well as a calculation based on the projections. The measure will generate capital budgeting metrics as well as an acceptable range for each sensitivity analysis assumption for the feasibility study. The results of these calculations and financial modeling will be reviewed, and recommendations and an implementation plan will be developed.

After carefully evaluating secondary data sources, qualitative research designs can be used independently or in an iterative process in conjunction with secondary data sources. The idea that qualitative and quantitative research complement one another rather than being in conflict with one another is a sound one for business research. The quantitative approach is used in this thesis to identify the initial hypothesis bottleneck of Bank Sumsel Babel's lengthy existing credit/financing process. The author conducts a survey of all employees (from administrative officers to analysts) in each Branch's credit/financing unit in order to identify the root cause of the recent decline in branch credit investment and working capital, as well as credit multi-purpose market share (KreditKSG). Next, the author utilizes a qualitative method (interviewing and Delphi method). To cultivate deeply about the reason why the problem occurred and determine the assumptions about cost, opinion of digitalization of credit/financing in the Branch, the initial investment, determining (forecasting) cash flow projections, and so on to the level of employee from supervisor to manager in the branches and head office. Furthermore, **qualitative techniques (Delphi Method) will be used to calculate forecasting cash flows for capital budgeting analysis.**

**RESULT**

**1. Analysis of the current lending and funding process at Bank Sumsel Babel.**

The author attempted to interview some credit/financing head units in each branch class to learn more about the reality of the credit/financing process in the branches, whether the Standard of procedure was followed, or looking for the credit process flowchart. The following steps are currently being taken:



**Diagram 2** : Existing Flowchart of Credit / Financing Process in Branch

**Source** : Interview to employee, processed by author 2022

Based on the interviews and observations, the author concludes that customers must complete at least nine steps in the Existing Flowchart of the Credit / Financing Process in the Branch in order to receive loans from Bank Sumsel Babel. Furthermore, the author discovered that customers visiting a physical branch must wait 3-4 days.

- a. Day 1: **(Flowchart 1)**. The credit application process begins when the customer visits the nearest Branch Office to inquire about loan amount, installment, application requirements, and related fees.
- b. Day 2: **(Flowchart 2)**. The customer returns home to complete the requirements on paper (copy paper), which is then submitted the following day to the Bank (Day 2). A bank officer receives the document in order for the Entry Letter to be filed and processed.
- c. **(Flowchart 3, 4, 5, 6)** After verifying data and documents. The process of searching for SLIK data is continued, and the analysis is carried out in accordance with the order of BPP; Legal Officer - Credit Analyst + Risk Analyst, Supervisor, Deputy Branch Manager, and then the process is carried out by conducting Committee D.
- d. Day 3: **(Flowchart 7 + 8)**. The signing of SP3K and Credit Agreements In general, the signing of SP3Ks and Credit Agreements for non-KSG/PMG loans does not take place in a single day. This is because the debtor is given time before signing the Credit Agreement to prepare the necessary data and study the contents of the SP3K.
- e. Day 4: **(Flowchart 9)**. In most cases, the debtor doesn't receive the cash disbursement immediately because the administrative officer of the legal and financing unit needs to set up a proceeds account, loan account, or debtor financing for additional distribution of money sent to the debtor's account.

**2. Analysis of the difficulties when processing a loan or financing at Bank Sumsel Babel.**

The author takes the time to cultivate the central issue in loan or financing processing at Bank Sumsel Babel by interviewing several credit supervisors from various branches of Bank Sumsel Babel in order to investigate the existing flowchart and the reality of operational activities and the results are presented here. The problem analysis step is considered the first step in the business improvement process before moving on to the solution. The author can incorporate these issues into a system thinking diagram based on the interview report:



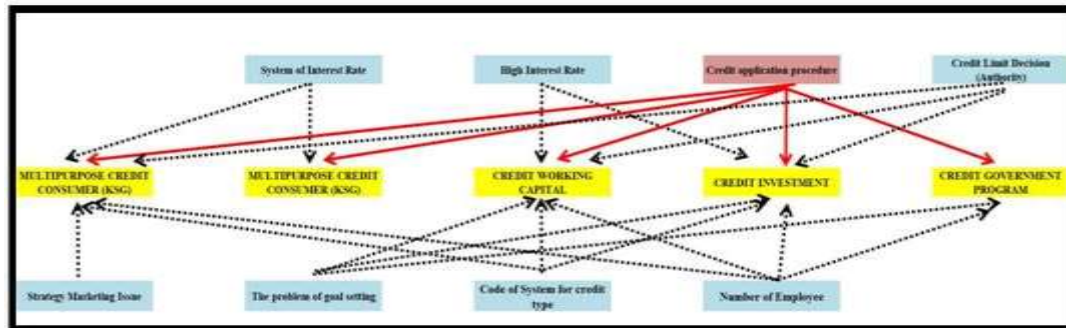


Diagram 3 : System Thinking

Source : Qualitative Data: Interview to employee, processed by author 2022

**Description:**

**a. Credit application procedure.**

- The issue of a credit process that is too long and time-consuming is also a concern and is thought to be the primary reason for not withdrawing the credit.
- Bank frequently receives numerous requests for working capital credit support for construction at times, especially at the end of the year. However, several customers made complaints because there needed to be more available analysts.

**b. Issues about strategy.**

- In practice, Bank Sumsel Babel competes with other banks that also seek to employ civil servants. Competitors, for example, dominate this product category of pension credit with a pledging strategy in which debtors receive credit money before retirement age, but installment payments are made when they reach retirement age by giving debtors specific terms (grace period) to control cash flow in the initial investment period.
- Other branches stated that the growth of KSG's consumer credit had stalled due to an obsolescent strategy that included a low-interest promotion every year for at least the last five years.

**c. Interest issue.**

- Bank Sumsel Babel currently uses a flat interest calculation strategy for KSG consumptive credit customers while many competitors use annuity interest.
- Working capital loans and investment loans are not attractive because the interest expense charged to customers is very high, ranging from 13% to 14% per annum.

**d. The problem of Target goal setting**

- Bank Sumsel Babel is currently not overly focused on developing working capital loans and investment loans due to performance objectives by the head office management, so the scores for the two types of credit are low. Government program loans, on the other hand, are given a higher weight.

**e. Credit Decision Authority**

- Branch leaders' authority in deciding on loans is still considered very limited in terms of the nominal credit that can be extended to customers.

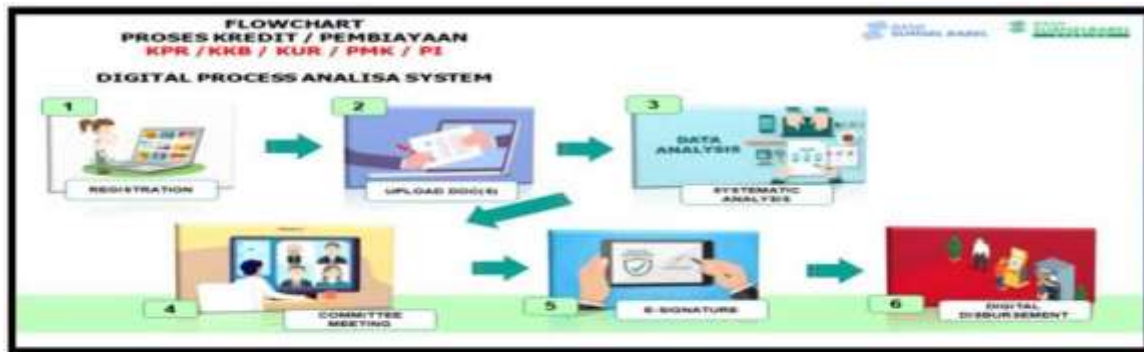
**f. Plan code credit type.**

- Several branches also stated that currently disbursing credit from the Sumsel Babel bank is difficult because too many things are administrative in nature, mainly because the head office has implemented multiple types of code plans.

**3. Solution and Proposed Implementation Plan**

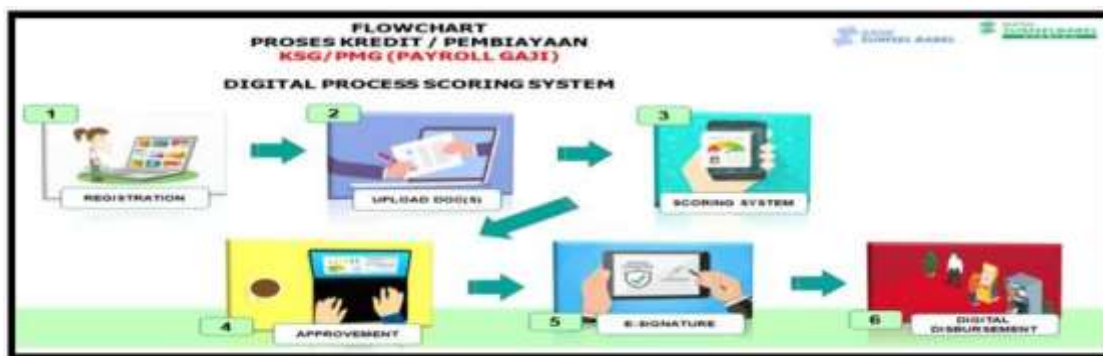
Following the identification of the problem using primary data, the author attempts to make a proposal, particularly regarding the utilization of digital technology to speed up the entire credit process flow, allowing credit officers to process more credit application proposals and assisting in making credit analysis more efficient. Simple and structured, and save money on paper, electricity, and other resources. The use of digital technology is also considered to support Bank Sumsel Babel in increasing the

convenience of its customers who apply for credit, thus increasing the company's value. As a result, the author recommends a comprehensive digital process with the following steps:



**Diagram 4 :** Proposed Flowchart of Working Capital, Investment and Consumer Loan

Source : processed by author 2022



**Diagram 5 :** Proposed Flowchart of Multi-Purpose Credits (KreditSerba Guna (KSG))

Source : processed by author 2022

**Description:**

- a. **STAGE 1 (Digital application).** Bank Sumsel Babel is proposed to develop a digital medium for submitting credit/financing applications, making it easier for customers to apply for loans/financing from Bank Sumsel Babel. In this step, the customer submits an online form via the web/application.
- b. **STAGE 2 (Digital Process of Analysis and Decision).** After prospective customers input data, the following steps are:
  - (1) Website and application data will be transmitted to the Bank's internal system, the Electronic Loan Organization System (ELOS), which will send a signal to the Branch the customer designates or the closest Branch.
  - (2) Especially for loans that do not use standardized analysis (standardized product) from on-staff. Then it will use a Simple Automatic Analysis (Repayment Capacity) and Scoring System to speed up the approval process, which can be directly checked REALTIME by bank officers, and an APPROVAL request is made to the credit breaker. Maximum Decision Time Can Be Done In Only 2-3 Working Hours.
  - (3) The information entered by the customer through their account on the website and/or this software application has been integrated: ELOS; SLIK system at OJK; Ministry of Home Affairs Population Data; Ministry of Finance data (specifically NPWP); Land Government Office data (if possible, specifically for collateral); other institutional data.
  - (4) The data presented above can be used directly (automatically) by bank officers to expedite the service process. The bank officer, on the other hand, has the authority to correct or adjust the data. Furthermore, bank officers are expected to directly input the following data into the Bank's internal system (ELOS), after which an EXECUTIVE SUMMARY will be available: legal analysis; financial ratio analysis, market ratio; cashflow statement; risk analysis; collateral aspect.
- c. **STAGE 3 (Credit Approval Process + Committee).** The process of review analysis and proposed credit/financing gradually by credit supervisors / legal supervisors, deputy branch managers/branch leaders are as follows:



- (1) After the bank officer did perform data input and analysis, the data is automatically tiered (for review) up to the final breaker and sent to credit supervisors / legal supervisors, deputy branch leaders/branch leaders.
- (2) The final decision maker may request a circular / online/offline committee meeting to make a decision.

**d. STAGE 4 (Loan Agreement Signing and Digital Disclosing Process).** Following a committee meeting, the system will automatically send prospective customers information on their customer account via SMS/email, with an explanation of the information in the form of types of credit/financing; a number of ceilings; time period; list of guarantees; schedule of credit contracts/agreements; requirements for documents that must be brought; fees, and other terms and conditions. Where applicable, the credit/financing contract process can be completed using a DIGITAL SIGNATURE and an ELECTRONIC tool.

#### 4. Capital Budgeting Analysis

**a. The Cost of Equity.** Bank Sumsel Babel is currently a closed company, with all of its capital coming from all local governments in South Sumatra Province and Banga Belitung Islands Province, as well as a portion of its capital coming from the South Sumatra Babel Employee Cooperative and retained earnings. In this regard, the author employs the calculation method of The Capital Asset Pricing Model to obtain the appropriate value of the cost of capital, the process of calculating the cost of capital (CAPM). By using the data of these banks, the author estimates the cost of capital following this:

##### Formula 4.a: CAPM Model

$$r_s = R_f + [\beta \times (r_m - R_f)]$$

$R_s$  = required return on asset

$R_f$  = risk-free rate of return, which will be assumed by the Bank Indonesia rate.

$r_m$  = market return; return on the market portfolio of assets

$\beta$  = beta coefficient or index of non-diversifiable risk for asset

**b. Risk-Free.** The risk-free rate is the risk-free rate of return as a result of receiving a government guarantee that has been adjusted in laws and regulations Bank Indonesia uses the BI 7-day reverse repo interest rate reference, which is Indonesia's risk-free rate instrument. For this reason, the author uses the BI-7 Day Reverse Repo Rate. The average rate of BI 7 day-RR from 21 April 2016 until 22 September 2022 is 4,56%.

**c. Market Return.** Based on the information from Infobank that there are three regional development banks has been offering the stocks to the market (IPO):

- 1) PT Bank Pembangunan Daerah Jawa Barat dan Banten Tbk (BJBR.JK)
- 2) PT Bank Pembangunan Daerah Jawa Timur Tbk (BJTM.JK)
- 3) PT. Bank Pembangunan Daerah Banten, Tbk (BEKS.JK)

**d. Beta .** First, the author attempts to determine the average leveraged beta from three different regional banks by comparing each one's yearly return to the Indonesia Stock Exchange market return. Following this, the levered beta of each regional Bank is recalculated using the Unlevered Beta formula.

##### Formula 4.d.1 : Unlevered Beta

$$\text{Unlevered Beta} = \frac{\text{Levered Beta}}{(1 + ((1 - \text{Tax Rate}) \times (\text{Total Debt} / \text{Equity}))}$$

Following that, the author attempts to calculate the levered beta of Bank Sumsel Babel using this formula after obtaining the unlevered beta of three different regional banks and averaging these numbers:

##### Formula 4.d.2: Levered Beta

$$= \text{Unlevered Beta} \times (1 + ((1 - \text{Tax Rate}) \times (\text{Total Debt} / \text{Equity})))$$

##### Formula 4.d.3 Market Risk Premium

$$\text{Market Risk Premium} = \text{Expected Rate Return} - \text{Risk Free Rate Return}$$



	BJBR	BJTM	BEKS	IHSG
Expected (return)	0.06%	1.00%	-3.06%	0.32%
stdev	10.42%	8.81%	11.95%	4.22%
Coefisien Variation	170.0	8.8	- 3.9	13.1
Beta	1.5492	1.4392	0.7457	1.0000
r (yearly)	14.04%	13.37%	9.12%	10.68%
<b>Average (levered Beta: 3 Regional Bank)</b>	<b>1.245</b>			

Table 5: Beta of 3 Regional Banks

Tax rate (corporate)	25%		
<b>Annual Report 2021</b>	<b>BJBR</b>	<b>BJTM</b>	<b>BEKS</b>
Total Liabilitas	137,955,374	89,812,791	6,958,464
Total dana syirkah (temporer)	7,316,690		
Total Ekuitas	13,084,033	10,910,539	1,891,147
<b>total</b>	<b>158,356,097</b>	<b>100,723,330</b>	<b>8,849,611</b>
<b>Unlevered Beta</b>	<b>0.1334</b>	<b>0.1735</b>	<b>0.3311</b>
<b>Average (unlevered Beta)</b>	<b>0.2127</b>		

Table 6: Beta of Bank Sumsel Babel

Bank Sumsel Babel (Annual Report 2021)	
Total Liabilitas	27,690,490
Total Ekuitas	3,935,875
<b>total</b>	<b>31,626,365</b>
<b>Levered Beta Bank Sumsel Babel</b>	<b>1.3349</b>

e. **Cost of Equity Bank Sumsel Babel.** The next step is to determine the cost of equity after obtaining Bank Sumsel Babel's number of leveraged beta Risk-Free by using the B.I. 7-day reverse repo interest rate as the reference and determining the Indonesia Equity Risk Premium is 6,12%.

Table 7: Cost of Equity

Cost of Equity BSB	
$rs = Rf + [B * (rm - Rf)]$	
Risk Free (BI-7Day-RR)	4.6%
Indonesia Market Risk Premium (rm - Rf)	6.12%
Levered Beta BSB	1.3349
<b>BSB Required return of Equity</b>	<b>12.73%</b>

f. **Cost of Debt.** The first step in calculating the cost of debt of Bank Sumsel Babel is to examine the Bank's long-term debt. According to Bank Sumsel Babel's annual report, there are three types of long-term debt:

- 1) Borrowings from Bank Indonesia. These accounts represent borrowings of Bank Indonesia in liquidity credit for granting to Ownership of Simple House Loan (KPR-RS) and Ownership of Very Simple House Loan (KPRRSS). The period for a mortgage is 20 years, with interest rates ranging from 3% to 9%.
- 2) Borrowing from the Government (BLU-PPDPP). House Ownership Loan through Housing Loan Liquidity Facility for low-income communities. The loan is for 20 years with an interest rate of 5%.



- 3) Borrowing from Bank Tabungan Negara - Housing Loan Investment Fund Account. The loan period is 15 years, including three years grace periods with an interest rate from 2% to 3%.

**Table 8 : Cost of Long-Term Debt Bank Sumsel Babel**

<b>Cost of Long Term Debt BSB</b>		<b>3.75012%</b>			
Pinjaman yang diterima BSB		31 Desember 2021			
	<b>Book Value</b>	<b>Percentage of total</b>	<b>Yield to Maturity</b>	<b>Book Weight</b>	<b>Value</b>
BLU-PPDPP KGS-FLPP	430,725,305,249	99.996%	5%		4.99980%
Bank Indonesia (Kredit Likuiditas BI)	16,918,575	0.004%	9%		0.00035%
Bank Tabungan Negara KPR/RDI	707,910	0.000%	3%		0.00000%
<b>Jumlah</b>	<b>430,742,931,734</b>	<b>100.000%</b>			<b>5.00015%</b>
<i>Source: AR BSB 2021</i>					
Tax	25%				
Before Tax Cost of Debt	5.00015%				
After Tax Cost of Debt	<b>3.75012%</b>				

Source: Bank Sumsel Babel Annual Report 2021

- g. **WACC (Weight Average Cost of Capital) Bank Sumsel Babel.** The author continues the process by calculating the Average Weight Cost of Capital Bank Sumsel Babel for investing in the project after obtaining all the costs of equity and debt.

**Table 8: WACC Bank Sumsel Babel**

<b>WACC (Weight Average Cost of Capital) BSB</b>			<b>WACC (Weight Average Cost of Capital) BSB</b>								
	<b>Book Value</b>	<b>Book Value</b>	<b>WACC</b>	=	12.73%	x	90%	+	3.75%	x	10%
Total Liabilities	430,743	10%		=	11.47%	+	0.37%				
Total Equity	3,935,875	90%									<b>11.84%</b>
<b>Total</b>	<b>4,366,618</b>	<b>100%</b>									

**h. Capital Budgeting Analysis**

**1) Initial Investment**

<b>Determine Installed cost of new system</b>		
<b>Lisence Loan Organization System (LOS)</b>		
1	<b>Installed cost of new system</b>	
	Purchase of Lisence Loan Organization System (LOS)	2,600,000,000
	Development of Credit Analysis (excel base)	45,000,000
		<b>2,645,000,000</b>
	<b>+ Installation costs</b>	
	Internal training (Analis, Yuris, SRK, Admin)	500,000,000
	Internal training Pegawai IT	50,000,000
	Internal development, market survey, dll	132,250,000
	Purchase of Tablet untuk e-signature	584,000,000
	Purchase of Machine Customer Service Digital	1,400,000,000
		<b>2,666,250,000</b>
	<b>Total Installed cost - proposed (depriciable value)</b>	<b>5,311,250,000</b>



**Description of initial investment (budget analysis):**

- a. Application Fee (obtained initial information from the vendors), assuming cooperation with vendors.
- b. Development of an integrated analysis (starting from the Financial Statements and Financial Ratios) in the form of mic.excel for later use in the application system.
- c. Training will be carried out to all Yuris, Analysts, AO employees, Credit Admins in all BSB Branches/Capems, through offline training at the Head Office (assuming: IDR 2 million \* 250 people).
- d. Training for minimum 2 IT people from the IT Division so that further improvement and system development can be carried out internally.
- e. Internal development also includes network development in all branch offices/capitals (if needed) and market survey implementation (Quantitative and Qualitative Survey to BSB Customers. (assuming 5% \* total system fee).
- f. Assumption Number of Branches + Sub-branches.

Branches	31	3	372,000,000
Sub-branches	53	1	212,000,000
Price of Tablet / Smartphone	4,000,000		584,000,000

- g. Purchase of Digital Customer Service Machine @ 350,000,000,- for 4 main branches and Class I (Kap, Arivai, Palembang, Sekayu, Pangkal Pinang) as a pilot project

**2) Depreciation and Amortization**

Book Value new assets, depreciation + amortization			
Years	Installed Cost	MARCS	Depreciation + Amortization
1	4,045,000,000	25%	1,011,250,000
2	4,045,000,000	25%	1,011,250,000
3	4,045,000,000	25%	1,011,250,000
4	4,045,000,000	25%	1,011,250,000
<b>total accumulated depreciation</b>		<b>100%</b>	<b>4,045,000,000</b>
Installed cost of asset			4,045,000,000
<b>Book Value after termination</b>			-
<b>proceeds from sale of asset termination</b>			-
<b>Capital Gain</b>			-
<b>Gain</b>			<b>4,045,000,000</b>
<b>Tax</b>			<b>25%</b>

- 3) **Operating Cashflow.** According to Bank Sumsel Babel's financial statements, branch profits for each type of credit are as follows:

**Table 9:** Bank Sumsel Babel Credit and Financing Revenue (2017 – June 2022)

Date	Credit consumptive (non-KSG)	Working capital credit	Credit consumptive government program	Credit productive government program	Investment credit	Multipurpose consumer loan (credit KSG)	Investment financing sharia	Working capital financing sharia	Consumptive financing (nonmulti purpose)/nonPMG	Consumptive financing multipurpose	Consumptive financing government program
Jan-17	939,022,961	8,777,294,167	118,385,210	69,246,830	999,768,779	107,183,432,852	163,511,015	15,305,822	2,801,496,462	7,205,656,991	5,499,950
Feb-17	1,882,144,112	17,446,051,765	242,386,633	143,970,025	1,900,322,025	215,527,444,853	336,402,306	73,981,111	9,047,761,115	14,296,619,074	5,116,169
Mar-17	2,812,892,816	26,390,934,103	377,713,482	199,277,298	3,158,573,015	323,287,593,650	804,906,411	104,867,906	19,625,027,114	21,446,651,945	7,283,689



Apr-17	3,735,092,561	35,414,364,491	513,625,855	252,714,723	4,594,12,342	431,004,406,729	597,343,774	105,312,266	12,834,129,763	27,962,732,106	667,561
May-17	4,660,287,004	45,034,239,712	645,264,552	293,831,669	6,156,030,617	538,770,718,669	730,901,360	156,993,787	16,544,193,778	35,068,531,036	991,148
Jun-17	5,578,059,935	55,266,852,352	803,507,711	338,860,359	7,074,316,451	650,189,792,566	872,836,757	168,065,275	17,837,803,515	42,146,239,385	2,117,333
Jul-17	6,448,976,308	65,739,679,148	974,910,548	372,300,020	6,696,981,234	764,350,972,212	994,023,114	194,000,699	21,355,437,130	49,160,446,756	2,536,144
Aug-17	7,550,177,084	76,730,343,023	1,144,411,546	404,760,502	7,781,443,142	874,641,781,404	1,141,405,046	200,598,093	22,562,610,698	56,054,812,941	1,163,935
Sep-17	8,443,456,474	87,995,394,474	1,326,237,230	411,349,015	8,830,347,665	986,612,775,903	1,293,958,247	242,023,378	24,824,145,943	63,023,945,287	1,614,424
Oct-17	9,331,715,291	99,703,529,332	1,510,757,102	402,308,380	9,592,764,055	1,094,944,330,957	1,434,487,087	285,406,805	26,044,373,447	69,672,396,112	3,139,268
Nov-17	10,240,341,205	111,586,165,463	1,703,415,628	442,500,078	10,041,565,560	1,188,012,958,715	1,520,360,950	325,635,785	29,495,495,081	74,556,083,642	4,531,164
Dec-17	13,300,038,700	103,103,266,975	582,747,649	1,963,745,170	23,663,307,600	1,417,532,095,454	2,094,590,207	757,896,153	32,391,162,924	81,703,733,530	59,493,000
Jan-18	853,229,023	10,475,429,726	278,387,182	58,146,856	696,365,180	111,702,354,116	75,780,914	47,893,601	1,173,940,240	7,089,211,925	86,766
Feb-18	1,712,077,654	20,622,634,059	561,918,098	144,155,993	1,165,090,878	220,561,134,219	181,750,707	81,366,913	2,750,358,787	13,855,989,192	1,374,493
Mar-18	2,599,707,897	31,486,856,328	870,093,557	291,310,945	1,896,402,609	328,687,856,498	232,152,267	105,946,523	3,555,991,735	20,909,919,047	1,012,010
Apr-18	3,447,235,808	42,494,085,733	1,159,945,996	512,821,824	2,606,241,610	436,621,570,264	316,683,449	134,874,295	4,783,453,060	27,929,724,791	2,152,321
May-18	4,285,046,339	53,867,386,562	1,484,696,706	811,284,679	3,280,542,019	544,850,876,555	436,596,708	255,082,635	5,859,117,509	35,190,918,157	350,826
Jun-18	5,110,181,125	65,708,393,948	1,851,257,501	1,145,659,711	3,586,133,207	656,735,150,784	529,001,965	271,545,140	6,771,328,783	42,099,002,007	869,261
Jul-18	5,929,298,632	78,382,141,250	2,224,421,227	1,513,268,753	6,168,638,208	764,217,484,190	606,266,282	542,791,253	7,859,041,182	50,061,496,201	128,696
Aug-18	6,771,103,864	90,687,489,919	2,622,362,566	1,949,415,501	7,187,284,182	867,971,141,757	684,945,553	347,060,072	8,768,833,327	58,009,710,967	101,729
Sep-18	7,541,164,498	103,263,982,412	3,034,166,837	2,431,420,211	8,952,023,159	970,677,060,550	769,056,790	383,090,226	9,662,042,702	61,147,783,260	764,149
Oct-18	8,281,551,188	116,131,390,833	3,462,796,486	2,942,858,372	9,314,27,481	1,069,060,058,895	847,014,361	450,099,859	10,603,494,047	68,049,625,959	643,206
Nov-18	9,038,564,500	128,628,578,184	3,919,332,225	3,437,105,378	10,246,830,294	1,156,110,100,915	921,524,937	485,234,812	11,504,601,748	75,582,725,804	575,935
Dec-18	12,583,251,542	136,390,643,126	2,830,262,257	4,330,282,021	15,748,090,657	1,425,238,592,252	2,094,590,207	757,896,153	32,391,162,924	81,703,733,530	59,493,000
Jan-19	747,856,809	10,021,161,515	570,195,297	504,832,813	839,711,410	118,551,654,854	87,866,682	167,863,087	1,017,477,414	26,145,500,318	1,675,527
Feb-19	1,503,891,812	19,425,915,650	1,101,744,044	1,152,938,287	2,226,720,885	237,478,139,550	185,599,473	232,629,260	2,697,485,674	50,120,944,777	281,107
Mar-19	2,263,420,830	29,151,044,762	1,692,283,195	1,996,508,608	2,534,03,690	354,433,955,004	302,851,547	313,187,351	3,432,205,830	161,498,775,099	1,996,296
Apr-19	3,011,912,992	37,879,753,944	2,317,732,974	3,074,714,462	3,980,723,632	478,341,818,833	399,470,349	468,188,157	4,561,171,659	602,308,123,124	902,592
May-19	3,740,544,234	47,065,570,204	2,972,484,356	4,336,287,579	5,332,301,260	595,946,767,429	505,516,764	557,157,295	5,505,037,519	408,702,773,750	228,591
Jun-19	4,690,466,243	57,035,656,814	3,632,074,114	5,675,922,881	5,588,875,294	708,481,984,497	603,151,958	631,019,752	4,937,487,878	197,308,699,644	2,360,181
Jul-19	5,749,434,683	67,743,698,225	4,336,363,320	7,167,871,860	5,842,131,025	822,143,079,762	1,521,890,299	796,152,205	18,704,678,865	197,337,201,165	32,881,687
Aug-19	6,763,461,521	79,032,005,362	5,092,055,224	8,809,278,095	6,180,581,702	936,983,962,130	1,659,864,438	870,966,659	19,696,275,372	224,870,256,741	33,796,078



Sep-19	7,790,324,048	89,310,290,663	5,899,915,076	10,596,372,911	6,362,694,257	1,054,679,821,181	1,735,557,382	953,635,940	18,815,114,126	268,420,587,044	35,020,035
Oct-19	8,832,085,041	100,442,698,639	6,823,483,114	12,491,375,818	6,265,847,634	1,164,127,129,483	1,883,359,395	1,068,028,964	19,687,897,291	313,266,418,516	37,568,320
Nov-19	9,871,850,078	111,918,351,845	7,712,600,114	14,454,658,716	6,936,966,780	1,275,361,660,508	2,049,395,373	1,175,428,729	20,633,210,643	358,261,849,009	37,609,490
Dec-19	10,218,970,997	160,003,643,996	4,503,824,999	6,053,784,999	13,499,538,998	1,389,270,536,995	1,118,289,000	789,165,999	15,309,791,999	259,707,642,997	1,019,000
Jan-20	1,046,949,748	9,063,171,838	915,008,067	2,034,922,000	587,822,187	109,151,125,438	200,304,055	138,620,045	752,433,118	46,056,620,726	10,739
Feb-20	1,882,144,112	17,446,051,765	242,386,633	143,970,025	1,900,322,025	215,527,444,853	336,402,306	73,981,111	9,047,761,115	97,602,005,017	5,116,169
Mar-20	3,132,073,352	25,548,857,024	2,980,775,126	6,200,471,868	2,189,754,991	337,819,435,270	422,374,566	431,529,947	2,071,610,428	145,074,147,383	410,598
Apr-20	4,181,715,275	34,092,856,500	4,133,782,428	8,472,913,394	2,920,359,416	445,439,712,397	598,381,220	484,597,002	2,792,429,563	190,613,617,526	757,754
May-20	5,229,979,221	41,867,681,838	5,387,090,819	10,757,874,034	3,377,231,630	553,081,723,473	804,097,151	552,188,697	3,531,293,123	240,932,303,442	3,982,105
Jun-20	6,280,798,658	50,651,456,133	6,633,433,131	13,060,100,289	3,716,096,487	663,214,240,211	916,099,224	605,601,800	4,267,874,340	291,937,518,493	5,680,345
Jul-20	7,295,338,669	60,186,236,529	8,015,171,460	15,464,409,602	3,886,387,159	770,397,951,234	981,645,863	683,751,950	4,892,108,879	344,012,898,162	5,454,184
Aug-20	8,341,455,693	70,478,225,177	9,370,890,942	17,932,075,884	4,206,728,412	879,604,848,811	1,087,694,054	729,412,759	5,640,339,581	392,616,206,369	8,158,711
Sep-20	9,394,347,975	81,163,938,073	10,804,495,931	20,542,939,502	4,535,978,502	985,500,967,047	1,125,894,277	789,126,176	6,538,896,529	442,388,710,687	10,122,388
Oct-20	10,456,318,693	91,764,259,235	12,292,543,754	23,210,453,235	4,888,511,991	1,097,330,596,007	1,242,273,888	881,138,622	7,135,687,298	496,296,540,804	16,207,992
Nov-20	11,511,759,122	102,282,571,291	13,788,864,014	25,899,263,547	6,595,231,216	1,206,277,653,620	2,561,562,973	1,019,624,084	7,873,896,301	549,975,142,329	18,933,992
Dec-20	1,688,928,683	2,919,709,239	299,865,302	380,235,875	1,061,230,044	4,436,905,494	2,427,991,495	963,471,124	5,933,595,995	200,101,014,594	47,119,902
Jan-21	984,526,430	8,387,171,895	1,532,085,845	2,580,562,716	602,848,851	105,254,489,616	221,174,742	482,024,841	851,177,606	55,533,697,430	34,466
Feb-21	1,882,144,112	17,446,051,765	242,386,633	143,970,025	1,900,322,025	215,527,444,853	336,402,306	73,981,111	9,047,761,115	111,897,833,690	5,116,169
Mar-21	2,979,851,995	23,248,647,119	4,755,652,440	7,608,332,188	1,884,814,639	314,372,954,196	350,452,426	607,170,889	1,983,057,828	160,577,967,352	847,686
Apr-21	3,946,983,823	34,253,014,285	6,481,500,627	10,701,870,649	2,512,952,254	418,205,247,665	484,850,103	640,524,722	2,494,276,393	218,688,263,213	554,666
May-21	4,926,085,705	39,962,813,462	8,268,760,365	13,859,358,198	2,925,825,043	519,407,580,282	520,063,544	704,557,714	3,024,550,941	275,792,379,420	680,562
Jun-21	6,003,195,156	47,234,950,123	10,231,767,476	17,220,573,447	3,411,027,246	621,856,020,376	623,097,666	815,265,641	3,430,017,813	335,034,046,953	4,592,661
Jul-21	6,920,350,679	54,097,274,184	12,401,802,862	20,566,156,263	4,086,984,690	722,688,702,611	691,782,607	972,230,648	4,033,171,232	393,051,854,599	5,927,988
Aug-21	7,817,416,793	61,658,092,027	14,678,621,793	24,197,966,386	4,554,538,244	825,117,502,299	759,422,781	1,055,205,417	4,338,497,478	452,146,702,573	6,104,149
Sep-21	8,632,381,092	69,950,293,256	17,036,863,238	28,219,619,906	4,994,531,334	927,593,960,188	821,394,270	1,090,921,683	4,098,617,361	512,062,155,067	5,628,804
Oct-21	9,539,797,238	78,228,560,883	19,556,278,972	32,476,309,872	5,479,126,612	1,029,494,880,590	881,982,133	1,117,344,768	4,432,785,886	572,989,110,315	6,687,195
Nov-21	10,473,884,921	88,774,736,257	22,119,579,412	35,954,246,910	5,929,405,149	1,131,349,052,806	925,361,073	1,205,717,200	4,920,818,277	633,840,600,613	7,275,814
Dec-21	2,118,412,924	14,593,504,308	546,954,424	780,267,862	1,798,559,233	4,191,954,151	2,011,503,092	1,985,396,466	4,399,028,688	426,514,984,412	13,714,000
Jan-22	1,083,046,084	5,259,451,865	2,614,676,774	4,763,753,212	561,388,176	96,778,746,192	53,280,779	199,530,348	600,884,251	60,563,254,410	12,077





Feb-22	1,882,144,112	17,446,051,765	242,386,633	143,970,025	1,900,322,025	215,527,444,853	336,402,306	73,981,111	9,047,761,115	133,199,918,664	5,116,169
Mar-22	2,909,706,271	14,309,837,705	7,877,570,003	15,163,613,627	1,233,618,849	304,863,082,396	117,508,979	602,156,816	1,160,276,943	189,040,003,312	729,575
Apr-22	3,802,276,187	18,615,461,956	10,625,714,643	21,042,465,694	1,515,130,340	405,404,190,526	145,612,190	706,032,725	1,611,563,516	251,963,128,634	217,658
May-22	4,685,650,521	23,167,402,202	13,442,396,161	27,217,271,434	1,855,698,023	499,386,726,515	175,699,899	686,187,713	1,446,092,419	311,840,124,661	591,454
Jun-22	5,589,606,552	27,280,449,192	16,339,815,689	34,021,594,582	2,167,343,551	600,842,976,414	197,087,851	756,672,431	1,666,916,193	375,872,516,899	1,301,304

Source: Data Bank Sumsel Babel, processed by the author 2022

The next step after obtaining credit and financing Profit and loss is to project future Profit and loss based on historical data. In this case, the author employs an automated projection calculator application with the Tablue system to carry out projections proportionally based on historical data. The system will provide proportional assumptions and projections. The author excludes credit or financing obtained through government funds (government programs). This is because these types of credit and financing are very limited in terms of the ceiling available to customers, with the Bank only receiving a specific ceiling value from the government to be distributed within a single fiscal year. According to the available data, Bank Sumsel Babel consistently achieves 100% of the given target. Hence, the author believes that even though the credit process is being digitized, this type of credit is relatively unaffected in terms of income.

Table 10: Projections of Bank Sumsel Babel Credit and Financing Revenue

No	Description + Estimation increase due to digitalisation	December-17	December-18	December-19	December-20	December-21
<b>Conventional Business</b>						
1	Credit consumptive (non-Multipurpose)	13,300,038,700	12,583,251,542	10,218,970,997	1,688,928,683	2,118,412,924
2	Credit consumptive (Multipurpose; KreditKSG)	81,703,733,530	81,703,733,530	259,707,642,997	200,101,014,594	426,514,984,412
3	Credit Working Capital	103,103,266,975	136,390,643,126	160,003,643,996	2,919,709,239	14,593,504,308
4	Credit Investment	23,663,307,600	15,748,090,657	13,499,538,998	1,061,230,044	1,798,559,233
<b>Sharia Business</b>						
5	Financing Consumptive(non-multipurpose)	32,391,162,924	32,391,162,924	15,309,791,999	5,933,595,995	4,399,028,688
6	Financing Consumptive (multipurpose; PembiayaanPMG)	1,417,532,095,454	1,425,238,592,252	1,389,270,536,995	4,436,905,494	4,191,954,151
7	Financing Working Capital	757,896,153	757,896,153	789,165,999	963,471,124	1,985,396,466
8	Financing Investment	2,094,590,207	2,094,590,207	1,118,289,000	2,427,991,495	2,011,503,092

No	Description + Estimation increase due to digitalisation	December-22	December-23	December-24	December-25	December-26
<b>Conventional Business</b>						
1	Credit consumptive (non-Multipurpose) 0.5%	3,982,572,156 19,912,861	3,845,043,780 19,225,219	3,707,515,405 18,537,577	3,569,987,030 17,849,935	3,432,458,655 17,162,293
2	Credit consumptive (Multipurpose; KreditKSG) 2.0%	212,651,870,110 4,253,037,402	275,110,854,116 5,502,217,082	337,569,838,122 6,751,396,762	400,028,822,127 8,000,576,443	462,487,806,133 9,249,756,123
3	Credit Working Capital 1.0%	47,263,017,170 472,630,172	26,487,303,915 264,873,039	5,711,590,660 57,115,907	-15,064,122,595 150,641,226	-35,839,835,850 358,398,358
4	Credit Investment 1.0%	1,939,282,961 19,392,830	785,280,390 7,852,804	-368,722,181 3,687,222	-1,522,724,753 15,227,248	-2,676,727,324 26,767,273



Sharia Business						
5	Financing Consumptive(non-multipurpose) 1.0%	13,661,780,763	13,661,780,763	13,661,780,763	13,661,780,763	13,661,780,763
		136,617,808	136,617,808	136,617,808	136,617,808	136,617,808
6	Financing Consumptive (multipurpose; PembiayaanPMG) 0.5%	246,141,114,002	217,202,623,952	188,264,133,902	159,325,643,852	130,387,153,802
		1,230,705,570	1,086,013,120	941,320,670	796,628,219	651,935,769
7	Financing Working Capital 0.5%	2,045,946,295	2,347,016,939	2,648,087,583	2,949,158,226	3,250,228,870
		10,229,731	11,735,085	13,240,438	14,745,791	16,251,144
8	Financing Investment 0.5%	1,792,876,113	1,792,876,113	1,792,876,113	1,792,876,113	1,792,876,113
		8,964,381	8,964,381	8,964,381	8,964,381	8,964,381
<i>Cash inflow from additional revenue credit + financing</i>		<i>6,151,490,754</i>	<i>7,037,498,537</i>	<i>7,930,880,763</i>	<i>9,141,251,050</i>	<i>10,465,853,149</i>

The following step is to compute the operating cash flow. At this stage, the writer obtains the assumed value of costs and income from interviews with internal Sumsel Babel Bank employees both at the head office and at the branch office so that the data obtained using the Delphi method is much better.

**Table 11: Operating Cashflow**

Description	2023	2024	2025	2026
Revenue				
Cash In				
Total Saving Operational Cost Yearly	967,680,000	967,680,000	967,680,000	967,680,000
Total additional revenue credit + financing	7,037,498,537	7,930,880,763	9,141,251,050	10,465,853,149
<b>Total Cash in</b>	<b>8,005,178,537</b>	<b>8,898,560,763</b>	<b>10,108,931,050</b>	<b>11,433,533,149</b>
Cash Out : Expenses (excluding depreciation and interest)				
Total Salary additional marketing employee	1,249,301,643	1,249,301,643	1,249,301,643	1,249,301,643
Total Internet expense	403,200,000	403,200,000	403,200,000	403,200,000
<b>Total Cash Out</b>	<b>1,652,501,643</b>	<b>1,652,501,643</b>	<b>1,652,501,643</b>	<b>1,652,501,643</b>
Earnings before depreciation, interest, and taxes	6,352,676,894	7,246,059,120	8,456,429,407	9,781,031,506
- Depreciation	1,011,250,000	1,011,250,000	1,011,250,000	1,011,250,000
Earnings before interest and taxes	5,341,426,894	6,234,809,120	7,445,179,407	8,769,781,506
- Taxes (rate, T X 25%)	25%	1,335,356,723	1,558,702,280	1,861,294,852
Net operating profit after taxes	4,006,070,170	4,676,106,840	5,583,884,555	6,577,336,130
+ Depreciation	1,011,250,000	1,011,250,000	1,011,250,000	1,011,250,000
<b>Operating cash flows</b>	<b>5,017,320,170</b>	<b>5,687,356,840</b>	<b>6,595,134,555</b>	<b>7,588,586,130</b>

- 4) **Analysis of Capital Budgeting.** At this point, the author conducts a more detailed financial analysis to determine whether the investment in the new system by Bank Sumsel Babel is acceptable and adds value. The results of the study are as follows: (a) Non-discounted Cash Flow Methodologies, such as (1) Repayment Period (PBP); (2) Accounting Return Rate (ARR), and (b) Discounted Cash Flow Methods, such as (1) Discounted Repayment; (2) NPV (Net Present Value) (NPV); (3) Index of Profitability (P.I.); (4) Internal Rate of Return (IRR); (5) Alternate Internal Rate of Return (MIRR).



Table 12: Capital Budgeting Analysis

Step 1: Determine Calculation of the Payback Period		
<b>Digitalisation Process Credit &amp; Financing</b>		
Initial Investment		5,311,250,000
Cost of Capital	11.84%	
	<b>Year</b>	<b>Operating Cash Inflows</b>
	1	5,017,320,170
	2	5,687,356,840
	3	6,595,134,555
	4	7,588,586,130
<b>Accumulated Cash inflows</b>		<b>24,888,397,696</b>
<b>Payback Period (year)</b>	<b>1 Year + 1 Month</b>	
<b>Discounted Payback Period (year)</b>	<b>1 Year + 2 Month</b>	

payback period is *greater than* the maximum acceptable payback period, *reject* the project  
 discounted payback period is *greater than* the maximum acceptable payback period, *reject* the project

Step 2: Determine Calculation of the Accounting Rate of Return (ARR)	
Average Profit	6,222,099,424
Accounting Rate of Return	117%

Accounting Rate of Return is *greater than* the required rate of return, *accept* the project

Step 3: Determine Calculation of the Net Present Value & Probability Index	
Net Present Value	23,907,209,112
Probability Index	4.50

NPV is greater than \$0, *accept* the project

PI is *greater than* 1, *accept* the project

Step 4: Determine Calculation of the Internal Rate Return & MIRR	
Internal Rate Return	98%
Modified Internal Rate Return	61%

IRR is greater than the cost of capital, *accept* the project

MIRR is greater than the cost of capital, *accept* the project

Based on the capital budgeting analysis, **all indicators are positive, indicating that the project is feasible.**

5) **Risk and Refinements in Capital Budgeting**

A risk assessment must be performed to determine whether the project is still viable in the face of future risks. The authors employ two methods for calculating risk.



1. Sensitivity analysis.

Table 13: Sensitivity Analysis

Sensitivity Analysis										
Number	List of Assumption	Current Assumption	+25% Swing	-25% Swing	Current NPV	+25% Swing NPV	-25% Swing NPV	Percentage +25% Swing NPV	Percentage -25% Swing NPV	Absolute
4	Internal training Pegawai IT	50.000.000	62.500.000	37.500.000	13.284.709.112	13.272.209.112	13.297.209.112	-0,1%	0,1%	0,0%
6	Purchase of Tablet untuk e-signature	584.000.000	730.000.000	438.000.000	13.284.709.112	13.118.709.112	13.430.709.112	-1,3%	1,1%	0,0%
3	Internal development, market survey, dll	132.250.000	165.312.500	99.187.500	13.284.709.112	13.251.646.612	13.317.771.612	-0,2%	0,2%	0,0%
17	Total Salary additional marketing employee	1.249.301.643	1.561.627.054	936.976.232	13.284.709.112	12.570.682.201	13.998.526.022	-5,4%	5,4%	0,0%
2	Development of Credit Analysis (excel base)	45.000.000	56.250.000	33.750.000	13.284.709.112	13.275.601.709	13.293.816.464	-0,1%	0,1%	0,0%
7	Purchase of Machine Customer Service Digital	1.400.000.000	1.750.000.000	1.050.000.000	13.284.709.112	13.801.369.205	13.568.048.948	-2,1%	2,1%	0,0%
18	Total internet expense	403.200.000	504.000.000	302.400.000	13.284.709.112	13.854.331.620	13.515.086.603	-1,7%	1,7%	0,0%
1	Purchase of Lisence Loan Organization System (LOS)	2.650.000.000	3.250.000.000	1.950.000.000	13.284.709.112	12.798.500.540	13.810.911.683	-4,0%	4,0%	0,0%
3	Internal training (Analisis, Yuris, SRK, Admin)	500.000.000	625.000.000	375.000.000	13.284.709.112	13.199.709.112	13.409.709.112	-0,9%	0,9%	0,0%
16	Financing Investment	8.964.381	11.205.476	6.723.285	13.284.709.112	13.289.831.114	13.279.987.109	0,0%	-0,0%	0,1%
12	Credit Investment (KI)	7.852.804	9.816.005	5.889.603	13.284.709.112	13.291.826.305	13.277.591.918	0,1%	-0,1%	0,1%
15	Financing Working Capital	11.725.085	14.668.856	8.891.318	13.284.709.112	13.292.584.469	13.276.833.758	0,1%	-0,1%	0,1%
9	Credit consumptive (non-Multipurpose)	19.225.219	24.031.524	14.418.914	13.284.709.112	13.295.159.310	13.274.258.911	0,1%	-0,1%	0,2%
17	Financing Consumptive (non-multiurpose)	136.617.808	170.772.260	102.463.356	13.284.709.112	13.362.708.803	13.206.699.420	0,6%	-0,6%	1,2%
11	Credit Working Capital (KMK)	264.873.039	331.091.299	198.654.779	13.284.709.112	13.400.307.531	13.188.709.241	0,9%	-0,7%	1,6%
14	Financing Consumptive (multiurpose ; Pembiayaan PMG)	1.086.013.120	1.357.516.400	814.509.840	13.284.709.112	13.792.744.580	12.776.673.643	3,8%	-3,8%	7,6%
8	Total Saving Operational Cost Yearly	967.690.000	1.209.600.000	728.760.000	13.284.709.112	13.837.615.090	12.733.803.133	4,2%	-4,2%	8,3%
10	Credit (Multiurpose) ; Kredit KSG	5.502.217.082	6.877.771.353	4.126.662.812	13.284.709.112	17.399.628.950	9.169.789.273	31,0%	-31,0%	61,9%

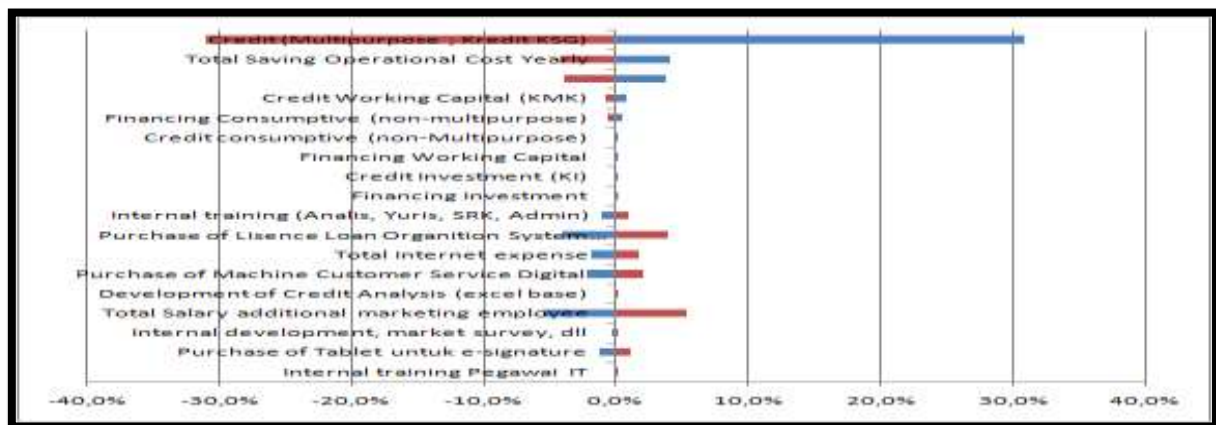


Diagram 6: Tornado Diagram

According to the sensitivity analysis, the multi-purpose credit (KSG Credit) of Bank Sumsel Babel has the most significant influence on the net present value. As a result, Bank Sumsel Babel must pay closer attention to the income generated by these activities in order to keep the NPV of this project in line with the expected results.

2. Scenario Analysis

Table 14: Scenario Analysis

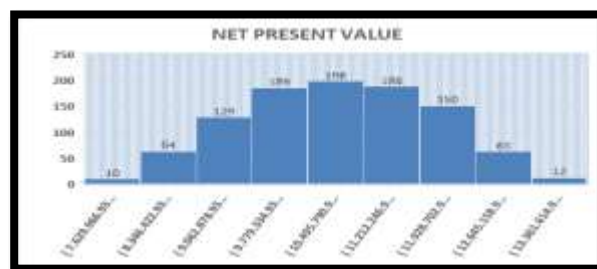
No	List of Assumption	Input Cell	Worst Case	Base Case	Best Case	Monte Carlo Simulation
			1	2	3	
1	Purchase of Lisence Loan Organization System (LOS)	2,511,872,967	3,900,000,000	2,600,000,000	1,950,000,000	2,511,872,967
2	Development of Credit Analysis (excel base)	36,638,948	67,500,000	45,000,000	33,750,000	36,638,948
3	Internal training (Analisis, Yuris, SRK, Admin)	632,787,126	800,000,000	500,000,000	300,000,000	632,787,126
4	Internal training Pegawai IT	139,006,261	150,000,000	50,000,000	25,000,000	139,006,261
5	Internal development, market survey, dll	288,063,097	529,000,000	132,250,000	264,500,000	288,063,097



6	Purchase of Tablet untuk e-signature	967,904,806	1,256,000,000	584,000,000	460,000,000	967,904,806
7	Purchase of Machine Customer Service Digital	2,146,065,548	2,800,000,000	1,400,000,000	1,050,000,000	2,146,065,548
8	Total Saving Operational Cost Yearly	967,680,000	604,800,000	967,680,000	1,209,600,000	967,680,000
9	Credit consumptive (non-Multipurpose)	19,225,219	4,067,946	19,225,219	32,034,415	19,225,219
10	Credit consumptive (Multipurpose ; Kredit KSG)	5,502,217,082	2,141,270,628	5,502,217,082	11,177,996,026	5,502,217,082
11	Credit Working Capital	264,873,040	9,272,569	264,873,039	508,148,167	264,873,040
12	Credit Investment	7,852,803	747,133	7,852,804	16,659,574	7,852,803
13	Financing Consumptive (non-multipurpose)	136,617,807	33,231,262	136,617,808	244,690,200	136,617,807
14	Financing Consumptive (multipurpose ; Pembiayaan PMG)	1,086,013,120	5,367,686	1,086,013,120	1,824,980,226	1,086,013,120
15	Financing Working Capital	11,735,085	8,464,285	11,735,085	22,173,171	11,735,085
16	Financing Investment	8,964,380	5,142,508	8,964,381	11,165,241	8,964,380
17	Total Salary additional marketing employee	1,735,572,728	2,498,603,286	1,249,301,643	936,976,232	1,735,572,728
18	Total Internet expense	474,033,416	604,800,000	403,200,000	302,400,000	474,033,416
			<b>Worst Case</b>	<b>Base Case</b>	<b>Best Case</b>	<b>Monte Carlo Simulation</b>
<b>Net Present Value</b>			11,334,697,390	23,907,209,112	43,311,695,909	25,703,686,048
<b>Range NPV</b>			31,976,998,520			

Diagram 7: Monte Carlo Simulation

Descriptive Statistics	
Min	7.629.966.932
Max	13.876.808.218
Mean	10.885.058.635
Standard Deviation	1.223.139.315
Median	10.854.872.606
Kurtosis	0,657
Skewness	0,0578
Prob NPV < 0	0



According to risk analysis, Scenario analysis, and Monte Carlo simulation, this project's NPV can be harmful in the worst-case scenario. However, when the Monte Carlo simulation is run, the possibility of a project NPV 0 is eliminated. In this regard, this project can be continued because it will add value to the company.

**CONCLUSION**

**1. The current lending and funding process at Bank Sumsel Babel.**

The detailed internal data which explains of various types of credit and financing in the branches reveals serious issues that require immediate attention from top management. The problem is with multi-purpose credit (KSG), the primary source of income for Bank Sumsel Babel, whose market share has gradually decreased in recent years. Additionally, it will decline from an income perspective after analyzing historical data and future income projections. On the other hand, in the previous five years, working capital loans and investments in traditional branches experienced negative growth. Furthermore, an analysis of the credit income trend shows a significant downward trend in the position of credit income.



The traffic congestion from the process flow can be seen at points 3, 4, 5, and 6, which begin when internal officers verify the completeness of the files, creditworthiness analysis, and up to the proposal process. Another issue that was discovered to be the cause of the decline in working capital loans and investment in all Bank Sumsel Babel branches in recent years was caused by several factors, including (1) problems in determining branch goal setting, (2) the issue of interest set by the head office which is higher than that of competing banks; (3) credit application procedures that a long time and involve numerous steps; and (4) the authority to decide on loans owned by branch managers being limited. Meanwhile, some problems are the leading causes of the decline in income and market share of multi-purpose loans, namely (1) problems with branch strategies in providing low-interest promotions; and (2) problems with the type of interest charged, namely flat or annuity.

**2. Solution and Proposed Implementation Plan.**

Following identifying the problem, the author attempts to propose, particularly regarding the utilization of digital technology to speed up the entire credit process flow, allowing credit officers to process more credit application proposals and assisting in making credit analysis more efficient. Simple and structured, and save money on paper, electricity, and other resources. The use of digital technology is also considered to support Bank Sumsel Babel in increasing the convenience of its customers who apply for credit, thus increasing the company's value.

**3. Capital Budgeting Analysis.**

At this point, the author conducts a more detailed financial analysis to determine whether the investment in the new system by Bank Sumsel Babel is acceptable and adds value. The results of the study are as follows: (a) Nondiscounted Cash Flow Methodologies, such as (1) Repayment Period (PBP); (2) Accounting Return Rate (ARR), and (b) Discounted Cash Flow Methods, such as (1) Discounted Repayment; (2) NPV (Net Present Value) (NPV); (3) Index of Profitability (P.I.); (4) Internal Rate of Return (IRR); (5) Alternate Internal Rate of Return (MIRR). In addition, based on the capital budgeting analysis, all indicators are positive, indicating that the project is feasible. According to the sensitivity analysis, the multi-purpose credit (KSG Credit) of Bank Sumsel Babel has the most significant influence on the net present value. As a result, Bank Sumsel Babel must pay closer attention to the income generated by these activities to keep the NPV of this project in line with the expected results. According scenario analysis and Monte Carlo simulation, this project's NPV can be damaging in the worst-case scenario. However, when the Monte Carlo simulation is run, the possibility of a project NPV 0 is eliminated. In this regard, this project can be continued because it will add value to the company.

**RECOMMENDATION.**

At this point, the author offers recommendations in the form of a project timeline that the management of Bank Sumsel Babel can use if the project is to be implemented.

**Table 15:** Project Timeline

No	Strategy	Month																							
		1				2				3				4				5				6			
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
1	Initial presentation to the board of directors	■																							
2	Vendor selection		■																						
3	Proposed memo to the board of directors and signed the contract		■	■																					
4	Meetings between vendors and the bank's internal team		■	■	■																				
5	Recruiting officer recruitment				■	■	■	■																	
6	Internal training for analyst employees, account officers, credit and financing admin, junior audit department								■	■	■														
7	Training for IT employees											■	■	■											
8	Divisional meeting to discuss changes to SOP				■	■	■	■	■	■	■														
9	Initial trial of specific credit and branch locations													■	■	■	■								
10	Evaluation during the preliminary trial process																■	■	■						
11	Imposed outcomes from the first trial																		■	■	■				
12	Implementation in all branches of the use of the digitization method																							■	■



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