

# SUSTAINABLE MORTGAGE FINANCING MODEL FOR INFORMAL WORKERS USING A DIGITAL ECOSYSTEM AND COMMUNITY-BASED APPROACH

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## ABSTRACT

The fulfillment of decent and cheap housing for the community is in line with the Sustainable Development Goals (SDGs). The Indonesian government has committed to achieved the SDGs target through the provision of subsidized housing loans. The purpose of this research is to analyze the problematic situation and formulate a plan to improve the housing loans model for the poor and informal workers. The model was built using the Soft System Methodology (SSM) approach. This study shows that the hybrid housing loans model and the hybrid housing loans community-based model can be developed into a solution to the problem. These schemes have resulted in a synergy between PT Sarana Multigriya Finansial (SMF) as secondary mortgage company that collaborates with companies in digital ecosystem and community-based company. The implications based on the findings of this study indicate that both new housing loans scheme can reduce the risk of housing loans as well as accelerate the approval process.

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## 1. INTRODUCTION

The fulfillment of housing for the community is one of the national development goals in order to improve the welfare and prosperity of the Indonesian people in a fair and equitable manner. The national development direction emphasizes efforts to improve the welfare of people, especially those with lower middle incomes and informal workers, who statistically rank the most in society. One of the programs that is now being spurred to improve the dignity of the people of the lower middle class of the economy is the development in the field of housing that is livable and environmentally qualified.

Based on the Law of the Republic of Indonesia No. 17 of 2007 concerning the National Long-Term Development Plan for 2005-2025, it is stated that the development of housing and residential sectors is aimed at, among others:

1. The construction of housing and settlements, is directed to improve the quality of family and community life and create an atmosphere of family harmony and social solidarity of the community in order to form the environment and seedbed of the nation's cultural values and foster the disposition of family members.
2. Housing and residential development needs to be further improved and expanded, so that it can be more equitable and reach low-income people, by always paying attention to spatial planning and linkages and integration with the surrounding social environment.
3. Housing and settlement development must be able to encourage its development activities by paying attention to the principles of self-help and mutual cooperation, in addition to increasing the development of development and other sectors.
4. The creation of a decent, healthy, clean, and safe residential environment needs to be continuously improved, among others through the construction of infrastructure, the

provision of clean water, social and worship facilities, economic and transportation facilities, recreational and sports facilities, and environmental infrastructure.

The issue of housing fulfillment is a major problem for developing countries. As a developing country, Indonesia still faces the problem of imbalance or deficit between supply and demand for public housing, this term is commonly referred to as the backlog [1]. The number of people who need a house is more than the supply of houses that can be provided every year. Referring to data from the Ministry of Public Works and Public Housing (PUPR), every year there is an additional demand of around 1.46 million units, while only 400 thousand units can be supplied. Thus, there is still a gap of 1.06 million units per year and will continue to increase every year. According to data from the Ministry of PUPR, until 2019 the number of backlogs was recorded at 7.6 million units. This means that until 2019 there is a shortage of housing supply of around 7.6 million units that cannot be met[1].

The fulfillment of decent and cheap housing for the community is in line with the Sustainable Development Goals (SDGs). In August 2015, all members of the United Nations (UN) agreed on 17 (seventeen) items of the Sustainable Development Goals (SDGs). Indonesia is one of the countries committed to fulfilling the SDGs. In line with the Government's commitment to meet the SDGs achievement targets, the fulfillment of low-cost housing for the poor and informal workers is a priority for the Government in an effort to meet the SDGs target[2].

Indonesia is the largest archipelagic country in the world and the country that has the fourth largest population in the world. As a developing country, Indonesia still faces problems in meeting the needs of decent and affordable housing for most people. Based on data from National Socioeconomic Survey (Susenas) 2014-2018, that until 2018 the Indonesian population who owned a private house was only 54.4 million or 66.9%, while those who did not have a house reached 13.5 million or 16.6% and the remaining 16.5% included owning rental houses and others. In the event that the fulfillment of decent housing is an obligation of the state to fulfill it, in accordance with Law No.1 of 2011, article 121 paragraph 1, that the Government and/or the Local Government must make efforts to develop a financing system for the implementation of housing and residential areas.

In carrying out the mandate of the Act, the Government can develop a financing system that includes: financing institutions, deployment and development of fund, utilization of cost sources, and financing assistance. Meanwhile, the financing system as referred to in Law No. 1/2011, can be carried out based on conventional principles or sharia principles through:

1. Primary mortgage financing; and/or
2. Secondary mortgage financing

In primary mortgage financing, channeling agency can directly distribute mortgage facilities to the community. What is meant by channeling agency in primary mortgage financing are Bank and Non-Bank Financial Institution (IKNB) that is allowed to distribute mortgages. Meanwhile, Secondary Mortgage Financing Companies cannot directly distribute mortgages facility to the public, but must go through channeling institutions, namely Banks and/or Non-Bank Financial Institution (IKNB). In Indonesia, the only Secondary Mortgage Financing Company is PT Sarana Multigriya Keuangan Persero (SMF), which is a state-owned company.

One of the activities carried out by the government to meet the housing needs of the poor is to channel subsidized mortgage financing. In accordance with the Regulation of the Minister of Public Works and Public Housing of the Republic of Indonesia Number 21/PRT/M/2016 concerning Ease and/or Assistance in Obtaining Houses for Low-Income People. Several subsidized housing schemes are regulated, namely the Housing Financing Liquidity Facility (FLPP), mortgage interest subsidy, Down Payment Assistance Subsidy (SBUM), utilization of landed prosperous houses and units of flats, and taking facilities and/or housing acquisition assistance.

Subsidized mortgage financing programs that are most in demand by the public is the FLPP. This program is specifically designed for low-income people (Masyarakat Berpenghasilan

Rendah/MBR) who do not have access to banking to obtain housing financing facilities. Through the FLPP program, the opportunity for low-income people to get a decent home is wide open. The FLPP program is carried out in collaboration with the Ministry of Public Works and Public Housing (PUPR) with banks as mortgage distribution institutions.

Although the development of the FLPP every year shows an increasing trend, its achievements cannot meet the target of building one million housing units launched by the Government. Not achieving the million-home construction target further enlarges the backlog. The FLPP program began in 2010 and after running for almost 10 years, the Government has disbursed more than IDR 52 trillion until the first quarter of 2020. Such a large fund has been realized to build 731,382 units houses for MBR. And, the distribution of houses that receive FLPP facilities has covered 34 provinces in Indonesia, although the distribution of housing units in each province has not been evenly distributed[1]

With the FLPP program and other subsidized mortgage financing, the opportunity for Indonesians to own a house should be wide open. However, it turns out that the segment of society targeted by the FLPP program is actually limited, even though this program should be able to help people who do not have a home on par with people who already have their own homes. One of the obstacles is the inequality of opportunities to own homes between the poor and informal workers and formal workers to obtain mortgage financing.

The informal worker segment has barriers to access to bank financing, including home ownership loan (KPR) financing. The data in Table 1 below shows the type of work of subsidized mortgage customers of the FLPP scheme through banking.

Table 1. Typology of FLPP KPR Customers

No	Type of Work	Total	%
1	Government Employees	81,759	12.30
2	Army/Police	26,421	3.98
3	Private Employees	485,381	73.03
4	Informal Workers	56,136	8.45
5	Etc	14,912	2.24
<b>Total</b>		<b>664,609</b>	<b>100.00</b>

Source: PPDPP, 2019

The data in Table 2 shows that the absorption of FLPP subsidized mortgages from informal worker or non-fixed income earner (NFIE) customers is very low, which is only 8.45%. Meanwhile, the absorption of FLPP subsidized mortgages from fixed income earner (FIE) customers is very high, reaching 89.31%, consisting of customers working in private companies which reached 73.03%, employees in BUMN /BUMD/ASN 12.3% and TNI/Polri 3.98%. This implies that customers who have a fixed income earner are the main target market of mortgage lending banks compared to customers who do not have a fixed income (NFIE) where this segment is generally included as informal workers.

The mortgage distribution model to customers from informal and *non-fixed income* workers has not been widely developed by banks and other mortgage lending financial institutions, even though the potential and *market share* of NFIE customers is very large. However, the risk level of NFIE customers is indeed higher than that of FIE customers. Unlike FIE customers, to NFIE customers, mortgage bank still have difficulty verifying the source and continuity of customer income, so that risk mitigation to NFIE customers cannot be done optimally.

Based on the description above, empirical problems were obtained regarding the low achievement of housing fulfillment for the poor, especially the informal worker segment or the non-fixed income earner segment. The empirical problem concerns:

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1. Low accessibility of informal workers to the banking sector due to lack or absence of a track record of finance and business transactions from segments of the informal worker community
2. Housing financing schemes that are impartial to informal worker groups, so that mortgage lending institutions (banks and/or IKNB) prioritize distribution to fixed income earners.

In an effort to meet sustainable finance targets, especially related to meeting the need for houses for the poor, the Government implemented a target of building "one million houses". The target of one million houses has never been achieved due to many technical and operational constraints, both in terms of *supply* and *demand* aspects in the housing/property sector. Based on the background, description, identification, and formulation of the problem, the objectives of this study are:

1. Analyze the problematic situation and formulate improvement proposals to increase the accessibility of informal worker groups to the banking industry so as to increase the chances of obtaining mortgage financing
2. Designing a mortgage financing scheme with a new business model that is ideal and more partial to informal worker groups while still considering feasibility and bankability

## 2. LITERATURE REVIEW

### 2.1. Implementation of Sustainable Finance

Since 2015, all members of the United Nations (UN) have agreed on 17 (seventeen) items of the Sustainable Development Goals (SDGs). Indonesia is one of the countries committed to achieving the SDGs. The 17 aspects of the SDGs includes: (1) no poverty; (2) zero hunger; (3) a healthy and well-being life; (4) quality education; (5) gender equality; (6) clean water and proper sanitation; (7) affordable and clean energy; (8) decent work and economic growth; (9) industry, innovation and infrastructure; (10) reduced inequality; (11) sustainable cities and communities; (12) responsible consumption and production; (13) climate change; (14) marine ecosystems (life below water); (15) life on land ecosystems; (16) peace, justice and justice strong institutions, and (17) partnerships for the goals[3].

As an implementation of the SDGs commitment, in 2015 a Sustainable Finance Roadmap was prepared, which broadly defines Sustainable Finance as the overall support of the financial services industry to create sustainable economic growth by aligning economic, social and environmental interests[3]. This concept was developed by Elkington[4], that three main aspects of sustainable development can be implemented in the business environment or business of an industry. These three aspects are often translated through efforts based on the orientation of profit, relationship with social society (people) and protection of natural resources and the environment (planet). Thus, to achieve a sustainable business, the financial services industry must be able to implement these three aspects in order to maintain the sustainability of its business[5].

The Government of Indonesia supports and is committed to achieving the SDGs through the Presidential Regulation of the Republic of Indonesia Number 59 of 2017, concerning the Implementation of SDGs Achievement by integrating 169 SDGs indicators into the 2020-2024 Medium-Term Development Plan (RPJMN). In particular, the financial sector also plays a role in supporting the achievement of the SDGs by referring to POJK No.51/POJK.03/2017, which requires Financial Service Institutions (LJK), Issuers, and Public Companies to implement sustainable finance in creating sustainable economic growth by aligning economic, sosial, and environmental interests (triple bottom line approach).

The concept of sustainable development offers a balance of economic development by not forgetting the social and environmental aspects. This concept became known as a business activity with a 3P's orientation, namely *Profit, People and Planet*. According to Hadad[5], the integration of these three aspects is emphasized on optimal efforts to utilize natural resources and the environment in a sustainable manner to improve social *well-being*.

The fulfillment of decent housing for the poor, especially for informal workers, is closely related to at least four Sustainable Development Goals, namely goal (1) alleviation of all forms of poverty; the purpose of (3) a healthy life and supporting well-being for all; objectives (6) ensure access to clean water and proper sanitation; goal (10) reduced inequality, and goal (11) make cities and urban communities inclusive, safe, strong and sustainable.

## 2.2. Type of Mortgage Financing in Indonesia

According to Law No.1 of 2011, housing financing to the community can be done through primary mortgage financing and secondary mortgage financing schemes as can be seen in Figure 1.

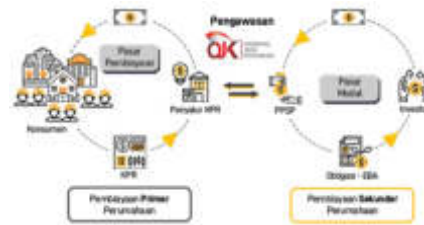


Figure 1. Mortgage Financing Model

The primary housing financing scheme is carried out by Channeling Institutions (LP), namely Banks and/or Non-Bank Financial Institutions (IKNB) which are allowed to disburse mortgages. The source of funds used by the Bank and/or IKNB in mortgage financing is originated and funds owned by the community. Meanwhile, Secondary Mortgage Financing Companies (SMFC) cannot distribute mortgages directly to the public, but must go through Channeling Institutions, namely Banks and/or IKNB. The source of SMFC) funds comes from government capital deposits and the management of securities in the capital market. In Indonesia, there is only one Secondary Mortgage Financing Company, namely PT Sarana Multigriya Keuangan Persero (SMF).

In general, mortgage products distributed by banks use two schemes, namely Non-Subsidized Mortgages that use third party funds (public funds) and Housing loan Subsidies whose source of funds comes from the government. The fundamental difference between the two schemes is the issue of interest rates/prices and mortgage application requirements. The housing loan program (KPR Program) is prioritized for low-income people (MBR) who do not have a home, low interest rates with lighter administrative requirements, but usually the ceiling given is smaller than that of non-subsidized mortgages.

The growth of KPR Subsidies from year to year continues to increase. In 2018, KPR Subsidy grew 31.8% (yoy) while Non-Subsidized KPR only grew 7.8%. This prompted an increase in the contribution of Susidi mortgages to total mortgages to increase to 44% in February 2018. The development of subsidized and non-subsidized mortgage disbursements can be seen in Chart 2.

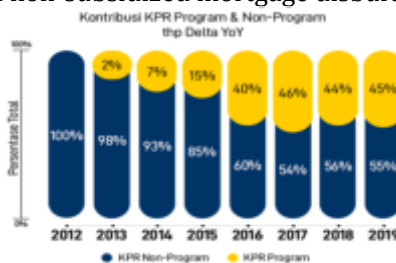


Chart 1. KPR Program and Non-Program KPR Distribution

Source: Redential Property Price-BI, 2020<sup>[6]</sup>

From Chart 1, it can be seen that since 2015 KPR Subsidies have developed rapidly in line with the government's program of building one million houses. In 2013, the contribution of KPR Subsidy was only 2% in the fulfillment of people's homes through mortgage products. However, in 2019 the KPR program has contributed 45% compared to the Non-Subsidized KPR of 55%. In terms of the quantity of KPR Subsidies also increased very rapidly. In 2019, the distribution of KPR Subsidies reached Rp.44 trillion and Non-Subsidized Mortgages also rose to Rp. 56 trillion. The problem faced in developing the KPR Program is the limited subsidy funds provided by the government[6].

The distribution of subsidized mortgages until now has only relied on mortgage distribution institutions from banks. In fact, according to Law No.1 of 2011, the financing system as referred to in the Law can be carried out based on conventional principles or sharia principles through primary mortgage financing and/or secondary mortgage financing. The two financing models can actually be optimized with synergy and mutually beneficial cooperation between primary mortgage distribution institutions, namely banks and/or IKNB and secondary mortgage financing companies (SMFC), namely PT Sarana Multigriya Finansial (SMF).

The general cooperation scheme of the housing primary financing model and housing secondary financing can be seen in Figure 2.



Figure 2. Cooperation and Synergy Scheme of LP KPR and PPSP

Mortgage lending institutions, especially banks, usually use short-term public funds (Dana Pihak Ketiga/DPK) as a source of mortgage financing funds. SMFC, on the other hand, has a long-term source of funds because it can use sources of funds from the capital market and can use state capital participation (penyertaan modal negara/PMN). The misalignment of the source of mortgage funds disbursed can cause mismatch funding for mortgage distribution institutions.

For the problem of funding sources experienced by mortgage channeling agency, SMFC provides solutions for banks and mortgage distribution institutions. Mortgage disbursement, which is generally long-term between 10 years to 30 years, is often an obstacle for banks because the source of funds used by banks in financing mortgages is short-term funds such as current accounts, savings, and time deposits. Due to the imbalance of the funding structure, it can reduce the interest of banks in financing mortgages.

Secondary Mortgage Financing Company (SMFC) can be an alternative source of financing, namely the availability of a secondary mortgage funding market in the form of a secondary mortgage facility. In some countries, SMFC has been a consistent source of medium and long-term funds, so it can solve the problem of mismatch funding banks in disbursing mortgages. With the consistent availability of medium- and long-term funds by SMFC, it will automatically increase the bank's capacity to disburse mortgage financing. Thus, SMFC has played a role in contributing to increasing the purchasing power of housing by creating a secondary market for housing financing that can extend the credit period and the availability of credit funds.

### 2.3. Potential Housing Market for Informal Workers

Along with the increasing public interest in owning a house, the competition for banks to disburse financing is also getting higher, especially to prospective mortgage customers who have

a fixed income. The tight competition for mortgage financing to prospective customers who are classified as fixed income earners has caused mortgage lending banks to switch to developing new markets, namely mortgage financing to non-fixed income earner customers.

People who are classified as informal workers, in the banking world are often referred to as non-fixed income earners (NFIE) customers. According to BPS (2019), a person with a non-fixed income is defined as someone who works and tries at risk on their own, both those who work for themselves (self-employees) and those who try by hiring others (self-employed). In terms of the number of workers, people who are classified as informal sector have a very large number.

According to BPS data (2019), it turns out that the majority of Indonesia's population works in informal activities, namely 70.49 million people (55.72%) while 56.02 million people (44.28%) work in formal activities, as shown in Figure 3.



Figure 3. Data on Indonesian Formal and Informal Workers 2019<sup>[7]</sup>

Several other approaches can be used to estimate the potential number of workers classified as NFIE, including by using a cross-data approach from BPS and other data derived from good business activities from the Government such as from the Ministry of Cooperatives and SMEs as well as data from private institutions. Other data sources that can be used include data sourced from credible institutions such as data describing mass *affluent* segments from BCG Consulting, millennial generation demographic data from IDN Research Institute and the results of consultant studies of Grab and Gojek *start-up* companies (see Figure 4).



Figure 4. Potential Customers of Informal Workers

As shown in Figure 4, the potential of the informal and *non-fixed income earner* segments is very large and will continue to increase for the next 10 years, especially when Indonesia gets a demographic bonus in 2030. What is encouraging is the continued increase in Indonesia's entrepreneurship ratio, from only 1.4% in 2014, to 3.1% in 2017 and in 2018 it has reached 7%. With the higher the ratio of entrepreneurship, business activities will absorb more and more labor. In 2018 the number of workers absorbed by small and medium-sized enterprises has reached 117 workers.

### 3. METHOD

This research explores three main stages, starting with conducting literature studies to gain understanding and obtain theoretical opinions and conducting situational analysis based on

empirical experience of mortgage financing in banks. Literature studies are used intensively to ensure the viability of research topics and also to identify gaps and issues related to research problems.

The second stage is to analyze secondary data derived from statistical reports, credit growth data from the Financial Services Authority and periodic reports on the development of Indonesian property issued by Bank Indonesia. Other data are taken from the official website of each institution.

The next step is the third stage in the form of modeling with a soft system methodology (SSM) approach based on the data obtained, namely the gap between the expectations of mortgage financing customers from the poor and informal workers to the actual situation of the mortgage financing distribution model carried out by banks and/or PT SMF. Gap data is obtained through depiction of problematic situations using rich pictures.

#### 4. RESULT AND DISCUSSION

##### 4.1. Soft Systems Methodology (SSM)

Soft systems methodology (SSM) was introduced by Peter Checkland at Lancaster University, England in 1981. SSM was developed to address management problems arising from human activity systems[8]. According to Jackson[9] the development of Checkland's thinking about SSM can be seen from his writings such as *Systems Thinking, Systems Practice* in 1981; *Soft Systems Methodology in Action-with Scholes* in 1990; *Information, Systems and Information Systems (with Holwell)* in 1998; and *Systems Thinking, Systems Practice (including a 30-year retrospective)* in 1999[10].

According to Hardjosoekarto[11], Checkland and Poulter briefly put forward the notion of SSM as a process of finding out that is oriented towards action on the problematic problems of everyday real life. SSM can be used to carry out learning that starts from finding situations to formulating and or taking actions to improve these problematic situations.

SSM is specifically designed for situations where problems are difficult to determine, complex, mysterious, complicated, constantly changing, constantly created and recreated by the thoughts, talks, and actions of people who have activities that have different goals and points of view[12]. Thus, making this methodology relevant in decision making in the absence of clear and complicated facts. According to Hardjosoekarto[11], SSM is a descriptive (qualitative) approach that aims to explain situations or reality, especially describing human aspects in terms of cognitive thinking generated through logical systems, such as aspects of strategy and aspects of other dominant external conditions.

According to Checkland and Scholes[13], broadly speaking, SSM consists of seven main stages. The seven stages are: (1) examining unstructured problems; (2) expressing the problem situation; (3) establish a definition of the problem relating to the problem situation; (4) build a conceptual model; (5) comparing conceptual models with problem situations; (6) establish appropriate and desirable changes; and (7) take corrective action on the problem. The seven SSM stages (Checkland and Scholes 1990) used in this study can be seen in Figure 5.

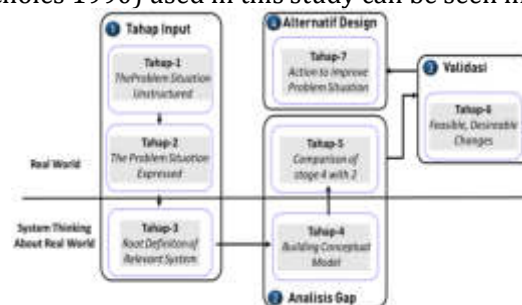


Figure 5. Seven Stages Standard of the SSM

#### 4.2. Problematic Situation of Mortgage Financing Disbursement in Indonesia

The problematic situation related to the application of mortgage financing to the poor, underprivileged and informal workers was obtained based on literature studies and empirical experience. The problem situation is divided into two levels, namely the organizational level and the operational level.

**Organizational level**, describes the formulation and direction of policies nationally. Furthermore, at this level, it can be seen the effectiveness of the functions and roles of regulators directly related to policy implementation, namely OJK and BI.

**Operational level**, describes the implementation of policies at the organizational level related to the distribution of mortgage financing. In addition, to see the implementation of implementation in banks and other financial institutions as well as factors inhibiting policy implementation. The results of the situational analysis revealed three important issues related to the problematic distribution of mortgage financing to the poor and informal workers. The first important issue is that nationally there is still a backlog of 7.6 million housing units due to an imbalance in supply and demand. The very high demand for houses is not offset by adequate supply and slow distribution of mortgage financing by banks and IKNB.

Second, the subsidized mortgage financing feature tends not to be pro-poor so they have difficulty meeting the requirements that eventually the mortgage financing application is rejected by the bank. The most burdensome features include the amount of down payment, high interest rates, high administrative and insurance costs, flexible installment schemes and the absence of historical financial records (savings accounts).

Third, the distribution of subsidized mortgage financing is currently only carried out by banks so that prospective customers do not have other alternative sources of funds. It is necessary to optimize the role of PT SMF (Persero) as a Housing Secondary Financing Company, so that people have the option to get a source of funds in order to buy a house.

#### 4.3. Rich Picture

According to Checkland[10], that researchers can convey problematic situations more freely through special images, lines, signs or icons to describe the real situation at hand thoroughly and comprehensively. Furthermore, Checkland and Poulter[12] emphasized that a complete presentation of problematic situations or rich pictures was made to make it easier for researchers to conduct research. In line with the research method, researchers will compile RP that can help show the relationship between actor and client by using symbols and images that can indicate relevant relationships with the solution. According to Checkland and Poulter[12] rich picture shows relationships and judgments, the search for symbols to convey expressions about the situation and indicate relevant relationships with the solution of the problem situation.

The problematic situation of mortgage distribution in Indonesia involves many interconnected components. Related to this problematic situation can be described in the *rich picture* as shown in Figure 6.



Figure 6. Rich Picture: The Problematic Situation of KPR Distribution

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At the organizational level, there are four main elements that can directly influence the mortgage distribution model to help the poor and informal workers obtain decent homes. The three main elements at the organizational level are Bank Indonesia (BI), the Financial Services Authority (OJK), the Ministry of PUPR and other Ministries/Institutions such as the Ministry of Finance and the Ministry of Spatial Planning and the Head of BPN (Badan Pertanahan Nasional).

At the operational level, there are elements such as the KPR Distribution Institution consisting of banks and IKNB, PT SMF (Persero) as a Secondary Mortgage Financing Company (SMFC), a digital ecosystem represented by fintech-based associations and associations related to real estate.

The rich picture (RP) in Figure 6, provides information about the problematic situation related to the implementation of mortgage distribution in Indonesia. RP shows the fact that there are limited sources of subsidy funds that can be provided by the government, because the source of subsidy funds still comes from state budget funds managed by the Ministry of Finance. BI and OJK must alignment in terms of rules to adjust the provisions for subsidized housing financing, especially the provisions for down payment for mortgage customers and the easing of the purpose of financing land purchases for developers.

Another thing that is illustrated is that at the operational level, mortgage lending institutions (banks and IKNB) as housing primary finance companies still play a dominant role in disbursing subsidized mortgage financing. Until now, these two institutions still do not have partiality to the poor and informal workers in providing mortgage financing. This institution tends to finance mortgages to *fixed income earners*.

SMF's role as a SMFC has also not been seen as prominent in developing mortgage financing for the poor, even though one of SMF's visions and missions is to create ease of providing housing for the poor. SMF has limitations, because it cannot directly finance mortgages to the public but must go through mortgage distribution institutions (Banks and IKNB). For this reason, SMF must be able to create financing schemes that are collaborative and synergistic with mortgage lending institutions.

#### 4.4. Development of Digital-Based Accessibility

Indonesia's informal sector, which consists of informal workers called *self-employees* and entrepreneurs who run small or ultra-micro businesses, as well as those who work part-time, has now entered an adjustment to the disruption process that occurred in the last five years (BPS, 2019). Technology has been able to help digitize the Indonesian economy in ways that were previously impossible. The market share of Indonesia's digital economy ecosystem according to Morgan Stanley is very large[14]. This is driven by the total population of more than 260 million people with active internet users of more than 130 people, 58% are *smartphone* users with an average internet use of more than 4 hours per day.

Technology has made it easier for informal workers, who make up more than half of the 131 million official and national workforce, to participate in optimizing more productive economic opportunities. Through digital *platforms*, technology-based companies such as Grab, Gojek, Bukalapak and others have increased revenue opportunities for those who typically operate in the informal sector. The productivity and efficiency that occurs through the development of technology has turned out to be able to improve the economic livelihoods of informal workers and small entrepreneurs.

Not only affecting informal workers, the existence of *start-up* companies turns out to have an economic impact, especially the country's GDP. based on CSIS research in 2020, Grab's contribution to the national economy has increased quite sharply. While in 2018 Grab contributed Rp48.9 trillion to the Indonesian economy, in 2019 Grab's contribution to the Indonesian economy rose to Rp77.4 trillion. The largest contribution came from Grab Food services, which amounted to IDR 37.3 trillion or 48.2%. Grab Food's contribution in 2019

increased by 79% compared to the previous year, idr 20.8 trillion. Furthermore, Grab Kiosk partners contributed Rp 3.1 trillion, an increase compared to 2018 which was only 2.7 trillion. Then the contribution of Grab Bike partners to the economy increased by 67% from Rp 15.7 trillion in 2018 to Rp 26.2 trillion. Meanwhile, Grab Car partners' contribution increased by 11% from IDR 9.7 trillion to IDR 10.8 trillion[15]. Similarly, according to the Demographic Institute-FEB UI (2019), Gojek *start-up* companies contribute IDR 44.2 trillion to the Indonesian economy through Gojek Partners' income, including through MSME Partners' income[16].

The distribution of mortgage financing to poor community customers and informal workers and non-fixed income earners has a very high risk because channeling agency KPR (Bank and IKNB) cannot properly mitigate risks for the sustainability and continuity of payments. In the post-disbursement phase, mortgage channeling agency will find it difficult to mitigate risks to payment certainty and the monthly monitoring process will also be more difficult.

As previously discussed, technological developments can help implement risk mitigation of mortgage distribution to the poor and informal workers in the pre-process phase, analysis phase and mortgage approval to the monitoring process. In technology-based start-up companies such as Grab, the profile of potential customers can be known by relying on big data management. Start-up companies can not only manage big data from users or customers, but also at the same time can manage data from start-up company partners such as drivers (motorcycles and cars) and merchants. The business turnover and financial activities of partners and merchants can be monitored daily by start-up companies.

Big data can be a valid source of information ensuring that prospective customers of informal workers who were originally un-banked can be bankable and worthy of banking finance. Utkarsh Srivastava (2015) in his paper on big data analysis in the banking sector said that in the financial world, big data is a tool that allows the financial industry to create, manipulate, and manage very large data sets to support various strategic needs. In the banking world, big data can be used for the purpose of analyzing various information about potential customers. One of the significant benefits of big data for the banking world is the "360-degree customer view."

The utilization of 360-degree customer view was originally used in the telecommunications industry to look at customer behavior. Customer behavior is analyzed with big data to find out the time habits of calling customers, internet data usage, favorite time to communicate, and can even calculate how much chance customers will move to other operators

#### 4.5. Conceptualization of Ideas

Related to the implementation of mortgage distribution to the poor and informal workers which is still low, there is a need for new approaches and ideas to increase the concern of mortgage distribution institutions, namely Banks, IKNB and SMF to channel mortgage financing to these segments. The key to the success of the mortgage distribution model to the poor and informal workers[17] is:

1. Terms and conditions for easy mortgage financing (easy credit term);
2. Low down payment amount (minimum requirement down payment);
3. Affordable of credit cost and quick credit process;
4. Community-based mortgage financing, and
5. Flexible mortgage financing period and low interest rates

Based on the situational analysis contained in the rich picture and based on the characteristics of poor people and informal workers, a new approach based on an empirical model was developed, namely:

1. Hybrid Mortgage Financing Model

The distribution of mortgage financing by poor segment customers and informal workers with an individual pattern of direct financing, has a very high risk because channeling agency KPR cannot mitigate risks because these segment customers do not have a customer profile.

Channeling agency KPR requires an instrument as a tool that can provide a customer profile to correctly calculate the customer's risk profile.

The Hybrid mortgage financing model is a synergy and collaboration-based mortgage financing between the Bank and/or IKNB and the Secondary Mortgage Financing Company, namely PT SMF. The Hybrid mortgage financing model scheme can be seen in Figure 7.



Figure 7. Hybrid Mortgage Financing Model Scheme

In line with the development of technology-based *start-up* companies, mortgage financing schemes to poor customers and informal workers in a *hybrid* pattern have the potential to be developed. This is possible because the use of technology with *big data* management is able to provide an accurate picture of the results of the analysis and monitoring system of the customer's profile of the segment. Thus, mortgage lending institutions can conduct a comprehensive review of customers and customers' financial conditions, which in turn can reduce the risk of problematic mortgage financing. Channeling with a *hybrid* pattern through technology and community development companies will be able to reduce the level of risk, especially the risk in the pre-process phase and analysis phase.

The advantages of managing big data that can generate 360-degree customer views are currently widely used by technology-based financial companies or fintech. By using big data analysis, agency channeling KPR (Bank and IKNB) and Secondary Mortgage Financing Company PSP (SMF) can obtain complete customer/customer profiles from all aspects obtained from combining data from various sources. 360-degree customer view is useful for determining whether a customer fits a defined criteria. This development is a good prospect for agency channeling KPR to enter the category of poor and informal workers.

What are the advantages of the Hybrid Mortgage Financing Model are:

1. The risk of financing is getting smaller because the analysis customer process is carried out in layers, namely based on the customer profile of a digital-based company which is then reviewed again by the Bank / IKNB and evaluation by SMFC (SMF).
2. KPR Lending Institutions (Banks and IKNB) will get an easy and cheap source of funds because they are provided by SMFC (SMF) which obtains funds from the capital market. The source of funds from SMFC can also be blended with public funds collected by the Bank.
3. This scheme is a strategy to develop the market to be wider because it can reach all levels of society throughout Indonesia in accordance with the existing service offices of the bank and IKNB.
4. The mortgage financing approval process is very fast and cheap because all processes are carried out digitally. The value proposition of the Hybrid Mortgage Financing model is Easy, Fast and Cheap mortgage.
5. The development of big data and artificial intelligence enables processes that are not only fast, but also effective and efficient. This is possible due to the development of a scoring system based on a digital footprint scoring system.

## 2. Community-Based Hybrid Mortgage Financing Model

*Sustainable Mortgage Financing Model For Informal Workers Using A Digital Ecosystem And Community-Based Approach. Purnomo*

The community-based Hybrid mortgage financing model is a development of the Hybrid Mortgage Financing model. This model both uses *big data analysis* with the expansion and development of prospective mortgage customers from the community and informal workers which is even more varied. The community-based *Hybrid* mortgage financing model scheme can be seen in Figure 8.

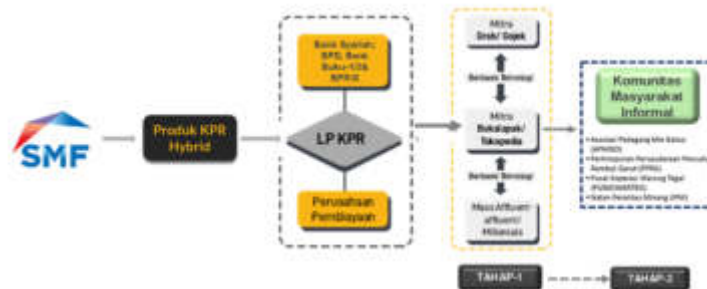


Figure 8. Community-Based *Hybrid* Mortgage Financing Model Scheme

In the midst of the high demand for houses from the community, the government needs to expand mortgage financing schemes that can meet the needs of the people from the lower class. Conceptualizing ideas by developing a varied and innovative model of mortgage financing to the poor and informal workers can facilitate the access of customers of this segment to Financial Services Institutions while increasing the opportunities for the poor and informal workers to get decent homes through Financial Services Institutions.

## 5. CONCLUSION

Based on the rich picture, three KPR important issues related to the problematic distribution of mortgage financing to the poor and informal workers were revealed. The first issue is that there is still a backlog of 7.6 million housing units due to an imbalance in supply and demand. Second, the subsidized mortgage financing feature tends not to be pro-poor so that they have difficulty accessing Financial Services Institutions and find it difficult to meet the requirements, which eventually the mortgage financing application is rejected by the bank. Third, the distribution of subsidized mortgage financing is currently only carried out by banks so that prospective customers do not have other alternative sources of funds.

Proposed improvements to the problematic situation of distributing mortgage financing to the poor and informal workers include institutional improvements at the organizational and operational levels. Institutional policy must pay attention to the real conditions of the poor and informal workers by providing a greater source of subsidy funds. In addition, each institution must align with BI and OJK to adjust the provisions for subsidized housing financing, especially to the provisions for down payment for mortgage customers and the easing of the purpose of financing land purchases for developers.

At the operational level, it can be seen that SMF's role as a Secondary Mortgage Financing Company (SMFC) has not been seen as prominent in developing mortgage financing for the poor. It is necessary to optimize the role of PT SMF (Persero) as a Housing Secondary Financing Company, so that people have the option to get a source of funds in order to buy a house. SMF must be able to create financing schemes that are collaborative and synergistic with mortgage lending institutions, namely banks and IKNB.

The conceptualization of the idea developed is to design a mortgage financing scheme for the poor and informal workers that is more ideal and more partial to the poor. The design and development of the financing scheme developed is to optimize the role and synergy between mortgage lending institutions, namely banks, IKNB and SMF to channel mortgage financing to the poor and informal workers.

The scheme developed is a hybrid mortgage and a community-based hybrid mortgage. Both schemes are the result of the inertia of Financial Services Institutions being collaborated into the digital ecosystem through digital-based companies and fintech so as to minimize the risk of mortgage financing while accelerating the approval process for mortgage applicants from the poor and informal workers. The fulfillment of decent and cheap housing for the poor and informal workers is in line and is a manifestation of the Government's commitment to meet the Sustainable Development Goals (SDGs) or known as the Sustainable Development Goals (SDGs).

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