Global Scientific JOURNALS

GSJ: Volume 10, Issue 3, March 2022, Online: ISSN 2320-9186
www.globalscientificjournal.com

REVIEW OF LOAN ALLOCATION AND REPAYMENT SYSTEM

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Abstract

A computer, being an inanimate object could not be said to be intelligent, as it does not possess the mental ability to think. It does not have the power of learning and understanding or the capacity to acquire and apply knowledge. When intelligence is built into an inanimate object like, a computer, such intelligence is said to be Artificial and this artificial intelligent when combine with agent based model are good for determining what scenarios might occur. This paper threw more sight into loan allocation and repayment models that has been deployed to reviewed, loan problem and ways or strategies of loan repayment in some financial institution in Nigeria and across the globe.

KEYWORDS: Loan Application, Loan Payment System, Allocation of Loan

1.0 Introduction

A program can only solve a problem or take a decision on the basis of a description of some situations. This is feasible when the method of solving the problem is able to call on a wide range of reasoning that has been incorporated into it. The is an important development beyond the normal information technology (IT) where human being do the reasoning and the machine is used basically because, of its speed of calculation.

In intelligent science, ontology is widely used to acknowledge representation, and intelligent agent is used to make decision such as recommendation (Gao et al., 2007). This work proposes an intelligent model which is used to recommend loan design to borrowers in Intelligent Bank 2 People Loan Allocation and Payment (IB2PLAP) system. IB2PLAP uses ontology to set up the knowledge base, and intelligent agents to recommend the most optimum borrowers to lender by their regular monetary weekly contributions.

Africa is one of the continents with majority of the population leaving in the rural areas in absolute poverty. One-fifth of the world's population lives in extreme poverty and approximately 2.5billion adults' lack access to formal financial services (Atikus Insurance, 2014). Extreme poverty in Africa fell from 57% in 1990 to 43% in 2012 (World Bank, 2016). Based on the 2012/2013 survey, it was estimated that 19.7% of Nigerians are poor; the incidence of poverty in Nigeria remains higher in rural areas than in urban areas. The poor in the rural areas of Nigeria represent 22.8% of the population compared to only 9.3% in the urban areas. The Nigeria rural areas with about 77.4% of the population constitute 89.3% of national poverty. On the other hand, the urban areas represent 22.6% of the population and constitute 10.7% of national poverty according to Nigeria Bureau of Statistics in 2015.

For quite a long time, the poor people were neglected by the commercial banks until 1976 when Professor Muhammad Yunus introduced the concept of microfinancing to the world through the establishment of Grameen Bank in Bangladesh to offer unsecured small loans to the poor (Nanayakkara and Stewart (2015)).

Nanayakkara and Stewart (2015), showed that the time to approve and disburse loan; loan cycle, gender and age of the borrower, whether in group or individual were almost of the same timeline. When the loan is disbursed, it is the duty of the loan officer in charge of the loan to embark on a proper follow up by regularly visiting the borrower's establishment. This frequency in visting by the loan officers were found to be significant when predicting the loan repayment in Sri Lanka.

2.0 Literature Reviewed

Finance and Economic Development

Finance generally plays a key role in economic development of countries, especially with the developing economies that have urgent need for economic growth and development. For instance, finance is required by different individuals for different purposes (Yakubu and Affoi, 2014). Financial institutions such as commercial banks play intermediation role by channeling funds from the surplus spending units to the deficit spending units of the economy, therefore, transforming bank deposits into credits. The role of credit in economic development has been recognized as credits are obtained by various economic agents to enable them meet

operating expenses. Business firms obtain credit to buy machinery and equipment and farmers' needs credit facilitates to purchase seeds, fertilizer and erection of various kinds of farm buildings.

Governments finance both recurrent and capital expenditures through credits. Also, individuals take credit to pay for goods and services. The provision of credit with sufficient consideration for the sectors' volume and price system is a way of generating self-employment. This happens because credit helps to create and maintain a reasonable business size as it is used to establish and/or expand the business, to take advantage of economies of scale. It can also be used to improve informal activity thereby increasing its efficiency through resource substitution that is facilitated by credit. In all these, the banking sector helps to make credit available by mobilizing surplus funds from savers and on-lending such to investors who have brilliant ideas on how to create additional wealth in the economy but lack the necessary capital to execute the ideas (Anyanwu et. al., 2017).

Microfinance and Credit Lending Models

Microfinance institutions are the oldest financial institutions in the world, but with time they have adapted to the changes, and have started using various credit lending models. Microfinance services are provided with different methods in India. A total of 14 models are of existance in India. The models include; associations, bank guarantees, community banking, cooperatives, credit unions, Grameen, group, individual, intermediaries, NGOs, peer pressure, ROSCAs, small business, and village banking models.

In reality, the models are loosely related with each other, and most good and sustainable microfinance institutions have features of two or more models in their activities. The Microfinance lending models vary in their legal forms, in the channels and methods of delivery, in their governance structure, in their approach to sustainability and also in their approach to microfinance where their funds are sourced from, and how the money is governed. The basic methodology being used in commercial microfinance in India was innovated by Grameen Bank and later improvised by several players. This methodology involved the following elements:

1. Identify the potential customer.

2. Organize the potential customers into groups, so that they could address the issue of information asymmetry and lack of

collaterals by transferring what could be an individual liability into a group liability and hold the group morally responsible for repayment through a process of public oath.

3. Have standardized products, standardized operating systems and enforce discipline; ensure that the exceptions were dealt with severely. Different institutions in formal and informal sector have successfully tried out these models. Though these models have their own model specific strengths and weaknesses, they have demonstrated to provide financial services to the unorganized sector with effective outreach. Majority of the microfinance institutions offer and provide credit on a solidarity-group lending basis without collateral. There is also a range of other methodologies that MFIs follow. Some MFIs start with one methodology and later on move or diversify to another methodology so that they do not exclude certain socio-economic categories of clients. So it becomes important to have a basic understanding of methodologies and activity of Credit Lending Models.

The GRAMEEN MODEL adopted by many is a joint liability; that is the Group and Center are Joint liability Groups, which means that all members are jointly responsible (‘liable’) for the repayment. MFI recovers full money from Center, if any member has defaulted: the group members have to pool in money to repay to the MFI. If Group members are unable to do it, Center as whole has to contribute and share the responsibility. According to the rules, if one member ever defaults, all in the group are denied subsequent loans. Because of these restrictions, there is substantial group pressure to keep individual records clear. In this sense, collective responsibility of Group/Peer pressure replaces the collateral. Responsibility for the loans of all the group members is crucial, because it is the group and not the bank that initially evaluates loan proposals. Defaulters spoil things for everybody else, so group members choose their partners wisely. If all five repay their loans promptly, each is guaranteed access to credit for the rest of their life or as long as they chooses to remain a customer. The most significant aspect of the Grameen Bank Model has been its high loan recovery rate (98%and above). Grameen model is being followed by India Association for Sarva Seva Farms (ASSEFA), Activities for Social Alternatives (ASA), SHARE Microfinance. Lt CASHPOR Financial and Technical Services Ltd have adopted this methodology with little variations but the limitation of this model is the Control of groupings by

individual which is centered on human behaviour factor (i.e disappointment of submission of total collections to the appropriate quarters) thus there is need for an intelligent model for loan allocation and repayment using ontology matching algorithm that would use intelligent agents to recommend the most optimum borrowers to lender by their regular monetary weekly contributions. IB2PLAP uses ontology to set up the knowledge which base contains all data entities that entails the contributors' weekly savings, financial records, list of cooperative records in each Village and to communicate with financial agencies of the stakeholders of our economy for loans.

Adewale et al., (2014) proposed Creation of Loan Automation Application, they said A business objective of providing efficient loan process using technology as an enabler in order to give the company a competitive advantage within the industry suggests automation. Although a number of lenders have a certain kind of technology infused into their loan processing system, there are noticeable insufficiencies. Finding a guide to the design and creation of a loan automation system is also elusive. There is therefore the need for the creation of a loan automation application which this research addressed. Design and creation research strategy was adopted and data collection was through existing documents and structured interviews. Waterfall software development method was adopted. The outcome provides a loan automation application that saves paper works throughout the life of the loan, and its design is also available as a contributory guide towards creation of similar system.

Murad et al. (2017) proposed the Impact of Microfinance Institution in Economic Growth of a Country: Nigeria in Focus. Their study employs the multiple regression analysis given that the data are cross-sectional and time series in nature. Secondary data of all commercial banks were extracted from the Central Bank of Nigeria statistical Bulletin and Annual Reports. Data used in this model are time series secondary data for the period 1992 to 2012. The findings of the study show that microfinance loans have a significant positive impact on the short run economic performance in Nigeria. Microfinance loans enhanced consumption per capita in short run with an impressive coefficient, although these banks loan do not have a significant impact on economic growth in the long run. Microfinance investment however, has a significant impact on economic performance in Nigeria in the long run. Although micro

finance loans are relevant in growth process in Nigeria, other measures such as boosting agricultural production and taking appropriate steps to enhance per capita income are equally important in boosting the Nigerian economic growth. Their recommendation was that, microfinance institutions should loan to improve consumption in the short run, while the long run goal should be to improve investment and other capital accumulation.

Olakojo and Olanipekun (2011) empirically examined the impact of microfinance bank on the Nigerian economy. They employed pooled regression and ordinary least square econometric technique on annual time series data for the period 1992-2008. The empirical findings show that the current level of sectoral output is positively influenced by loans and advances from the banking sector. However, a sectorial analysis using OLS reveals that while loans and advances from microfinance banks positively affect output of manufacturing, building and construction, mining and quarrying sector, the same could not be established for the agricultural sector. They concluded that microfinance banking is very critical to the well-being of the economy as it does not only provide financial assistant to small and medium scale enterprises but also to the real sector of the economy, thereby fast tracking economic growth in Nigeria.

3.0 Conclusion

While reviewing the papers we took an unbiased perspective, signifying that we evaluated the paper's relevance without espousing a certain scientific position. Articles we felt where representative of loan allocation and repayment where particularly noted and included in the research for proper direction in the literature review. When we compared the research results concerning determinants of lending success, we focused on Sudhakar and Reddy (2016) two step credit risk assessment model for prediction that will help an organization in making the right decision to either approve or reject the loan request of customers.

We left out non-commercial or charity driven platforms, knowing that financial constraints are one of the most important obstacles for farmers and businesses particularly in rural areas. Collateral requirements are frequently addressed as one of the most important obstacles to starting and running a business especially for small and medium enterprises (SMEs), in Nigeria so, an intelligent model platform for loan allocation and repayment system was proposed for rural dwellers through their weekly monetary contributions.

4.0 Further Study

The loan system has established a trust in the banking sector of the country (Nigeria), an ensemble machine learning and deep learning algorithm should be used in furthering this work to obtained optimal trust and to easy the repayment mode using the SMEs as a structure.

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