MSW MANAGEMENT -Multidisciplinary, Scientific Work and Management Journal
ISSN: 1053-7899
Vol. 35 Issue 2, 2025, Pages: 1000-1005

EVOLUTION OF FUZZY LOGIC FOR STARTUPS BASED ON STRATEGIC FINANCIAL LOGISTICS PATTERN SELECTION METHOD (SFLPSM)

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ABSTRACT: In this paper evolution of fuzzy logic for startups based on Strategic Financial Logistics Pattern Selection method (SFLPSM) is introduced. The main intent of fuzzy logic is to display the morphology of results which help us to think efficiently based on the knowledge systems. Initially, inputs of strategic financial management planning are given. The financial management planning will divide the inputs into two parts (i.e) main financial resources and other financial resources. Now based on the variables of fuzzy logic the SFM will evaluate the rules for startups. The variables of fuzzy logic mainly consist of five types they are very high, low, medium, high and very low. By using these variables the rules for startups will be decided and evaluated. At last de-fuzzification is applied to get exact outcome. From results it can observe that lead time, reliability, flexibility, quality and capability will give effective outcomes.

KEY WORDS: Strategic Financial Logistics Pattern Selection method (SFLPSM), Main Financial Resources, other Financial Resources, Fuzzy Logic, Strategic Financial Management (SFM), Startups.

I.INTRODUCTION

In turbulent times the strategic planning plays very important role to determine the fortune of the business. To pursue this strategy, resources will be allocated based on the making decisions, directions and strategy. A plan will be created to determine the current position and future position in financial management planning [1]. Depend on the on-demand business information in sales & distribution, financial and operational areas the business strategies will be performed. By using the information and communication technology business informatics will provide better application. Because of this technology there will be improvement in business success. Strategic plan mainly depends on the determination of future success which will mainly depend on the execution of business plan and capability [2]. The process involved in the strategic planning for business informatics is given as:

A. Generating accurate forecasts
B. Determine current capability along with the capacity
C. Create the strategic plan and simulate successful execution.

Basically, in any practical application the Fuzzy Logic (FL) will be used to decide the human intuition based on rule base means by seeing the intentions of human and behavior from the system. Here instead of using human intensions, logistic pattern selection method is introduced. This will provide good communication for startups for interacting the financial planning between advisors and their clients.

The main intent of RBV (Resource Based View) is to formulate the organization by understanding the business elements for long term competitive advantage. The RBV model will classify the assets in two ways tangible and intangible assets. The physical resources which are quantifiable are known as tangible assets and the asset which doesn't use any type of physical resources is known as intangible assets.

To reach the objectives of strategic planning, action plan will be designed by transforming the organizations. By using three phases entire strategic planning goal is designed and this is explained as shown below:

A. Assessment and goal setting: By using the tools of management like PEST (Political, Economic, Social, and Technological analysis) analysis and SWOT (Strength, weakness, Opportunity and Threats analysis) both environment analysis and current business state is analyzed.

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During this process management identifies and prioritizes major issues/goals to be achieved by using the competitive advantage. The outcome of this phase is design or plan of major strategies/programs to address the identified issues/goals and possible updates to vision, mission and values of organization [3].

B. Action Planning: This will establish the process of action plans from resource needs, objectives and needs. This is based on the planning of strategy. Multiple programs are needed for planning an action based on the horizontal and vertical functions.

C. Program Incubation: There is a change in organization which will execute the programs by using year-one operations. Strategic Plan will monitor and evaluate the success of program by itself.

For the applied business strategy this will remain optimal, it requires an IS and IT strategy that is aligned with it. So, it is necessary for any company or organization to invest in IS (Information systems) and IT (Information Technology). As a result, the company will get benefits of it that can be measured by the achievement of the goals or objectives of the company or organization. The IS (Information systems) and IT (Information Technology) strategy is only one of the solutions because it only helps to identify technology issues and offers less for business needs [4-5].

The investors using an investment analysis to make investment decisions are called “fundamental” and the kind of analysis used by them is called fundamental analysis. In addition with the various factors which influence the economic factors of a company on its profits and trading aspects, earnings, sales, dividends, profits and management efficiency of that company can also be studied by such investors to assess the intrinsic value of that company's share. The intrinsic value and worth of accompany is reflected by the share price of a company. Therefore, estimating the share price of a specific company which can be considered as a true or intrinsic share price is the main aim. Therefore it can illustrate that, for the long term investors this type of fundamental analysis can be very useful.

The regularity of dynamics in historical prices can be identified and explained by the characterization of this technical analysis with a more number of policies and indicators. The price behavior of a financial instrument in future trend can be provided with some indications in this technical analysis which makes use of their history price patterns. This method of technical analysis mostly uses the Moving Average (MA) method which involve with the comparison between market prices or index through the extensive MA. According to the study on movements of history prices this analysis performs the future price prediction on a specific share price. This analysis can be best suitable by its nature for the speculators and the short term traders in shares.

For any investors to make their financial return to be increase they need to take right decisions at right time. Therefore this time series forecasting is important in this stock investment marketing fields. Multiple Regression (MR) also the Auto Regression Moving Average (ARMA) are the techniques of this time series analysis which were utilized by the conventional studies [8]. In general historical data pattern is found in this time series forecasting for the prediction of future data. Finding of the historical data pattern can be made easier if there is available a more past data. But it is difficult one to perform accurate prediction and analysis on previous stock if it is of small amount.

The most extensively exploring and using time series analysis models in the financial markets are like Logistic regression, Auto Regressive Integrated Moving Average (ARIMA) and Generalized Auto Regressive Conditional (GARCH) models. However, constructing and overlooking this type of model widely require the time series data or they even not enough in managing another behavioral features of market like heterogeneous variables, hidden states and most significantly their complex coupling interactions and dynamics.

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II. STRATEGIC PLANNING

FAHP is used to generate the weighting of the three perspectives of the research framework and the weighting of the performance indicators. There are five steps:

Step 1: Construct the hierarchical structure with decision factors (i.e., criteria and sub-criteria). Each decision maker is asked to express the relative importance of two decision elements at the same level (e.g., two criteria) by means of a nine-point scale. The scores are collected by pair wise comparison, and form pair wise comparison matrices for each of the K decision makers.

Step 2: Analyze consistency. The priority of the elements can be compared based on the computation of eigen values and eigen vectors:

$R.w = \lambda max \cdot w$

where w is the eigenvector, the weight vector, of matrix R, and λmax is the largest eigen value of R. The consistency property of the matrix is then checked to ensure the consistency of judgments in the pair wise comparison.

Step 3: Construct fuzzy positive matrices. The scores of the pair wise comparison are transformed into linguistic variables, which are represented by positive triangular fuzzy numbers (TFN)

Step 4: This study calculates fuzzy weights based on the Lambda-Max method proposed by Csutora and Buckley. The procedure of the Lambda-Max method obtains the positive matrix of decision maker k, lower bound and upper bound positive matrices of decision.

Step 5: Integrate the opinions of decision makers. A geometric average is used to combine the fuzzy weights of decision makers.

III. LITERATURE SURVEY

Rajesh Kumar Jain, Abhimanyu Samrat [6] describes the quality management system which will be based on the manufacture of industries. The entire process is divided into two parts they areOrganization" Supplies QMS Practicesand "Organization" Own QMS practices. Suppliers Assessments & Evaluation, Customer satisfactions and Documentation,Quality Plan, Testing and recording methods will be understood by the common practices. Based on these methods the importance and effects of strategic financial management planning will be done.

Devendra Kumar Dewangan, RajatAgrawal, Vinay Sharma[7], In the study identifying the critical factor for the implementation of TQM in SMEs and the importance of it. Generally stock value is used to determine the stock price theoretically but the political, economical, environmental, company, military and investor psychological factors are the several factors that influence this stock price. Since the stock price is influenced by the several factors, it became challenging task to predict financial market accurately.

In the past few years, many researches has done on the works relating tothe trend of changing prices, market state infinancial market as well as related to the scientific law of transition in-between such states. Also for the analysis of stock market some different methods of forecasting have been emerged and employed in the latest years. In general market forecasting has became a most popular subject in different areas. The corresponding approaches can be roughly categorized into two types such as time series and model based analysis.

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Ebru Beyza Bayarcelik, FulyaTasel, SinanApak, 2014 [8]. In various types of economic sector, the competition and innovation are the important elements to drive the economy. Based on various types of external and internal factors the decision in markets conditions will be taken.

Dadfar et al., 2013 [9]describes the market globalization environment to analyze the financial analysis. To provide innovation rapid technologies are used for determining the life cycles, medium and small enterprises. This will be sustainable for innovation which is focused on financial management.

Adnan Kalkan, Ozlem Cetinkaya Bozkurt, [10] 2013 describes the framework which is implemented by using TQM tool. This will mainly depend upon the strategic planning, human resource analysis, total quality management, financial analysis for firm owners, Outsourcing,Customer Relationship Management techniques. To improve the better organization the factors will be studied in this article.

IV. FUZZY LOGIC FOR STARTUPS BASED ON SFLPSM

The below figure (1) shows the flow chart of fuzzy logic for startups based on SFLPSM. Initially, inputs of strategic financial management planning are given. The financial management planning will divide the inputs into two parts (i.e) main financial resources and other financial resources. Now based on the valuables of fuzzy logic the SFM will evaluate the rules for startups. The variables of fuzzy logic mainly consist of five types they are very high, low, medium, high and very low. By using these variables the rules for startups will be decided and evaluated. At last de-fuzzification is applied to get exact outcome.

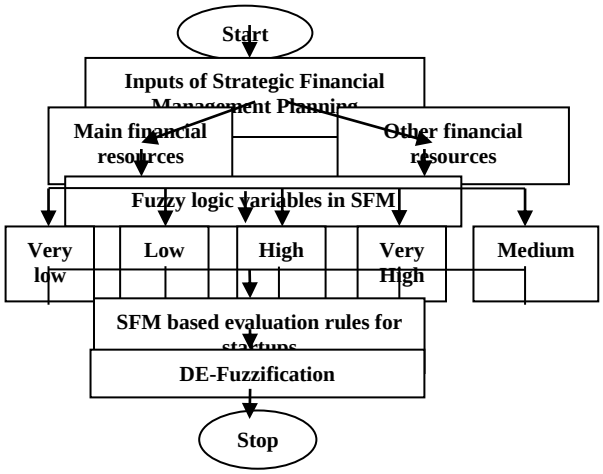

Fig. 1: FLOW CHART OF FUZZY LOGIC FOR STARTUPS BASED ON SFLPSM

Step-1: Initially, inputs of strategic financial management planning are given.

Step-2: The financial management planning will divide the inputs into two parts (i.e) main financial resources and other financial resources.

Step-3: Now based on the valuables of fuzzy logic the SFM will evaluate the rules for startups.

Step-4: The variables of fuzzy logic mainly consist of five types they are very high, low, medium, high and very low.

Step-5: By using these variables the rules for startups will be decided and evaluated.

Step-6: At last de-fuzzification is applied to get exact outcome.

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The below table (1) shows the comparison of SFMS and Fuzzy logic based SFLPSM. In this lead time, reliability, flexibility, quality and capability parameters are described. Compared with all Fuzzy logic based SFLPSM gives effective outcomes as shown below.

Table. 1: COMPARISON OF SFMS AND FUZZY LOGIC BASED SFLPSM

S.No	Parameter	SFMS	Fuzzy logic based SFLPSM
1	Lead time	High	Low
2	Reliability	Low	High
3	Flexibility	Low	High
4	Quality	Low	High
5	Capability	Low	High

The below figure (2) shows the comparison of lead time and capability of SFMS and Fuzzy logic based SFLPSM. Compared with SFMS, Fuzzy logic based SFLPSM will improve the capability and reduces the time in very effective way.

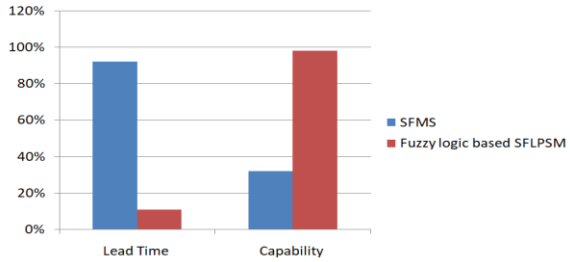

Fig. 2: COMPARISON OF LEAD TIME AND CAPABILITY

The below figure (3) shows the comparison of reliability and flexibility of SFMS and Fuzzy logic based SFLPSM. Compared with SFMS, Fuzzy logic based SFLPSM will improve the both reliability and flexibility in very effective way.

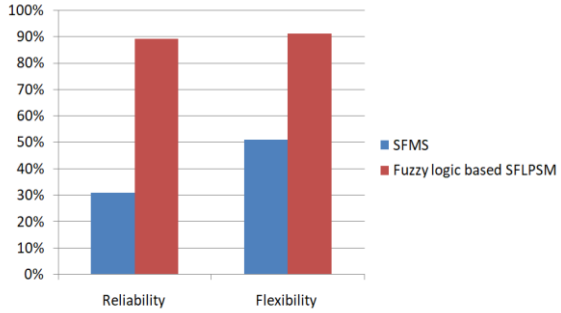

Fig. 3: COMPARISON OF RELIABILITY AND FLEXIBILITY

The below figure (4) shows the comparison of quality of SFMS and Fuzzy logic based SFLPSM. Compared with SFMS, Fuzzy logic based SFLPSM will improve the quality in very effective way

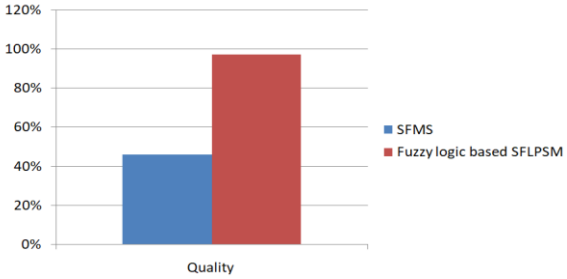

Fig. 4: COMPARISON OF QUALITY

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VI. CONCLUSION

Hence in this paper evolution of fuzzy logic for startups based on Strategic Financial Logistics Pattern Selection method (SFLPSM) was studied successfully. Fuzzy logic plays very important role in entire system.Fuzzy logic (FL) will be used to decide the human intuition based on rule base.Financial Logistics Pattern Selection method will improve the quality of system in very effective way. Therefore results conclude that the fuzzy logic for startups based on Strategic Financial Logistics Pattern Selection method (SFLPSM) gives efficient results.

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