DECISION TREE ALGORITHM AND ANALYSIS BASED ON STRATEGIC FINANCIAL MANAGEMENT FOR STARTUPS

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ABSTRACT: Information technology has played an important role in all aspects of human society, and has pushed human society from the industrial age to the Internet age. In order to ensure the quality of financial management, improve the ability of financial management and the service level of startups business, universities constantly improve the financial management system and constantly look for innovations in the financial management system of startups. There are many decision-making challenges in management. By using decision tree mining technology, we can find all kinds of potential valuable knowledge and get to know corresponding management strategies by integrating the whole management information. Based on the decision tree classification algorithm, this analyzes the characteristics of financial management information system, and designs the system module with the financial processing module as the core, so as to achieve the purpose of optimizing the financial management process and performance of startups.
KEY WORDS: Decision tree classification, Strategic financial management,

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. Depend on the on-demand business information in sales & distribution, financial and operational areas the business strategies will be formulated. 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.

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 in below:

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

During this process management identifies and prioritizes major issues/goals to be achieved for 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. Horizontal functions means to know the needs of customer and vertical functions means satisfying the needs of customers.

C. Startup 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 can optimal, it requires an IS (Information System) and IT (Information Technology)strategy that is aligned with it. So, it is necessary for any company or organization to invest in IS and IT. As the 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 and IT strategy is only one of the solutions because it only helps to identify technology issues and the strategy of information system and information technology offers less for business needs. To overcome this strategy of financial management system for startup business is introduced. [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 acompany 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. Thus 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. 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 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.

Startup business should maintain strong relationship between customers to develop their business. 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.

II. LITERATURE SURVEY
Rajesh Kumar Jain, Abhimanyu Samrat, 2015 [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 Practices and "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, Rajat Agrawal, Vinay Sharma [7], 2015 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.

Ebru BeyzaBayarcelik, FulyaTasel, Sinan Apak, 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.

III. DECISION TREE ALGORITHM AND ANALYSIS BASED SFMS

The below figure (1) shows the flow chart of decision tree classification algorithm using SFMS. Initially, decision is taken regarding feedbacks obtained from sentimental analysis. After that data migration is performed. Data migration will take the decision which is suitable to business type and which improves the capital and income. After decision is taken the process of strategic financial management will be started. Here data is selected and classified regarding business type. For the classified data working capital management is performed. At last the decision tree algorithm is executed and final output is obtained.
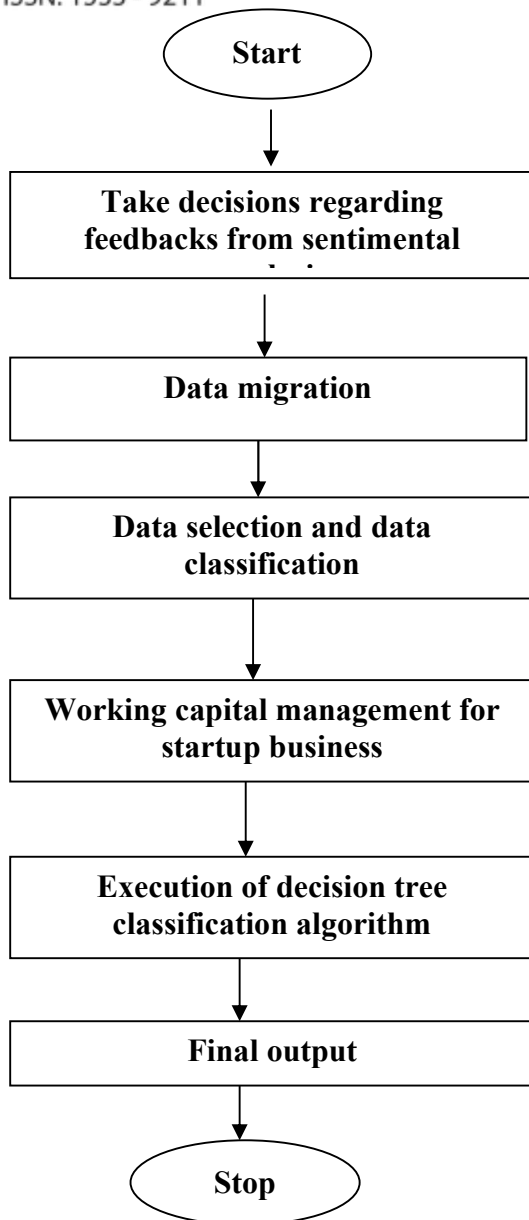
Start

Take decisions regarding feedbacks from sentimental

Data migration

Data selection and data classification

Working capital management for startup business

Execution of decision tree classification algorithm

Final output

Stop

FIG. 1: FLOW CHART OF DECISION TREE ALGORITHM AND ANALYSIS BASED SFMS

Algorithm:

Step-1: Initially, decision is taken regarding feedbacks obtained from sentimental analysis.

Step-2: After that data migration is performed. Data migration will take the decision which is suitable to business type and which improves the capital and income.

Step-3: After decision is taken the process of strategic financial management will be started.

Step-4: Here data is selected and classified regarding business type.

Step-5: For the classified data working capital management is performed.

Step-6: At last the decision tree algorithm is executed and final output is obtained.

This decision tree classification algorithm based on SFMS helps the startup business for Assessing prospective growth opportunities, serving as a support tool in several fields and using demographic data to find prospective clients. One of the applications of decision trees involves evaluating prospective growth opportunities for businesses based on historical data. Historical data on sales can be used in decision trees that may lead to making radical changes in the strategy of a business to help aid expansion and growth. They can help streamline a marketing budget and make informed decisions on the target market that the business is focused on. In the absence of decision trees, the business may spend its marketing market without a specific demographic in mind, which will affect its overall revenues and performance.

Decision tree analyze the effects of a significant change throughout different areas of the business. It will determine the attitude to risk, organizational structure, Availability & Reliability of Data.Decision trees can also be used in operations research in planning strategic management. They can help in determining appropriate strategies that will help a company achieve its intended goals. Other fields where decision trees can be applied include engineering, education, law, business, healthcare, and finance.

The below table (1) shows the parameters of decision tree classification algorithm based on SFMS for startup business. In this lead time, reliability, flexibility, quality and capability parameters are described.

In this 12% of lead time is obtained, here lead time is nothing but the minimum time to operate the task. So in short period of time startup business operators will perform their task to get effective output. Reliability will show how much the customer is satisfied with the product and in this 97% reliability is obtained so we can say that high reliability is obtained by introducing the decision tree classification algorithm based on SFMS.

Flexibility is related to how startup business operators are satisfying the customers. So 94% startup business operators are satisfying the customers by using decision tree classification algorithm based on SFMS. Here quality is related to how much the startup business operators maintaining quality of product. 98% the quality is maintained. Capability is defined that how much the startup business operators are willing to take the feedbacks from their customers and rectifying it. 96% capability is maintained by the startup business operators.

Table. 1: Parameters of Decision Tree Classification Algorithm Based On SFMS for Startup Business

S.No	Parameter	DTCA-SFMS
1	Lead time	12%
2	Reliability	97%
3	Flexibility	94%
4	Quality	98%
5	Capability	96%

The below figure (2) shows the lead time, reliability and flexibility of decision tree classification algorithm based on SFMS for startup business. By using this decision tree classification algorithm fast and reliable outputs are obtained.
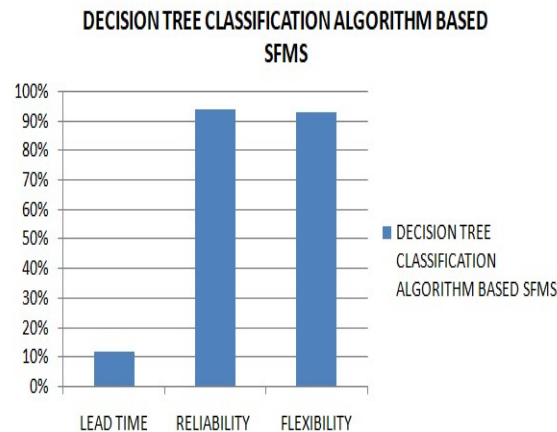

Fig. 2: LEAD TIME, RELIABILITY AND FLEXIBILITY

The below figure (3) shows the quality and capability of decision tree classification algorithm based on SFMS for startup business. Quality of service is improvedby using decision tree classification algorithm.
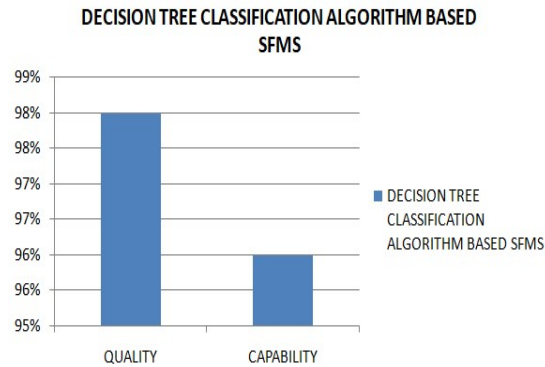
DECISION TREE CLASSIFICATION ALGORITHM BASED SFMS

Fig. 3: QUALITY AND CAPABILITY

IV.CONCLUSION

Hence the decision tree classification algorithm based SFMS helps the startups to grow their business by taking decisions. Decision trees help the startup businesses to determine the best outcomes for their organizations.Therefore, Startup Businesses use decision trees to layout all possible outcomes and solutions. By using decision tree classification algorithm the data will be classified clearly and decisions which are taken will give effective outcome in terms of quality, flexibility, capability, reliability and lead time. This helps the startup business to grow their business accurately and effectively.

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