A Sentiment Analysis Model For The Strategic Financial Management Challenges In Startups

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ABSTRACT: Basically, in startup business the financial and economic news is continuously monitored by the participants of financial market. The future stock prices are determined by absorbing the hypothesis of market based on past information which is reflected from the stock prices. Hence in this paper a sentiment analysis model for the strategic financial management challenges for startups is implemented. First entity input will be given. This entity input is categorized into N data sets. After that strategic financial management planning will be done using entity data. This planning will be researched on different data sets, if it matches then data will be encoded and if it does not match then again data will be moved to the strategic financial management planning block. The encoded data will divide the features into sentimental and entity key features. After that financial controlling will be done. Execution is performed to the data which is controlled by the strategic financial management system. At last performance is evaluated based on the parameters of accuracy, precision, recall, specificity, F1 score, errors and computational time. Hence the results show improved efficiency in sentiment analysis for startups.

KEY WORDS: Startup Business, Strategic Financial Management, and Sentiment analysis. Sentimental Feature, Key Entity Feature, Strategic Financial management researching (SFMR), Financial Controlling.

I.INTRODUCTION

To incorporate the globalization in business, new models are introduced by the companies using new advanced technologies in present generation [1]. To promote the products and services, the companies are using a promotion toll as internet. In 21st generations, new business models are adopted by the companies to evaluate the

technologies with social challenges and new processes [2].

This process includes the demands of customers also in digital way. In both personal words and professional, the new technologies have become more common in use. Based on the clients and user thinking's, the new companies are adopting the business models which are scalable to understand the models. On the digital platform and environments, the thinking of user is expressed which is also known as user generated content. Key factors are determined by the user generated contents from the last decades for any chosen topic [3].

Generally, the startup business model uses the advanced technologies. This start up is nothing but a technology-based company which will offer the new products and services. All these are based on the incorporated technology. This is also called as the innovation through technology. Scalable business models are used by the startups. To improve the technology, startups use the scalable business models. The product and service are created by improving the technology.

When the product is ready then the product or service is launched. For consumers, the startups create the successful new products and services. All these are based on the digital age of

consumption. The startups use the products and services from the following examples they are Instagram, Facebook, what's up and technological giant Alphabet (Google).

By using the advanced technology, the startups companies use the innovative ideas which are based on the experience and time. Hence sentiment analysis will give innovative ideas for startup business [4].

New technologies and processes are introduced in global ecosystems to determine the factors which are successful for startups business. In real time the data is generated based on the technological processes. To analyze the data of data mining, big data and artificial intelligence new technologies are utilized. This will provide the important value to analyze the data.

Based on the innovation the Startups will start their business. A current product and service will improve the demand on products and services. All these are based on the innovation technology. Technological development is how new businesses manage new items and administrations by working with an arising innovation and applying it to a new or existing item [5].

Sentiment Analysis will analyze various ideas and give new innovative idea for startup business. Basically, this is an exploration strategy that investigates the sensations of a given example, which typically comes from computerized conditions like online stages or informal organizations, to track down the various sentiments with various methodological methodologies. It has been affirmed that Sentiment Analysis can distinguish the sentiments and consequently the assessments of item clients to see what these sentiments and feelings mean for the clients dynamic.

There are various choices and approaches for this method. Approximations can be made utilizing unique programming for applying AI, man-made consciousness procedures, and mixture models. Different choices are accessible, for example, calculation preparing with Data Mining procedures, which are measures used to work on the likelihood of accomplishment of a calculation with AI dependent on the exactness of the outcomes.

II. LITERATURE SURVEY

Impact of financing patterns on business performance of e-startups in India: a research model [6]

The reason for this paper is to distinguish the determinants of financing examples of e-new commerce which impact its business execution. This hypothetical paper planned a calculated structure for financing examples of e-new companies by recommending different customary and present day wellsprings of financing, phases of advancement will develop and later stages will have determinants of business execution are long haul obligation, transient obligation, obligation value proportion, liquidity, benefit, substance, business people age, training and experience.

Data Analysis of startups investments and funding trends in India [7]

In the current decade, India is arranging an imperative change in the course of startup inviting strategies and a business-accommodating or business person's current circumstance. India is one of the quickest developing nations as far as business venture. Business venture is a fundamental contribution for financial turn of events, setting out new business sectors or open doors. As of now, India is advancing business venture excitedly however it's difficult for

government just as huge populace of India to make work through new companies.

This paper will deal for offering a scientific outline of the blast and possibilities of startup frameworks in India i.e., the advancement made by India up until now. Hence, this exploration can add to a superior comprehension of the Investment and financing methodology of innovative endeavors.

The Preliminary Discussion of Financial Information Management Solutions for Universities [8]

In this financial information management solutions for universities are given in detail manner. Basically, the financial data development for colleges turns into the fundamental way to work on financial administration and the nature of financial administrations. The financial data development for colleges ought to not just fortify the administration of financial data, financial data investigation, financial inward control, and financial data security, just as upgrade the choice investigation of financial data.

This paper for the most part examines how to assemble financial data on the board arrangements, how to coordinate the financial data stage through financial framework and give information to other strategic frameworks. Through the foundation of financial data, the executive arrangements, colleges can viably work on the effectiveness of financial business, improve the degree of financial administration, fortify financial control and lessen financial dangers in order to assemble security, normalized, logical and reasonable college financial data to the executives.

Financial Management Challenges In Small and Medium-Sized Enterprises: A Strategic Management Approach [9]

Because of their management challenges in making of new positions, ascend in GDP, business venture and advancement, little and medium-sized undertakings (SMEs) are perceived as the drivers of financial development both in created and creating economies. In Turkey, 99.9 % of all undertakings fall into SME classification. In this manner, the meaning of SMEs for Turkish economy and society is a lot higher in Turkey, contrasted with other arising and standard approaches.
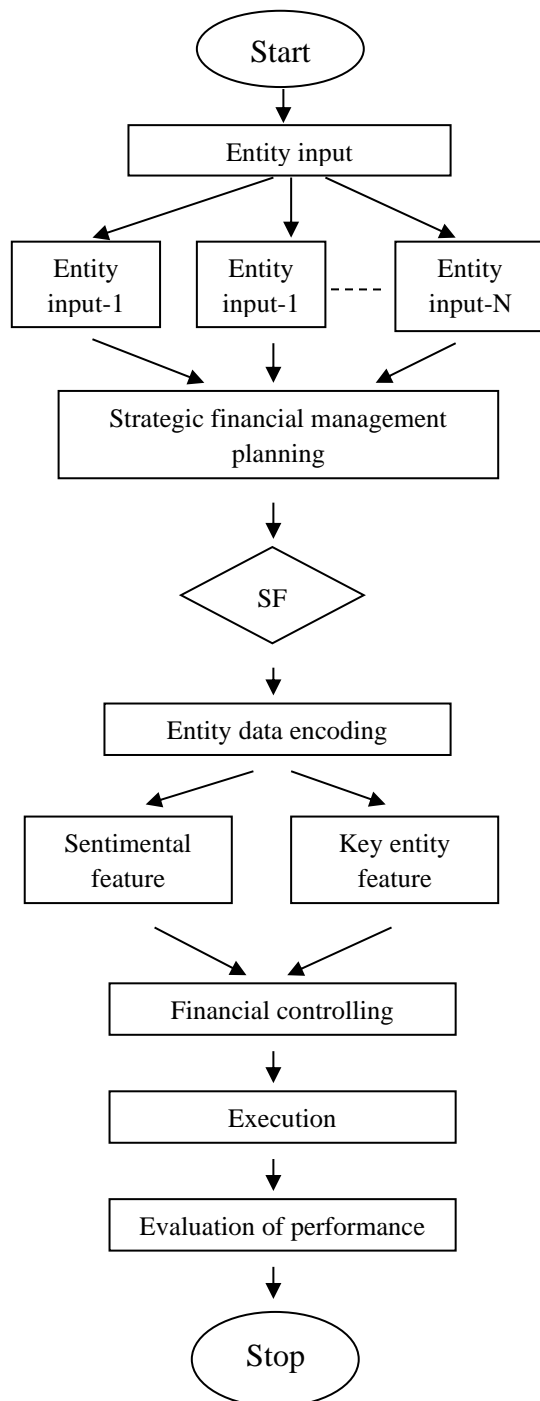
Financial Management in SMEs [10]

The vital objective of this paper is to audit ongoing investigations on little and medium measured organizations to focus on the principle basic issues of SMEs financial administration. There are three center components of financial administration: the topic of liquidity, the board and income of the executives. Money is organization's most valuable nonhuman resource.

III. A SENTIMENTAL ANALYSIS MODEL FOR THE STRATEGIC FINANCIAL MANAGEMENT CHALLENGES FOR STARTUPS

The below figure (1) shows the flow chart of a sentiment analysis model for the strategic financial management challenges for startups. First entity input will be given. This entity input is categorized into N data sets. After that strategic financial management planning will be done using entity data. This planning will be researched on different data sets, if it matches then data will be encoded and if it does not match then again data will be moved to the strategic financial management planning block. The encoded data will divide the features into sentimental and entity key features. After that financial controlling will be done. Execution is

performed to the data which is controlled by the strategic financial management system. At last performance is evaluated.

MANAGEMENT CHALLENGES FOR STARTUPS

Algorithm:
Step-1:First entity input will be given.

Step-2: This entity input is categorized into N data sets.

Step-3: After that strategic financial management planning will be done using entity data.

Step-4: This planning will be researched on different data sets, if it matches then data will be encoded and if it does not matches then again data will be moved to the strategic financial management planning block.

Step-5: The encoded data will divide the features into sentimental and entity key features.

Step-6: After that financial controlling will be done.

Step-7: Execution is performed to the data which is controlled by the strategic financial management system.

Step-8: At last performance is evaluated.

Market sentiment refers to the overall consensus about a stock or the stock market as a whole. Market sentiment is analyzed when prices are rising. Market sentiment is analyzed when prices are falling. Technical indicators can help investor's measure market sentiment. Sentiment analysis (or opinion mining) is a natural language processing technique used to determine whether data is positive, negative or neutral. Sentiment analysis is often performed on textual data to help businesses monitor brand and product sentiment in customer feedback and understand customer needs.

Fig. 1: FLOW CHART OF A SENTIMENT ANALYSIS MODEL FOR THE STRATEGIC FINANCIAL

By using sentiment analysis, you gauge how customers feel about different areas of your business without having to read thousands of customer comments at once. If you have thousands of feedbacks per month, it is impossible for one person to read all of these responses.

A financial market is a mechanism that allows people to easily buy and sell financial assets such us stocks, commodities and currencies, among others. The Financial intermediary class represents the entities that typically invest on the financial markets. Examples of such entities are banks, insurance companies, brokers and financial advisers.

IV. RESULTS

The below table (1) shows the comparison of SFMS (Strategic Financial Management System), SA-SFMS (Sentimental Analysis-Strategic Financial Management System). In this comparison table accuracy, precision, F1-Score, errors, computational time, recall and specificity are given. 90% of accuracy is obtained in SA-SFMS compared with SFMS and Accuracy defined as the determination of sentimental analysis in exact way. 90% of precision is obtained in SA-SFMS compared with SFMS and precision main intent is to improve the quality of product. So, we can justify that quality of product is increased by using SA-SFMS in startup business. 95% of F1 score is obtained in SA-SFMS compared with SFMS and F1 Score defines the evaluation of startup business. The errors mean failure of the operations which are very less in our SA-SFMS. Computational time defined as executing time which reduces in this SA-SFMS compared with SFMS. Recall is nothing but taking obtaining negative feedbacks. So 22% of negative feedback is obtained in SA-SFMS compared with SFMS. 89% of specificity is obtained in SA-SFMS compared with SFMS. Specificity mainly defines the product quality.

Table. 1: Comparison of SFMS and SA-SFMS

S.No	Parameter	SFMS	SA-SFMS
1	Accuracy	30%	90%
2	Precision	10%	90%
3	F1-Score	50%	95%
4	Errors	94%	11%
5	Computational time	82%	10%
6	Recall	98%	22%
7	Specificity	43%	89%

The below figure (2) shows the comparison of accuracy, errors and specificity. Compared with SFMS, SA-SFMS improves the accuracy and specificity and reduces the errors in very effective way.
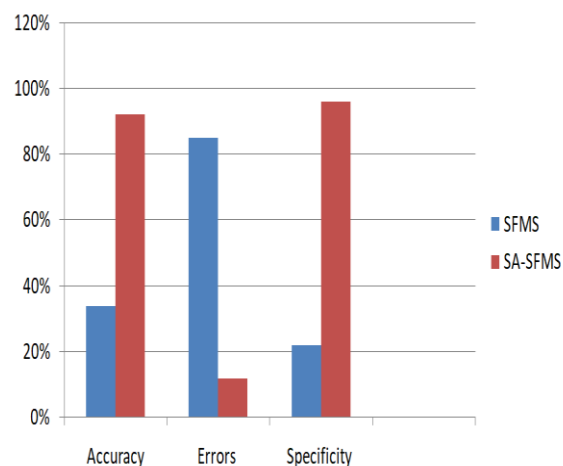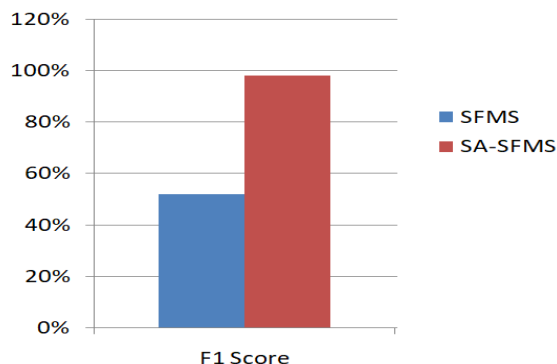

Fig. 2: COMPARISON OF ACCURACY, ERRORS AND SPECIFICITY

The below figure (3) shows the comparison of precision. Compared with SFMS, SA-SFMS improves the precision in very effective way.
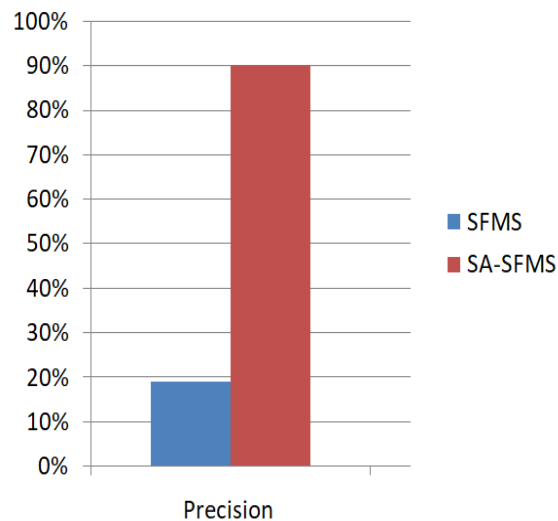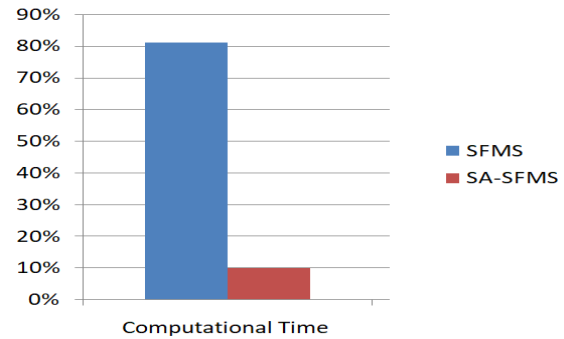

Fig. 3: COMPARISON OF PRECISION

The below figure (4) shows the comparison of F1-Score. Compared with SFMS, SA-SFMS improves the F1 score in very effective way.
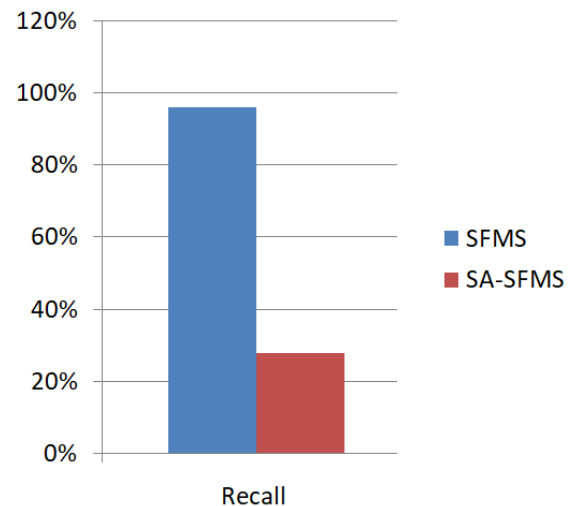

Fig. 4: COMPARISON OF F1 SCORE

The below figure (5) shows the comparison of computational time. Compared with SFMS, SA-SFMS reduces the computational time in very effective way.

Fig. 5: COMPARISON OF COMPUTATIONAL TIME

The below figure (6) shows the comparison of recall. Compared with SFMS, SA-SFMS reduces the recall in very effective way.

Fig. 6: COMPARISON OF RECALL

V. CONCLUSION

Hence in this paper a sentimental analysis model for the strategic financial management challenges for startups was implemented. From results it can observe thataccuracy, precision, recall, specificity, F1 score, errors and computational time gives effective outcome compared with SFMS (strategic Financial Management system). Sentimental analysis plays very important role in financial management system. By using sentimental analysis different innovative ideas are developed based on research.

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