HOW DATA-DRIVEN ENTREPRENEUR ANALYSIS IMPERFECT INFORMATION FOR BUSINESS OPPORTUNITY EVALUATION

Dr.D.Maria manuel vianny[1], Y. Pavan kumar[2], V.Veereshamma[3], B.Bharath reddy[4], S.Rakesh[5]

[1]Professor, Department of CSE, Sri Indu Institute of Engineering & Technology, Hyderabad

[2,3,4,5] IV[th]Btech Student, Department of CSE, Sri Indu Institute of Engineering & Technology, Hyderabad

ABSTRACT

High market uncertainty makes it difficult for an entrepreneur to assess the status of themarket for a business opportunity. Data gathering and analysis techniques and technology are becoming a significant source of uncertainty management for many entrepreneurial endeavours. This is sometimes referred to as "data-driven entrepreneurship." We examine a data- driven dynamic method to overcoming market uncertainty in business opportunity appraisals. We focus on the entrepreneur's investment portfolio, in which each investment generates projected returns as well as knowledge on a certain market element for a single company opportunity. We create a model that evaluates imperfect market data (e.g., financial, social, and regulatory) while taking into account the entrepreneur's risk tolerance and operationalresource, routine, reputation, and regulatory constraints. Our numerical findings indicate that, rather of seeking the best projected returns, an entrepreneur may pick perfect information, risk hedging, or market- controlling investments based on his or her cash level and risk tolerance. As a result of the availability of data analysis, the entrepreneur may overcome uncertainties and get superior insights for business opportunity judgments.

Keywords *:* Business opportunity evaluation, decision making under uncertainty, data-driven entrepreneursh

I INTRODUCTION

The nature and resources of uncertianity that underpin entrepreneurial decision making have been a key focus of entrepreneurship reasearch .the incorporation of data analysis techniques (i.e., examining, manipulating, and modelling data with the purpose of assisting decision-making) and technology (e.g., data analytics) into entrepreneurship has resulted in novel approaches to coping with uncertainty [3], [4]. For example, the continuous flow of "big data" collected via social media apps (e.g., Twitter) has been studied in order to address opportunity-related ambiguities in healthcare [5]. A increasing number ofventure capitalists are evaluating business investments using automated data analysis approaches (e.g., [6], [7]). We refer to the trend of using data-driven methodologies and technology to shape entrepreneurial activities (such as opportunity identification,development, and assessment) as "data driven entrepreneurship."

Nonetheless, evaluating business opportunities using a data-driven method may not be a simple or straightforward procedure. The success of the business opportunity is dependent on external market variables such as general marketcircumstances for entrepreneurs [8] and regulatory frameworks impacting access to consumer, labour, and finance markets [9], [10]. Such external factors may be outside the entrepreneur's control, or he may have none at all [11]. As a result, the informationflow required to infer the market's economic outlook—whether favourable or negative— for the business opportunity may be unavailable (i.e., the market information may be imperfect). Furthermore, when that information is not visible, the "true market" may be obscured [12]. For example, in Turkey's nascent clean energy industry, the government's conflicting signals on a feed- in-tariff (a government policy instrument aimed at accelerating investment in clean energy) made it difficult for entrepreneurs with limited resources to assess the opportunity's possibilities [13].

In this article, we examine business opportunity evaluation from a data-driven entrepreneurship viewpoint, and we ask: How can the entrepreneur use imperfect market information to evaluate the company opportunity? Furthermore, when the entrepreneur's resources are lacking, routines are nonexistent, reputation has not been established, or operating regulations are insufficient [14], [15], these shortages of resources, routines, reputation, and regulations pose operational constraints on overcoming market uncertainty, which we refer to as operational shortages of the 4Rs. Furthermore, the entrepreneur analyses anopportunity based on his or her personal risk

preferences (e.g., high, medium, or low risk aversion) [2], [16].

II. LITERATURE SURVEY

The cornerstone of entrepreneurial decision making is opportunity appraisal. Entrepreneurship academics haveextensively researched how entrepreneurs make opportunity appraisal judgments based on human variables (e.g., cognition and ambitions) in conjunction with external elements (e.g., market valuation) (see [8],for reviews). McKelvie et al. [2] discovered that as uncertainty increases, an entrepreneur's propensity to act on an opportunity in the face of unclear environmental conditions declines. When analysing possibilities, entrepreneurs must balance entrepreneurial risk, rationality, and high levels of market unpredictability. Entrepreneurs are also encouraged to build risk-aversion techniques based on their risk tolerance.

While research on operations management (OM) has studied the process of exploitation of opportunities subject to operational shortages of 4Rs (see [15] for a review), OM scholars have not yet explored “a deeper strategic understanding of evaluations of a recognised opportunity to determine if it represents an opportunity for the specific entrepreneur.” Entrepreneurs at the evaluation stage have substantial ambiguity regarding the real worth of an opportunity, and information is required to determine that value. In their developing operational entrepreneurship study, Shepherd and Patzelt highlight this issue and advocate for methods to efficiently capture and utilise information, as well as increase entrepreneurs' capacity to refine prospective possibilities and act on future possible opportunities.

Prior research on innovation and entrepreneurship has mostly identified a consistent and fixed entrepreneurial process for evaluating a new product/service ideathat underpins a market opportunity (e.g.,). With the introduction of data-driven technology, the entrepreneurial process has become less constrained (predefined) by structural constraints of product scope and market research, as well as temporal boundaries of entrepreneurial activity [3],. Miller and Mork's [17] data-driven framework is a method for data gathering, translation, and application of analysis techniques that underpin insights needed for decision making.

III EXISTING SYSTEM:

Consider an entrepreneur who is evaluating a business opportunity for a market in a multiperiod setting. The state of bathe market—whether the market has a positive or negative outlook for the entrepreneur's opportunity—depends on a variety of external market factors such as economic, governmental, social, and regulatory that may not be directly observable and may change over time. Furthermore, the entrepreneur's risk preference and operational shortages of one or more of 4Rs (i.e., internal constraints) influence the entrepreneur's ability to observe the state of the market and take control over market changes. To exemplify the impact of an external factor on opportunity assessment, we offer a simulated example of an entrepreneurial venture in a developing industry (e.g., clean energy). The entrepreneur may not have established the know-how of external market regulations and lobbying practices for the technology (i.e., shortage of external regulations). Although the new venture's investors may provide some policy and regulatory assistance, the regulations for an emerging technology may be transient, which is likely to result in a hidden market. Therefore, he or she might not be able to fully evaluate the true economic outlook—positive or negative—without understanding the regulatory conditions, particularly among the rapidly changing laws surrounding energy. Information about the state of regulations and policy is needed to evaluate the valuation of the market for the clean energy innovation through hiring legal services, lobbying practices and active participation discussions about pending regulations The entrepreneur in our model gathers information about the market by allocating her/his total funds X across a portfolio of investments in f independent external market factors over T Periods. To maximize potential returns of a business opportunity, a resource-constrained entrepreneur could invest small amounts of his/her resources, while minimizing risk exposure . For example, prior to Turkey's passage of a renewable energy law in 2005, most clean energy entrepreneurs made relatively marginal investments to reflect the market's appetite for solar. The level of information, as denoted by $\nu_{jk} \in [0, 1]$,about the market factor $j \in \{1, \ldots, f\}$ depends on investment $k \in \{1, \ldots, m\}$, whose return provides information about factor j. Subsequently, the investment returns form the state values of an observable process as characterized by the observed market factors.

I V PROPOSED SYSTEM

Although our model allows us to investigatea novel approach of assessing a concealed market process, numerous assumptions, limitations, and relevant expansions to this research must be addressed. For starters, our fundamental assumptions impose intrinsic constraints on our model. For example, while our assumption about an exogenous and independent shift in investment valuation does not necessarily affect our observations,

relaxing this assumption may lead to more insightful insights into the market. Second, a DP supports nonlinearity, route dependency, and unpredictability. These characteristics are critical.

presuming that a Markov model accurately represents decision-making in real-world entrepreneurial situations Third, we failed to account for market factor dependency (i.e., spill-over effects within the entrepreneur's gathered information) and selection bias for market factors. We also did not verify the accuracy of the incoming data, which begs the question of how an entrepreneur may assure that he or she is entering the correct data. Researchers might benefit from investigating both the selection and validation of market elements (e.g., financial) that we studied, as well as ones

that we ignored (e.g., political and regulatory). Finally, it would be beneficial to investigate how entrepreneurs adjust to market realities as their internal processesand technology change. These topics, if investigated, might give valuable insights for the domains of strategy, operations management, and entrepreneurship.

V REQUIREMENT ANALYSIS:

The project involved analyzing the design of few applications so as to make the application more users friendly. To do so, it was really important to keep the navigations from one screen to the other well ordered and at the same time reducing the amount of typing the user needs to do. In order to make the application more accessible, the browser version had to be chosen so that it is compatible with most of the Browsers.

REQUIREMENT SPECIFICATION:

Functional Requirements

- Graphical User interface with the User.

Software Requirements

For developing the application the following are the Software Requirements:

- Python
- Django

Operating Systems supported

- Windows 7
- -Windows XP
- -Windows 8

Technologies and Languages used to Develop

- -Python

Debugger and Emulator

Any Browser (Particularly Chrome)

Hardware Requirements

For developing the application the following are the Hardware Requirements:

- Processor: Pentium IV or higher
- RAM: 256 MB
- Space on Hard Disk: minimum 512MB

VI.IMPLEMENTATION

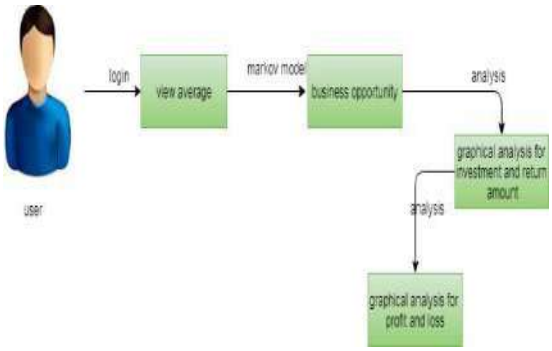

Fig 1: System Architecture

For this project, three modules may be split as follows:

• Average Analysis

• Business Opportunity

• Graphical Analysis

The project is being implemented using the three modules listed above. A plethora of discriminatory terms have been obtained.

DESCRIPTION OF THE MODULES:

The modules are implemented in the following manner:Analysis of Averages **The initial stage in evaluating an entire data set for average. This data collection includes investment details, return amount details, profit figures, and other information.**

Another is Loss specifics. They are as follows: investment average, return amount average, profit average, and loss average.This average analysis is quite beneficial in making flawless decisions in business prospect evaluations.

Chance to do busines

One of the next steps in the business opportunity process.

This assessment is computed and analysed for the optimum method to apply one of the most popular machine learning techniques.

This machine learning algorithm is for the Markov Chain Model.

This algorithm is explained as one process defending itself as another precedingprocess. They will discover the profit and return amount is conceder as the primary procedure in profit values in defines is the business opportunity.

User of Graphical Analysis Determine the assessment procedure one by one.graphical technique is mostly used to analyse and comprehend commercial opportunities. This section explains the investment average graphical analysis, thenext one calculates the return amount as a graphical statement, another one analyses the profit average in the process, and thefinal one is the main process is calculated as the loss average calculated and another is completed process.

VIICONCLUSION

The entrepreneurial environment is characterized by high levels of uncertainty about the markets that entrepreneurs wish to enter .We developed a dynamic data analysis technique based on a POMDP model to answer our research question about how to analyze imperfect market data for business opportunity evaluation, while accounting for the entrepreneur's individual risk preference and operational shortages. Specifically, we obtain a probabilistic information measure in the form of an emission matrix. That measure enables insights from an observable process related to external factors, which, in turn, helps assess the state of the hidden market. Owing to Markovian modulation of the POMDP model, the findings of our dynamic model are more realistic than standard static models. Whereas one can derive a closed-form solution for certain probabilistic measures using a POMDP, closed-form analytical expressions cannot be obtained for certain cases, such as situations where the investment dollar amount determines the level of Information gain. Therefore, our algorithm numerically mimics the POMDP-based model. We offer insights from our numerical analysis in response to our research question on the impact of the entrepreneur's risk preference and operational shortages on the data-driven investment portfolio. Rather than pursuing the highest expected returns, an entrepreneur may choose perfect information, risk hedging, or market controlling investments,based on his/her cash level and risk preference, in order to maximize
the venture's prospects.

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