DATA DRIVEN ENTREPRENEUR ANALYSIS FOR BUSINESS OPPORTUNITY EVALUATION

SAATHWIK CHANDAN NUNE

 IIM KOZHIKODE

ABSTRACT: High market uncertainty makes it difficult for an entrepreneur to assess the status of the market 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 datadriven 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 operational resource, 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 marketcontrolling 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.

Keyword: Business opportunity evaluation, decision making under uncertainty, data-driven entrepreneurship.

I INTRODUCTION The nature and sources of uncertainty that underpin entrepreneurial decision making have been a key focus of entrepreneurship research [1], [2]. The incorporation of dataanalysis 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 of venture 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 market circumstances 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 information flow 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 feedin-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 an opportunity based on his or her personal riskpreferences (e.g., high, medium, or low risk aversion) [2], [16].

LITERATURE SURVEY

The cornerstone of entrepreneurial decision making is opportunity appraisal. Entrepreneurship academics have extensively 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 idea that 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.

EXISTING SYSTEM:

Consider an entrepreneur who is evaluating a business opportunityfor 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 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 maybe 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 participationin 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 $i$nvestments in f independent external market factors over TPeriods. 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 $vjk \in [0, 1]$, about the market factor $j \in \{1, . . . , f\}$ depends on investment $k \in \{1, . . . , m\}$, 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.

DISADVANTAGES:

- More are less is probability based
- In this process is not secured for the data analyzing system
- 100 percentage is not successful

PROPOSED SYSTEM:

Although our model has enabled us to examine a new method of evaluating a hidden market process, several assumptions, limitations, and related extensions to this research need to be acknowledged. First, our key assumptions pose inherent limitations on our model. For example, although our assumption about an exogenous and independent change in the valuation of investments does not necessarily change our insights, the relaxation of this assumption could lead to more profound insights into the market. Second, a DP allows for nonlinearity, path-dependence, and unpredictability. These properties are important, assuming that a Markov model is a close representation of decision-making in real-world entrepreneurial contexts. Third, we did not account for dependence between market factors (i.e., spill-over effects within the entrepreneur's accumulated information) and selection bias for market factors. Nor did we check the validity of the received information, which raises the question of how an entrepreneur can ensure that he/she is inputting the right information. It would be fruitful for researchers to examine both the selection and validation of market factors (e.g., financial) that we investigated, as well as factors that we overlooked (e.g., political and regulatory). Finally, it would be helpful to examine how entrepreneurs adapt to market realities while their internal processes and technologies evolve. These areas, if explored, could provide important insights for the fields of strategy, OM, and entrepreneurship.

ADVANTAGES

- Business opportunity calculated is easily
- Time is save for this process
- Money is not waste in this analysis
- Most secured process

ARCHITECTURE
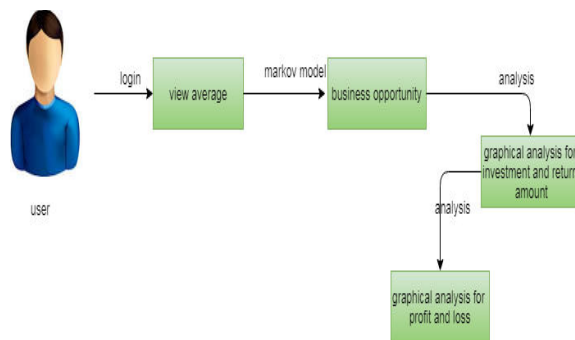
MODULES:

There are three modules can be divided here for this project they are listed as below

- Average Analysis
- Business Opportunity
- Graphical Analysis

From the above three modules, project is implemented. Bag of discriminative words are achieved

MODULE DESCRIPTION:

The modules are implemented as given in the following way

AVERAGE ANALYSIS

The first step for over all data set analyzing for average. This data set contains for Investment details, Return amount details, Profit details, and another one is Loss details. They will be find as Investment average, return amount average, profit average, and another one is loss average .This average analysis for very useful in perfect decision making in business opportunity evaluations.

BUSINESS OPPORTUNITY

One of the next process in business opportunity .This evaluation in calculated and analyzing for best way used in one of popular machine learning algorithms .In this machine learning algorithms for Markov Chain Model algoritham.This algorithms is explained as one process is defends as another one previse process. They will be find out the profit and return amount is conceder as the main process in profit values in defines is one main process is the business opportunity.

GRAPHICAL ANALYSIS

User Find out the evaluation process is one by one .This graphical process mainly used in easy way to analyzing and understanding the business opportunity .This sections is explains as investment average graphical analysis ,next one is calculates as return amount is calculated as and graphical statement ,another one is profit average analyzing in the process, and final is main process is calculated as the loss average calculated and another is completed process.

CONCLUSION

The entrepreneurial environment is marked by significant levels of uncertainty regarding the markets into which entrepreneurs desire to go. To answer our study issue of how to evaluate imperfect market data for business opportunity appraisal while accounting for the entrepreneur's individual risk preference and operational deficiencies,

6219

we build a dynamic data analysis approach based on a POMDP model. We get a probabilistic information measure in the form of an emission matrix. This metric provides insights from an observable process connected to external variables, which aids in assessing the condition of the hidden market. The results of our dynamic model are more realistic than typical static models due to Markovian modulation of the POMDP model. While aPOMDP may be used to generate a closedform solution for some probabilistic measures, closed-form analytical formulations cannot be produced in some circumstances, such as when the investment dollar amount influences the level of information gain. As a result, our technique numerically replicates the POMDP-based model. In answer to our research question on the influence of the entrepreneur's risk choice and operational shortages on the data-driven investment portfolio, we provide insights from our numerical analysis. Rather of seeking the best projected returns, an entrepreneur may select perfect knowledge, risk hedging, or market dominating investments to optimise the venture's chances, based on his or her cash level and risk tolerance. Thus, the importance of high projected returns or flawless information may be secondary to the availability of investments targeted at risk hedging and/or

market management. In our numerical study, for example, we show that when a lack of rules or the entrepreneur's risk aversion produces a larger risk exposure, he or she may be more effective in choosing a risk-hedging investment decision to minimise that exposure. This risk-hedging outcome may appear to be counter-intuitive to earlier studies, which contend that an entrepreneur is more likely to engage in activities that produce a FI and a route for opportunity shift [30]. Data analysis connected to an investment plan, similar to the data-driven viewpoint of entrepreneurship, can lead to new or altered activities that minimise uncertainty even more. Our research indicates that the data-driven decision maker may be more effective if he or she manages an investment portfolio especially customised to an observable Markovian market and then analyses realtime and imperfect data before making a choice. As a result, the entrepreneur's ingenuity, fueled by the availability of data and analytical models, may be critical in minimising market unpredictability. Following that, we discuss our study's theoretical and managerial implications, as well as future research objectives linked to our modelling assumptions and constraints.

REFERENCES

[1]. F.H.Knigh t, Risk, Uncertainty, and Profit. Houghton Mifflin, New York, NY, USA, 1921.

[2] A. McKelvie, J. M. Haynie, and V. Gustavsson, "Unpacking the uncertaintyconstruct: Implications for entrepreneurial action," Journal of Business Venturing, vol. 26, no. 2, pp. 273–292, 2011.

[3] S. Nambisan, "Digital entrepreneurship: Toward a digital technology viewpoint of entrepreneurship," Entrepreneurship Theory and Practice, vol. 41, no. 6, pp. 1029–1055, 2017.

[4] Y. Yoo, O. Henfridsson, and K. Lyytinen, "The new organising logic of digital innovation: An agenda for information systems research," Information Systems Research, vol. 21, no. 4, pp. 724– 735, 2010.

[5].Big Data Analytics in Healthcare Internet of Things, G. Manogaran, D. Lopez, C. Thota, K. M. Abbas, S. Pyne, and R. Sundarasekar. Springer, New York, NY, USA, 2017.

[6] A. Davis, "Venture capital companies make use of big data," Wall Street Journal, April 25, 2017.

[7] V. Wu, "A Machine-Learning Approach to Venture Capital," McKinsey Quarterly, 27 June 2017.

[8] D. A. Shepherd, T. A. Williams, and H. Patzelt, "Thinking about entrepreneurial decision making: A review and research agenda," Journal of Management, vol. 41, no. 1, pp. 11–46, 2015.

[9] S. S. Erzurumlu and Y. O. Erzurumlu, "Development and deployment drivers of clean technology innovations," Journal of High Technology Management Research, vol. 24, no. 2, pp. 100–108, 2013.

[10] "Data-driven innovation for economic growth and well-being," Interim Synthesis Report, OECD, Paris, France, p. 10, 2014.

[11] K. Fehrenbacher, "In a world of cheap oil, Solarzyme abandons biofuels (and its name)," Fortune, 16 March 2016.

[12].Hidden Markov Models: Estimation and Control, R. J. Elliott, L. Aggoun, and J. B. Moore. Springer, New York, NY, USA, 1994.

[13] Baykan, B. G., "Yenilebilirenerjihaberlerinderegulasyonv efinansman one cikiyor," On May 17, 2018, this page was retrieved. [Online]. https://www.sirtcantam.com.tr/yenilenebili r-enerji-haberlerinde-regulas-yon-vefinansman-one-cikiyor/

[14] N. Joglekar and M. Levesque, "The importance of operations management across the entrepreneurial value chain," Prod. Oper. Manage., vol. 22, no. 6, 2013, pp. 1321–1335.

[15] N. Joglekar, M. Levesque, and S. S. Erzurumlu, "Business Startup Operations,"

published in Business Startup Operations. Routledge, Evanston, IL, USA, pp. 255–275, 2017.

[16] J. Mullins and D. Forlani, "Missing the boat or drowning the boat: A study of new venture decision making," Journal of Business Venturing, vol. 20, pp. 47–69, 2005.

[17] H. G. Miller and P. Mork, "From data to decisions: A big data value chain," IT Prof., vol. 15, no. 1, pp. 57–59, 2013.

[18] M. Levesque and L. M. Maillart, "Business opportunity evaluation with expensive, imperfect information," IEEE Trans. Eng. Manage., vol. 55, no. 2, May 2008, pp. 279–291. [19] E. Canakoglu and S. Ozekici, "Portfolio selection with incomplete information: A hidden Markov model," Appl. Stochastic Models Bus. Ind., vol. 27, 2011, pp. 95–114.

[20] G. E. Monahan, "A review of partially observable Markov decision processes: Theory, models, and algorithms," Springer. Management Science, vol. 28, no. 1, pp. 1– 16, 1982