

# Research of Success Factors for Start-up Companies

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**Abstract.** A new venture success prediction model is proposed based on an overview and analysis of success prediction models, analysis of the venture creation process, and a qualitative research - interviews with company owners. The success prediction model is extended with measurable variables. A survey to statistically validate the success prediction model is currently in progress with 68 responses by owners and managers of Bulgarian companies. A brief profile of the enterprises and their owners are presented. The available data is analyzed with IBM SPSS Statistics and shows a correlation of the company success and the success prediction model variables.

**Keywords:** technology entrepreneurship, start-up companies, business processes, business model, new ventures, success prediction, NVP.

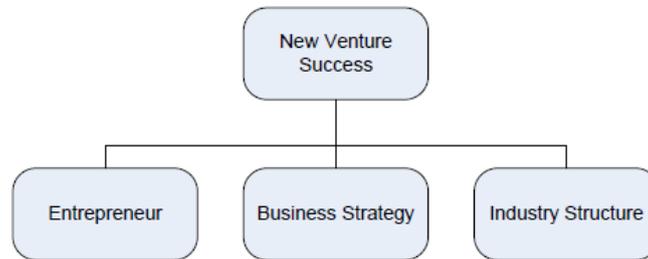
## 1 Introduction

The success of a start-up company is defined as the return of investment for all stakeholders [1]. Young companies are valuable for the economy to generate growth, job opportunities and innovations. Success prediction for new ventures is a technique applied to increase the efficiency of the new venture creation process, to avoid the possible failure, to minimize the risks and resources spend and to increase the returns. Unfortunately there are no success prediction models and software tools developed for Bulgarian start-up companies.

A new venture success prediction model for Bulgarian companies would be useful to entrepreneurs, business owners, business incubators, university start-up centres, business consultants, venture capitalists and investors to predict the success probability for the new companies and to identify the possible strengths and weaknesses.

## 2 Requirements for a new venture prediction model

After an analysis [2] of 42 success prediction models a pattern has been identified. The pattern was introduced by Sandberg [3] in his model from 1986 model as shown in fig. 1.



**Fig. 1.** New venture success model by Sandberg

The model by Sandberg can be illustrated with the formula:

$$NVP = f(E, IS, BS) \quad (1)$$

Where NVP is the new venture performance, E is the entrepreneur, IS is the industry structure and BS is the business strategy. Later studies [4] based on Sandberg include other factors such as the human factor (the entrepreneurial team), the interaction between the company strategy and the industry structure and the available resources.

### 3 New venture success prediction model

By analyzing the requirements for a venture prediction model and the venture creation process model [2, 5, 6], an extended new venture success prediction model [7] based on Sandberg [3] is proposed. The model is presented with the formula:

$$NVP = f(E, IS, BS, R) \quad (2)$$

Where R is a new variable representing the available resources. The other variables are similar to the ones from Sandberg's model: NVP is the new venture performance, E is the entrepreneur, IS is the industry structure and BS is the business strategy. Each of the main categories in the company success prediction model is decomposed into subcategories [7] as shown on fig. 2 - derived by the author.

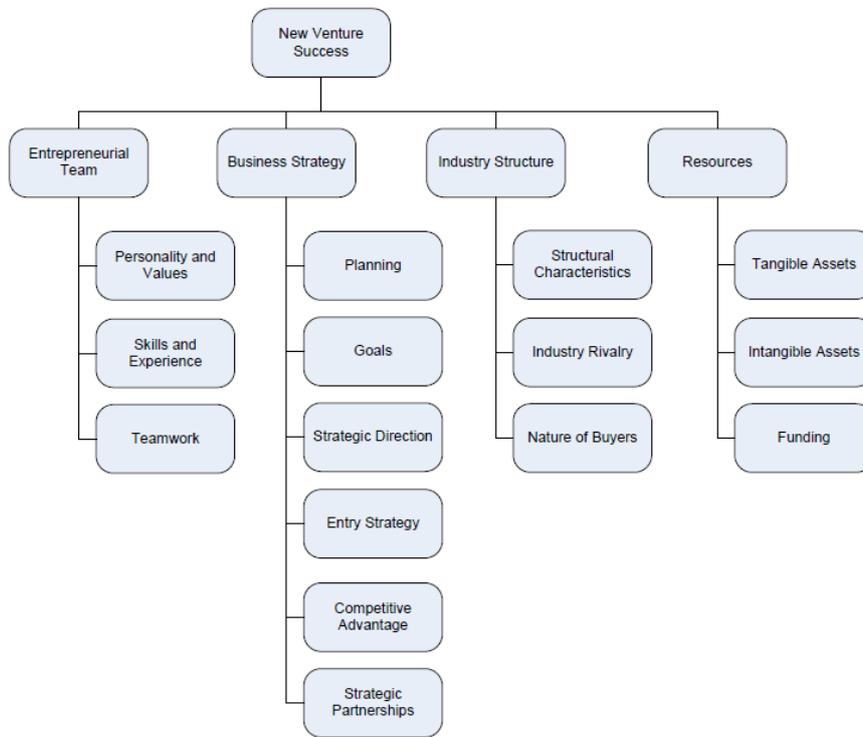


Fig. 2. New venture success prediction model proposed by the author

#### 4 Qualitative research for the new venture success prediction model

The new venture success prediction model has been revised with the help of a qualitative research [7] by conducting in-depth interviews with duration of 0:30 to 2:30 hours with non-representative cases – 5 owners of innovative Bulgarian companies operating in several industry sectors. The summarized results are presented in Table 1.

Table 1. Summarized results from the qualitative research of opinions about the proposed NVP model

Qualitative Research Results
The areas of operation of the companies are information technologies, medicine and agriculture.
All respondents are company owners.
The companies were founded 1 to 5 years ago and all of them are currently active.
All respondents described the new venture success prediction model as logical and correct.

The respondents did not find any gaps in the model but they suggested many improvements and additions regarding the individual criteria.

The respondents did not find any unnecessary data in the model.

All respondents think that a software to predict the success of start-ups and young companies would be beneficial. Only some of them are ready to pay for the software but all of them would use it if it was free. They would use the software to help their start-ups and initial researches, for assessment of the company, for localization and improvement of weak points. Some of the interviewees will trust the software but other will first need a proof: information about the algorithm and the underlying logic, details and explanations about the model.

The respondents described most criteria as logical, clear and measurable. They were able to understand and answer most of the questions without difficulties. However they had uncertainties about many questions regarding the team, the personality and the industry. None of them knew their personality type. All interviewees requested definitions for management or marketing terms that they did not understand or misinterpreted. The respondents suggested many improvements and additions regarding the individual criteria.

## 5 Conclusion and future work

The qualitative research confirms that the proposed model for predicting the success of new ventures is accepted by the Bulgarian entrepreneurs as logical and complete. They identified the proposed category “Resources” as an integral and important part of the model. The interviewees expressed a clear interest in the research and a need for a software for predicting the success of young companies and for suggesting possibilities for improvements.

**Анкета - Модел за предсказване на успеха на стартиращи фирми**

Настоящото изследване е с научна цел във връзка с дисертация по "Технологично предприемачество" към Софийски Университет "Св. Климент Охридски" и има за цел да провери модел за предсказване на успеха на стартиращи компании в помощ на българския бизнес. Анкетата е предназначена за мениджъри, управители, предприемачи и собственици на фирми. Всички отговори са анонимни и няма да бъдат обработвани индивидуално, а само съвкупно.

**Предприемачески екип**

**Личност и ценности**  
Моля, на всеки ред изберете в каква степен сте съгласен с всяко едно от следните твърдения

	Напълно несъгласен	По-скоро несъгласен	Нито съгласен, нито несъгласен	По- скоро съгласен	Напълно съгласен
Мога да се справям в работата си без нужда от съдействие.	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Аз съм уверен в себе си.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Аз съм предприемчив, инициативен.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Това, което ми

Fig. 3. Screenshot of a part of the survey for the NVP model

A quantitative research using an online survey (fig. 3) is conducted to validate the proposed success prediction model for start-up companies. The respondents are owners, directors and managers of start-up and young companies. The goal is to collect responses from at least 200 company representatives during a 6-month timeframe.

According to the results from the quantitative research, the typical Bulgarian entrepreneur is 30-39 aged male with a master degree. 90% of the companies have 1 to 10 employees and are classified as small. The funding source of the companies is usually the founder's own capital.

The current data contains responses by 68 company representatives. An initial analysis of the available data with IBM SPSS Statistics shows correlation of the company success and some of the variables in the new venture success prediction model. This confirms the connection of the new venture success and the variables from the success prediction model. More respondents are necessary to improve the accuracy of the quantitative analysis. Further analysis of the data with statistical software is expected to result in more details and insights about the creation of new ventures.

**Acknowledgments.** This work was supported by the European Social Fund through the Human Resource Development Operational Programme under contract BG051PO001-3.3.06-0052 (2012/2014).

## References.

1. Bailetti, T. (2012), Technology Entrepreneurship: Overview, Definition, and Distinctive Aspects, *Technology Innovation Management Review*.
2. Yankov, B. (2012), Overview of Success Prediction Models for New Ventures, *International Conference Automatics and Informatics'12*, ISSN 1313-1850, pp 13-16.
3. Sandberg, W. R. (1986). *New venture performance: The role of strategy and industry structure*. Lexington, MA: Lexington Books
4. Chrisman, J., Bauerschmidt, A. and Hofer, C. (1998), *The Determinants of New Venture Performance: An Extended Model*
5. Carland, J.W. and Carland, J.A. (2000), *A New Venture Creation Model*, Western Carolina University.
6. Abbas, A.A. (2008), *An Assessment Methodology for Predicting the Success of Technological Enterprises*
7. Yankov, B. (2013), *A Model for Predicting the Success of New Ventures*, V International Scientific Conference "e-Governance", 2013, ISSN 1313-8774, pp.128-135