

TECHNOLOGICAL ENTREPRENEUR'S PROFILE

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Abstract—Entrepreneurship is a subject of great interest, a process in which more and more people want to take part. The main character of entrepreneurial process is the entrepreneur. He is motivated by various factors and, with certain abilities, competences, attitudes and skills he can develop a sustainable business. In this study, the author aims to develop a profile of technological entrepreneur, starting from a variety of entrepreneurs' characteristics, identified in literature.

Keywords—Entrepreneurship, innovation, technological entrepreneurship, profile of technological entrepreneur

I. INTRODUCTION

ENTREPRENEURSHIP is a term with a definition still unclear formulated because of too many different points of view from which it has been studied. From this reason, the entrepreneurship is classified into several branches, like green entrepreneurship, young entrepreneurship, social entrepreneurship, technological entrepreneurship and so on.

The research subject from this paper is represented by technological entrepreneurship domain and the technological entrepreneur.

II. CONCEPTUALIZATION OF TERMS USED IN RESEARCH

A. Entrepreneurship

This term represents the engine of a wealth economy, a jobs generator. It describes a process where the main actor is the entrepreneur or the entrepreneurial team, who comes with an idea and, using a given market opportunity and necessary resources, he or they create a sustainable and wealth business

Throughout the history of this concept, which began with Richard Cantillon, in the eighteenth century, entrepreneurship has been viewed from many angles. It has been defined as a "joining of all factors of production" [1], as "the approach of uncertainty" [2], as "the driving force that supports the creation of social wealth" [3], as "identifying opportunities in the economic system" [4], as "activities necessary to create or develop an enterprise, accounting the fact that not all

markets are good or clearly defined, and some relevant parts of the production function are not fully known" [5], as "those new firms that create something new, something different, they change or transform values" [6], as the "exploration of opportunities" [7], as the "creation of organizations" [8], as the "taking responsibility and court decisions that affect the location, the form and use of assets, resources and institutions" [9], as "the capacity to recognize and exploit opportunities regardless of the resources available to an individual at a time, so, with full confidence in success, with the flexibility required by the course of events and the desire to get up and to survive on the most brutal failures" [10] and also as "the road from idea to opportunity and success in business" [11].

B. Technological entrepreneurship

Technological entrepreneurship is studied in this paper as a branch of entrepreneurship and it is defined as an important modality to commercialize technical innovations. The literature revealed that technological entrepreneurship was also interpreted in different ways and at different levels of analysis, as a system [12], as a strategy [13], as a "concept linking the concepts of technology and marketing innovation, bringing together the worlds of technology and business in a profitable way" [14], as an individual approach a process [15], as a process [16], a policy [17], as a "complex phenomenon that encompasses multiple disciplines and levels of analysis" [18] or it "incorporates four main sets of activities relating to: creating new technologies or identify existing technologies (but previously undeveloped); the recognition and matching of opportunities arising from the application of these technologies to emerging market needs, technology development/application, and business creation" [19].

III. TECHNOLOGICAL ENTREPRENEUR'S PROFILE

In this research, the term "entrepreneur" is used with the meaning of the person that comes with the business idea, searches and finds the market opportunity for it, gathers the resources and a team if necessary and builds the business.

The profile of an entrepreneur as a general view is composed of competences, abilities, attitudes and skills (Fig. 1).



Fig. 1. Components of an entrepreneur's profile

Competence is defined as individual characteristic causally related to efficiency and/or high performance in a profession or situation [20], [21] and as the sum of knowledge, abilities and attitudes that contribute to a person's capacity to perform effectively the duties and responsibilities of the job [22].

From this point of view, the entrepreneur's competences are divided into three categories:

a) personal competences (innovative, creative and critical thinking, wish fulfillment, initiative, adaptability, confidence and self-control);

b) social competences (political consciousness, the ability to influence others, leadership, change catalyst);

c) practical/professional competences (the ability to recognize and analyze market opportunities, management skills: focus on performance, flexible strategic orientation, demonstrate appropriate attitudes and behaviors in working with others, effective communication and negotiation, learning effective during business relations, knowledge management, financial management and human resource management) [23]

The competences presented above are based on entrepreneurial abilities.

An entrepreneur, when is looking for a market opportunity, he needs a vision. Vision is very difficult to define, because in essence represents to see what others do not see. Entrepreneurs need to develop a vision and determine ways to combine previously unidentified component to take advantage of perceived business opportunity [24], [25].

The entrepreneur, in his way to succeed, he faces also with failure. This is one reason for entrepreneur to have

perseverance and determination. Giving up is much easier than risking and trying out again. So to create something requires a combination of many traits, including the discipline and perseverance to transform new ideas into product [26]. Entrepreneurs by definition are going to be some people very self-motivated and with a very good self-control. In consequence, these three factors, motivation, desire and determination, play a very important role in achieving success [27].

Literature says that being a charismatic visionary leader is "telling time" and building a company that can prosper is "clock building" [28]. Also, one of the ten most important entrepreneurial abilities is persuasion – "Entrepreneurs influence other people to follow them or do something for them" [29].

Positive thinking is a factor with a special influence over the decisions adopted by an entrepreneur in the process of developing a business idea.

Another ability of entrepreneur is the passion for their own business. This passion is beneficial first and foremost those who are at the first start-up and to implement the first idea, because passion is a pretty good motivation to have the courage to begin the adventure. Passion was identified as a key factor influencing venture capitalists investment decisions [30].

Trust in people is also a "You can't achieve a sustainable and scalable entrepreneurship without being based on a very simple and clear concept, called the delegation" [31].

To be a good technological entrepreneur it is paramount for him to know the field of activity. And this knowledge of the industry refers both to the know-how and the experience in the respective field of activity.

Creativity and innovation are very closely related; in some cases, in the business environment, innovation may be regarded as an applied creativity. Thus, technological strategy involves a commitment of the company to acquire, develop and launch technology [32]. Innovation is the implementation of new factors [33]. In the literature, innovation is also seen as a proposed theory or design concept that synthesises extant knowledge and techniques to provide a theoretical basis for a new concept [34], [35].

In the literature review was found a linkage between entrepreneurs' typology and strategy typology. From this linkage derived a new classification of entrepreneurs:

„a) Prospectors: These organizations tend to operate in volatile environments and are continually searching for market opportunities. These organizations are often the creators of change to which competitors must respond. Response to emerging trends is the primary focus of prospectors, through new product research and development. Prospectors have a broad market domain, a focus on innovation and change, and a flexible organizational structure headed by younger managers, while defenders and prospectors reside at opposite ends of a continuum of strategic proactiveness.

b) Defender: These organizations tend to operate in a

narrow and stable product-market domain, customer group, established structure managed by older executives. Top managers are highly expert in their organization's limited area of operation, but do not tend to search outside the domain for new opportunities. Primary attention is devoted to improving efficiency of existing operations.

c) Analyzers: These organizations are between the extremes of prospector and defender, and thus exhibit characteristics of each. They watch competitors closely, and then adopt the most promising new ideas using their efficient research and production skills.

d) Reactors: These are organizations in which top management perceives change and uncertainty but is unable to cope with it. This strategy is not viable in the long term. Reactors have no consistent strategy and do not belong to the continuum." [36].

Many researchers have studied entrepreneur's competences and realized different classifications, but there is an important observation if we look closely: there are some competences founded more often in the literature, and others less often.

From this point of view, the author used in this study the most often founded entrepreneurial competences from the literature.

IV. METHODOLOGY

The research methodology is based on quantitative research, realized through questionnaire survey. The instrument has been structured in four categories of influence factors in the success of a business idea from technological domain: entrepreneur and his personal and professional characteristics, technology, environment and resources.

For this study there are presented the results obtained for the first category of influence factors (Table I). This category, named "Competences of a young (potential) entrepreneur" from technological entrepreneurship domain was composed of nine influence factors-competences, abilities, aptitudes and skills, from those presented above. These factors had been selected due to the importance given by the literature.

TABLE I
 COMPETENCES OF A YOUNG (POTENTIAL) ENTREPRENEUR

No.	Influence factors
A1	Vision
A2	Creativity
A3	Industry knowledge
A4	Perseverance and determination
A5	Charisma and persuasion
A6	Positive thinking
A7	Passion for your own business
A8	Trust in people
A9	Attitude

The questionnaire was applied to ten entrepreneurs from technological domain, with age between 23 and 39

years old.

Subjects have used a scale from 1 (least important) to 5 (most important) to appreciate the importance of the entrepreneur's characteristics.

The survey occurred in environments controlled by the interviewer and online, through social networks and e-mail.

V. RESULTS AND CONCLUSION

After the application of the questionnaire and the data collection, had been obtained the results presented in Fig. 2.

Using the data base with the answers from the ten entrepreneurs was made a count of them for each competence.

In the importance order, the most important competence for technological entrepreneur's profile is creativity and the less important is charisma and persuasion. On the second place is industry knowledge and on the third place are perseverance and determination. The less important competences seems to be positive thinking, passion for your own business, trust in people and attitude.

Each study brought different results regarding the portrait of a successful entrepreneur. But, depending on the sphere of activity, entrepreneur's profile suffers various changes by that some competences are developed more than others.

In conclusion, the portrait of a technological entrepreneur is composed mostly of the same specific skills as of any other kind of entrepreneurs.

The major differences between technological entrepreneur and other categories of entrepreneurs, regarding competences, are given by the industry knowledge, expertise, creativity and innovation.

The major similarity between all categories of entrepreneurs is the passion for own business.



Fig. 2. The competences' importance

VI. RESEARCH LIMITATIONS AND FUTURE RESEARCH

The research has a medium validity because of the number of subjects. For the same reason it could not be done complex statistical operations.

New research could consider other entrepreneurial skills. The questionnaire might be structured depending

on different types of skills, abilities and attitudes. It can be also made a comparative study between young entrepreneurs and those with broader experience or between entrepreneurs from different domains of activity.

REFERENCES

- [1] J. B. Say, "Treaty of political economy", (after ed. 1803). Coppet Institute, Paris, Cap. VI, 2011, pp. 49.
- [2] F. H. Knight, "Risk, uncertainty and profit", Boston, MA: Hart, Schaffren & Marx; Houghton Mifflin Co, 1921.
- [3] Ludwig von Mises, "The Economics of War", Kessinger Publishing, LLC, 1949.
- [4] E.T. Penrose, "The Theory of the Growth of the Firm", (after ed. 1963) M. E. Sharpe, 1980.
- [5] H. Leibenstein, "Entrepreneurship and development". American Economic Review, 58(2), 1968, pp. 72-83.
- [6] P. F. Drucker, "Technology, Management and Society", New York: Harper & Row, 1970.
- [7] I. M. Kirzner, "Perception, Opportunity and Profit: Studies in the Theory of Entrepreneurship", University of Chicago Press, 1973.
- [8] W. B. Gartner, "'Who is an entrepreneur?' is the wrong question". American Journal of Small Business, 12(4), 1988, pp. 11-32.
- [9] R. Hebert and A. Link, "In Search of the Meaning of Entrepreneurship", Small Business Economics, vol. 1, no. 1, 1989, pp. 39-50.
- [10] B. Reiss, "Low Risk, High Reward: Starting and Growing A Business with Minimal Risk", ISBN 0-684-84962-3, 2000.
- [11] M. Ghenea, "Entrepreneurship: the way from idea to opportunity and business success", Bucharest, Romania: Juridical Universe, 2011.
- [12] P. R. Abetti, "Planning and building the infrastructure for technological entrepreneurship." International Journal of Technology Management, Vol.7, No.1-2, 1992, pp. 129-139.
- [13] J.S. Gans and S. Stern, "The Product Market and the Market for Ideas: Commercialization Strategies for Technology Entrepreneurs", Research Policy, Vol. 32, 2003, pp. 333-350.
- [14] R. A. Burgelman, C. M. Christensen and S. C. Wheelwright, "Strategic management of technology and innovation". New York: McGraw Hill, 2004.
- [15] R.C. Dorf and T.H. Byers, "Technology Ventures: from Idea to Enterprise", New York: McGraw-Hill, 2005.
- [16] B. Antoncic and I. Prodan, "Alliances, corporate technological entrepreneurship and firm performance: testing a model on manufacturing firms", Technovation, Vol. 28, 2008, pp. 257-65.
- [17] G. Zhang, P. Xuebing and J. Li, "Technological entrepreneurship and policy environment: a case of China", Journal of Small Business and Enterprise Development, Vol. 15 No. 4, 2008, pp. 733-51.
- [18] C. Petti, "Cases in technological entrepreneurship: Converting ideas into value", Northampton, MA: Edward Elgar, 2009.
- [19] C. Petti, and S. Zhang, "Factors influencing technological entrepreneurship capabilities: Towards an integrated research framework for Chinese enterprises", Journal of Technology Management in China, Forthcoming, 2011.
- [20] A. Mitrani, M. Danziel and D. Fitt, "Competency-based human resource management: Value driven strategy for recruitment, development and reward", London:UK, Kogan Page Ltd, 1992.
- [21] L.M. Spencer Jr.; S. M. Spencer, "Competence at work: Models for superior performance", John Wiley & Sons, New York, 1993.
- [22] McClelland David, "Testing for competences rather than intelligence", American Psychologist, January 1973, remarks made at a public lecture given at the Educational Testing Service, Princeton, New Jersey, 4 January.
- [23] S. Avasilcai, C. A. Hutu, "Entrepreneurial Competences", Performantica Ed.Iasi, 2012, Chapter IV, pp. 166-169.
- [24] B. J. Bird, "Entrepreneurial Behavior", London: Scott, Foresman, 1989.
- [25] J. A. Schumpeter, "History of economic analysis", New York: Oxford University Press, 1954.
- [26] T. S. Schweizer, "The psychology of novelty seeking. Creativity and innovation: Neurocognitive aspects in a work-psychological perspective", Creativity and Innovation Management, 15(2), 2006, pp.164-172.
- [27] T. Kollman, A. Kucketz and C. Stockmann, "E-Entrepreneurship and ICT ventures: strategy, organization and technology". Hershey, New York: Business Science Reference, 2010, ch. 9.
- [28] H. Mintzberg, B. Ahlstrad and J. Lampel, "Strategy Safari: A guided tour through the wilds of strategic management", New York: The Free Press, 1998, ch. 5.
- [29] Eurostat – Statistical Books. "Entrepreneurship determinants: culture and capabilities", Luxemburg: Publication Office of the European Union, 2012, pp. 62.
- [30] X. Chen, X. Yao and S. Kotha, "Entrepreneur passion and preparedness in business plan presentations: a persuasion analysis of venture capitalists' funding decisions", The Academy of Management Journal, 52(1), 2009, pp. 199-214.
- [31] M. Ghenea, "Entrepreneurship: the way from idea to opportunity and business success". Bucharest, Romania: Juridical Universe, 2011.
- [32] G. T. Lumpkin and G. G. Dess, "Clarifying the entrepreneurial orientation construct and linking it to performance", Academy of Management Review, 21, 1996, pp. 135-172.
- [33] J. Schumpeter, "The theory of Economic Development", Harvard University Press, Cambridge, MA, 1934.
- [34] J. Sundbo, "The Theory of Innovation: Entrepreneurs, Technology and Strategy", Edward Elgar, Northampton, MA, 1998.
- [35] J.R. Bright, "Some management lessons from technological innovation research", Long Range Planning, Vol. 2 No. 1, 1969, pp. 36-41.
- [36] A. M. D. Mustafa, Y. Mustafa and D. Esra, "Is there any linkage between entrepreneur typologies and strategy typologies?" Procedia Social and Behavioral Sciences, 24, 2011, pp. 601-610.