

EDUCATIONAL MANAGEMENT IN THE FIELD OF LIFE SCIENCES - KEY COMPETENCES NEEDED TO START AND DEVELOP THE INNOVATIVE SME'S

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Abstract

The goal of the paper was to elaborate the basic template regarding the entrepreneurship key competences needed to start and develop innovative SMEs. Key competences were established based on the Field Survey Method using questionnaires, distributed to a sample of 100 entrepreneurs or individuals who would like to develop their own business and company. Based on the survey analysis, received from the 100 respondents, the Matrix of Competency was validated. So according to this, the ideal candidate to manage a company operating in the field of life sciences must be an independent person (81%), with ability to work in the multidisciplinary teams, and has the capacity to communicate his/her own ideas (92%). This person should have the capability to take the risk (77%), to feel the business opportunity, to take the initiative (83%) and to draw decisions based on limited information (74%). As a result of the responses received, the matrix of competency, developed as a questionnaire, has been validated and will be used to the selection of persons who wish to become entrepreneurs in order to manage the business in the fields of the life sciences.

Key words: entrepreneurship matrix, key competences

INTRODUCTION

Entrepreneurship is of critical importance to the modern economy. Researchers have studied entrepreneurship for decades. In recent years, significant relationship between entrepreneurial competencies and firm performance has been reported. Applying the competency approach, it was assumed that entrepreneurial competency differentiates entrepreneurs from non-entrepreneurs. Competencies are assessed in terms of actual behaviour observed in the workplace and are usually defined in terms of underlying personal characteristics like traits, knowledge, skills and attitudes. According to the literature [4,5,6,7,8,9,10] the biotech entrepreneur is unique from all other entrepreneurs, as he/she voluntarily leaves the comfortable world, and steps into an industry that carries uncertainties and risks unique to any other business. Entrepreneurs should be sure they possess these characteristics if they are going to start a

biotech company, because they will need them, when they face the many challenges during company development. In the competitiveness model for SME's, [1, 2, 3] distinguishes four major constructs: entrepreneurial competencies, competitive scope, organizational capabilities, and firm performance. The competitive scope and organizational capabilities represent the constructs of external environmental factors and internal firm factors, respectively. Central to the model are the relationships between entrepreneurial competencies and other constructs. In a market system, sustainable development requires sustainability innovation and entrepreneurs who can achieve environmental or social goals with superior products or processes that are successful in the marketplace of mainstream customers. Market innovations driving sustainable development do not necessarily occur by accident, but can be created by leaders who put them into the core of their business

activities.

Actors and companies making environmental progress to their core business can be called sustainable entrepreneurs. The framework for sustainable entrepreneurship which so far has covered business approaches with a strong inclusion of sustainability issues is further developed by including social entrepreneurship, i.e. the application of the entrepreneurial approach towards the primary goal of meeting societal goals.

Sustainable entrepreneurship is in essence the realization of sustainability innovations aimed at the mass market and providing benefit to the larger part of society.

As a consequence, sustainable entrepreneurship - defined in a narrow sense - deals with a very innovative company start-up supplying environmentally and/or socially beneficial products and services with the potential to conquer a large part of the market. The innovator role requires an ability to identify new market, organizational, or technological opportunities and combine new or existing resources in unique and creative ways. Competence in this role will be positively related to the degree of domain-specific knowledge, cognitive ability, creativity, conscientiousness, and openness to new experience. Conscientiousness is associated with intrinsic motivation and persistence, while openness to new experience is associated with the willingness to seek new knowledge from diverse sources. These two personality characteristics are contributing factors to individual creativity that, when combined with high levels of cognitive ability and domain-specific knowledge, can be expected to provide the foundation for innovative competence. Four behaviours are associated with brokering competence: exploration of diverse knowledge domains; learning from these multiple knowledge domains; linking knowledge from diverse domains to solve novel problems; and implementing ideas.

MATERIALS AND METHODS

This research work was developed within the project entitled "Improved curricula and

modern learning system to promote the new directions of business enhancement in life sciences applications". One important step during its running, it was the elaboration of a "Basic template regarding the entrepreneurship key competences needed to start and to develop innovative SMEs in the bio economic sector".

Key competences were established on the basis of Questionnaires, at which were invited to respond the people who have entrepreneurial skills or they who have or want to have their own company.

Table 1. Personality characteristics

Characteristics	DESCRIPTION
Risk seeking/ tolerance	The capacity to accept and to like risks, when they are needed to take steps towards new achievement.
Self-confidence	Feeling able to do something, having a positive perception of one self, being certain of one's potential, expressing one's point of view even if it diverges from the prevailing opinion.
Self-efficacy	The extent or strength of one's belief in one's own ability to complete tasks and reach goals.
Strong sense of independence	The ability to take responsibility for one's actions without unnecessary reliance on the help of others.
Self-made/ self-belief	The belief in own abilities: self-assurance or a persuasion in own capacity to succeed
Inventive orientation	The continuous pursuit of new technological ideas and business opportunities
Optimistic orientation	The belief that one's life outcomes are controlled by internal factors, such as ability, instead of external factors, such as powerful others' influence or chance.
Competitive spirit	The liking of competition or inclination to compete, characteristic to people who are enthusiastic about the competition and often seeking this type of competitive atmosphere in whatever they do and always up for a challenge.
Courageous and well organized	Bravery spirit, the capacity to face dangerous situations, pains, difficulties without fear together with the characteristic to be orderly and efficient, to plan and execute one's activities efficiently.
Communication capacity	Characteristic determined by efficient transfer of information to others and linked to active & empathetic listening
Networking ability	Capacity for interpersonal relationships (social and emotional intelligence), persuasion and networking, based on the understanding of relationships and networks' roles
Management capacity	The potential to gather and strengthen knowledge and competencies in four main areas needed for a start-up enterprise or an existing SME, with an impact on a firm's profitability: (1) Strategic and management knowledge aspects (2) Understanding the running of the business and of the potential opportunities or threats; (3) Willingness to question and review the established patterns (4) time in management development.
Leadership characteristics	The leadership can be defined as a process of "using no coercive influence to direct and coordinate activities of the members of an organized group toward the accomplishment of group objectives".
Capacity to work in multi-and cross-disciplinary teams	The potential to understand and integrate multi-disciplinary and cross disciplinary knowledge or competencies together with the capacity to good collaboration with people with complementary or different backgrounds
Adaptation to changing conditions	The potential to understand that only this continuous orientation can assure the business long run.
Training model:	Self-help, better coaching or mentoring

Source: [4, 7, 9]

Of the responses received, only 100 were selected as valid answers (i.e. people working in the life sciences, and are younger than 44 years). The structure of the Questionnaire is presented in Table 1 and Table 2.

Table 2. Skills and abilities

Crt. No.	Skills and abilities	Development model	Specific assessment test
1	Organizing associations / networks	Integration of formal and informal learning, meaning especially: e-learning, webinars, training videos, case studies, learning by doing training, peer-to-peer communication, meetings and visits, cross training, supervision, exploration, documentation	Follow-up questionnaires and surveys; follow-up interviews; follow-up focus group; observing participant on the job; monitoring specific performance data; action planning and specific follow-up assignment; organizing follow-up session; simulation methods and context.
2	Recognizing opportunities based on innovation		
3	Initiative orientation		
4	Decision making		
5	Creative thinking		
6	Determination		
7	Quick and forward judgment		
8	Persuasion spirit		
9	Hard working		
10	Holistic management		
11	Achievement orientation		
12	Imaginative use of knowledge		
13	Leading R & D activities		

Source: [4, 7, 9]

RESULTS AND DISCUSSIONS

Analyzing the responses obtained from questionnaires received, we found that:

In terms of personality characteristics (Figure 1) required of an entrepreneur, we found the following:

- 81% of respondents have business ideas and are determined to be independents;
- 74% of respondents are able to coordinate new projects or a new company;
- 95% of the respondents have the ability to work in multidisciplinary teams;
- 77% are people who like to take risks;
- 90% of respondents are people who like to compete with others;
- 92% of respondents are able to communicate their ideas.

In terms of abilities and skills required of an entrepreneur (Figure 2), it was found that:

- 83% of respondents perceive correctly the business opportunities based on innovative processes;
- 81% of respondents are determined to be independents;
- 86%of respondents have the ability to use their knowledge in a imaginatively way;
- 74% of respondents are able to make the right decisions, based on limited information;
- 83% of respondents are people with

initiative.

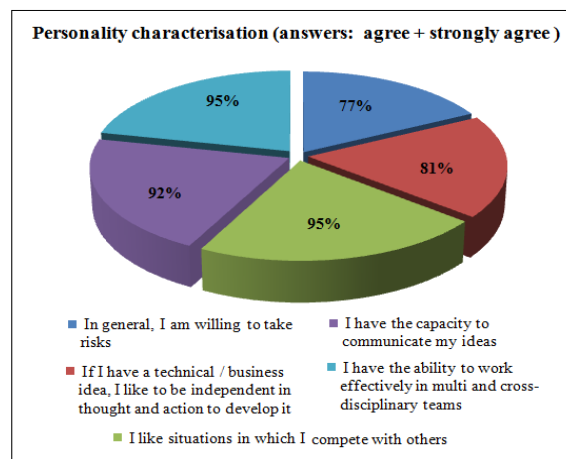


Fig. 1. The main personality characteristics of Entrepreneurs

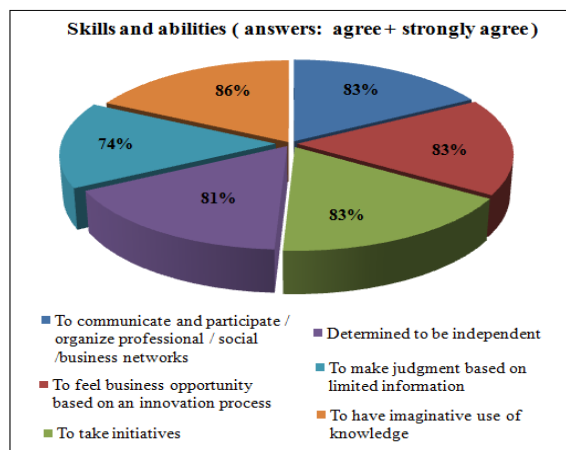


Fig. 2. The main skills and abilities characteristics of Entrepreneurs

As a result of the responses received the matrix of competency, developed as a questionnaire, has been validated and will be used to the selection of persons who wish to become entrepreneurs, in order to manage the business from the fields of the life sciences.

CONCLUSIONS

Based on survey analysis, received from 100 respondents, the part of Matrix of Competency regarding personality, skills and abilities characteristics was validated; so according to this, the ideal candidate to managed of the company which activate in the field of life sciences must be a persons which are determined to be independents (81%), with ability to work in the multidisciplinary teams, and which have the capacity to

communicate the own ideas (92%). These persons have the capability to take the risk (77%), to feel the business opportunity, to take the initiative (83%) and to make decisions based on limited information (74%).

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