



European Biotech Entrepreneur Profile

- A case study in Romania, Italy, Spain and Belgium -

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CONTENT

Project partners	4
Introduction.....	5
General information on the respondents.....	6
Respondents companies' profiles.....	8
Entrepreneurial profiling of the respondents.....	11
Biotech Entrepreneur profile through respondents' "eyes"	16
Biotech entrepreneurship in the societal context	19
General conclusion.....	23
Annex 1 - Questionnaire on Biotechnology Entrepreneur Profile.....	25

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Introduction

SupBioEnt – “Supporting biotechnology students oriented towards an entrepreneurial path” project is aimed at decreasing the unemployment of European higher education (HE) graduates by increasing the level of successful Biotechnology graduates following an entrepreneurial pathway.

The main SupBioEnt purposes are:

- developing innovation in Biotech higher education towards entrepreneurship by delivering five innovative intellectual outputs to be used by Biotech and Economics HE teachers and students in the educational process;
- developing an entrepreneurial culture and skills of at least 220 Biotech and Economics students involved directly in the project activities by delivering two educational materials and one training programme;
- widening the inter-academic and academia-business cooperation in the field of Biotechnology by the involvement of at least four academic Biotech providers, one Economic university and at least 12 Biotech stakeholders.

According to STATISTA (www.statista.com), 2259 biotech companies have been registered in Europe in 2016, of which 2025 were private (89.6%). An entrepreneurial spirit does not come easily to everyone. It takes a certain type of personality to strike out independently, but there is also a range of business skills needed to find success.

The second output of SupBioEnt is trying to profile the Biotech Entrepreneur skills, knowledge and competencies adapted to different socio-economical contexts. An analysis of potential differences between the Western and Eastern Europe sides has also been performed in this respect. The content is based on answers given to an online (<http://supbioent.usamv.ro/questionnaire-on-biotechnology-entrepreneur-profile/>) and paper printed questionnaire (Annex 1).

General information on the respondents

The **respondents' profile** targeted mainly biotech companies' owners or shareholders and secondarily, employees with or without managing responsibilities in biotech companies. The questionnaire has been fully completed by 74 respondents of which 40.54 % were from Eastern Europe (Romania), 58.37 % from Italy, 9.46% from Spain, 13.51% from Belgium and 8.1% from other countries. From the total, only 30% are owners of their companies, but their distribution among the countries is significantly different (fig. 1); while in the case of Italy, 91% are owners or shareholders, 43% are in the case of Spain, 30% for Belgium and only 24% in the case in Romania. From the total, 23% of the respondents were persons without managing responsibilities.

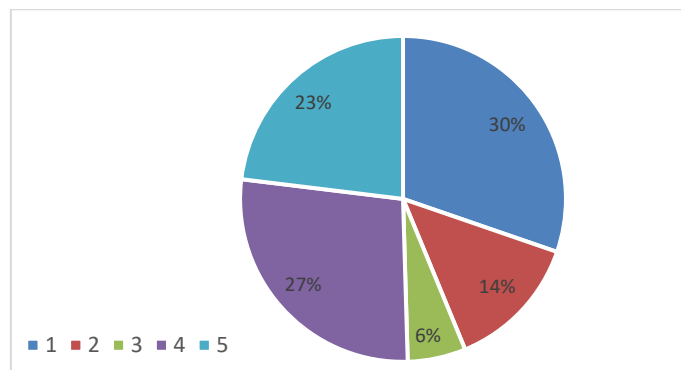


Fig. 1 Respondent profiles: (1) Company owner; (2) Shareholder; (3) Employee with managing responsibilities; (4) Employee with responsibilities in developing and /or launching new products and services; (5) Employee w/o managing responsibilities

When asked if they are the only company shareholder, 16% answered that they are single shareholders in the company they work, 39% have another shareholder, 22% share more than four shareholders. Further, when asked whether they had other entrepreneurial initiatives, 77% answered 'no', 17% of the respondents were in the second entrepreneurial initiative and 6% responded that they had at least four such initiatives.

Regarding **educational level**, except Italian respondents (76%), for all the other countries 100% are university graduated; from the total, 27% own a doctoral degree (fig. 2).

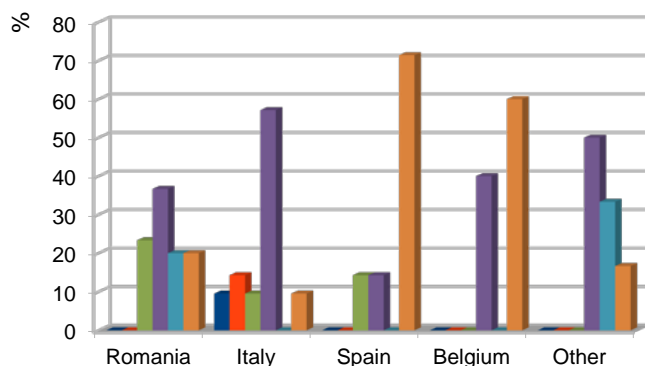


Fig. 2 Educational distribution among respondents: (a) Secondary school; (b) Post-secondary studies (not university); (c) Bachelor Degree; (d) Master Degree; (e) Doctorate; (f) Other University studies

Also, 78.4% of them have followed **advanced training courses**; the distribution by countries is presented in figure 3. In the top are the Belgian with 90% advanced trained respondents, followed by the Spanish (85%), then by the Italian (76%) and 73% in the case of Romania (fig. 3). Most of those advanced courses were in the topics of management and marketing, followed by biotechnology and entrepreneurship.

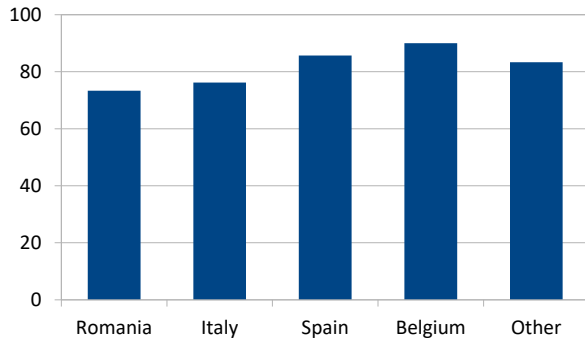


Fig. 3 Respondents with advanced training courses

When asked about their **monthly income**, on average an equal distribution between the incoming categories has been noticed (fig. 4). However, the situation between Eastern and Western Europe is significantly different (fig. 5). While more than half of the Romanian respondents (56%) has an income lower than 1000 euros/month, around half of the Italian and Spanish respondents have an average income between 2000 and 3000 euros, while most of the Belgians have a monthly income between 2000-3000 or over 3000 euros (fig. 5).

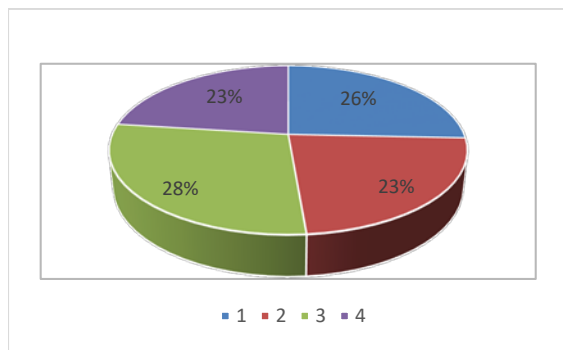


Fig. 4. Average monthly income of the respondent

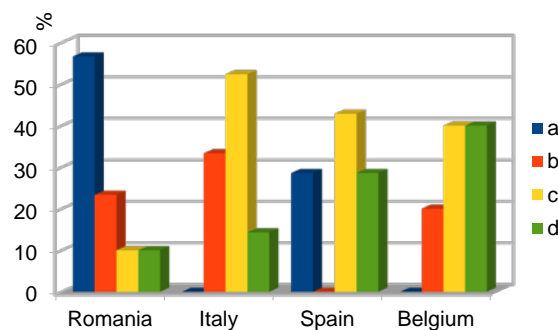


Fig. 5. Monthly income repartition among countries

- (1/a) <1000 euros
- (2/b) 1001 - 2000 euros
- (3/c) 2001 - 3000 euros
- (4/d) > 3000 euros

Regarding **age** (Fig. 6), few of the respondents were under 25 years old (y.o.)(11%), and equally (28%) distributed respondents of 26-35 y.o. and over 45 y.o. The most significant number is included in the category 36-45 y.o. (33%). Regarding the **gender distribution** among the respondents, 52.7% were men and 47.3 women.

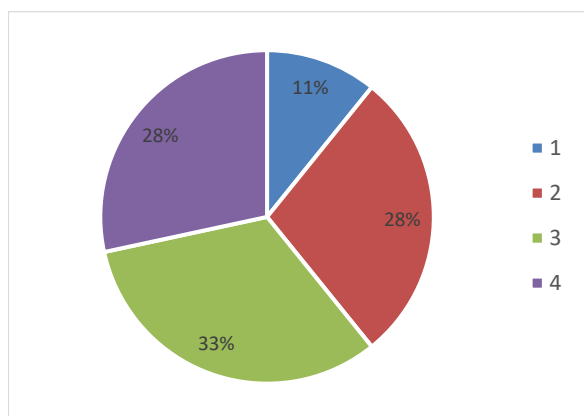


Fig. 6. Age distribution among respondents (in years old)

- (1) 18 - 25
- (2) 26 - 35
- (3) 36 - 45
- (4) Over 45

Respondents' companies' profiles

One of the questions was related to the **biotech field** of the owned/employing company (fig. 7). The first place was taken equally by the pharmaceutical industry and agriculture (18% each), followed by the chemical industry (15%) and food industry (13%). If taken together, medicine (11%) and veterinary medicine (9%) have actually the first place (20%). Considered by nation, pharmaceutical and food industries were predominant in Romania, chemical industry and agriculture in Italy, and pharmaceutical industry and veterinary medicine in Spain. The majority of the respondents from Belgium belong to human medicine and pharmacy.

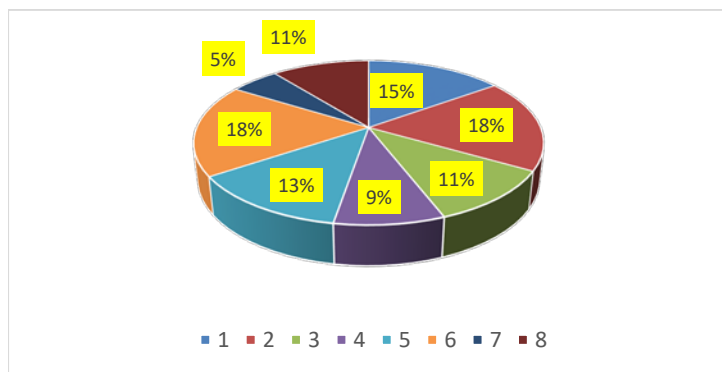


Fig. 7 Biotech field of the owned/employing company

- (1) Chemical industry
- (2) Pharmaceutical industry
- (3) Medicine
- (4) Veterinary medicine
- (5) Food industry
- (6) Agriculture
- (7) Technical Services
- (8) Other

In terms of **company age**, more than half (51%) of the companies have been running over ten years, and only 3% are young companies (less than one year) as seen in figure 8. Regarding the distribution by nation, it can be noticed (fig. 9) that only in Belgium young companies are actually running, while in Romania and Spain more than half of the companies are over ten years.

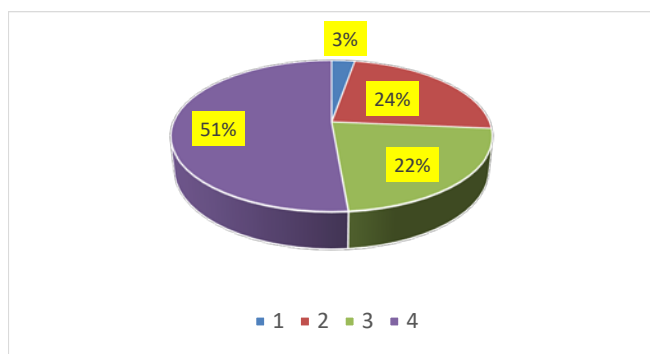


Fig. 8 Age of Biotech company on average

- (1) < 1 year
- (2) 1-5 years
- (3) 5-10 years
- (4) > 10 years

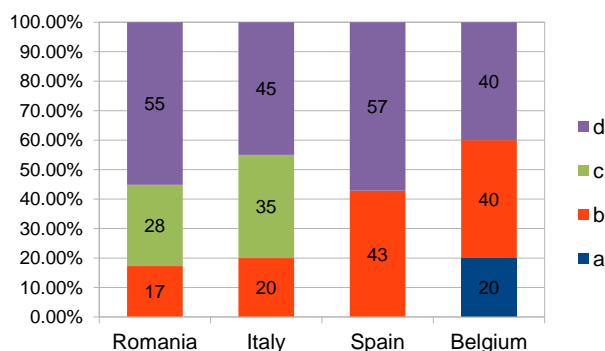


Fig. 9 Age of Biotech company by nation

- (a) < 1 year
- (b) 1-5 years
- (c) 5-10 years
- (d) > 10 years

Also, the respondents have been asked about the **employees' number** in their Biotech companies (fig. 10). Only 4 % has a single person employed, 26% have 2 to 4 employees, 12% have 5 to 9 employees. Some data reported in 2003 (Alper J.) indicate that only 10% of European biotechnology firms have more than 50 employees, and over half employ fewer than 20 people. In our survey, 24% of the companies have over 50 employees, showing an increase in the past 15 years.

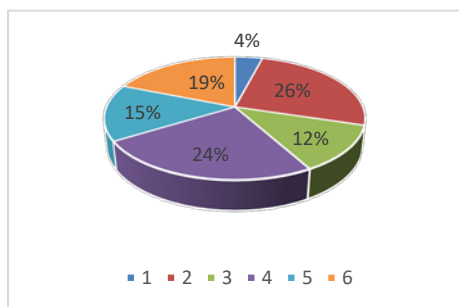


Fig. 10 Number of employees in the biotech companies

- (1) 1; (2) 2-4; (3) 5-9; (4) 10-50; (5) 50-250; (6) over 250

Significant differences between the targeted countries can be noticed regarding employees' number (fig. 11). In Romania and Spain, over half of the companies hire more than 50 people. The largest proportion (48%) of companies with only 2-4 employees can be found in Italy, while in Belgium 20% of the interviewed persons belong to a company hiring only one employee.

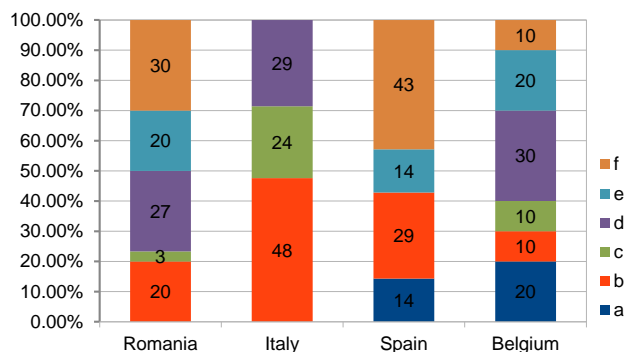


Fig. 11 Distribution of the number of employees in the biotech companies by targeted country

(a) 1; (b) 2-4; (c) 5-9; (d) 10-50; (e) 50-250; (f) over 250

When asked about the **operational level** of their companies, the distribution of answers is seen in figure 12. Only 20% of the companies are operating at the local or regional level, while over half of them (55%) have an international market. Taken by country, in Italy, the situation is somewhat different, as only 20% are acting internationally, while between 63 and 70% of the companies act internationally in the three other countries (fig. 13).

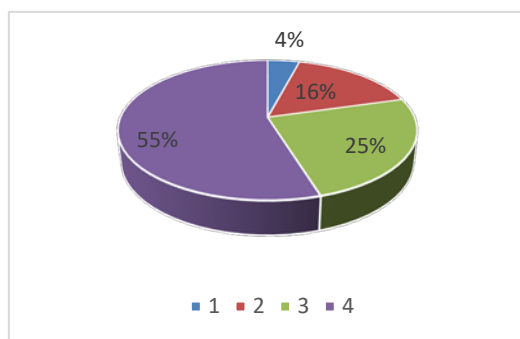
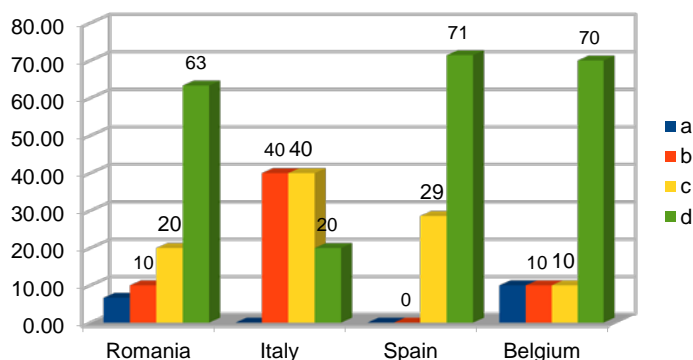


Fig. 12 Operational level of the respondents' companies

- a. Local
- b. Regional
- c. National
- d. International

Fig.13. Operational level of the respondents' companies by respondents' country

- a. Local
- b. Regional
- c. National
- d. International



Entrepreneurial profiling of the respondents

When asked if their business is a “**family business**”, only 26% of the total respondents answered positively (fig.14). Most of the respondents with “family business” comes from Romania (41%), followed by the Italians (27%), Belgians (14%) and Spaniards (10%).

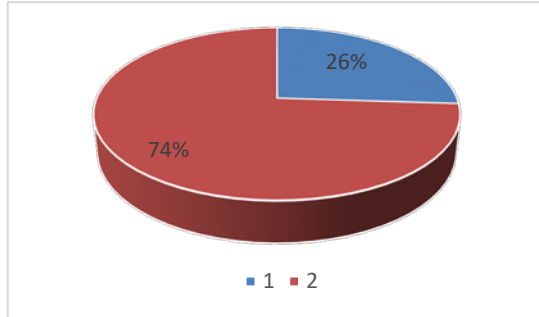


Fig. 14. Respondents belonging to a “family business”
 (1) Yes
 (2) No

The question above was correlated to the question: “Did your parents or other **relatives had entrepreneurial initiatives?**”. The answer was that about 46% of the respondents have relatives who have had entrepreneurial initiatives. When asked if they believe that the entrepreneurial initiatives of their parents or other relatives were successful, on a scale of 1 to 5, where 1 represents “to a very small extent” and 5 “to a very large extent”, about 37% of the total respondents considered that the entrepreneurial initiative was not successful, while 36% of the respondents considered that their entrepreneurial initiatives were successful or very successful, which is almost a 1:1 ratio between success and no success.

The respondents have also been asked about the “**idea’s sources**” when started the business.

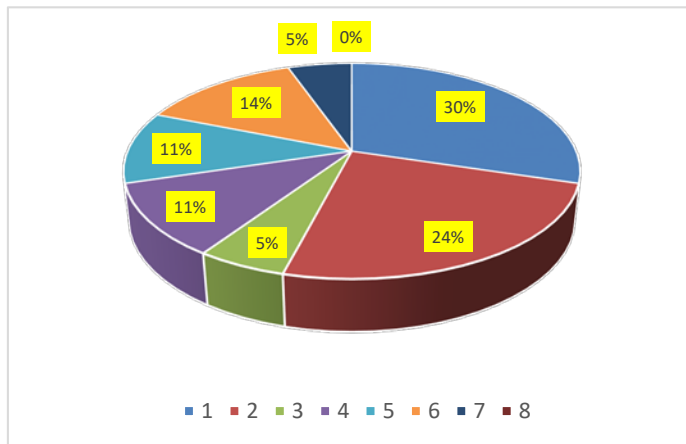


Fig. 15. Answers’ repartition of the idea’s sources for starting a business

- (1) Previous job / a research project;
- (2) University studies;
- (3) Discussion with job colleagues;
- (4) Discussions with university colleagues;
- (5) Discussions with friends;
- (6) Discussions with family members;
- (7) Media (TV, Internet);
- (8) Other

Overall, the main ideas’ sources are linked to a previous job or research project (30%) or from the university studies (24%). Media or discussions with job colleagues are not

reported as important inspiration source (5% each). The answers were similar in all targeted countries (fig. 15).

The respondents were asked about **what made them start the business or what would make them set up a biotech company** (fig.16). Almost half of the respondents (48%) choose the answer related to passion, namely: "I am passionate and I think I can add value in this field making use of my knowledge and expertise". Only 3% were or would be guided by the lack of other attractive job opportunities. Equally (19%) were guided by financial reasons (moneywise opportunities) or the need for independence ("to be your own boss").

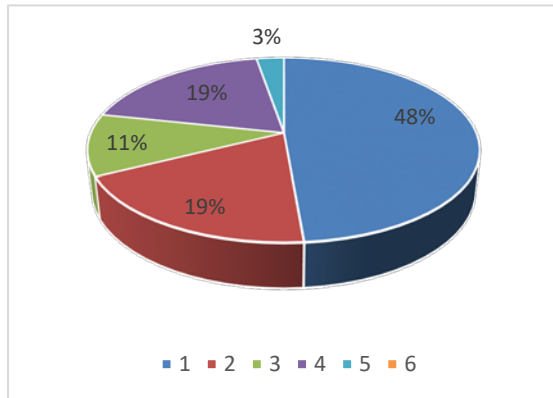


Fig. 16 Answers on the question "What made you start this business or what would make you set up a biotech company?"

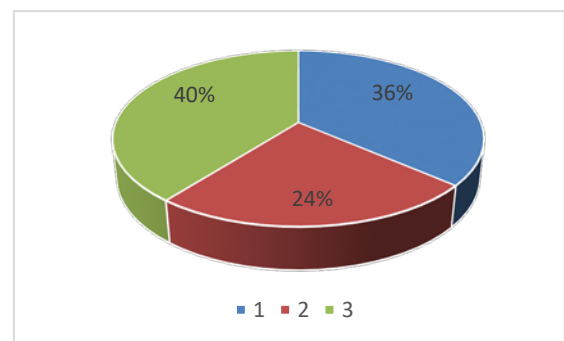
- (1) I am passionate and I think I can add value in this field making use of my knowledge and expertise;
- (2) It is a field of the future that offers important opportunities moneywise;
- (3) I thought/ think it is worthwhile to try it because biotechnology is an expanding field; therefore the risk of remaining without a job is low;
- (4) The desire of being independent, to be my own boss;
- (5) The lack of other attractive job opportunities.
- (6) Other

When analysed by country, slight differences in the answers have been noted. For Romania, the favourites were the passion for biotechnology and the desire for autonomy. For the Spaniards, the favourite responses were the passion for biotechnology and confidence in this area of the future. Belgian respondents are also passionate about biotechnology, believe it is an expanding field and want to be their own bosses.

The respondents were asked to choose **what describes the best their attitude against business risk** (fig.17). Only 40% belong to the type of cautious person, and the rest are not afraid to take risks (36%), or even more, would like to take risks (24%). The distribution was similar among the targeted countries.

Fig. 17. Respondents' attitude against business risk

- (1) I am a cautious person, I am afraid to take risks and I prefer small but safe gains;
- (2) I am not afraid to take risks; gaining and losing are part of the business;
- (3) I am a person who wants to take risks, I am guiding myself on the principle "who doesn't risk, doesn't win".



When asked about how many hours per day you, the respondent, dedicate to business development, it was noticed that 52% allocate less than 8 hours/day, while globally 29% of the respondents work more than 10 hours during a day (fig. 18). However, among nations significant differences have been noticed. While almost half of the Romanian and Spanish respondents work 9-10 hours a day or over 10 hours, half of the Belgian respondents allocate less than 6 hours per day for business development. No answer has been given by Italian respondents to this question.

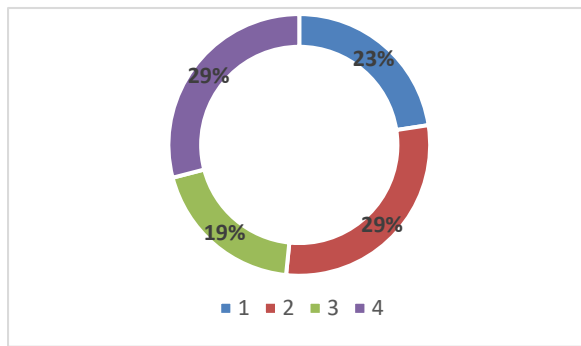


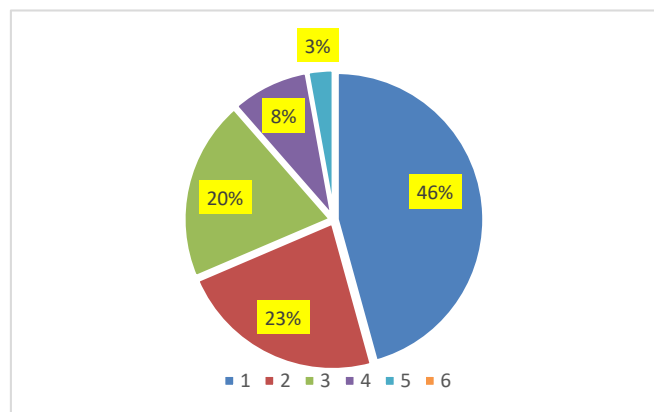
Fig.18. Number of hours/day dedicated by the respondents to business development

- (1) <6 hours;
- (2) 6-8 hours;
- (3) 9-10 hours;
- (4) > 10 hours.

On the **financial resources** side, different sources have been indicated for **setting up the company** (fig.19). Almost half of the respondents (46%) were using their own funds, and only 3% accessed a bank credit. In addition, an important percentage of them (43%) have access to non-refundable financing, at the regional/national level (23%) or to European funds (20%). The distribution among the nations was close to the global responses, except for Spain, in which almost 66% of the respondents have set up their business with their own funds, instead of using non-refundable financing.

Fig.19. Financial resources for setting up the biotech company

- (1) Own funds (salary, savings, personal need credit);
- (2) Family and friends;
- (3) Non-refundable financing from regional or national funds;
- (4) Non- refundable financing from European funds;
- (5) Bank credit;
- (6) Other



When asked about the “today” financial resources, the majority (67%) are relying on their company profit. An important part of the respondents (20%) is using national non-refundable funding, and only 7% has chosen to have a bank credit (fig. 20).

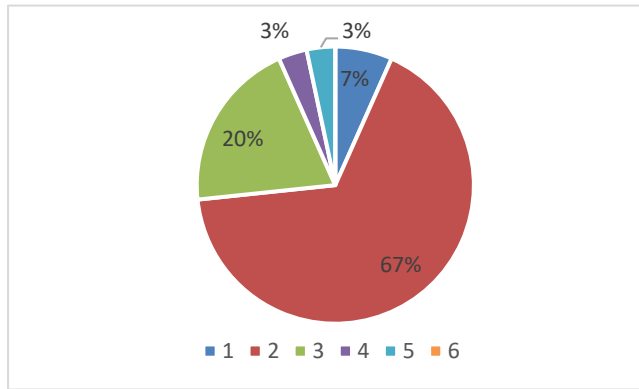


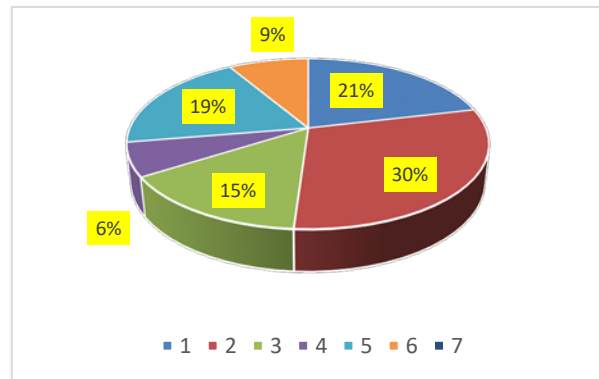
Fig. 20 Financial resources of the ongoing business

- (1) Banking credit
- (2) Company profit
- (3) National non-refundable funds
- (4) European non-refundable funds
- (5) Stock exchange
- (6) Other

Regarding the moment of setting up their companies, different **challenges** have been indicated by the respondents (fig. 21): scarce capital for financing the business (30%); difficulty in obtaining authorizations and approvals (21%), difficulty in hiring specialists in the field (19%), excessive taxes (15%), lack of skills in financial management (9%) or even in general managerial skills, like planning or coordination (6%).

Fig. 21. Repartition of challenges when setting up the company

- (1) Difficulty obtaining authorizations and approvals;
- (2) Scarce capital for financing the business;
- (3) Excessive taxes;
- (4) Lack of managerial skills of planning, coordination, etc.;
- (5) Difficulty in hiring specialists in the field;
- (6) Lack of financial management skills;
- (7) Other



The above question was completed on what are **today's challenges** (fig. 22). The first place is taken by the bureaucracy (28%), followed by the difficulty to access financial funding (24%) and the excessive taxes (19%). The picture is completed by the difficulties to employ specialists in the field (15%) and the lack of sales skills (8%).

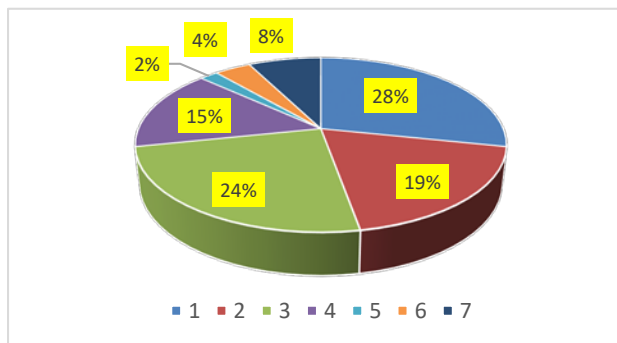


Fig. 22 Challenges faced by the Biotech entrepreneur in their business on-going

- (1) Bureaucracy;
- (2) Excessive tax;
- (3) Difficult access to financial funds;
- (4) The difficulty of employing specialists in the field;
- (5) Difficulties related to intellectual property rights;
- (6) Lack of financial management skills;
- (7) Lack of sales skills

Looking at both situations described above, it looks like that on setting up the company, and running the company, the main challenges are the funding, bureaucracy and high taxation.

The respondents have been asked to nominate the most **important values/reasons** that have supported them in their **decision of becoming an entrepreneur** or helped them to make the career choice. Most of the Romanians indicated creativity as one of the most important values, followed by independence and flexible working program. Spanish people place the creativity similarly in the first position, followed by financial gains. For the Belgian respondents, the most frequent answer was the independence. No answers have been registered on the Italian side.

Regarding **networking and cooperation**, the respondents have been asked to indicate the number of networking events in which they have participated. Over half of them (53%) are involved in less than one event per month, 22% of respondents participate in at least one networking event per month, and 19% participate in more than two such events. Despite this less active networking profile, 72% of the respondents agreed that organizing clubs, hubs and entrepreneurs' associations have a positive impact on the development of entrepreneurship (fig. 23). Still, only 47% of the respondents are members in such associations.

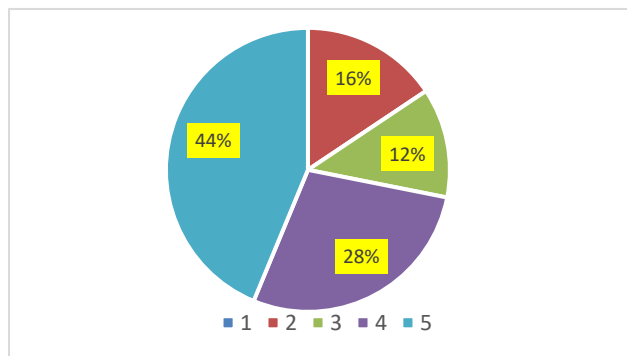


Fig. 23 Attitude related to the positive impact of setting up clubs, hubs and entrepreneurs' associations on the development of entrepreneurship

- 1: strongly disagree;
- 2: disagree;
- 3: neither agree, nor disagree;
- 4: agree;
- 5: strongly agree

A challenging question was related to **how satisfied** are the respondents with their **professional life** (fig. 24). Almost half of the respondents (46%) are not satisfied with their professional life; when correlating the answer to their profiles, it has been noticed that the answer may be linked with their profile, meaning they are not their own employers. The other half of the respondents have different degrees of positive satisfaction, but only 8% are extremely satisfied with their professional status.

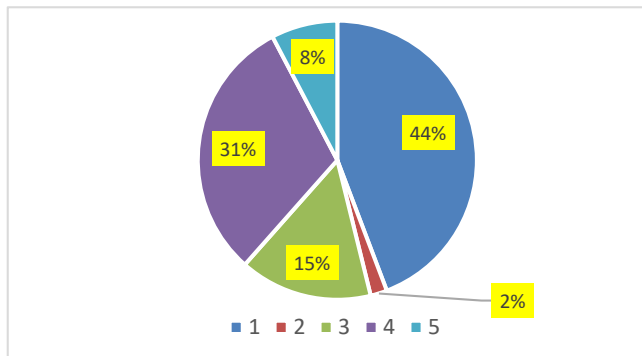


Fig. 24. Degree of satisfaction of the respondents with their professional life

- 1: not at all;
- 2: to a very small extent;
- 3: somewhat satisfied;
- 4: quite satisfied;
- 5: to a great extent

Biotech Entrepreneur profile through respondents' "eyes"

One of the question related to **needs of technical skills** for a Biotech entrepreneur (fig. 25). The answers' repartition is extremely balanced. Half of the respondents do not agree with the idea, while the other half are in accordance with the statement.

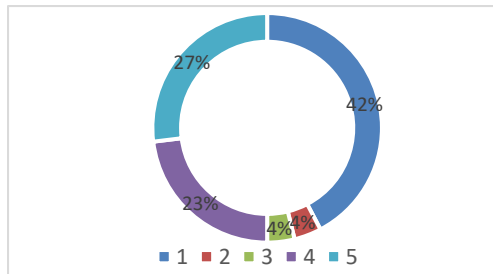


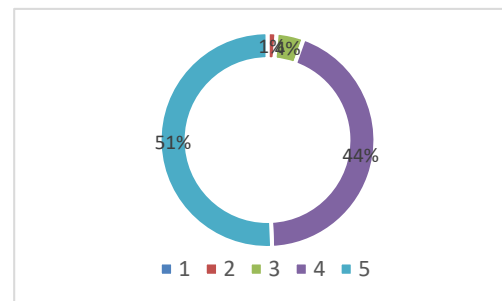
Fig. 25 Answers' distribution for the statement "Is there any need for technical skills for a Biotech Entrepreneur?"

- 1: strongly disagree;
- 2: disagree;
- 3: neither agree, nor disagree;
- 4: agree;
- 5: strongly agree

When asked about **managerial skills** the whole majority of the respondents (95%) identified these skills as extremely important for a Biotech entrepreneur (fig. 26).

Fig. 26 Answers' distribution for the statement "In order to have a successful business in biotechnology, it is imperative that the entrepreneur has managerial skills?"

- 1: strongly disagree;
- 2: disagree;
- 3: neither agree, nor disagree;
- 4: agree;
- 5: strongly agree



To complete the "skills" series, the respondents have been asked about the need for **interpersonal skills** (communication, negotiation, teamwork, time management, networking, etc.) (fig. 27). Again, the big majority (94%) have agreed with the statement, correlated to the previous question about managerial skills.

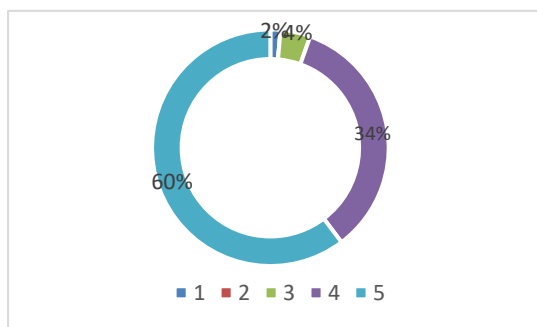


Fig. 27 Answers' distribution for the statement "In order to have a successful business in biotechnology, it is absolutely necessary for the entrepreneur to have interpersonal skills"

1: strongly disagree;
 2: disagree;
 3: neither agree, nor disagree;
 4: agree;
 5: strongly agree

The profiling moved forward to another statement: "In order to have a successful business in biotechnology, it is absolutely necessary for the entrepreneur to have a large **social network**" (fig. 28). While 20% of the respondents are neutral to the statement, an important majority (75%) agree with the need for the existence of a social network of the entrepreneur.

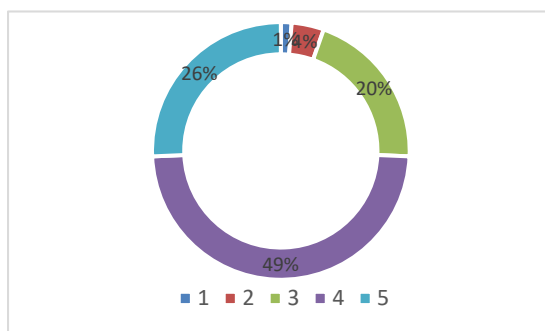


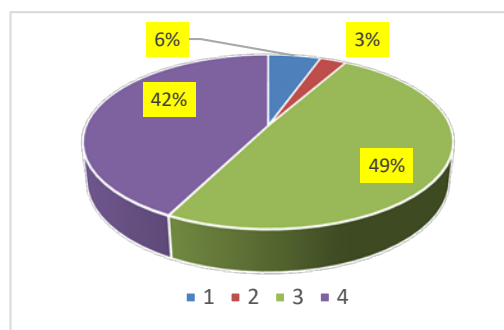
Fig. 28 Answers' distribution for the statement "In order to have a successful business in biotechnology, it is absolutely necessary for the entrepreneur to have a large social network"

1: strongly disagree;
 2: disagree;
 3: neither agree, nor disagree;
 4: agree;
 5: strongly agree

The Biotech field is generally recognized as a field of **innovation**; this is why the respondents have been asked explicitly if innovation is a key element in Biotech entrepreneurship. The answer has a strong orientation towards the positive answer (fig. 29), meaning that 91% of the respondents consider that innovation is one of the most important elements when running a biotech start-up/company.

Fig. 29 Answers' distribution for the statement "Innovation is a key quality of the biotechnology entrepreneur"

1: disagree;
 2: neither agree, nor disagree;
 3: agree;
 4: strongly agree



The study tried to establish also if the **entrepreneurial skills are to be acquired through education**. An important majority of the respondents (77%) were in agreement with the statement, while 14% have been neutral to the statement (fig. 30).

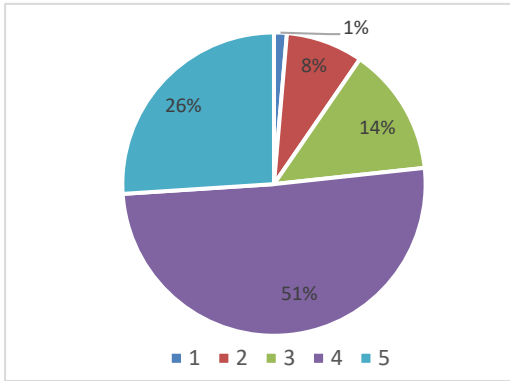


Fig. 30 Answers' distribution for the statement "Entrepreneurial skills can be acquired through education"

- 1: strongly disagree;
- 2: disagree;
- 3: neither agree, nor disagree;
- 4: agree;
- 5: strongly agree

After asking the respondents what do they consider as key skills for a Biotech entrepreneur, they have been asked how do they fit in this "absolute" profile. On the side of **technical skills**, while 31% considered themselves having an average level of technical skills, an important majority (61%) declare to have good (12%) to very good (49%) knowledge in biotechnology, despite the fact that only 50% of the respondents have declared that technical skills are important for an entrepreneur (fig. 31).

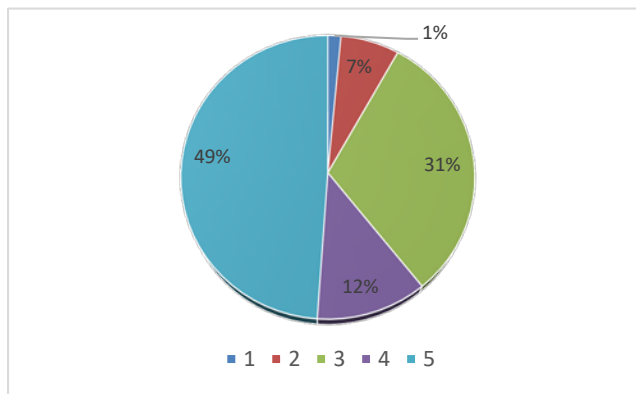


Fig. 31. Level of Biotech technical skills of the respondents

- 1: very low level;
- 2: low level;
- 3: average level;
- 4: good level;
- 5: very good level

Regarding the **level of expertise in different areas** (management planning, strategic planning, human resources management, financial management, IT), on a scale from 1 to 5 (from very low level to very good level), here are the results. The Romanian entrepreneurs consider that they have an average level for all the itemized skills, the answers being placed between 3.03 and 3.77 on the 1 to 5 scale. The Italian entrepreneurs have self-evaluated their level in management planning as very good; for the other skills, the levels are average, on the satisfactory side. The management planning for the Spaniards and Belgians was considered as good. However, the Spanish respondents declare to have an only average level in human resources management and IT, and low-level skills in financial management and strategic planning). Meanwhile, the Belgians appreciate their skills level in human resources management and IT as low and very low in the case of strategic planning.

In addition, the entrepreneurs have been asked to evaluate their **level in transversal competences/skills/aptitudes** (communication, teamwork, creativity, negotiation,

problem-solving, networking, time management, leadership). Regarding respondents' nationality, there is a less significant variation among the answers (3.00-4.57), which indicate average to good and very good level of such skills. The Romanians and Belgians indicate to have a good level in communication, team working, creativity, problem-solving and an average level in negotiation, conflict solving, networking, team management and leadership. The Spanish respondents indicate an average level of skills about networking, and a good level for all the other skills, while the Italians consider having a good level on leadership and average for all the other skills.

Further, the entrepreneurs have been asked to make a **ranking from the most to the least important descriptors and their impact on a successful business** (on a scale from 1 to 8, where 1 was the most important). The Romanian entrepreneurs place on the first place the competences of leadership and communication, while the Italians the identification of new business opportunities. For the Belgian and Spanish entrepreneurs, the most important is to build or to belong to a strong professional network, as well as the use of modern management tools. Overall, other descriptors have been indicated to have an important role in a successful business, like innovation and creativity, rapid integration in an environment in progress, opportunities.

On a scale from 1 to 5 (1: *strongly disagree*; 2: *disagree*; 3: *neither agree, nor disagree*; 4: *agree*; 5: *strongly*) the respondents have been asked to make a choice in relation to the statement "**Action** is the best way to learn and reach your goals" (fig. 32). Only 25% of respondents have been on a neutral side, and the rest (75%) has agreed with the fact that action is very important for an entrepreneur. Regarding **risks' identification**, only 16% are neutral when asked if this early identification may prevent losses, while the large majority (84%) agreed with the statement (fig. 32).

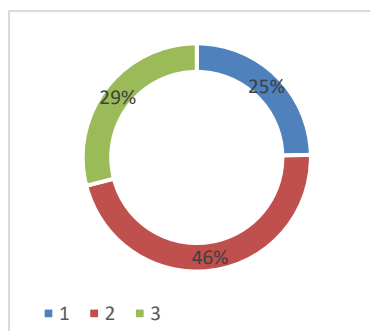


Fig. 32 Answers' distribution for the statements

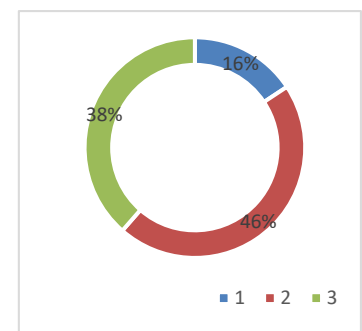
(a) Left: "Action is the best way to learn and reach your goals"

(b) Right: "Identifying the potential risks/problems that may occur on a professional level is important because can prevent losses"

1: neither agree, nor disagree;

2: agree;

3: strongly agree



Biotech entrepreneurship in the societal context

Some questions related to the **society's perception about the entrepreneurs** have been addressed to the respondents (fig. 33). Only 35% of the respondents have agreed that "the entrepreneur has a positive image in the society, enjoying media", more than half (55%) being neutral about the statement and some even disagree (10%). An important majority of the respondents (65%) agreed with the idea that the entrepreneurship is a valuable profession for the society, but still, 32% have a neutral position on the statement; a very small part of the respondents (3%) has disagreed with the idea. The distribution of the answers regarding the statement "Entrepreneurship is considered a remedy type of professional choice, is a form of self-employment adopted when individuals don't have better working options" is coming with some surprises. A relatively important part of the respondents (35%) did not agree with the statement, and 40% were neutral. Only a quarter of the respondents did agree that entrepreneurship is a remedial choice of the professional life.

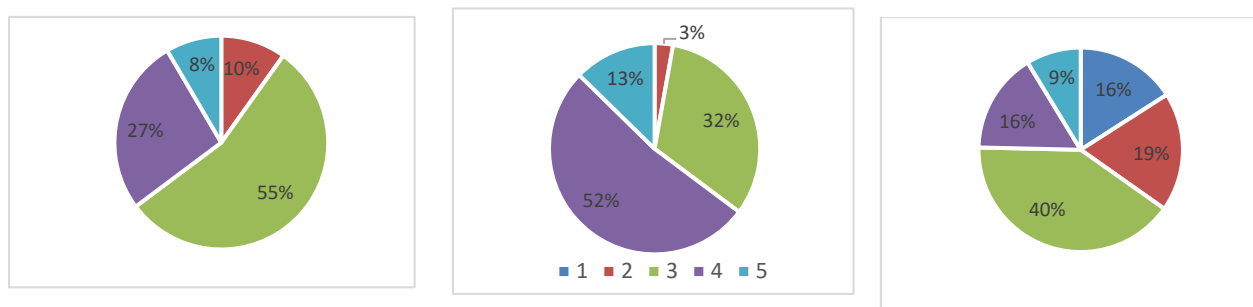


Fig. 33 Answers' distribution for the statements related to society's perception on entrepreneurship (from left to right):

- (a) The entrepreneur has a positive image in the society, enjoying media attention
- (b) Entrepreneurship is considered a bold and valuable professional choice for both the entrepreneur and society
- (c) Entrepreneurship is considered a remedy type of professional choice, is a form of self-employment adopted when individuals don't have better working options.

1: strongly disagree; 2: disagree; 3: neither agree, nor disagree; 4: agree; 5: strongly agree

Another approached issue was the **business failure** (fig. 34), and the respondents were asked to choose from a scale to 1 to 5 (strong disagreement to strong agreement). When asked if the **lack of technical skills** can be a cause of business failure, half of the respondents were neutral (53%) and 31% agreed with the statement. Talking about the **lack of managerial skills**, the neutral respondents decrease (from 53% to 45%) in favour of positive respondents (44% agrees with the idea). When asked if business failure can be a **valuable feedback** for personal and professional growth, few respondents disagree (9%), while more than half (61%) agreed with the idea; still, 30% of the respondents are in a neutral position. Further, when asked if such failure occurs, does this can be a **barrier for new entrepreneurial initiatives**, only 30% agreed with the statement; an important majority was neutral on this issue (43%).

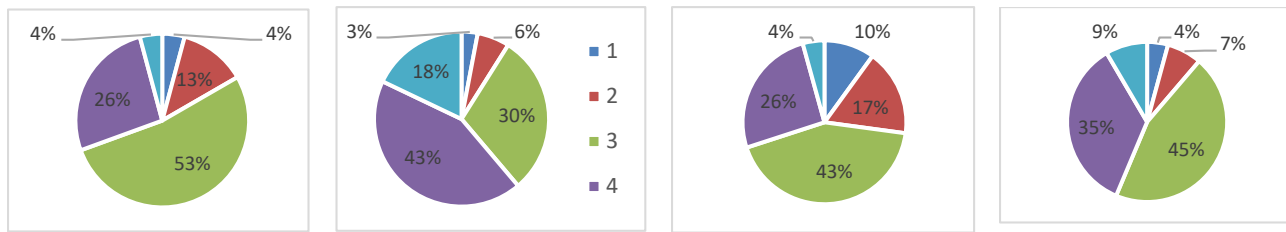


Fig. 34 Answers' distribution for the statements related to business failure (from left to right):

- (a) Business failure is the result of the lack of technical skills in the field
 - (b) Business failure provides valuable feedback for personal and professional growth
 - (c) Business failure is a barrier to a new entrepreneurial initiative
 - (d) Business failure is the result of lack of managerial skills
- 1: strongly disagree; 2: disagree; 3: neither agree, nor disagree; 4: agree; 5: strongly agree

Meanwhile, it was important to find out if the way business failure is perceived in the society will influence other potential entrepreneurial initiatives (fig. 35). The answers were relatively balanced; while 40% believe that the social perception has little influence, 47% are on the opposite side, and a few (13%) have a strong believe that this will influence future entrepreneurial initiatives.

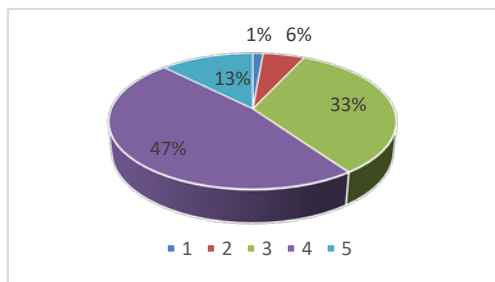


Fig. 35 Answers' distribution for the way in which business failure is perceived by society influences entrepreneurial initiative

- 1: no influence at all
- 2: to a very small extent
- 3: to a small extent
- 4: to some extent
- 5: to a great extent

National culture has been considered as an important issue. and the respondents have been asked if such a culture encourages the entrepreneurial initiative (fig. 36). Overall, more than half respondents (60%) agree with the statement, while 22% are neutral and only 18% are in disagreement. In the case of Romania, it has been noticed that the average distribution is somewhat different, probably due to the interferences of the economic context in which people lived in the last decades. For example, only 25% agreed that the Romanian national culture encourages entrepreneurial development and some measures should be taken to solve the situation. On the other extreme is Belgium, in which 70% of the respondents have a strong belief that the national culture encourages entrepreneurial initiatives.

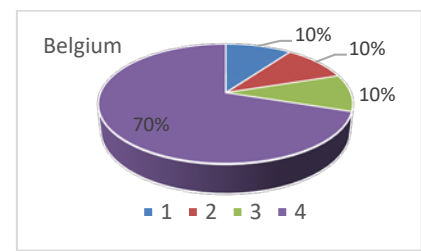
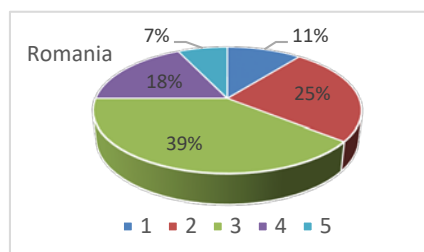
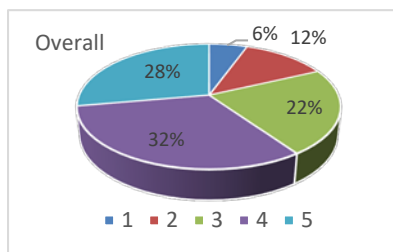


Fig. 36 Answers' distribution on how national culture encourage entrepreneurial initiatives
 1: strongly disagree; 2: disagree; 3: neither agree, nor disagree; 4: agree; 5: strongly agree

Talking about specific measures to develop entrepreneurial initiatives, (fig. 37), when asked which are the most common ways to access information or to acquire skills and knowledge for business development, the answers repartition is quite equilibrated. Overall, the same importance is given to attending courses, coaching and networking (21-23%), followed by reading specialized books and mentoring (14-16%). Regarding nations, it can be noticed that in Spain the most important source is networking (46%), while in Italy (37%) is coaching.

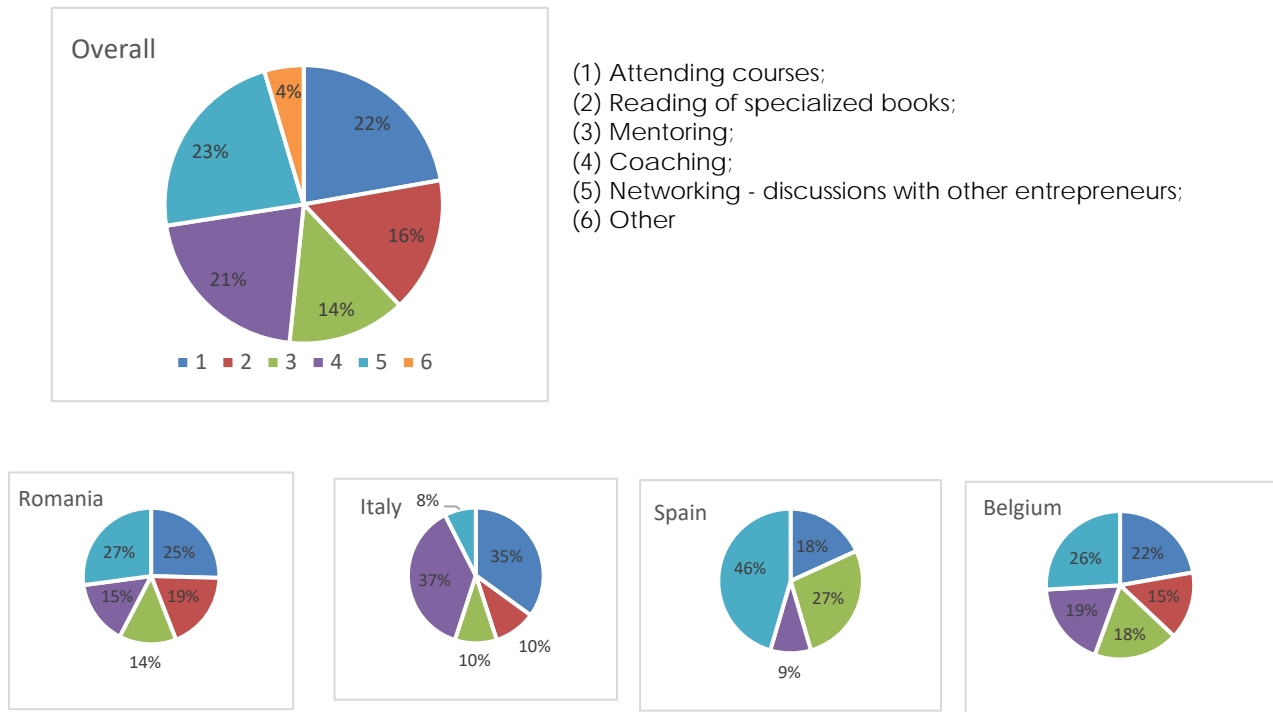


Fig. 37 Answers' distribution on the most common ways to access information / acquire skills and knowledge for business development?

The respondents have also been asked to respond to some “free answer questions”. One question was about the **most important principle/rule that guide the respondents' personal life**. A large variety of answers have been received which are in relation to family and moral values/ethics, as well as courage, optimism and happiness. Some answers were expressed more reflexively, like “Life is volatile like a shadow”, “If it is too easy, it is not worth to do it”, “I try to see only the good things around me”. Another question was about the **most important principle/rule that guide their business**. Also here, a high variety of answers has been registered, relating to action and dynamism, vision, initiative and assuming risks, invest and develop, competences and professionalism, ethics and fair-play, commitment and perseverance, innovation and creativity.

When asked about **model entrepreneurs** that inspired the respondents, different names came out from national or international level. The Romanians have nominated Ion Tiric (Allianz Tiriac), Dr. Ana Aslan (Geriatric Institute "Ana Aslan"), Sorin Minea (food factory Angst), Dr. Ionut Moraru (Medica Laboratories); the last three are successful national entrepreneurs in the biotech field. International well-known entrepreneurs have been nominated by all the respondents: Oprah Winfrey, Bill Gates, Steve Jobs, Andrew Carnegie, Richard Branson, Mark Zuckerberg, Elon Musk, Vera Wang. Actually, none of these nominated successful people has a direct relationship with the biotech field.

A challenging question was "**If you would have the power to make a change in your country, what would you change to encourage entrepreneurship?**" Same as in the precedent free questions, the area of the answers was very wide. In **Romania**, the intervention areas would be the following: measures to support young entrepreneurs, less bureaucracy and taxes, changes in work legislation, professionalism in funding agencies, more training opportunities and written guides, changes of the negative society's perception about the entrepreneurship. In **Italy**, the respondents identified issues which support changes related to high taxes, more opportunities for the young generation, much more need for research and rewards for the innovative companies. The **Spanish** respondents will make changes in curricula and education, will encourage public funding for companies and will ask for national pacts between research-development and political power. In **Belgium** some specific issues have been detected, considering that entrepreneurship is well developed in the country; they are asking for governmental recognition to avoid potential failures, governmental support for all companies, not only for start-ups, more efforts on high education improvements, taxes' reduction.

To sum up their opinions, the respondents have been asked to give the most important **advice** that could be given to biotech entrepreneurs who are at the beginning of the road. As expected, a variety of advices have been proposed, but some are common and rise often, like "to be" active, patient, optimistic, responsible, hardworker, professional, anchored in reality, "to have" courage, "to don't" despair, to believe in their products, to access the existent know-how and ask the experts, to do a deep market analysis and develop a good business plan before, to keep learning, to take care on potential co-workers.

Finally, the respondents have been asked for issues which were not approached in the study. It was emphasized that biotechnology could make a nice business, with almost unlimited opportunities. Meanwhile, an interesting advice has been given: not to give too much power to greedy entrepreneurs, but the statement was not detailed.

General conclusion

Even though this study intended initially to target a higher number of respondents, because of the questionnaire's high complexity only a relatively small number of respondents (74) has completed the questions. However, taken into account that the study targeted mainly biotech entrepreneurs from countries involved as partners in the project Erasmus+ **2017-1-RO01-KA203-037304** "Supporting biotechnology students oriented towards an entrepreneurial path - SupBioEnt", Romania, Italy, Belgium and

Spain, the number of respondents is considered as significant for the niche of European Biotech entrepreneurs.

During the study, a high similarity in answers has been generally noticed, in relation to respondents' competences levels, as well as on the importance of common competences/skills/abilities for being an entrepreneur (creativity and innovation, professionalism, communication, leadership, teamwork). An important conclusion is that the respondents are considering the training, especially the high-education, as an important factor for starting and running a business in the biotech field.

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Annex 1 - Questionnaire on Biotechnology Entrepreneur Profile

Dear Sir/Madame,

In our effort to figure out the profile of the European Biotech Entrepreneur, please provide us some help by completing the questionnaire below. Will take about 15 minutes.

Thank you,

The SupBioEnt Team (www.supbioent.usamv.ro)

1. (A) Please indicate the category you belong to:
 - a) Shareholder and manager of your own company;
 - b) Company shareholder
 - c) Shareholder and employee of the company, holding a position of.....
(other than the manager);
 - d) Employee of the company, holding a position of, having tasks and responsibilities in developing and /or launching new products and services;
 - e) Employee of the company, holding a position of....., not having tasks and responsibilities in developing and / or launching new products and services;
2. (A) Please indicate your last level of graduation and their field of study:
 - a) Secondary School; field
 - b) Post-secondary studies (not University); field
 - c) University studies, Bachelor Degree; field
 - d) University studies, Master Degree; field
 - e) Doctorate; field
 - f) Other University studies, field
3. (A) Have you attended any advanced training courses?
 - a) No
 - b) Yes
4. (A) If you answered 'yes': The training courses were done in the field of:
 - a) Management;
 - b) Marketing;
 - c) IT
 - d) Engineering
 - e) Biotechnology;
 - f) Medicine;
 - g) Law
 - h) Entrepreneurship
 - i) Soft skills
 - j) Other,
5. (A) What is your average monthly income?
 - (a) < 1000 EUR;
 - (b) 1001 to 2000 EUR;
 - (c) 2001 to 3000 EUR;
 - (d) > 3000 EUR
6. (A) Please specify your age range and gender:
 - a) 18 - 25 years
 - b) 26 - 35 years
 - c) 36 - 45 years
 - d) > 45 yearsSex: M F no answer
7. (B) The company you own or in which you are employed works in one of the following fields:
 - a) Chemical industry;
 - b) Pharmaceutical industry;
 - c) Medicine;

- d) Veterinary medicine;
 - e) Food industry;
 - f) Agriculture
 - g) Technical Services (e.g., sequencing, bioinformatics...)
 - h) Other
8. (B) Please indicate the age of the company:
- a) < 1 year;
 - b) between 1 and 5 years;
 - c) between 5 and 10 years;
 - d) > 10 years;
9. (B) Indicate the number of company employees:
- a) 1 employee;
 - b) 2 – 4 employees;
 - c) 5 – 9 employees;
 - d) between 10 and 50 employees;
 - e) between 50 and 250 employees;
 - f) over 250 employees.
10. (B) The company operates:
- a) On the local market;
 - b) On the regional market
 - c) On the national market;
 - d) On the international market
11. (B) Is the company that you work in, a "family type" business?
- a) Yes;
 - b) No.
12. (C) Did your parents or other relatives had entrepreneurial initiatives?
- a) Yes;
 - b) No
13. (C) Do you believe that the entrepreneurial initiatives of your parents or other relatives are being successful?
- 1 2 3 4 5
- [1: unsuccessful; 2: a bit successful; 3: somewhat successful; 4: quite successful; 5: very successful]
14. (C) Please indicate if you are the only company shareholder:
- a) Yes.
 - b) No, there is another shareholder;
 - c) No, there are two other shareholders;
 - d) No, we are four shareholders altogether;
 - e) No, we are five or more shareholders.
15. (C) Have you ever had other entrepreneurial initiatives before?
- a) No, it is the first
 - b) Yes, it is the second;
 - c) Yes, it is the third one
 - d) Yes, more than four
16. (C) From where you got the inspiration for the business idea of your company?
- a) Previous job / a research project;
 - b) University studies;
 - c) Discussion with job colleagues;
 - d) Discussions with university colleagues;
 - e) Discussions with friends;
 - f) Discussions with family members;
 - g) Media (TV, Internet)
 - h) Other,
17. (C) What made you start this business, or what would make you set up a biotech company? (Choose the most important reason – only one)
- a) I am passionate and I think I can add value in this field making use of my knowledge and expertise;
 - b) It is a field of the future that offers important opportunities moneywise;
 - c) I thought/ think it is worthwhile to try it because biotechnology is an expanding field; therefore the risk of remaining without a job is low;
 - d) The desire of being independent, to be my own boss;
 - e) The lack of other attractive job opportunities.
 - f) Other,
18. (C) Which of the following describes the best your attitude as far as business risk is concerned?
- a) I am a cautious person, I am afraid to take risks and I prefer small but safe gains;
 - b) I am not afraid to take risks; gaining and losing are part of the business;
 - c) I am a person who wants to take risks, I am guiding myself on the principle "who doesn't risk, doesn't win".
19. (C) How many hours per day you dedicate to business development?
- a) <6 hours;
 - b) 6-8 hours;
 - c) 9-10 hours;

- d) > 10 hours.
20. (C) What was the main financial resource when you set up the company?
- a) Own funds (salary, savings, personal need credit, etc.);
 - b) Family and friends;
 - c) Non-refundable financing from regional or national funds;
 - d) Non-refundable financing from European funds;
 - e) Bank credit;
 - f) Other

21. (C) What is the main financial resource of your business today?
- a) Banking credit;
 - b) Company profit;
 - c) National non-refundable funds;
 - d) European non-refundable funds;
 - e) Stock exchange
 - f) Other

Please tell us to what extent do you agree with the following statements:

22. (C) What was the most important challenge you faced when setting up the company?
- a) Difficulty obtaining authorizations and approvals;
 - b) Scarce capital for financing the business;
 - c) Excessive tax;
 - d) Lack of managerial skills of planning, coordination, etc.;
 - e) Difficulty in hiring specialists in the field;
 - f) Lack of financial management skills;
 - g) Other,

23. (C) What is the most important challenge you are facing today?
- a) Bureaucracy;
 - b) Excessive tax;
 - c) Difficult access to financial funds;
 - d) The difficulty of employing specialists in the field;
 - e) Difficulties related to intellectual property rights;
 - f) Lack of financial management skills;
 - g) Lack of sales skills;
 - h) Other,

24. (C) To how many networking events do you participate in a month?
- a) < 1 event;
 - b) 1 event;
 - c) 2 events
 - d) > 2 events

25. (C) Organizing clubs, hubs and entrepreneurs' associations has a positive impact on the development of entrepreneurship

1 2 3 4 5

1: strongly disagree; 2: disagree; 3: neither agree, nor disagree; 4: agree; 5: strongly agree; [+ no answer]

26. (C) Are you a member of such a club or an association of entrepreneurs?
- a) Yes
 - b) No

27. (C) How satisfied are you with your professional life (the status of entrepreneur)?
- 1 2 3 4 5

1: not at all; 2: to a very small extent; 3: somewhat satisfied; 4: quite satisfied; 5: to a great extent

28. (C) Please choose from the list below 5 values that have supported you in your decision of becoming an entrepreneur or helped you to make the career choice:

VALUES

SAFETY - the certainty of a secure job, even if it brings an average income
DIVERSION - various tasks
INDEPENDENCE - minimal surveillance or supervision by bosses, working alone without too much contact with others
COMPETITION - the use of knowledge and skills to overcome other people, targets, standards
FLEXIBLE WORK PROGRAM - establishing your own schedule
STATUS -the job offers the opportunity to gain respect from others
INTEGRITY - honesty, dignity
MONEY - big financial or material gains
CREATIVITY - development of ideas, new methods of solving issues, accomplishing things
USEFULNESS - to feel that what you do is useful to the society, to the others
APPRECIATION - to receive publically, clearly and particularly the recognition of your work

INTERACTION WITH PEOPLE - interaction, to have daily contact with others
FREEDOM TO DECIDE - the ability to set and make decisions with implications for colleagues, financial issues, products, etc.
EXPERT - Being recognized as having remarkable skills in a certain field, being a specialist
TIME FOR FAMILY - working nearby home, having a job that does not involve prolonged working hours or frequent travel for long periods of time
STABILITY - Predictable, routine activities
COOPERATION - teamwork, good team spirit
ATTACHMENT - to be part of, be a member of a well-known organization, renowned companies
TIME FOR YOURSELF - personal development, sports, hobbies, access to permanent education, etc.
POWER - to guide and influence others, authority
SUPPORT FOR OTHERS - your work to help people directly

29. (D) 'In order to have a successful business in biotechnology, it is absolutely necessary the entrepreneur to have technical skills in the field'.

1 2 3 4 5

1: strongly disagree; 2: disagree; 3: neither agree, nor disagree; 4: agree; 5: strongly agree; [+ no answer]

30. (D) 'In order to have a successful business in biotechnology, it is imperative that the entrepreneur has managerial skills'

1 2 3 4 5

1: strongly disagree; 2: disagree; 3: neither agree, nor disagree; 4: agree; 5: strongly agree; [+ no answer]

31. (D) 'In order to have a successful business in biotechnology, it is absolutely necessary for the entrepreneur to have interpersonal skills (communication, negotiation, teamwork, time management, networking, etc.)'

1 2 3 4 5

1: strongly disagree; 2: disagree; 3: neither agree, nor disagree; 4: agree; 5: strongly agree; [+ no answer]

32. (D) 'In order to have a successful business in biotechnology, it is absolutely necessary for the entrepreneur to have a large social network'.

1 2 3 4 5

1: strongly disagree; 2: disagree; 3: neither agree, nor disagree; 4: agree; 5: strongly agree; [+ no answer]

33. (D) 'Innovation is a key quality of the biotechnology entrepreneur'

1 2 3 4 5

1: strongly disagree; 2: disagree; 3: neither agree, nor disagree; 4: agree; 5: strongly agree; [+ no answer]

34. (D) 'Entrepreneurial skills can be acquired throughout education'.

1 2 3 4 5

1: strongly disagree; 2: disagree; 3: neither agree, nor disagree; 4: agree; 5: strongly agree; [+ no answer]

35. (D) Evaluate on a scale from 1 to 5 the level of your technical skills in biotechnology.

1 2 3 4 5

1: very low level; 2: low level; 3: average level; 4: good level; 5: very good level; [+ no answer]

36. (D) Indicate your level of expertise in each of the following areas:

Management Planning (planning, organization, coordination, training, control) 1 2 3 4 5

Strategic marketing 1 2 3 4 5

Human resources management 1 2 3 4 5

Financial Management 1 2 3 4 5

IT 1 2 3 4 5

1: very low level; 2: low level; 3: average level; 4: good level; 5: very good level

37. (D) Evaluate on a scale of 1 to 5 the level of your skills in:

Communication 1 2 3 4 5

Teamwork 1 2 3 4 5

Creative Thinking 1 2 3 4 5

Negotiation and conflict resolution 1 2 3 4 5

Problem solving 1 2 3 4 5

Networking 1 2 3 4 5

Time management 1 2 3 4 5

Leadership 1 2 3 4 5

1: very low level; 2: low level; 3: average level; 4: good level; 5: very good level

38. (D) Please rank, according to your beliefs, the expertise scale below (from 1st to 8th), using the following descriptors in terms of their impact on business success:

Leadership

Communication

Innovation capacity - creating new products / services

Building / integrating into a strong professional network

Rapid and effective adjustment to environmental progress;

Marketing

Using modern management methods and techniques;

Identifying new business opportunities

1 - the most important; 8 - the least important

39. (D) Please indicate if you agree that the following statements describe you:
Action is the best way to learn and reach your goals 1 2 3 4 5
Identifying the potential risks / problems that may occur on a professional level is important because can prevent losses 1 2 3 4 5
1: strongly disagree; 2: disagree; 3: neither agree, nor disagree; 4: agree; 5: strongly agree [+ no answer]
40. (D) Please tell us to what extent you agree with each of the following statements:
The entrepreneur has a positive image in the society, enjoying media attention. 1 2 3 4 5
Entrepreneurship is considered a bold and valuable professional choice for both the entrepreneur and society. 1 2 3 4 5
Entrepreneurship is considered a remedy type of professional choice, is a form of self-employment adopted when individuals don't have better working options. 1 2 3 4 5
1: strongly disagree; 2: disagree; 3: neither agree, nor disagree; 4: agree; 5: strongly agree [+ no answer]
41. (D) Please tell us to what extent you agree with each of the following statements:
Business failure is the result of the lack of technical skills in the field 1 2 3 4 5
Business failure provides valuable feedback for personal and professional growth. 1 2 3 4 5
Business failure is a barrier to a new entrepreneurial initiative. 1 2 3 4 5
Business failure is the result of lack of managerial skills. 1 2 3 4 5
1: strongly disagree; 2: disagree; 3: neither agree, nor disagree; 4: agree; 5: strongly agree [+ no answer]
42. (D) In your opinion, the way in which business failure is perceived by society influences entrepreneurial initiative 1 2 3 4 5
1: no influence at all; 2: to a very small extent; 3: to a small extent; 4: to some extent; 5: to a great extent; [+ no answer]
43. (D) Please tell us to what extent you agree with the following statement:
National culture encourages entrepreneurial initiative. 1 2 3 4 5
1: strongly disagree; 2: disagree; 3: neither agree, nor disagree; 4: agree; 5: strongly agree [+ no answer]
44. (D) What is the most common way to access information / acquire skills and knowledge for business development?
a) Attending courses;
b) Reading of specialized books;
c) Mentoring;
d) Coaching;
e) Networking - discussions with other entrepreneurs;
f) Other,
45. (D) What is the most important principle / rule that guides you in your personal life?
46. (D) What is the most important principle / rule for guiding you in business?
47. (D) Do you have a successful entrepreneur model that inspired or inspires you? - Name it, please, (if possible provide a list of names) or rephrasing: When you think of a successful entrepreneur what is the first name that comes to your mind?
48. (D) If you had the power to make a change in your country, what would you change to encourage entrepreneurship?
49. (D) Summing up in a sentence, which is the most important advice that you could give to biotech entrepreneurs who are at the beginning of the road?
50. (D) If there is something I did not ask you, but you would like to tell us about biotechnology entrepreneurship, please proceed here:
51. (D) Please name the country where your company/institution is based