

PROJECT NUMBER: LLP-LdV-ToI-2013-RO-005/2013

**Project title: IMPROVED CURRICULA AND MODERN LEARNING SYSTEM TO PROMOTE THE NEW DIRECTIONS OF BUSINESS ENHANCEMENT IN LIFE SCIENCES APPLICATIONS. Acronym: BELA
Lifelong Learning Program Leonardo da Vinci - Transfer of Innovation**

BELA Matrix

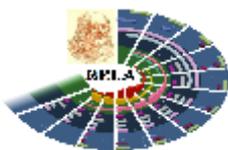
Key competences needed to start and to develop innovative SME's in the bio economic sector targeted to sustainable development applications

Version 2

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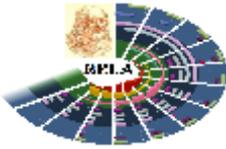
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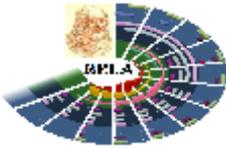
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1. Introduction

Sustainable entrepreneurship

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.

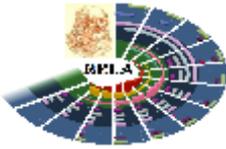
Competencies are assessed in terms of actual behavior observed in the workplace and are usually defined in terms of underlying personal characteristics like traits, knowledge, skills and attitudes.

In their paper, Man et al, 2002 (Man Y., Thomas W.Y., Theresa Lau. and K.F. Chan. 2002: The competitiveness of small and medium enterprises, a conceptualization with focus on entrepreneurial competencies. *Journal of Business Venturing*.17, 123–142) the competitiveness model for SME's distinguishes between 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. These relationships are conceptualized as three principal entrepreneurial tasks: forming the competitive scope of the firm, creating the organizational capabilities, and setting a goal and taking actions for the goal through assessing competitive scope and using organizational capabilities.

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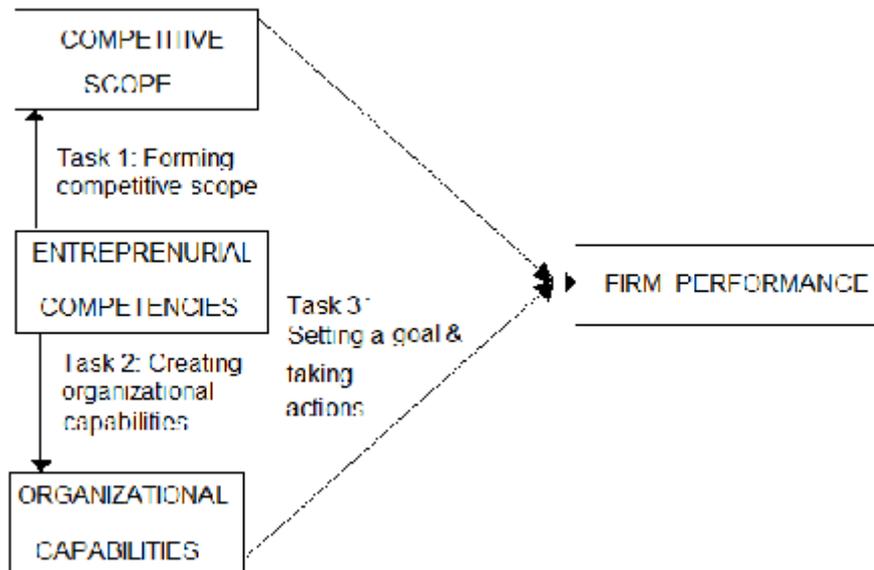


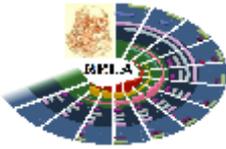
Figure 1. A model of SME competitiveness. (Man et al., 2002)

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. They generate new products, services, techniques and organizational modes which substantially reduce environmental impacts and increase the quality of life.

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. In this context also the notion of institutional entrepreneurship, i.e. the effort to change institutions like market regulations despite pressures towards stasis plays a role and is considered.

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Sustainable entrepreneurship is in essence the realization of sustainability innovations aimed at the mass market and providing benefit to the larger part of society. By realizing such (radical) sustainability innovations sustainable entrepreneurs often address the unmet demand of a larger group of stakeholders. Stakeholders' demands go beyond narrow economic interests of shareholders and are the ultimate sources of entrepreneurial opportunities for sustainability innovation, discovery and exploitation of which is at the core of sustainable entrepreneurship.

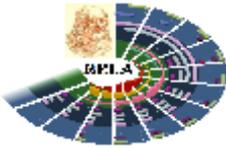
As a consequence, sustainable entrepreneurship - defined in a narrow sense - deals with a very innovative company start-up supplying environmentally and/or socially beneficial products and services with the potential to conquer a large part of the market. However, the spirit and the process of creating substantial market success with environmentally or socially beneficial products and services is not limited to start-ups, sustainable entrepreneurship can also be seen in established companies, or in the process of building up corporate ventures, spin-offs, etc.

In the fig. 2 a general concept of developing and applying the entrepreneurship competencies for sustainable innovations' business is presented:

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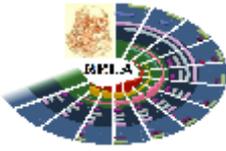
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<ul style="list-style-type: none"> • Solve business problems effectively • Expand existing business 	5 STAGE	GROWTH
<ul style="list-style-type: none"> • Become self-employed • Develop policies and procedures for a new or existing business 	4 STAGE	START-UP
JOB EXPERIENCE JOB TRAINING & EDUCATION		
CREATIVE APPLICATIONS	3 STAGE	<ul style="list-style-type: none"> • Learn entrepreneurship competencies • Apply specific occupational training • Learn how to create new business
COMPETENCY AWARENESS	2 STAGE	<ul style="list-style-type: none"> • Discover entrepreneurship competencies • Understand problems of employers
BASICS	1 STAGE	<ul style="list-style-type: none"> • Gain prerequisite basic skills • Identify career options • Understand economics and free enterprise

Figure 2. Evolution of formation and application of entrepreneurship competencies (Wüstenhagen et al. 2008: Sustainable innovation and entrepreneurship)

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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 behaviors 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. Several individual characteristics can enhance effective brokering competence. First, analogical reasoning capabilities contribute to the ability to link knowledge from one domain to a problem to be solved in a distinct domain. Analogical reasoning is a key skill in scientific and technological discovery. Second, brokering competence requires confidence and credibility, and the ability to build social capital necessary for both acquiring and disseminating new ideas. Third, curiosity, creativity, and intrinsic motivation (passion) stimulate the search for new knowledge that may serve to solve future problems.

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. That is why only true entrepreneurs can start a life science company. The most successful biotech entrepreneurs all possess these two components – they have a *vision* and *passion* about what they are doing. Entrepreneurial passion is not an emotional characteristic, but a driving desire to accomplish something they firmly believe in, and will do, no matter how difficult the challenge. Being a visionary is about:

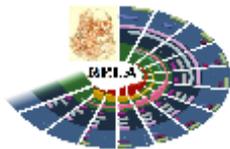
1. Seeing something others don't see;
2. Communicating what they see in a way that inspires others to follow.

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. Also, potential investors will be looking for these characteristics because they know that they are essential to building a successful company.

An important way to assess the strengths and weaknesses is to complete a personality or work behavior profile such as a Myers-Briggs, DISC, or other self-assessment test.

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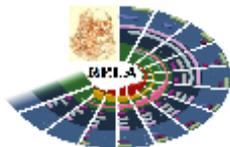
2. BELA MATRIX OF BIO COMPETENCIES

I. Personality characteristics

No	Characteristics	Description	Training model	Specific assessment test
1	Risk seeking/ tolerance	The capacity to accept and to like risks, when they are needed to take steps towards new achievement.	Self help, better coaching or mentoring	www.psychometrictest.org.uk http://theentrepreneurnextdoor.com/tests/entrepreneurial_pers.html www.forbes.com/2010/08/02/entrepreneur-personality-quiz-thomas-harrison-entrepreneurs-management-serial-startups-10-quiz.html http://grasshopper.com/blog/9-professional-assessment-tools/
2	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 help, better coaching or mentoring	www.psychometrictest.org.uk http://theentrepreneurnextdoor.com/tests/entrepreneurial_pers.html www.forbes.com/2010/08/02/entrepreneur-personality-quiz-thomas-harrison-entrepreneurs-management-serial-startups-10-quiz.html

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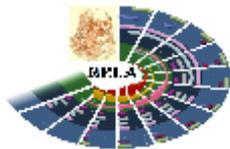


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				http://grasshopper.com/blog/9-professional-assessment-tools/
3	Self-efficacy	The extent or strength of one's belief in one's own ability to complete tasks and reach goals.	Self help, better coaching or mentoring	www.psychometrictest.org.uk http://theentrepreneurnextdoor.com/tests/entrepreneurial_pers.html www.forbes.com/2010/08/02/entrepreneur-personality-quiz-thomas-harrison-entrepreneurs-management-serial-startups-10-quiz.html
4	Strong sense of independence	The ability to take responsibility for one's actions without unnecessary reliance on the help of others.	Self help, better coaching or mentoring	www.psychometrictest.org.uk http://theentrepreneurnextdoor.com/tests/entrepreneurial_pers.html www.forbes.com/2010/08/02/entrepreneur-personality-quiz-thomas-harrison-entrepreneurs-management-serial-startups-10-quiz.html http://grasshopper.com/blog/9-professional-assessment-tools/
5	Self-made/self-belief	The belief in own abilities: self assurance or a persuasion in own capacity to succeed	Self help, better coaching or mentoring	www.psychometrictest.org.uk http://theentrepreneurnextdoor.com/tests/entrepreneurial_pers.html www.forbes.com/2010/08/02/entrepreneur-

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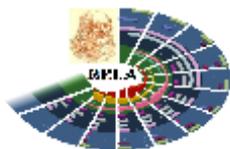


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				personality-quiz-thomas-harrison-entrepreneurs-management-serial-startups-10-quiz.html http://grasshopper.com/blog/9-professional-assessment-tools/
6	Inventive orientation	The continuous pursuit of new technological ideas and business opportunities	Self help, better coaching or mentoring	www.psychometrictest.org.uk http://theentrepreneurnextdoor.com/tests/entrepreneurial_pers.html www.forbes.com/2010/08/02/entrepreneur-personality-quiz-thomas-harrison-entrepreneurs-management-serial-startups-10-quiz.html http://grasshopper.com/blog/9-professional-assessment-tools/
7	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.	Self help, better coaching or mentoring	www.psychometrictest.org.uk http://theentrepreneurnextdoor.com/tests/entrepreneurial_pers.html www.forbes.com/2010/08/02/entrepreneur-personality-quiz-thomas-harrison-entrepreneurs-management-serial-startups-10-quiz.html http://grasshopper.com/blog/9-professional-assessment-tools/
8	Competitive	The liking of competition or	Self help, better	www.psychometrictest.org.uk

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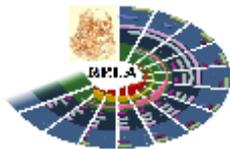


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	spirit	inclination to compete, characteristic to people who are enthusiastic about the competition and often seeking this type of competitive atmosphere in whatever they do and always up for a challenge.	coaching or mentoring	http://theentrepreneurnextdoor.com/tests/entrepreneurial_pers.html www.forbes.com/2010/08/02/entrepreneur-personality-quiz-thomas-harrison-entrepreneurs-management-serial-startups-10-quiz.html
9	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:	Self help, better coaching or mentoring	www.psychometrictest.org.uk http://theentrepreneurnextdoor.com/tests/entrepreneurial_pers.html www.forbes.com/2010/08/02/entrepreneur-personality-quiz-thomas-harrison-entrepreneurs-management-serial-startups-10-quiz.html http://grasshopper.com/blog/9-professional-assessment-tools/
10	Communication capacity	Characteristic determined by efficient transfer of information to others and linked to active & empathetic listening	Self help, better coaching or mentoring	www.psychometrictest.org.uk http://theentrepreneurnextdoor.com/tests/entrepreneurial_pers.html www.forbes.com/2010/08/02/entrepreneur-personality-quiz-thomas-harrison-entrepreneurs-management-serial-startups-10-quiz.html

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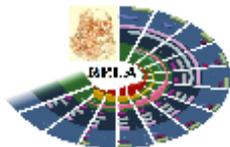


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				10-quiz.html
11	Networking ability	Capacity for interpersonal relationships (social and emotional intelligence), persuasion and networking, based on the understanding of relationships and networks' roles	Self help, better coaching or mentoring	www.psychometrictest.org.uk http://theentrepreneurnextdoor.com/tests/entrepreneurial_pers.html www.forbes.com/2010/08/02/entrepreneur-personality-quiz-thomas-harrison-entrepreneurs-management-serial-startups-10-quiz.html
12	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) Attitudes towards investing time in management development.	Self help, better coaching or mentoring	www.psychometrictest.org.uk http://theentrepreneurnextdoor.com/tests/entrepreneurial_pers.html www.forbes.com/2010/08/02/entrepreneur-personality-quiz-thomas-harrison-entrepreneurs-management-serial-startups-10-quiz.html http://grasshopper.com/blog/9-professional-assessment-tools/

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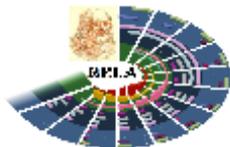


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13	Leadership characteristics	<p>The leadership can be defined as a process of “using no coercive influence to direct and coordinate activities of the members of an organized group toward the accomplishment of group objectives”.</p> <p>It is an integrated pattern of personal characteristics that reflect a range of individual differences and foster consistent capacity to be in command and to demonstrate effectiveness across a variety of group and organizational situations. Leader effectiveness refers to the amount of influence a leader has on individual or group performance, followers’ satisfaction, and overall effectiveness.</p>	Self help, better coaching or mentoring	<p>www.psychometrictest.org.uk http://theentrepreneurnextdoor.com/tests/entrepreneurial_pers.html www.forbes.com/2010/08/02/entrepreneur-personality-quiz-thomas-harrison-entrepreneurs-management-serial-startups-10-quiz.html</p>
14	Capacity to work in multi- and cross-	The potential to understand and integrate multi disciplinary and cross disciplinary knowledge or	Self help, better coaching or mentoring	<p>www.psychometrictest.org.uk http://theentrepreneurnextdoor.com/tests/entrepreneurial_pers.html</p>

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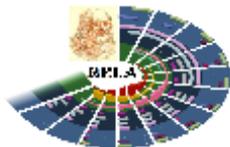


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	disciplinary teams	competencies together with the capacity to good collaboration with people with complementary or different backgrounds		www.forbes.com/2010/08/02/entrepreneur-personality-quiz-thomas-harrison-entrepreneurs-management-serial-startups-10-quiz.html http://grasshopper.com/blog/9-professional-assessment-tools/
15	Adaptation to changing conditions	The potential to understand that only this continuous orientation can assure the business long run.	Self help, better coaching or mentoring	www.psychometrictest.org.uk http://theentrepreneurnextdoor.com/tests/entrepreneurial_pers.html www.forbes.com/2010/08/02/entrepreneur-personality-quiz-thomas-harrison-entrepreneurs-management-serial-startups-10-quiz.html http://grasshopper.com/blog/9-professional-assessment-tools/

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II. Bio entrepreneur competencies characterization

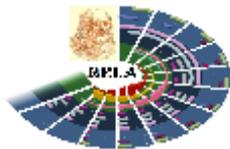
1. Technical Skills

Knowledge and understanding

No	Characteristics	Description	Training model	Specific assessment test
1	Technological knowledge about manufacture of bio products and specific services	General technological knowledge about bioprocesses and biotechnologies or life sciences techniques applied to prepare innovative bio products or services	Training by transfer of knowledge in now-a-days systems: face to face learning, e-learning, blended learning or other advanced ICT technologies	Application tests Performance tasks Multiple choice or alternative response test Self assessment
2	Technological knowledge about industrial life sciences sustainable applications	Sustainable concept applied to innovative technology and development of technological knowledge specific to life sciences sustainable applications	Training by transfer of knowledge in now-a-days systems: face to face learning, e-learning, blended learning or other advanced ICT technologies	Application tests Performance tasks Multiple choice or alternative response test Self assessment
3	Intellectual Property Rights specific to bio	Knowledge regarding IP rights specific to life sciences	Training by transfer of knowledge in now-a-days	Application tests Performance tasks

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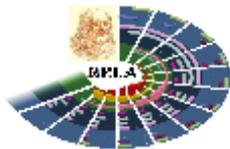
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	economic sector	applications	systems: face to face learning, e-learning, blended learning or other advanced ICT technologies	Multiple choice or alternative response test Self assessment
4	Multi disciplinary and cross disciplinary characteristics of life sciences	General considerations regarding the characteristics of multi disciplinary and cross disciplinary specificity valid at the highest level in case of life sciences	Training by transfer of knowledge in now-a-days systems: face to face learning, e-learning, blended learning or other advanced ICT technologies	Application tests Performance tasks Multiple choice or alternative response test Self assessment
5	Innovation development based on R & D in life sciences sector	The methodology of innovative sustainable technology generation based on R & D in life sciences	Training by transfer of knowledge in now-a-days systems: face to face learning, e-learning, blended learning or other advanced ICT technologies	Application tests Performance tasks Multiple choice or alternative response test Self assessment

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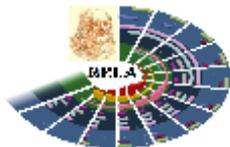
2. Management and Business knowledge and skills

A. Judgment and approach

No	Characteristics	Description	Training model	Specific assessment test
1	Project financial set up and evaluation	Financial structure and constraints recommended for the expenditures accepted in a project together with the corresponding financial analysis of a proposal	Training by transfer of knowledge in now-a-days systems: face to face learning, e-learning, blended learning or other advanced ICT technologies	Application tests Performance tasks Multiple choice or alternative response test Self assessment
2.	Elaboration of a business plan, capacity of building organizations and staff teams and developing them by inter-company cooperation and cooperation between companies and academia; environmental and NGO's roles.	Capability to build a business plan especially for the manufacture of a new bio product based of R & D and innovation in life sciences, together with the capacity to develop a startup company in the field and to assure its growth by cooperation capabilities with other organizations.	Training by transfer of knowledge in now-a-days systems: face to face learning, e-learning, blended learning or other advanced ICT technologies	Application tests Performance tasks Multiple choice or alternative response test Self assessment

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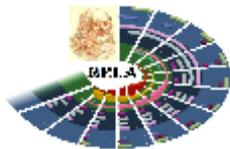


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3	Business intelligence	<p>A set of theories, methodologies, architectures, and technologies that transform raw data into meaningful and useful information for business purposes. It can be applied to the following business purposes:</p> <p>(a) <u>Measurement</u>, that creates a hierarchy of performance metrics and benchmarking, that informs business leaders about progress towards business goals (<u>business process management</u>).</p> <p>(b) <u>Analytics</u>, that involves: data mining, process mining, statistical analysis, predictive analytics, predictive modeling, business process modeling, complex event processing.</p> <p>(c) <u>Reporting</u>, that builds infrastructure for strategic reporting and involves data visualization, and executive information system.</p>	<p>Training by transfer of knowledge in now-a-days systems: face to face learning, e-learning, blended learning or other advanced ICT technologies</p>	<p>Application tests Performance tasks Multiple choice or alternative response test Self assessment</p>
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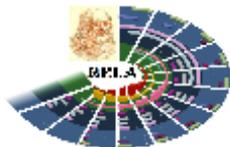


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		(d) <u>Knowledge management</u> , leads to learning management and regulatory compliance.		
4	Methods to access to financing, long-term and venture capital financing, (big challenge for R & D, innovation, and science-based companies, where the inherent risk of innovation is high)	Characterization of the main channels and techniques to get financing, applied to R & D or innovation companies oriented towards sustainable life sciences applications	Training by transfer of knowledge in now-a-days systems: face to face learning, e-learning, blended learning or other advanced ICT technologies	Application tests Performance tasks Multiple choice or alternative response test Self assessment
5	Assessment of the market of a product and payment mechanisms within the field of life sciences sustainable applications industry	Market research and study of recommended payment models most appropriate for the innovative companies dealing with life sciences sustainable applications	Training by transfer of knowledge in now-a-days systems: face to face learning, e-learning, blended learning or other advanced ICT technologies	Application tests Performance tasks Multiple choice or alternative response test Self assessment
6	Manufacturing and commercialization methods and sale agreements making	Specific methodology for bio products manufacture and commercialization together with the knowledge about most recommended sale methods.	Training by transfer of knowledge in now-a-days systems: face to face learning, e-learning, blended learning or other advanced ICT	Application tests Performance tasks Multiple choice or alternative response test Self assessment

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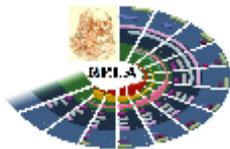
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			technologies	
7.	Economic and social models or regulatory issues developed by the authorities from a national and international perspective	The economic and social background together with regulatory issues needed to assure the development of new innovative SME's specialized in life sciences sustainable applications.	Training by transfer of knowledge in now-a-days systems: face to face learning, e-learning, blended learning or other advanced ICT technologies	Application tests Performance tasks Multiple choice or alternative response test Self assessment

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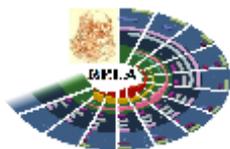
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B. Skills and abilities

No	Skills and abilities	Description	Development model	Specific assessment test
1	Organizing associations / networks	Potential to build a circle of influence by including many people of trust, individuals or institutions from whom one can later seek help, advice, and assistance	Integration of formal and informal learning, meaning especially: e-learning, webinars, training videos, case studies, learning by doing	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 assignments; organizing follow-up session; simulation methods and context.
2	Recognizing opportunities based on innovation	The three distinct processes to identify market needs and/or underemployed resources, recognizing or discovering a “fit” between particular market needs and specified resources, and creating a new “fit” between heretofore separate needs and resources in the form of a business concept. These processes represent, respectively, perception, discovery, and creation of new products or services	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 assignments; organizing follow-up session; simulation methods and context.

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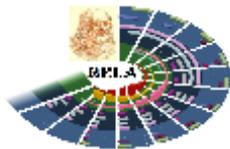


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		through innovation.		
3	Initiative orientation	An innovative orientation implies that one has a positive mind-set toward new ideas with regard to products, services, administration, or technological processes. The ability to actively seek opportunities to make useful contributions by comparison with passively accepting situations and finally being above expectations in achieving goals.		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 assignments; organizing follow-up session; simulation methods and context.
4	Decision making	Decision-making is the study of identifying and choosing alternatives based on the values and preferences of the decision maker. Decision-making is one of the central activities of management and is a huge part of any process of implementation.		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 assignments; organizing follow-up session; simulation methods and context.
5	Creative thinking	Creativity can be defined "as the process of producing something that is both original and worthwhile" or "characterized by originality		Follow-up questionnaires and surveys; follow-up interviews; follow-up focus group; observing

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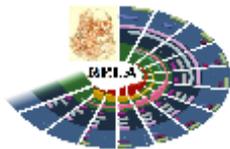


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		<p>and expressiveness and imaginative".</p> <p>Creative thinking is the generation of new ideas within or across domains of knowledge, drawing upon or intentionally breaking with established symbolic rules and procedures. It usually involves the behaviors of preparation, incubation, insight, evaluation, elaboration, and communication. Creative thinking deliberately and actively engages people in:</p> <ul style="list-style-type: none"> • Bringing together existing ideas into new configurations; • Developing new properties or possibilities for something that already exists; and • Discovering or imagining something entirely new. 		<p>participant on the job; monitoring specific performance data; action planning and specific follow-up assignments; organizing follow-up session; simulation methods and context.</p>
6	Determination	<p>Determination is a positive emotion that involves persevering towards a difficult goal in spite of obstacles. Determination occurs prior to goal attainment and serves to motivate behavior that will help achieve one's goal; determination is not just a cognitive state, but</p>		<p>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</p>

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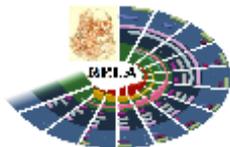


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		rather an affective state. Determination includes challenge and anticipatory enthusiasm.		assignments; organizing follow-up session; simulation methods and context.
7	Quick and forward judgment	The capacity to make good decisions by quick judgment oriented towards new achievements, in front of others' realizations. The ability to weight as fast as possible alternative courses of evolution and make decisions based on factual information.		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 assignments; organizing follow-up session; simulation methods and context.
8	Persuasion spirit	Potential to use appropriate interpersonal styles and methods to gain agreement or acceptance of an idea, plan, project; ability to develop a specific process aimed at changing a person's (or a group's) attitude or behavior toward some event, idea, object, or other person(s), by using written or spoken words to convey information, feelings, or reasoning, or a combination thereof. Persuading skills involve the ability to convince an individual or group		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 assignments; organizing follow-up session; simulation methods and context.

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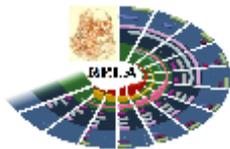


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		of people in order to do an appropriate thing. Persuasive skills are so important for a leader because the skills enable the audience to listen to the leader in order to accept and follow what the leader wants them to do.	
9	Hard working	Capability to work with energy and commitment; diligent. Employers are interested in job-seekers who love what they do and will keep at it until they solve the problem and get the job done. Productive worker with solid work ethic who exerts optimal effort in successfully completing tasks.	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 assignments; organizing follow-up session; simulation methods and context.
10	Holistic management	This method first helps the decision-makers identify all the important people and resources relating to the issue at hand, especially those that are very often forgotten. The next step is to bring these elements together into a new "whole", represented by a short "statement of purpose". With this broad holistic goal in place, one has a benchmark by which they can	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 assignments; organizing follow-up session; simulation methods and

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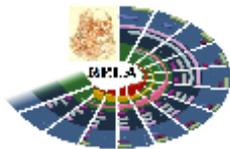


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		measure their future decisions. A subsequent testing phase reaches back to often ignored considerations to make sure that none are being forgotten.		context.
11	Achievement orientation	The capacity to identify / accomplish challenging objectives or goals, a management skill which sets difficult goals, assists in training, emphasizes improvement, and expects the highest levels of performance.		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 assignments; organizing follow-up session; simulation methods and context.
12	Imaginative use of knowledge	A way of looking at problems or situations from a fresh perspective that suggests unorthodox solutions (which may look unsettling at first). This can be stimulated both by an unstructured process such as brainstorming, and by a structured process such as lateral thinking .A more useful approach is to view this use of knowledge as the process of generating <i>ideas</i> whilst seeing innovation as the		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 assignments; organizing follow-up session; simulation methods and context.

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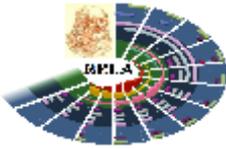
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		sifting, refining and more critically – the implementation of those ideas. Creativity is about divergent thinking. Innovation is about convergent thinking. Creativity is about the generation of ideas and innovation is about putting them into action.		
13	Leading R & D activities	Capacity for leading R & D projects to satisfy a defined business or scientific objective, demonstrating advanced program and project management skills, strong analytical abilities, and familiarity with research discovery and development processes; it means coordination of the research project management life cycle, including initiation, development, and implementation of various complex experimentation projects.		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 assignments; organizing follow-up session; simulation methods and context.

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3. Conclusions

1. The result of the documentation study realized in the project framework 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 targeted to sustainable development applications”.

2. Conforming to this study the defined personality characteristics, competences and skills for the targeted bio entrepreneurs were used to prepare the “Questionnaire regarding the need of the key competences in entrepreneurship for innovative SME’s in the bio economic sector targeted to sustainable development applications”. This questionnaire was disseminated towards the project target-groups from the countries involved in the project-Romania, France and Lithuania to realize a survey regarding the target groups’ points of view.

3. The survey results determined the structure of “BELA matrix of competences” needed to start and to develop innovative SME’s in the bio economic sector targeted to sustainable development applications.

4. Further on the BELA matrix of competences will be the basis to elaborate the proposed project curricula and training contents “Sustainable Life sciences applications” and “Enterprise business and Intellectual property in Life sciences” developed in both paper and multimedia format.

The main issues of the BELA matrix of competences are:

I. Personality characteristics: Risk seeking/ tolerance; Self-confidence; Strong sense of independence; Self-efficacy; Self-made/self-belief; Inventive orientation; Optimistic orientation; Competitive spirit; Courageous and well organized; Communication capacity; Networking ability; Management capacity; Leadership characteristics; Capacity to work in multi-and cross-disciplinary teams; Adaptation to changing conditions. These traits can be improved by self help, mentoring and better **coaching**, so the issues cannot be the subject of training. Only personality tests information will be presented at the beginning of the training products.

II. Bio entrepreneur competencies characterization

1. Technical Skills

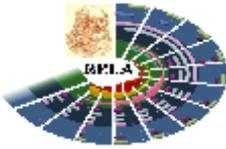
Knowledge and understanding

Technological knowledge about manufacture of bio products and specific services;
Technological knowledge about industrial life sciences sustainable applications; Intellectual

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Property Rights specific to bio economic sector; Multi disciplinary and cross disciplinary characteristics of life sciences; Innovation development based on R & D in life sciences sector. The training by transfer of knowledge in now-a-days systems: face to face learning, e-learning, blended learning or other advanced ICT technologies will be the subject of the project learning products.

2. The same will be applied for the Management and Business knowledge and skills

A. Judgment and approach, meaning: Project financial set up and evaluation; Elaboration of a business plan, capacity of building organizations and staff teams and developing them by inter-company cooperation and cooperation between companies and academia; environmental and NGO's roles; Business intelligence; Methods to access to financing, long-term and venture capital financing; Assessment of the market of a product and payment mechanisms within the field of life sciences sustainable applications industry; Manufacturing and commercialization methods and sale agreements making; Economic and social models or regulatory issues developed by the authorities from a national and international perspective.

B. Finally for Skills and abilities, meaning: Organizing associations / networks (social and emotional intelligence); Recognizing opportunities based on innovation; Initiative orientation; Decision making; Creative thinking; Determination; Quick and forward judgment; Persuasion spirit; Hard working; Holistic management; Achievement orientation; Imaginative use of knowledge; Leading R & D activities, special techniques of informal learning will be shortly presented.

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