## **FUTURE-ORIENTED INDIVIDUALS: LESSONS LEARNED FROM A COMPETENCE SURVEY**

February 2018



**Becoming future-oriented** entrepreneurs in universities and companies











Co-funded by the Erasmus+ Programme of the European Union

The European Commission support for the production of this publication does not constitute endorsement of the contents which reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein

Deliverable R2.3; Work package 2, Task T2.3; Dissemination level PU (Public)

#### Authors:

Oihana Hernaez, Cristina Nogales, Ibon Zugasti (Prospektiker), Anna Pająk, Anna Sacio-Szymańska (Institute for Sustainable Technologies – National Research Institute)

#### **Contributors:**

Anna Kononiuk, Alicja Gudanowska, Andrzej Magruk (Białystok University of Technology), Stefanie Ollenburg (Free University Berlin), Gualtiero Fantoni, Leonello Trivelli (University of Pisa), Annamari Tormanen, Josune Prieto (Mondragon University), Norbert Kołos, Zofia Bednarczyk (4CF), Riccardo Apreda, Donata Gabelloni (Erre Quadro), Christoph Keller, Bernhard Albert (Aveniture), Alessandro Guadagni, Margherita Pascucci (ValueDo).

#### **Statement of originality:**

This deliverable contains original unpublished work, except where clearly indicated otherwise. Acknowledgement of previously published material and of the work of others has been made through appropriate citation, quotation or both.

#### Disclaimer



This report contains material which is the copyright of beFORE Consortium Parties. All beFORE Consortium Parties have agreed that the content of the report is licensed under a Creative Commons Attribution Non Commercial Share Alike 4.0 International License. beFORE Consortium Parties does not warrant that the information contained in the Deliverable is capable of use, or that use of the information is free from risk, and accept no liability for loss or damage suffered by any person or any entity using the information.

#### **Copyright notice**

© 2017 - 2019 beFORE Consortium Parties.

#### Note:

For anyone interested in the detailed outputs of the WP2 package, such as: a specific phase of the research process, or detailed country-level findings, the project consortium can provide the additional information required. Please contact us at: info@futureoriented.eu.

#### Index

PRC	DJECT RATIONALE				
INTRODUCTION					
1.	WHICH ARE THE COMPETENCES NEEDED NOW TO MANAGE FUTURE ORIENTED TASKS? 5				
2.	ANALYSIS OF EXPECTATIONS - JOURNEY TO THE FUTURE				
2	.1. Career choices imagined in 15 years' time7				
2	2.2. Global and personal changes that will impact the future jobs – respondents view7				
2	.3. Job titles/positions imagined in 15 years' time8				
	.4. What kind of professional development goals do people want to achieve in their future job, n 15 years' time?				
3. THE	WHICH WILL BE THE COMPETENCES NEEDED TO MANAGE FUTURE ORIENTED TASKS IN FUTURE?				
4.	CUMULATIVE RESULTS BY TARGET GROUPS AND FINAL RANKINGS OF COMPETENCES 13				
5.	INSIGHT INTO THE RESULTS OF THE SURVEY				
6.	IMPLICATIONS FOR THE E-LEARNING PROGRAMME DEVELOPMENT				
6.1. Individual foresight awareness and organizational foresight maturity15					
6	.2. Preferred online learning methods				
7.	RECOMMENDATIONS AND CONCLUSIONS				
ANNEX 1 – Respondents' profile					
LIST OF FIGURES					

#### **PROJECT RATIONALE**

"Becoming Future –ORriented Entrepreneurs in universities and companies (beFORE)" project underlines the need to enrich university entrepreneurship education, company training and business practice by bringing together academic, research and business partners capable to develop and educational offer to create Futures Literate Individuals with improved capacity for analysing and dealing with the unknown future challenges, particularly when managing organisations and developing innovations.

The **main output of the project** consists of and online Futures Literacy course that will provide target groups with the overall knowledge supported by practical examples of using the future studies in business, in teaching and in research. All in all, we aim to increase appetite for further futures knowledge and long term thinking practices among project target groups and to increase awareness of their impact on the future even in the face of uncertainty and change.

#### **INTRODUCTION**

The report presents the results of the online survey developed in **Germany, Italy, Poland** and **Spain** over six weeks (from November until mid-December 2017). The aim of the survey was to **identify educational needs of university students, teachers and researchers, and business representatives** in order to improve skills, knowledge, and abilities to deal with the uncertainties of the future. The starting point of this survey is shown in Figure 1, as target groups were asked to reflect and examine upon the twelve competences defined there:

#### Figure 1. The list of competences and their definitions.

#### Adaptability/ Flexibility The ability of people to learn, think, act. and work differently in Thinking creatively complex, uncertain and changeable Analysing data or information Developing, designing, or creating new circumstances Identifying the underlying principles, reasons, or applications, ideas, systems, facts of information by breaking down relationships or products, including information or data into separate parts artistic contributions Critical thinking Systems analysis Determining how a system should Using logic and reasoning to identify the strengths work and how changes in and weaknesses of alternative solutions, conditions, operations, and the conclusions or approaches to problems **COMPETENCES** environment will affect outcomes Developing objectives or strategies **Reflexive capacity NEEDED TO MANAGE** Establishing long-range objectives and Thinking through how specifying the strategies and actions **FUTURE-ORIENTED** professional and personal values to achieve them impact working activities, and **PROFESSIONAL TASKS** Inductive reasoning one's own, and others' behaviour The ability to combine pieces of **Problem sensitivity** information to form general rules The ability to tell when something is or conclusions (ncl. finding a relationship wrong or is likely to go wrong. It does not among unrelated events) involve solving the problem, only Influencing others recognizing there is a problem Convincing others to change their Making decisions minds or actions Interpreting the meaning and solving problems of information to others Analysing information and evaluating results to choose the Communicating with others best solution and solve problems to translate or explain what

information means and how it

can be used

Answers were analyzed, applying a formula<sup>1</sup> to get weighted averages translated into competences rankings; from "1" - the maximum ranking scale (considered as the most important) to "6" - the minimum (considered as the least important).

Profile of respondents is detailed in Annex 1. To access the full questionnaire, click on here.

## 1. WHICH ARE THE COMPETENCES NEEDED NOW TO MANAGE FUTURE ORIENTED TASKS?

Obtained results reveal significant similarities and convergence of the assessments made by each target group regarding competences evaluated as the most important and the ones that currently need improvement to manage future oriented tasks. As seen in Figure 2, Critical Thinking, Adaptability/ Flexibility, Thinking Creatively, Analysing Data or Information and Developing Objectives and Strategies, together with Making decisions and solving problems seem to be the six highest ranked competences, getting similar results per target group.

Figure 2. Average rankings of competences concerning together "Importance" and "Need of improvement" dimensions.

improvement dimensions.					
ALL TARGET GROUPS	Academics	Students	Entrepreneurs		
<b>Critical thinking</b>	Adaptability/ Flexibility	Critical thinking	Critical thinking		
Adaptability/	Critical thinking	Adaptability/	Adaptability/		
Flexibility		Flexibility	Flexibility		
Thinking creatively	Analysing data	Making decisions	Developing objectives		
	or information	and solving problems	and strategies		
Analysing data or information	Thinking creatively	Thinking creatively	Thinking creatively		
Developing objectives	Systems analysis	Analysing data	Analysing data		
and strategies		or information	or information		
Making decisions	Developing objectives	Developing objectives	Making decisions		
and solving problems	and strategies	and strategies	and solving problems		

Note: The cell in white is the one not repeated in the top 6 of the rest of columns of this table.

On the other hand, **new competences were proposed by respondents**, which will serve as an additional source of data. Taking into account the diversity of the competences provided by respondents, the project team divided them into five broad categories, namely: professional competences (i.e. general issues and professional work tasks); communication and teamwork

<sup>&</sup>lt;sup>1</sup>Formula:  $I_{Ci} = \frac{n_1 \cdot 1 + n_2 \cdot 2 + n_3 \cdot 3 + n_4 \cdot 4 + n_5 \cdot 5 + n_6 \cdot 6}{n}$  where  $n_1$  means how many times a competence was positioned at the first place (the same applies to  $n_1$ ,  $n_2$ ,  $n_3$ ,  $n_4$ ,  $n_5$  and  $n_6$ ) and n is the total number of respondents.

competences (i.e. working with people and building professional relationships); leadership competences (i.e. leading and influencing others); personal or "self-oriented" competences (i.e. personal predispositions, etc.) and other relevant competences that couldn't be included in the previous categories. The identified competences are visualized below in Figure 3:

#### Figure 3. Additional competences mentioned by each target group.

	ENTREPRENEURS	STUDENTS
Professional	Professional	Professional
<ul> <li>Achievements from other life areas</li> <li>Out of the field learning</li> <li>Experimenting</li> <li>Problem framing</li> <li>Context thinking</li> <li>International cases</li> <li>International exchange information</li> <li>Adequate statistical basis</li> <li>Information identification, gathering and filtering</li> <li>Ethical behavior</li> <li>Interdisciplinary thinking</li> <li>Feeling for trends and developments</li> </ul>	<ul> <li>Technical knowledge</li> <li>Priority selection</li> <li>Root cause analysis</li> <li>Important information selection</li> <li>Out of the box thinking</li> <li>Bird's eye view thinking</li> <li>Digital transformation</li> <li>Scenario analysis</li> <li>Innovation management</li> <li>Risk management</li> <li>Accountability</li> <li>Interdisciplinary thinking</li> <li>Contextual thinking</li> <li>Handling diversity of futures in a single process</li> <li>Analytics - abstract conceptual thinking</li> </ul>	<ul> <li>Quick decision making</li> <li>Competition analysis</li> <li>Innovation seeking</li> <li>Accuracy</li> <li>New methods for problem solving (alternatives)</li> <li>Flexibility</li> <li>Observation / Identifying knowledge gaps</li> <li>Ability to grasp the whole system (Earth as a whole)</li> <li>Ability to work under pressure</li> <li>Planning for the future / Futures thinking / Vision / Future goals / Scenario building</li> <li>Problem framing</li> <li>Task correspondence with intellectual abilities</li> <li>Information research</li> <li>Action assessment before acting</li> </ul>
•Handling organizational change Communication	Broad general knowledge to be able to think quickly into new situations     Factors influencing perception and action	•Multitasking •Sustainable thinking
<ul> <li>Communication skills</li> <li>Presentation techniques</li> <li>Soft skills</li> <li>Networking</li> <li>Creating new partnerships</li> <li>Group discussion</li> <li>Negotiating / Moderating / Mediating / Facilitating</li> <li>Foresight manager / Futurist</li> <li>*Self oriented"</li> <li>Work life balance</li> <li>Turning ideas into actions</li> <li>Mediation skills</li> <li>Work planning</li> <li>Global mindsets</li> <li>Bearing uncertainty</li> <li>Managing chaos and stress</li> <li>Self development</li> <li>Empathy</li> <li>Others</li> </ul>	<ul> <li>Factors initiatencing perception and action</li> <li>Sustainable thinking</li> <li>Leadership <ul> <li>Workplace change management</li> <li>Leadership</li> <li>Business development</li> </ul> </li> <li>Communication <ul> <li>Thinking about other people</li> <li>Communication skills / Media oriented communication skills</li> <li>Operating in different cultural settings</li> <li>Human touch</li> <li>Cooperation and team/networking</li> <li>Strategic communication</li> <li>Working in changing virtual teams</li> <li>Thinking and communicating in pictures and stories</li> </ul> </li> <li><i>Self-learning motivation</i> <ul> <li>Emotional intelligence</li> </ul> </li> </ul>	Leadership         •Orientation towards employee's strengths         •Coaching         •Passion and work ethic         •Leadership skills         •Group controlling         •Making change for good         •Change management         •Building trust         Communication         •Coegin language acquisition         •Knowledge presentation skills         •Team working abilities / Team support         •Analysing positions about the future with other parties         •Integrating fun for an honest communication         •People sensitivity
<ul> <li>IT (software, big data, digitalization)</li> <li>Artificial Intelligence</li> <li>Climate change</li> <li>Resilience</li> </ul>	<ul> <li>Endurance</li> <li>Pursue simplicity</li> <li>Understanding own mental structure</li> <li>Understanding unsaid "common sense"</li> <li>Others</li> <li>Circular economy</li> <li>Exploit technologies</li> </ul>	<ul> <li>Stress dealing</li> <li>Positive criticism</li> <li>Cultural sensitivity</li> <li>Free mind thinking</li> <li>Emotional intelligence</li> <li>Being positive</li> <li>Being ambitious</li> <li>Being free from prejudices</li> </ul>

•Memory improvement •Time managament •Empathy •Stand up for oneself •Behavioural change •Self confidence •Reminding own character

Others •IT literacy

Open mind for accepting new perspectives

Investing in new technologies

#### 2. ANALYSIS OF EXPECTATIONS - JOURNEY TO THE FUTURE

This section includes the analysis of some future expectations or projections imagined by target groups about different ideas regarding future career choices, global and personal changes, job positions and future goals in the next 15 years. The purpose of the section was to set up a context that may help to better understand the competences that will be needed in the future by imagining future working environment.

#### 2.1. Career choices imagined in 15 years' time.

In a multiple choice question respondents were asked to anticipate their future career paths. As showed in Figure 4, there are more significant differences among surveyed target groups regarding anticipated working environment. In the case of Academics, half of them expect to combine two or more career paths, while 21% (almost half less than Students or Entrepreneurs) selects "owning your company" as the option. On the one hand, Entrepreneurs prioritize owning their company and combining two or more career paths (with the 41% of respondents stating this, respectively); "owning your company" is similarly the most popular expectation for Students (38%), followed by the expectation of "being an employee at a private company" with the 28% of Students stating this. This last option is only selected by the 3% of Academics.

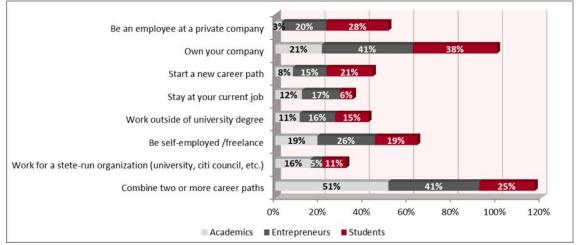


Figure 4. Career choices mentioned by each target group when imagining the future working environment in the next approximately 15 years.

## 2.2. Global and personal changes that will impact the future jobs – respondents view.

Respondents were asked to choose from a list of options, three main changes categories (global, personal and professional changes) that may have the greatest impact on their jobs in 15 years from now, and to provide specific examples.

Technological development or discoveries from scientific research, developments of markets, products, services or business models, together with personal life changes (i.e. migration,

starting a family) are considered as the most important by all target groups. It should not be surprising that personal life changes are mentioned by almost a 60% of respondents representing Students, in comparison to the approximately 30% of Academics and Entrepreneurs. In addition, changes related to developments of certain markets, products, services or business models seem to be important, especially for Entrepreneurs and Students. Changes related to economic, political or cultural implications, or radical structural or functional changes in the organization respondents may work for seem to be of the least interest for all target groups. Figure 5 presents main results regarding changes that will impact future jobs.

#### Figure 5. Global and personal changes that will impact the most the future job of each target group.

#### Economic, political, or cultural Radical structural or functional changes in interaction among countries (23%) the organization you may work for (22%) Unstable political and financial situations, changes in New and more flexible forms of organizations (i.e. international cooperation patterns, climate change related virtual organizations), reforms of science and academic education, other cultural transformations challenges, changes in educational processes. Radical changes in the way you Technological development / discoveries from scientific research (47%) execute your job (29%) GLOBAL ICT developments, 4.0 technologies (i.e. Impact of technologies, new AND automation, digitalization or artificial digitalization, automatization, robotics, industry 4.0), smart technologies (i.e. in health, in building intelligence on future teaching, PERSONAL learning and working environments. industry), big data, artificial intelligence. Impacts of new research, teaching and learning This will involve the raise of CHANGES virtualization, e-learning approaches methods, new trends in the future of work, and remote working. environmental crisis. Developments of certain markets, products, Personal life changes, such as migration,

#### services, or business models (42%)

Growth of emerging markets (i.e. Asia), dematerialization and servitization of businesses, development of new business models, globalization and remote/virtual learning and working.

#### starting a family, changing professions (46%)

Starting a family and migrating abroad. Finding a work-life balance between personal life and working life

#### 2.3. Job titles/positions imagined in 15 years' time.

This section discusses the responses associated with future jobs that the target groups imagine for themselves in 15 years' time.

Surveyed Academics named mostly traditional positions related to scientific career paths. Some other positions should be highlighted as well, as for instance, positions linked to selfemployment, managerial approaches or jobs that involve working with others or influencing others. Entrepreneurs mainly identified positions related to starting and owning a business, along with jobs that involve managerial tasks. Jobs linked to cooperation and team work seem to be important too, as well as future oriented jobs in some cases. However, mentions about academic or research jobs are very limited. Finally, the analysis of Students' answers reflects a more diverse situation, combining similarly different type of positions, from entrepreneurial and managerial approaches, to more specialized technical, academic/research related and future oriented jobs (see Figure 6).

Figure 6. Job titles/positions imagined by each target group. ACADEMICS **ENTREPRENEURS STUDENTS** Owner / Manager / Entrepreneur (generic) Owner / Manager / Entrepreneur (generic) Entrepreneur Company owner / General Manager Managing Director •Entrepreneur with everyday use discovery Manager Owner of a company Founder Self-employed Manager Entrepreneur Project manager Head of an organization Team manager •Primer Minister Academic / Researcher Academic, researcher Academic / Researcher PhD; University lecturer Professor, Author and Prize winner •Vice-Dean Professor Multidisciplinary approach Researcher Future oriented jobs •Entrepreneur of a nanotechnology SME / researcher Scientist Chief Foresight Officer Researcher Leading Futurist Inventor Managing functions Giving innovative solutions to current and future Networking Researcher in a spin-off to bring innovation out of problems Future oriented jobs the University Prizes winner Jobs involving cooperation and team work Anticipation Specialist Talent management team Foresight Analyst Foresight manager / Futurist Team manager •Future Research Consultant To bring people together obs involving cooperation •Advisor for futures consensus building To help others to improve •A visionary strategist Head of a think tank To make companies participate •Thinking, acting and cooperating Specific managerial work Specific managerial work •To implement modern managing techniques, to Department manager ICT manager foster cooperation within organization Project and product manager Business strategy lead Networking Senior specialist Startup Hub Director Influencer jobs Innovation manager •Research and development manager Coach Strategic consultant, innovation coach More specialized jobs A professional who inspires and mentors others More specialized jobs Consultancy; Accountancy; Programmer; •To help students to exploit their creativity to develop Marketing and sales; System resource •Marketing-User experience new ideas and to start new businesses Organizational farmer management; Market development; Global Change Maker teams management; International Multicultural competence expert Provider of creative solutions relationships; Design; Event organizer in •Conceptioner/Developer Designer Eccentric philanthropist cooperation More specialized jobs Global exporter and European sales leader •With different sectorial approaches Science developer Others Others Engineer / System and Software Architect •Change maker; Changer of the established rules •Global supporter for sustainable productive systems Multi-skilled citizen Food buyer Influencer and creator Being successful Economic expert •To make dreams come true •Developer of new professionals To get real A renown expert Imagineer •Creative and good worker •To be valued as an important factor Equal team-member of a cooperative •Balance between job, family and hobbies •"Me"

## 2.4. What kind of professional development goals do people want to achieve in their future job, in 15 years' time?

Becoming professionally successful in the organization or in the market seems to be the prioritized goal by all target groups, followed by the goal of initiating changes within the organization, country or globally and the goal of becoming a better employee or manager. Additionally, the following specific examples have been identified:

To become sucessful in your profession, organization or in the market – 49% of all respondents

51% Academics - "professional development",	51% Students - "economic conditions",
"researching, teaching and learning new things",	"leadership", "achieving objectives and personal
"changing the rules", "making decisions in a	accomplishments", "organizational changes",
different way".	"being innovative and creative".

**47% Entrepreneurs** - "producing an impact (i.e. social, breakthroughs, changing rules)", "creating a business / a product", "time management", "self-learning", "supporting and guiding others and cooperation", "foresight".

#### To initiate changes in your organization, your country, or globally – 34% of all respondents

**32% Academics** - "changes that produce an **32% Students** - "promoting creative approaches for impact on society", "applying sustainability problem solving", "being innovative and open for and innovation ecosystems", "the changes and mentality change", "team working", development of new business models, new "self-oriented goals", "contributing to the socioways of doing things and solutions", "new regulations".

**39% Entrepreneurs** - "mentality and the way of thinking", "organizational changes (i.e. remote working, flat organization)", "sustainability", "cooperation and empowering of people/workers", "creation and implementation of new ideas", "future thinking", "need of regeneration processes in companies to be able to cope with changing environments".

#### To become a better employee or manager - 33% of all respondents

**26% Academics** - "improving productivity and performance (i.e. efficient "continuously improving skills and helping others management)", "leadership", "making develop their skills", "being more creative and positive changes (i.e. improving students' active in adding value to the company and society competences, or in the society)", "being a good researcher". "being more responsible and respectful towards others", "being happy".

**32% Entrepreneurs** – "leadership skills and motivating people", "proactive and visionary mentality and self-knowledge", "greater efficiency", "cross-discipline teams", "being open, brave, happy and grateful".

#### To achieve something else than stated above - 19% of all respondents

"becoming a leader",	<b>24% Students</b> - "perseverance", "developing new ideas and new ways of doing things", "being a better person", "social and economic independence", "inspiring and impacting positively on people's lives".					
<b>19% Entrepreneurs –</b> "developing skills", "having a useful social network" or "team-working".						
All target groups - "continuous learning and improvement", "satisfaction, happiness and success", "sustainability", "keeping a balance between work and family", "making a difference".						

# 3. WHICH WILL BE THE COMPETENCES NEEDED TO MANAGE FUTURE ORIENTED TASKS IN THE FUTURE?

As seen in Figure 7, similar **competences** are identified by each target group as the ones **that will be needed in the future to manage future oriented tasks, and at the same time, that will need to be improved**. This priorization is made out of the 12 competences presented in the introduction of this report, and the highest the score, the more important the competence is and the more improvement it needs.

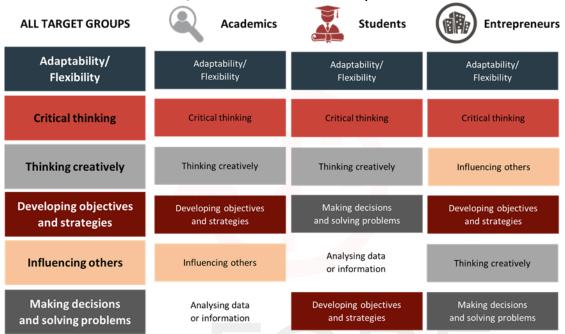


Figure 7. Comparison of the different rankings of competences which will be needed to manage future-oriented tasks, combined with the need for improvement in the future.

Note: The two cells in white are the ones not repeated in the top 6 of the rest of columns of this table.

On the other hand, target groups proposed additional new competences that would be needed and improved to manage future oriented tasks in the future. These can be divided into five general categories: professional competences (i.e. general issues and professional work tasks); communication and teamwork competences (i.e. working with people and building professional relationships); leadership competences (i.e. leading and influencing others); personal or "self-oriented" competences (i.e. personal predispositions, etc.) and other relevant competences that couldn't be included in the previous categories.

The identified competences are distributed according to these main 5 groups, as visualized below in Figure 8, for each target group.

Figure 8. Additional new competences mentioned by each target group.

#### ACADEMICS **STUDENTS ENTREPRENEURS** (1)He Professional Professional Professional Creativity Competitiveness New technology applications / Digitalization •Radical solutions Adaptability New media literacy Visioning •General overview of the process Entering new markets •Connecting learnings from the past to prevent •Horizons thinking Sustainability present and future mistakes Complexity management Quick decision making Top-down oriented logic Interdisciplinary approaches Autonomy and discipline (i.e. job without office) •Possibility to have different experiences Creating new jobs Leadership Information identification, gathering and filtering Result orientation •Implementing new strategies and solutions Change management •Achieving mastery in one specific field •Good organization/structure Leadership Working under pressure Leadership and motivation Sustainable thinking Passion Communication Economy strategies •Leadership •Ability to grasp the whole system (Earth as a whole) •Inter/Cross-cultural competencies Communication Doing good pitching Leadership •Effective communication Human touch Motivating employees Intercultural (productive) relationships Good English knowledge Leadership •Good English knowledge 'Self oriented' Initiative Capacity to talk to others Taking responsibility Self-learning motivation Self oriented Building trust •Emotional intelligence Curiosity Endurance Communication •Perseverance in pursuing a goal Pursue simplicity Knowledge presentation skills Mediation skills Understanding own mental structure Team working abilities •Emotional Intelligence •Understanding unsaid "common sense" •Foreign languages acquisition / English Empathy Understanding for others Charisma Mentality sensitivity Mindfulness •Adaptability to different behaviors

•Taking the advantages from other fields of life

- •Environmental understanding and connection with
- nature ends
- •Artificial Intelligence

•Collaboration and participation

#### 'Self oriented'

- Openness
- Consequences identification
- •High self-esteem / self confidence
- Soft skills
- •Free mind thinking
- Courage
- Tolerance
- Cold mind
- Determination
- •Emotional intelligence
- Illusion
- •Being free from prejudices
- Memory improvement
- •Being ambitious / Bigger thinking
- Empathy
  - •Stand up for oneself / See individual opportunities

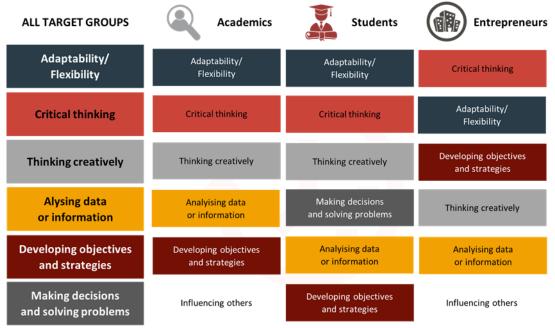
#### Others

- IT competences
- Technological knowledge
- Mathematics
- Physics
- Universe related topics
- Psychology

# 4. CUMULATIVE RESULTS BY TARGET GROUPS AND FINAL RANKINGS OF COMPETENCES

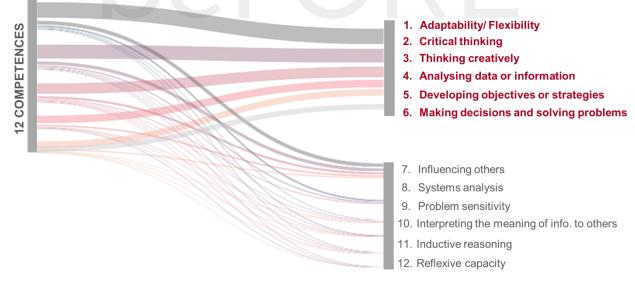
Figure 9 shows the **6 competences prioritized by all target groups and each target group**, as these that are and will be needed to manage future oriented tasks, both at the present and the future, and that are in need of improvement. Figure 10 depicts the final cumulative ranking of the 12 competences analyzed.

Figure 9. Rankings of competences needed in the present and the future to manage future-oriented tasks, combined with the need of improvement, both in the present and in the future.



Note: The cells in white is the one not repeated in the top 6 of the rest of columns of this table.

Figure 10. Final list of competences needed in the present and the future to manage future-oriented tasks, combined with the need of improvement, both in the present and in the future.



#### 5. INSIGHT INTO THE RESULTS OF THE SURVEY

When comparing the lists of additional competences proposed by the target groups through open-ended questions in two points in time (now and in approximately 15 years' time) the following conclusions can be drawn:

- Respondents were largely positive and open-minded when proposing additional skills, which could facilitate their professional lives.
- ✓ Competences related to technical or field-specific knowledge and skills were rather absent from the items suggested by the respondents.
- ✓ At the same time when asked about future job titles, rather traditional professional roles were proposed (managers, CEOs, company owners, researchers).
- ✓ All three groups associated future competences with better self-management; selfawareness; people-orientation and co-operation; openness (for other disciplines, cultures); failure and stress tolerance, passion, courage, motivation, change management.

The reasons for the **orientation of all target groups towards more 'human-centred' values and ethical competences** in open questions could be explained as follows:

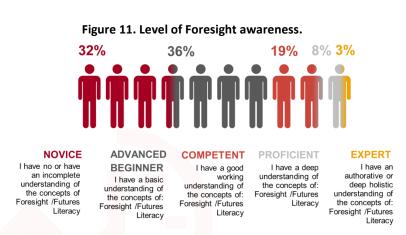
- ✓ Eight out of the twelve competences that the survey was focused on, emphasized more functional, task-oriented approaches ("analytical thinking", "critical thinking", "developing strategies", "making decisions", "solving problems", "data analysis") combined with original thinking and acting ("thinking creatively" and "adaptability/flexibility"). When asked about selecting the five key choices, respondents needed to prioritize and instinctively they might have been picking the professional ones leaving the social competences behind.
- ✓ The four competences that in the intention of the survey authors referred to psychological traits and relations with others ("reflexive capacity", "problem sensitivity", "influencing others", "interpreting the meaning of information to others") might have not been explained clearly enough. Consequently, the respondents left them out of the ranking and suggested additional items, which in fact were equivalents of the original set (at least to some extent).
- ✓ When asked open questions related to the future, the respondents were in fact answering the question "what person I would like to become in the future" and it appeared that individuals who took part in the survey placed personal goals, values, beliefs, motivations among the main constituents of their professional development and personal growth.

#### 6. IMPLICATIONS FOR THE E-LEARNING PROGRAMME DEVELOPMENT

The results of the survey revealed not only target groups' preferences in relation to particular, previously defined set of competences, but also such aspects as: their general attitude to the future, the level of foresight awareness or, organizational foresight maturity, readiness to increase their future-oriented thinking capabilities or preferred online learning methods, to name just a few.

#### 6.1. Individual foresight awareness and organizational foresight maturity

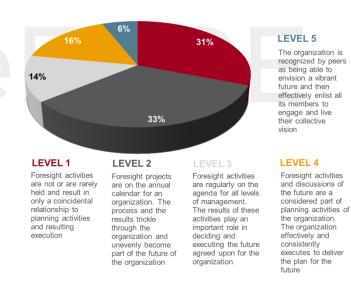
The surveyed population assessed the level of individual foresight awareness or futures literacy<sup>2</sup>, indicating a relatively low level of future thinking competence in all cases. In fact, 32% of all respondents admitted to "have no or have an incomplete understanding of the concepts of Foresight /Futures Literacy"; and only 3%



admit to "have an authoritative or deep holistic understanding of the concepts of Foresight /Futures Literacy" (see Figure 11).

On the other hand, respondents from the entrepreneurs target group (business representatives) were asked to choose from 5 possible answers, to assess their organizational foresight maturity<sup>3</sup>. Results presented in Figure 12 indicate a low level of proficiency in the field of Foresight within surveyed companies; 64% of them assessed this foresight proficiency at the lowest levels (Level 1 or 2) an only 6% admitted the highest level (Level 5).

### Figure 12. Companies' proficiency in the field of Foresight (based on the Grim's 5 point scale).



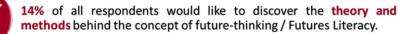
<sup>&</sup>lt;sup>2</sup> Using 5-point scale: from the least (1-novice) to the most (5-expert) advanced.

<sup>&</sup>lt;sup>c</sup> Grim T. (2009), *Foresight Maturity Model, Achieving Best Practices in the Foresight Field*. Journal of Futures Studies, 13(4), pp. 69–80.

#### 6.2. Preferred online learning methods

The vast majority of respondents considers that a combination of both theory and practice behind future-thinking would be the preferred learning option (Figure 13).

## Figure 13. Choices concerning the preferences towards discovering theory and practice behind future-thinking.



**22%** of all respondents would like to study **case studies** and project that illustrate the **application** of the theory and methods of future-thinking in real life. 31% in the case of students.

64% of all respondents considers that a combination of **both theory** and **practice** behind future-thinking would be the preferred learning option.

As well as this, a combination of different methods seems to be the preferred online learning option, as this is stated by 41% of all respondents. E-books and downloadable pre-recorded lectures are the second option, followed by the option of a dedicated e-learning platform, as mentioned by 29% and 25% of all respondents respectively.

#### 7. RECOMMENDATIONS AND CONCLUSIONS

The results of the survey constitute one of the essential elements guiding the consortium in the process of creating e-learning courses within the next phases of the project. The main conclusions and recommendations arising from the survey results may be summarized as the following:

#### In terms of courses' topics.

- ✓ The low level of foresight awareness suggests the need to include not obligatory and probably more theoretical "introduction part" in order to fill the gap in the minimum knowledge base that may be considered as required to be able to effectively participate in the training course.
- ✓ The existence of not very large differences in values of competences' importance also supported by respondents' comments, suggest that all competences are (not equally, but highly) important for questionnaire takers.
- ✓ Considering significant similarities between all target groups in terms of both, learning methods and areas of competences recognized as the most important and requiring improvement, the use of shared modules and the same/similar learning pedagogies is reasonable.
- ✓ Therefore it seems reasonable to design a basic course and accompanying, advanced thematic courses, which could be of interest to any of the target groups' representatives. Both basic, and advanced courses could fall into the below initial four module framework:

- Module 1: An overview of the field and bringing in the perspective of personal futures;
- Module 2: Rationale behind foresight, areas of its application, outcomes, impacts and risks;
- Module 3: Methods / Tools needed to work with the abstract ideas of futures / uncertainty;
- **Module 4:** Communicating the results to various audiences and stimulating agency.

#### In terms of preferred on-line learning methods.

✓ The course should include a mix of various methods, including downloadable prerecorded lectures and e-books, based on the construction of an educational e-learning platform, with the aim of conquering a high level of engagement from participants.

#### In terms of theoretical versus practical character of courses.

✓ Results indicate the need to include both theoretical and practical contents, highlighting specially the latter ones. This way, adopting the 'competence' approach in the course's architecture and pedagogies, with high involvement of practical applications seems to be the most recommended option.

The course will be piloting in 2019. Please visit our website: <u>futureoriented.eu</u> to find out more about the course and our beFORE project.

# beFORE

#### **ANNEX 1 – Respondents' profile**

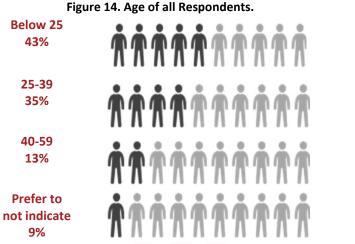
This section includes the basic characteristics of the people answering the survey.

The following target group sampling criteria was followed:

- Students of any year of study or recent graduates (including PhD level), of any faculty (preference given to: entrepreneurship, innovation management, business management, engineering); including Futures Studies faculty.

- Teachers and academic researchers at any stage of career representing any faculty (preference given to: entrepreneurship, innovation management, business management, engineering), excluding those directly related to Futures Studies.

- Entrepreneurs representing firms of any size (note: in case of micro and small firms interest in increasing the firm's innovativeness level was a must) and operating in any sector of economy.





36%

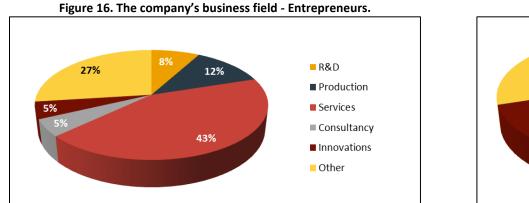
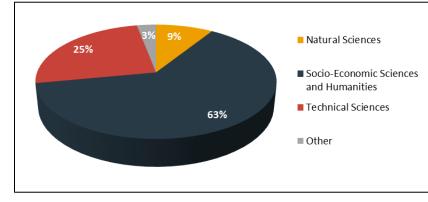
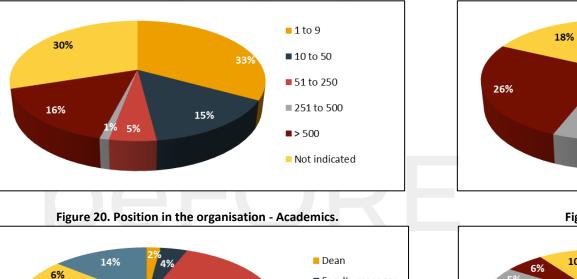


Figure 19. Field of research interest - Academics.





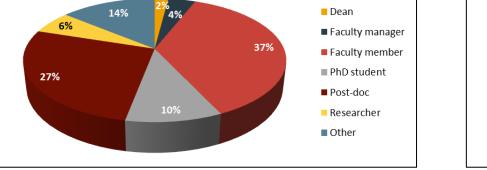
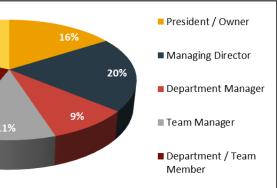


Figure 17. Size of the company - Entrepreneurs.

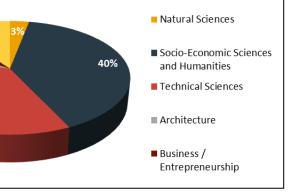
#### Figure 15. Gender representation.



#### Figure 18. Position in the organisation - Entrepreneurs.



#### Figure 21. Field of studies - Students.



#### **LIST OF FIGURES**

Figure 1. The list of competences and their definitions 4			
Figure 2. Average rankings of competences concerning together "Importance" and "Need of			
improvement" dimensions5			
Figure 3. Additional competences mentioned by each target group			
Figure 4. Career choices mentioned by each target group when imagining the future working			
environment in the next approximately 15 years7			
Figure 5. Global and personal changes that will impact the most the future job			
of each target group			
Figure 6. Job titles/positions imagined by each target group9			
Figure 7. Comparison of the different rankings of competences which will be needed to			
manage future-oriented tasks, combined with the need for improvement in the future 111			
Figure 8. Additional new competences mentioned by each target group			
Figure 9. Rankings of competences needed in the present and the future to manage future-			
oriented tasks, combined with the need of improvement, both in the			
present and in the future			
Figure 10. Final list of competences needed in the present and the future to manage future-			
oriented tasks, combined with the need of improvement, both in the			
present and in the future			
Figure 11. Level of Foresight awareness			
Figure 12. Companies' proficiency in the field of Foresight (based on the Grim's			
5 point scale)			
Figure 13. Choices concerning the preferences towards discovering theory and practice behind			
future-thinking			
Figure 14. Age of all Respondents			
Figure 15. Gender representation18			
Figure 16. The company's business field - Entrepreneurs			
Figure 17. Size of the company - Entrepreneurs			
Figure 18. Position in the organisation - Entrepreneurs			
Figure 19. Field of research interest - Academics			
Figure 20. Position in the organisation - Academics			
Figure 21. Field of studies - Students			



**FEBRUARY 2018**