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Design Thinking as new leverage for Entrepreneurship Education

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Abstract

The aim of the paper is to reflect on the importance of the strategic design approach to define new training programs addressed to teach entrepreneurship to young innovators. The research conducted in the framework of the European Project called CREA Summer Academy showed that there are a lot of programs that support the dissemination of an entrepreneurship culture, but that focus only on it. Nowadays, to be competitive in the start-up world, this is not enough. For this reason, thanks to the findings of this research was created a new training formula that support the entrepreneurial culture in the creation of new startups providing knowledge about Design, ICT and Entrepreneurship.

This new model for training programs was called CREA Summer Academies. The program itself could be compared to a small start-up where the first two years are served by MVP.

The success and echo achieved by the program during its life as a European project and the innovative approach of CREA, convinced the partners to continue to deliver the program. It was decided to start with a new MVP that would go to validate a possible self-sustainable business model without the European founds.

Keywords

Entrepreneurship Education, Design Thinking, Didactic Innovation, Start-up, Creative and Cultural Industries.

1. Culture and creativity as drivers for new entrepreneurship in the Creative Economy

The development of Cultural and Creative Industries (CCIs) is vital for a vibrant economy and as a means of revitalizing European regions. The CCIs employ 7.5% of the EU's workforce and add around EUR 500 billion to GDP. CCIs also contribute significantly to youth employment and were remarkably resilient in the context of the economic crisis.

The CCIs represent highly innovative companies with a great economic potential and they are one of the Europe's most dynamic sector.Cultural contents and the creative approach to the innovation are playing a crucial role in the development of new products and services able to catch the potential and the opportunities offered by the digital transformation. CCIs are transforming products empowering the service experience with digital contents and they are working to make services accessible, customizable and affordable for large community of users. Culture and creativity are than becoming increasingly important because they are the levers for the creation of innovative companies, jobs and to generate growth and drive traditional economies towards new areas of innovation, capitalizing the opportunity of the digital transformation for the creative economy. Culture and creativity are recognized to be important to entrepreneurship and today even more important for their contribution to that new entrepreneurship is creating economic and social value. There are different contributions that culture and creativity can give to drive and boost entrepreneurship. First, they can support organizations to change their mind-set for the implementation of co-design approaches inside the organization or in network of companies and in the development of new services and new solutions able to generate value with and for communities. Creativity plays a crucial role also in the development of new businesses (profit or no profit) in the innovative domains as a driver for invention, creative new business ideas and innovation also in existing organization. Secondly, a cultural and creative environment is very important to foster the development of entrepreneurship (and the entrepreneurial culture in existing organization) and innovation. Thirdly, creativity and creative methods such as design thinking are more and more recognized as being important factors in the generation of new businesses as they contribute to user-centric thinking, market adaptation, communication skills and other entrepreneurial skills. Culture and creativity are than key factors in the development of a productive entrepreneurial ecosystem and at the same time they are leverage for the start-up of companies with a specific design driven innovation approach. This new entrepreneurial culture is increasingly being recognized as a contributor to societal change and social innovation and they are important drivers for job possibilities and economic growth because of the nature of the innovation CCIs are improving. Social entrepreneurship, innovation in the creative economy are becoming the domain of this community of innovators.

2. Design driven innovation for the growth of creative and cultural entrepreneurship

Design is becoming a pervasive aspect in different fields and it is also increasing its importance in driving new entrepreneurship in the cultural and creative sector. A huge range of subfields, such as product service system design, communication and interaction design, service design, and strategic design are becoming crucial for the generation of innovative business ideas in different economic fields. Entrepreneurial framework is then changing according to the evolution of design practice and there is an increasing attention to specific approaches close to the idea of co-create, co-design and open innovation. The inclusion of users and communities into the whole design thinking process (from inspiration to iteration and prototyping) can support entrepreneurs, companies and institutions to learn and have experience of the

human-centred design logic (Ideo, 2011).
Young innovators should be driven from the generation of innovative solutions of products/technologies and services to the design for people's purposes. The domain of the ideas developed should move to the generation of a business idea (profit or no profit) emerged from the translation of users and societal needs into a complex system where the product, the technology or the service are only a small part of this complexity. This type of innovation has to be seen as a strategic process (Manzini, 2002), which has resulted in new forms of organization and innovative forms of co-production of value. Young innovators, start-uppers and new entrepreneurs can really profit from knowledge transfer activity addressed to a strategic design approach with the perspective of the design driven innovation. In fact strategic design is a design activity aiming at an integrated system of products, services and communication, based on new forms of organization, roles reconfiguration of different companies and institutions, users and other stakeholders; a design developing a strategy linking long term goals with existing social trends and based on new systems of values and new opportunities of growth.

3. Entrepreneurship education for the creative economy

The transition from a technology driven approach for the support of new generation of enterprises to a meaning driven innovation approach (Verganti & Norman, 2012) is actually the framework for the improvement of activities addressed to the support of the creative and cultural entrepreneurship. This framework includes the use of new tools and methodologies able to integrate a participatory design approach face to young innovators but also to citizens, communities, institutions, SMEs etc.
Creative approaches to entrepreneurship education are based a specific assumption. First: in a creative approach, entrepreneurs start with who they are and what they know - personal achievements and passion, experience, education, and other knowledge is the foundation for entrepreneurial activity (Fiet & Patel, 2006).
Second, it is assumed that the entrepreneurs initiate actions from a position of inclusion in a wider social framework (Granovetter, 1985, 1992). Observing and reflecting on her situation, an aspiring entrepreneur may ask, what can I do with my own resources? Who do I know that can lead me to other, much-needed resources?
Third, entrepreneurs create the venture's culture and overall operating environment through social relations (Alvarez & Barney, 2007), thus intrinsically taking into consideration the wider network of entities that they need to link with. Particularly, they bring along new people who reshape perceptions of the environment and modify beliefs about what is desirable, feasible, and viable. Venture stakeholders are not necessarily assembled based on some measurable fit with the objective target opportunity, but rather based on who demonstrates passion to act with the available means (Dew et al., 2009).
According to this approach there are specific domains for the business ideas driven by culture and creativity that meet the new and changing needs in society, and thus match one or more of innovation themes:

- new products and new markets: ideas for new needs and new targets, such as: disadvantaged categories (kids, elderly, disabled, etc.) and new emerging markets (the new middle class of extra-European countries such as China), etc.
- social innovation: ideas for products or services which address social needs and specific issues, such as unemployment, social inclusion of certain groups of people (migrants, elderly etc.), gender issues, environmental issues etc.
- service innovation: ideas for new or improved services (commodities or public services), for new or improved ways of designing and producing services or for improved management processes within service organizations.

- technology and meaning driven innovation: ideas and applications in which the use of technologies create new business and product or service development opportunities for entrepreneurs from both traditional and creative sectors.

4. Customized training program to improve the birth of Creative and Cultural industries in Europe

Entrepreneurship education covers a wide variety of audiences, objectives, educational material and methods. According to Fayole and Gailly (2008) entrepreneurship education aims at defining educational activities based on answering the following problem-framing questions: Why (objectives, goals)? For whom (targets, audiences)? What (contents, theories)? How (methods, pedagogies)? For which results (evaluations, assessments)?

Each of these questions deals with intangible elements such as entrepreneurial skills, strategic decision-making, market adaptation, communication strategy, networking ability and so on.

Entrepreneurship education focus on support specific needs of young innovators in the Creative and Cultural sector admit a highly contribution of design thinking method and tools on teaching entrepreneurship. Design thinking is a critical part of the entrepreneurship education, as the principles of design thinking teach the students to base and evolve their ideas, products and services in a user-centric way. Taking the user and customer as the most important starting point for the business design and product development increase the chances for students to learn how to adapt to real customer needs and market developments. In taking first steps in the creation of a Cultural and Creative company this approach is vital because of the nature of the innovation addressed not to push technologies but to improve new meanings for people.

Design Thinking can also improve the quality of the experiential learning because it can support the use of tools and methods able to pass from the theory to the practice. This is why Design is increasing its importance in the set of disciplines in training programs addressed to entrepreneurship. Entrepreneurs like designers need to go out and observe people's experiences in the real world rather than rely on extensive quantitative data to develop their insights (Brown, 2011). They have to begin with immersion in real-life situations to gain insight into experiences and meanings forming the basis for reflection, imagination, and design (Nelson & Stolterman, 2012). The process of business idea generation should then start from ill-defined problems (Buchanan 1992; Gaver 2012), integrating processes of observation and reflection that generate a purpose for design thinking activities aimed to create products, processes, and services that transform reality.

“Learning is experience. Everything else is just information” (A. Einstein)

Experiential learning theory proceeds from the assumption that learning is best conceived as process, not in terms of outcomes. Ideas are not fixed and immutable elements of thought but are formed and re-formed through experience. Learning is than a process where concepts are derived from and continuously modified by experience (Kolb, 1984).

Learning is a process where new knowledge, skills and attitudes are achieved trough an immersive and concrete learning experience. Such a learning experience works in a boundary:

- Observation and reflection: specific situations and the ability to involve themselves fully, openly and without barriers into real a situation supports the capacity to observe and reflect on a concrete experience but with the ability to define general concept adaptable to general framework;
- Theory and practice: transform theoretical framework into answers to problems and to take decisions.

The learning experience, especially in the field of entrepreneurship education and business design, need to be situated in real-world-contexts (Kelly, 2013; Rogoff 1984) and it means that the problems and the questions we ask to learners are relevant for a significant context where

they can identify project opportunities and the good environment for a design process (Duffy & Jonassen, 1992).
A learning experience as being applied to real contexts must include team-working activities. That activities involve human beings, using knowledge to create what should be, things that not already exist. The activity of changing existing situations into desires one should be the core competence of all professional activities (Simon, 1996). Train young students on these core competences means open several ways for new job opportunities. The process of knowledge construction and the development of reflexive awareness of that process support the empowerment of different soft skills that are crucial in an educational program addressed to business design and teach entrepreneurship: the possibility to understand and adopt an alternative sign system, the problem solving, the ability to connect things and options, the empowerment of imaginative skills (the use of metaphors and abstractions), the development of self-conscious manipulation in the knowledge sharing process (Bednar et al, 1992). Since every learner has a unique perspective, story and way to see and foreseen, in learning programs addressed to the knowledge construction the experience of learning should be adaptive and responsive to the learner.

5. CREA: a casa of service design in entrepreneurship education to support cultural and creative sturt-ups

In order to support the development of creative and cultural start-ups that are taking the first steps in their journey thanks to a stream of founds of the European Commission seven universities started to work on the creation of a new educational set of services under the project called CREA. To reach this goal, the partners started with a research activity with the aim to compare best practices on teaching entrepreneurship and finds the specificity of a program addressed to the CCI sector. The research has been conducted in three steps:

- step one: analysis of two elements: Summer School Programs offered in English during 2015, and programs about entrepreneurship. The result was over 50 programs offered in Europe and in the US with titles relevant to Entrepreneurship.
- step two: analysis filtered within those programs that have been classified as Teach for entrepreneurship. The output of this phase has been a list of 11 Entrepreneurship Summer Schools.
- step three: in the research were included also Entrepreneurship Summer Schools and Summer Schools provided not in English, having a similar value preposition of CREA: stimulate the early stages of entrepreneurship. The final result has been a list of 15 Summer Schools on Entrepreneurship.

Best Practices Index

EDW	Entrepreneurship in a dynamic world	Germany	Universtity of Business Leadership
SCC	Startup Crash Course:from idea to reality	Germany	Technische Universität Berlin
SE	Social Entrepreneurship	Germany	Global Entrepreneurship Summer School
HSS	How to start a startup in two weeks	Austria	INNES
CEE	Creatvity and Entrepreneurship in Engineering	Austria	INNES
EIA	European Innovation Academy	France	European Innovation Academy
BILLP	Business Innovation and Lean Launch Pad	Netherlands	Utrecht University
ESS	The Entrepreneurship Summer School	UK	London Business School
IGNITE	IGNITE	UK	Judge Business School, University of Cambridge
ESC	The Entrepreneurial Smart Camp	UK	Imperial College London Business School
SUP	Start-up Program	Italy	MIP Business School of Politechnico di Milan
MBSU	Mind the Bridge Start Up program	US	Mind the Bridge Foundation
SIFT	Stanford Ignite - Full time	US	Stanford Graduate School of Business
ES	The Entrepreneurship School	EU	Wilfried Martins Centre for European Studies
EIT	EIT Digital Summer School 8 different themes	EU	EIT Digital

Figure 1 – List of 15 best practices mapped

Reframing the research, some key aspects were underlined:

- Almost all programmes are team-oriented. However, only two of them pay attention to cross-cultural competencies by giving courses on Intercultural Management, Intercultural Communication or by having an intercultural training.

Figure 2 – Individual vs Team + Local vs International

- Four entrepreneurship Summer Schools combine creativity and ICT or technology. Only one combines Entrepreneurship, ICT and Creativity, namely the European Innovation Academy.
- Only the Summer School on "Creativity and Entrepreneurship in Engineering" includes in its program 'Understand the links among entrepreneurship, creativity, innovation and value creation'.
- Only two of the Summer Schools are paying attention to 'the social and usability aspects of the business model' and ' how to successfully transfer knowledge into products and processes that benefit society'.

At the end, from the research emerged the three main elements on which build the value proposition of a new set of services addressed to the entrepreneurship education for the CCI sector have been:

- domain: creativity + ICT + entrepreneurship unite are the new pillars around which build a set of practice based learning activities
- nascent stage: a set of research, training and communication activities addressed to start-ups focus on creativity and ICT in the nascent stage of business process;
- design thinking + business modelling: creation of a bridge between idea generation and business modelling.

The methodology and the approach proposed for CREA project would activate a virtuous circle supporting a cross fertilization between three different area of knowledge merged in a unique training process: ICT development, business management and creativity tools and methods. The focus on ICT entrepreneurship is particularly relevant for CREA project. The cross-fertilization between ICT and creative sectors is particularly important since they are two important drivers that new entrepreneurs can use to generate disruptive innovation with start-up ideas in different fields.
Moreover, the network of partners in CREA was certain that there was a high potential of ICT creative industries that still must be investigated.

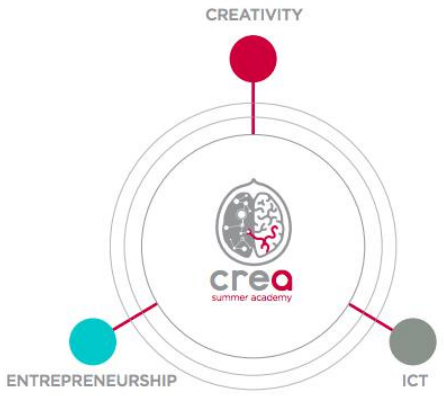

Figure 3 – The three pillars of CREA

In CREA students come in with an idea of their own, or look forward to co-create with others, and go out with a concrete project and a viable business model.
The uniqueness of CREA as new service in the sector was supported also from the research lead by the network, mapping of the 'world of entrepreneurship education'.

6. Design thinking methodology to design the practice-based approach

CREA started with a purpose to create a training program able to create a bridge between design thinking and business modeling theories and practices. The learning theory at the base of the CREA educational model is the Design Experiential learning (Dewey, 1938) with a holistic model of the experiential learning process (Kolb, 1984).

In CREA during the two weeks program, students will be part of a process that combine theory and practice. In CREA students start with an idea and vision, and go out with an entrepreneurial attitude together with a first start-up experience. All learning is relearning: in CREA students are driven to a continuous cycle of examination, testing, integration and redefinition of ideas. Learning requires the resolution of conflicts, analysed in two main area:

- the first one is related to the team: an important part in the process is the team-forming

and the teambuilding. Interdisciplinary and intercultural teams, combining different fields of expertise, different disciplines and different cultural and educational backgrounds have been supported. Empowerment and resolution of conflicts in the team working are the leverage of the work on the business idea;

- the second one is related to the resolution of the conflicts students encounter between their own ideas and (business) designs and the feedback and needs they get from real-life users and customers. Students have been invited to gather input from users and customers to improve and refine their business idea and market potential, fundamental part of the learning experience. Learning is a holistic process of adaptation to the world: in CREA personal motivations of students have been at the base of the learning process. A continue process of reflection combining personal thinking and behaving with relevant needs and problems recognized in the global society was the core of design thinking and business modeling practice. Learning results from synergetic transactions between the person and the environment: in CREA students have been engaged in two full time weeks sharing time of study, practice activities, leisure, game, field visit including local communities and different stakeholders in the learning process. Learning is the process of creating knowledge: including dedicated sessions for the knowledge sharing between students and teachers and adopting specific tools to collect feedback during and after the learning process, CREA represents a case study in terms of continuous creation of knowledge around creativity, ICT and entrepreneurship.

7. Human centred design approach: how the process was improved

In order to design the set of services CREA have been implement a human centered design methodology has been used to learn and at the same time engage in the design process the two main actors: the participants and the professors/experts. In order to understand the perspective of these two actors, and refine the tools and methods according to their expectations and feedbacks a systematic analysis of surveys and interviews have been conducted.

7.1. The participants

To understand the perspective of the user in order to adapt the methodology two kinds of surveys for the applicants have been used:

- One before the summer academy to understand the expectations of the participants;
- One after the summer academy to understand if the expectations were meet and to gain possible suggestions for future improvements.

Obviously during the CREA project the results of each step influenced the process and the following step; moreover, each advancement provides to the CREA network valuable inputs for improving the quality of the second edition of the summer academies. Showing and comparing these series of data, emerge and is visible the evolution of each aspects, contents and methodologies of the summer academies.

7.1.1. Survey conducted before the summer academy

After applying to the call for ideas, each applicant (individual or in team) received an 8-question survey with multiple chooses or open answer. The points investigated were:

- which are the biggest competences and knowledge gaps of the participants;
- their qualitative evaluation on the overall process for the Summer Academies.

The target group for the survey was the 862 applicants to the call (2015- 2016) and 25% of

them have answered.

The most important results are showed in figures 2, 3 and 4.

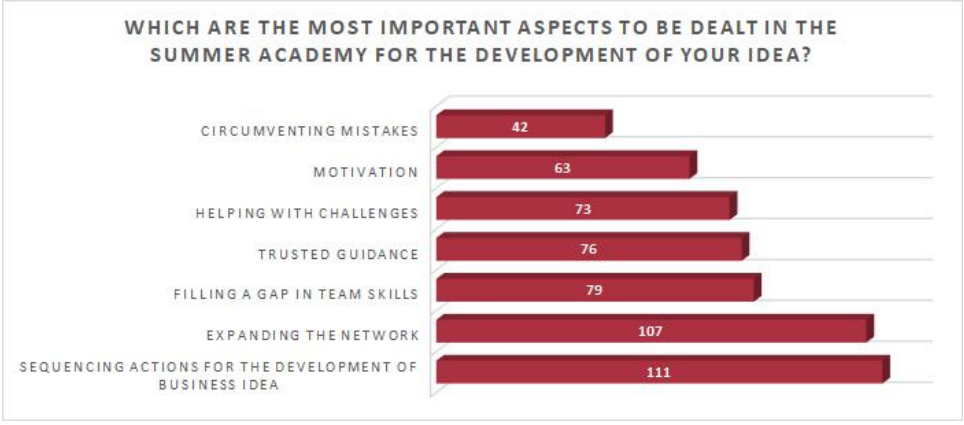

Figure 4 – Results (1) of surveys before the summer academy from students

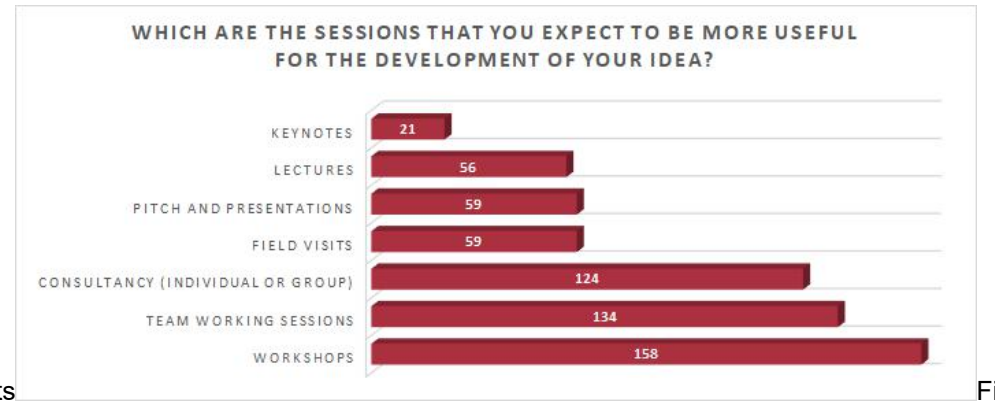

Figure 5 – Results (2) of surveys before the summer academy from students

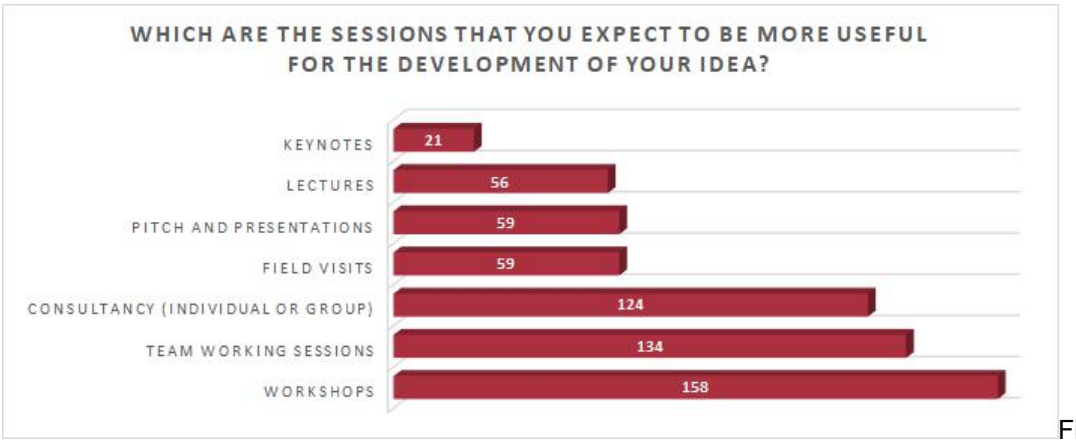

Figure 6 – Results (3) of surveys before the summer academy from students

7.1.2. Survey conducted after the summer academy

The feedback collected among the satisfaction survey from the first edition of CREA Summer Academy allow the Consortium to evaluate the general structure of the summer academies in order to improve the format for the second edition. Each participant, during the closing day of the Summer Academy, received a 33 questions survey with multiple chooses or open answer on the following set of indicators:

I. General aspects
II. Mix of training
III. Experience
IV. Reasons Why
V. Area/aspects for improvement
VI. General satisfaction

The most important results are showed in figures 5 and 6.

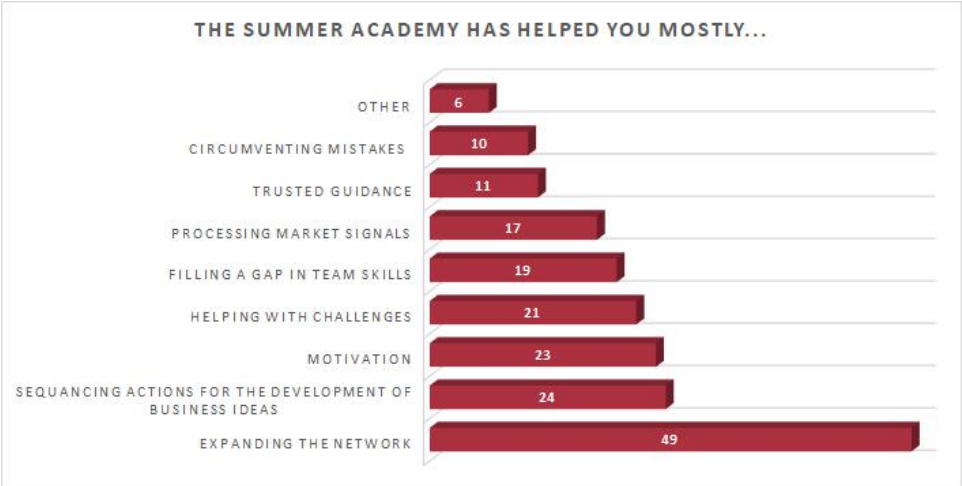

Figure 7 – Results (1) of surveys after the summer academy from students

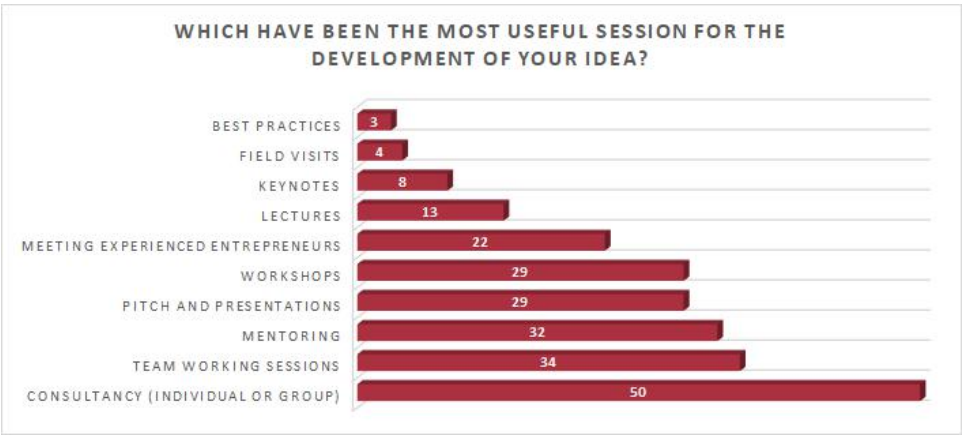

Figure 8 – Results (2) of surveys after the summer academy from students

7.2. The mentors

During the two editions of CREA project, considering all the steps of the training program, the number of experts involved was around 100 from 7 different countries: this panel includes teachers, experts, entrepreneurs, mentors from all the Universities, Incubators, SMEs and Institutions close to the CREA network. The faculty members cover the three fields of expertise and pillar of CREA: Creativity, ICT and Entrepreneurship.
During both edition, each faculty member in the week after the end of the Summer Academy received a 25 questions survey with multiple chooses or open answer; the aim was to understand both possible problems observed during the process and phases that needed more time during the two weeks program.

The most important results are showed in figures 7, 8 and 9.

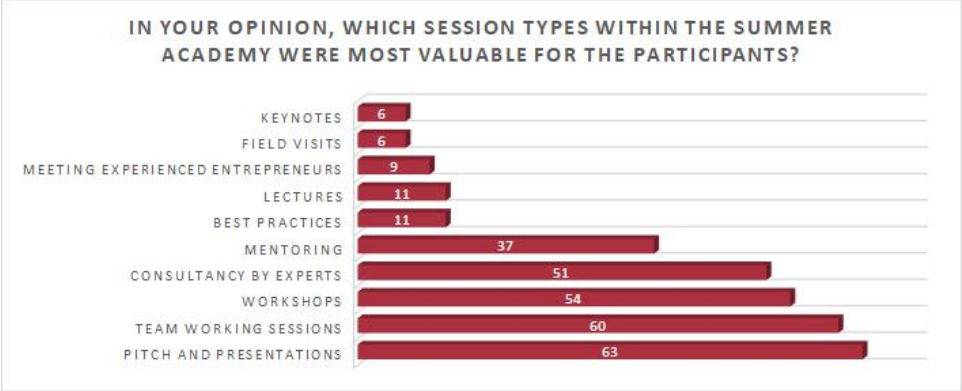

Figure 9 – Results (1) of surveys after the summer academy from mentors

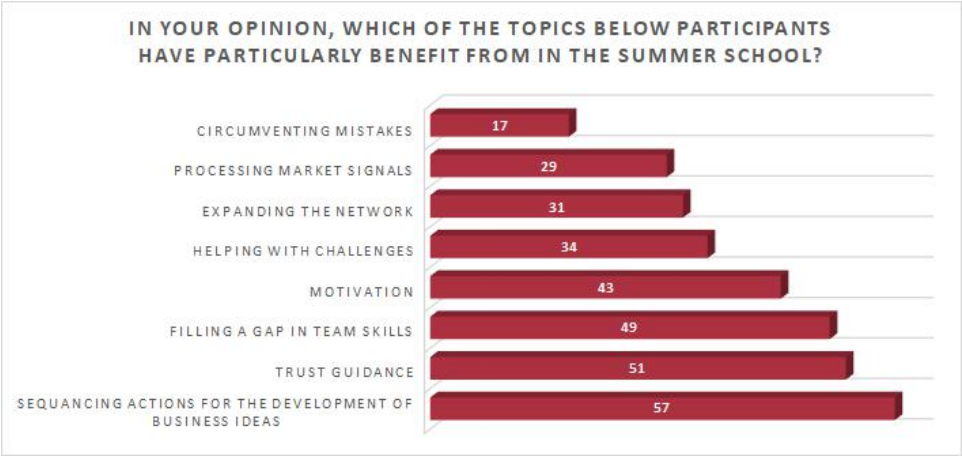

Figure 10 – Results (2) of surveys after the summer academy from mentors

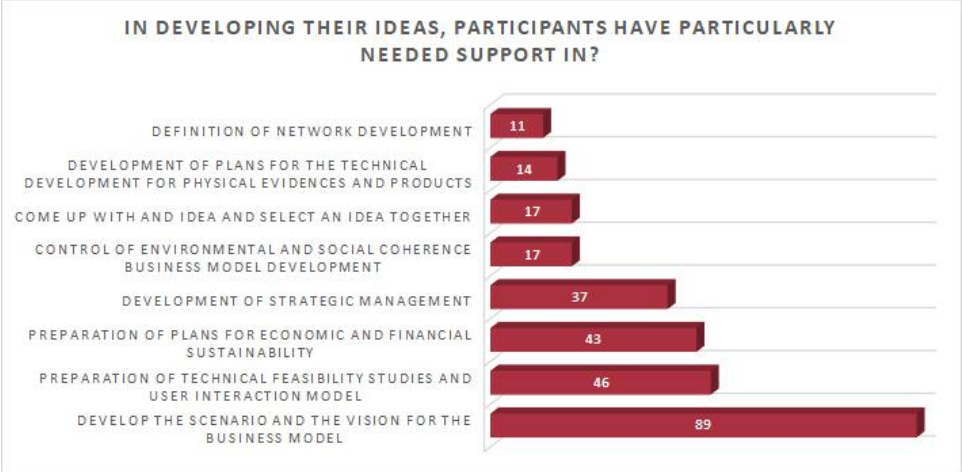

Figure 11 – Results (3) of surveys after the summer academy from mentors

7.3 The piloting

During the funded period in CREA has been realized two piloting editions (2015 and 2016). The first year it was held by 6 partners, while during the second one 7 partners organized the summer academy. Each summer academy hosted experts and professors covering the three main areas of expertise: creativity, ICT and Entrepreneurship. People from SMEs and successful young entrepreneurs have been invited as keynote speakers and mentors for the Summer Academies. Particular attention has been paid to the staff exchange and European mobility of professors and experts from the universities and incubators involved in the project. The three main steps of the learning experience have been:

- Summer Academy. The student got an insight of what was needed to be an entrepreneur and to found a start-up. At the end of the two-weeks program, a qualified jury selected the two best business ideas emerging from each of the six national Summer Academies, which then participated in the ICT Business Idea Contest.
- Mentoring and Prototyping. The student teams with the selected business ideas kept developing their idea in the following months. In doing so, they received support through online mentoring. Between October and November, the students were invited to a Rapid Prototyping Event to develop a first prototype of their idea.
- ICT Business Idea Contest. Finally, the selected students and their teams from each national Summer Academy participated in the ICT Business Idea Contest and had the opportunity to pitch their idea in front of possible investors. Winning participants had the chance to be introduced to incubators all over Europe.
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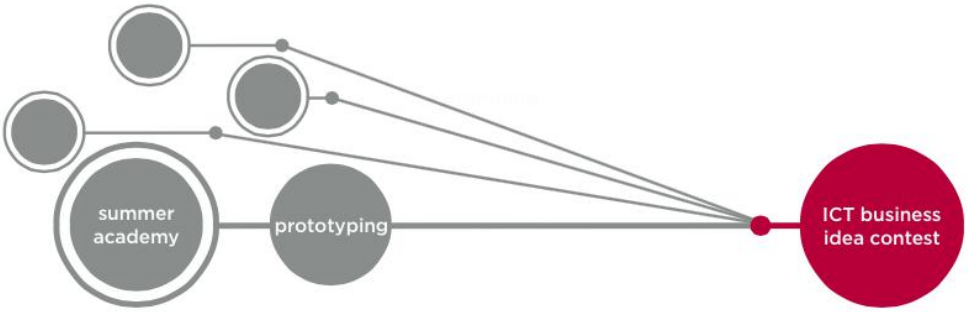

Figure 12 – The CREA Didactic Framework (CDF)

8. From a European project to a service: content that becomes a methodology

During the first 2,5 years, the network has been funded by European funds. The scope of the piloting session was to test the didactic framework but also to build a sustainable network that can continue its activities and invite new partners to join the network as well.
Indeed, the idea was to continue to offer the services of CREA also after the EU period. In order to be successful, it was important to define the value proposition of the network and to find a sustainable way to cover to costs and stay on the market.
Some key problems have been considered in pass from a research and teaching activities to a reflection on a business model:

- Partners are from different countries with different institutional and economical situations. This means that a flexible model is needed, where every partner/member of

the CREA network can find its best fitting role in the network and the best mix of fundraising to reach the foreseen budget;

- It was necessary to define an average cost for running a Summer Academy. This was calculated on the experience of having organized two rounds of Summer Academies for two consecutive years in different places in Europe;

- Consider CREA in the market as a start-up: then the fundraising activity should probably need time to reach the budget needed to cover other editions.

According to the lean start-up approach that has been used in the Summer Academies, the idea was to adopt the same methodology to define a sustainable business model for the CREA Network:
- The CREA MVP (Minimum Viable Product). The network proposes to start organizing only 3 or 4 Summer Academies in 2017 to test and see if the scenario (or combination of scenarios) that were chosen can indeed work. All current partners combined forces o make sure that was possible to organize 3 or 4 Summer Academies instead of being too ambitious and fail because were might not found (for example) enough paying students to fill 7 or 8 Summer Academies. As soon as we know that we can fill 3 or 4 Summer Academies with paying students, we can design a growth strategy for the years from 2018 and also inviting new partners to join.
- The CREA Business Model. As taught to students, CREA network also designed the business model using the Business Model Canvas. The main findings in the business model generation of CREA have been addressed to the value proposition and the key activities:

1- value proposition: after the two editions of summer academies we can confirm the value proposition of CREA that came out from the best practice research is to fills the gap from "having an idea of business" to "taking first steps to starting up" with a specific focus on business idea driven by creativity and ICT;
2 – key activities: Training + mentoring + networking as the object of service design
One of the key aspects that made CREA look attractive and functional is its formula. CREA is based on two important innovations:

- the first, as explained in the second part of the paper, regarding the combination of the three pillars on which CREA was built: Design + ICT + Entrepreneurship, which no other summer academies mixed before;

- the second in delivering the product / service, which is based on the combination of training, mentoring and networking. In fact, each of these three aspects has been developed, deepened and revised to offer a unique and competitive service based also on the needs of those who took part in the program (both students and faculty).

The learning part wanted to offer insights on each of the three pillars of CREA to provide 360-degree knowledge on the key issues to launch a design driven start-up today, becoming competitive in the reference landscape. These lessons were added to mentoring moments where students were followed step by step in developing their idea. Mentoring sessions are designed to put into practice what they learned in learning sessions by applying directly to their case and receiving feedbacks from professionals, so they can better develop their early ideas. The power and validity of the two previous elements, learning and mentoring, was possible thanks to the strong capabilities of the network in CREA. Involving all reference figures within the start-up world as professors, business angels, venture capitalists, incubators has made CREA a valid and varied support for analysing ideas from every point of view. The combination of these three elements is therefore crucial for generating a service like CREA, designed to produce innovative and solid ideas for the context.
Other research activities would capitalize the results of CREA examining the type and size of potential spillover effects that might have taken place in the context of Summer Academies:

- among students themselves;
- among faculty members, mentors and students;
- among students and local actors.

Following up the progress made by teams after the completion of Summer Academies in order to examine the medium-term effect of training programs like CREA on students' entrepreneurial intentions and actions.

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