CLEAR - Creativity and innovation: pedagogical framework for the LEARning chain

REPORT

Enhancing creativity and innovation including entrepreneurship at all levels of education and training

The role of CLEAR Project

Discussion Paper

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Introductory comments and aim of the report

The project CLEAR aims at improving lifelong learning strategies, by designing a pedagogical framework so as to raise awareness on the importance of creativity to empower individuals and to transfer and develop innovation in organizations. It aims at spreading creativity practices to foster innovation in Italy, United Kingdom, Belgium, Spain and Norway, by involving practitioners and policy makers in learning frameworks design and awareness raising events.

CLEAR analyses policies and approaches to develop creativity in partner countries and collects good practices realized in the three sectors of the learning chain: scientific and technology academic education, post academic/executive/non academic higher education, continuous training, with the aim to share and transfer them.

CLEAR is realized by a consortium of 7 bodies, which are active in the education and training sector.

The current report emanates the role of creativity and innovation including entrepreneurship at all levels of education and training in accordance with the CLEAR project based on the European Framework regarding innovation and the infusion of entrepreneurship and creativity within education and training.

Setting up the field

The era of globalization and the worldwide financial crisis have formulated a new set of rules within an extremely sensitive and constantly changing business environment. Turbulent, uncertain, violent, demanding, risky are some of the different words used by researchers and scholars to describe this new environment. Companies are working in all directions to be able to adapt their strategies and plans into this new reality and try at the same time both to explore and exploit any useful and available resources in order to succeed and develop a competitive advantage by developing differentiated products and services. Innovation plays a fundamental role and everyone considers it us the ultimate pathway to success. In order to be able to adopt innovation both in a business but also in a societal level it is important to have highly skilled and trained people and an educational framework characterized by an innovative, entrepreneurial and creative mindset.

Perceiving innovation

Innovative companies are considered the ones that will be able to shape new market situations by setting up new rules and standards, become the pioneers of change (Costanzo, Keasey and Short, 2003) and attain superior performance (Tsou and Hsu, 2011). Organizations are open to many societal characteristics and backgrounds but at the same time they constitute an internal crucible for many societies. At the same time international human resources mobility, the opening up of the markets on a worldwide perspective and the abundance of highly competent employees have brought upfront the need for cultural awareness, understanding and appreciation of inclusion and integration. As Kanter (2011, pp.68-69) successfully points out, “the traditional view of business doesn’t capture the way great companies think their way to success ... an intensely competitive global economy places a high premium on innovation which depends on human imagination, motivation and collaboration”.

Driving a collaborative mindset

In order to survive and succeed within this new set of rules, collaboration is the key element in the creation of a new type of organizations and is also a real fact in business today. Good partnerships denote a key corporate asset and this denotes the company’s collaborative advantage (Kanter, 1994, p.96). It is imperative for organizations to realize that without
successful partnerships and alliances the co-creation of shared value and the endorsement of a substantial competitive advantage simply remain void. Furthermore, it is not enough only to build successful alliances but also to have the ability to sustain them; this means that the focus should lie on a long-term perspective by giving time for mutual collaboration and value co-creation, instead of merely exchanging i.e. getting something back for what has been put in. By this way companies invest into the future and at the same time contribute to the building of the society. The important element here is the realization of a co-creation attitude propensity rather than sheer value capture.

Collaboration is neither easy to be accomplished nor even to be realized. The biggest challenge that organizations are facing is the diffusion of a collaborative culture within the organization per se. Collaboration and creativity begin within the organization and the teams (Barczak, Lassk and Mulki, 2010). The future success of many businesses relies upon their ability to explore and exploit the creative potential of their teams. It is important to understand that in order to innovate, the integration of new knowledge, skills and talents under a collective capacity and the development of a collaborative culture become imperative. This collaborative culture denotes the identity of the organization and the necessity of diversity management becomes a vital element.

International fora and academic research depict the fact that differentiation, innovation, collaboration, continuous and non-stop flow of information, sound use and management of data and highly skilled leadership will be the key challenges for the new business domain yet to come. Ability to listen, flexibility, openness (Drechsler and Natter, 2012) to new relationships and ideas, need to be perceived as the core key factors of success and creation of a competitive advantage since they promote the sound use of valuable knowledge and the development of existing platforms. The process of identifying the knowledge to be integrated into the organizational knowledge base requires that firms deliberately search for and reach out to promising sources. Search has been characterized as the fundamental mechanism enabling firms to learn and organizational knowledge to evolve.

**Innovation in the EU**

The European Union under the EU 2020 strategy is trying to put EU as a global champion of sustainable growth. In order to succeed, innovation and reformation of Europe’s intellectual property regime becomes an imperative aim. This European framework needs to be understood under the following concentric circles:
The abovementioned chart depicts the multilevel perceptiveness of the European framework and the need for a "glocalized" mindset in terms of EU policies and strategies. This means that it is important to understand not only the way the EU strategy in terms of education and training is functioning but also to define the role of innovation and entrepreneurship under the scope of creating an agenda for new skills and jobs which is the flagship initiative of EU 2020 for smart, sustainable and inclusive growth; and all these under the prism reaching vertically the local level by tracking the implementation vision for a competitive Europe. Needless to say that, there has been an apparent failure to communicate with member states on their responsibilities under the Lisbon agenda.

Moreover, it is important to understand that creating the framework for a more innovative education and training incorporating creativity and fostering entrepreneurship requires the building up of adjustable, flexible and open curricula which will bring upfront the need for more globalized initiatives that combine customized skills and practices aiming at covering all the above mentioned levels.

The European Roundtable of Industrialists (ERT) has set up a vision for a competitive Europe in 2025 which is analyzed into five goals;

- Global champion of sustainable growth
- Well-embedded and respected in global markets
- Unleashing innovative power
- People, education and culture drive productivity
- Decisive, reliable and transparent governance

Concerning the fact that innovation is only related to R&D, an interested perspective which is related to education and training is the fact that "it must be possible for failure to be treated as a learning experience". As it will be discussed later on, this element is highly relevant to the way people learn the importance of fostering strong collaboration between entrepreneurs and venture capitalists, and a regulatory framework that makes technological breakthroughs more easily marketable. This framework would definitely improve the conditions for innovation and implementation.

Regarding people, education and culture and the way they foster productivity it is important to underline the realization that Europe’s most precious resources are its people. Continuous education and training is related to the successful matching of skills and business needs however there is more than that. It is the impact that it has in the civil society, the fact that it helps peoples embrace change. Getting back into the business perspective it is not to be forgotten that employees should be able to work and create within an attractive working environment that inspires confidence and entrepreneurship. It is not to be forgotten that entrepreneurship is not simply creating a new business. It is also relevant to what is called intrapreneurship and is related to the creative and innovative mindset of employees who are willing to take one step further within their working environment to think differently, to be able to bring new perspective, insights and foresights, to think outside the box and never settle. This change comes from continuous and lifelong education and learning.

**Structure of the report**

The report is elaborated into two main parts;

**First part:** explores critically the link between the European Framework regarding innovation in comparison with the reports provided by 4 countries (UK, Italy, Spain, and Norway).

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1 An informal forum bringing together around 45 chief executives and chairmen of major multinational companies of European parentage covering a wide range of industrial and technological sectors.
Second part: develops innovative elements, various good practices each country possesses and recommendations that could become the object of a research.
FIRST PART

Rationale

Education is a global challenge and improving it a global commitment is required. Moreover, education is the most powerful tool and the most important catalyst for change. Enhancing creativity and innovation including entrepreneurship at all levels of education and training brings up a new mindset since it rejects the old model of employment. There is a tectonic shift in how people understand employment nowadays and this new arrangements affects behaviors. Entrepreneurship can be interpreted as flexibility and freedom to work but at the same time can be interpreted as insecurity.

The promotion of entrepreneurship gives a clear to the business community and the EU 2020 strategy brings upfront the need for urgent and far reaching changes that will enhance links between the business and education sectors. This is a directly proportional link between R&D investment and underlying global economic drives. This means that there should be more investment in innovation. Improving access to education and training is of utmost importance and initiatives to encourage entrepreneurship and support SMEs becomes imperative.

According to the European Union Treaty education and training is a national responsibility. The infusion of an entrepreneurial mindset within an innovative education and training framework should be developed in a way that it creates an in depth understanding and feeling of innovation, a feeling that will be able to reach the local level and not remain a theoretical framework or a simple policy under a European level. Furthermore, new players, from high-tech manufacturers to IT start-ups and social entrepreneurs, are attempting to find and fill gaps in educational provision. There is definitely a room for collaboration but evaluative goals and indicators are important so as to secure the legitimacy and contribute to attaining national and international goals for access and quality of learning.

A critical review on the reports

A primary screening of the reports brings upfront some very interesting issues regarding the awareness of innovation and entrepreneurship and the role of creativity.

- Innovation and creativity are being widely adopted as key economic policies in partner countries but there is an understanding that policymaking may be limited in concept, context and funding. There may be a substantial gap between the political rhetoric and practice.
- Conceptual problems relate largely to policies that underestimate the role of the demand side in catalyzing innovation (from firms and consumers) and that still follow more traditional assumptions of science, technology and a ‘pipeline’ model of innovation.
- Creativity also provides challenges to understanding-with confusion over differences between it and the creative industries and related problems of definition, policy and impact. This is creating tensions and contradictions between different policy objectives.
- Key education institutions on the supply side (or in the ‘learning chain’) are also experiencing difficulties in understanding their own roles and impact. This may also relate to conceptual and measurement factors but also to institutional understanding, missions and resources.
- Budgets and scale of activity is also problematic. The paradox of policymakers focusing on innovation and creativity as a route out of recession whilst reducing key budgets is problematic especially for education institutions. Whilst the recession has had a significant impact on public and private resources, it is far from clear that pre crisis spending was at the level or scale that was necessary.
• There is a lack of evaluation measurements regarding the implementation of the projects and the way the impact and influence of innovation regarding education and training is to be perceived. The development of a scoreboard concerning the establishment of different parameters, descriptors and indicators should also be a priority.

• Regarding the European perspective I see from the reports that language is not taken into consideration within the implementation of the projects in relation to education and culture. Multicultural environments are related to innovation in education and training since they build upon a trustworthy open and inclusive environment that encourages collaboration, ideas exchange and know-how transferring.

However, the reports bring upfront some very interesting initiatives developed within the CLEAR project in terms of putting entrepreneurship as a core part of the education and training scheme and some valuable know-how to be shared. Innovation and entrepreneurship is a critical parameter which falls under the scope of re-contextualizing the way education and training are currently perceived.

If we could try and picture the way innovation, entrepreneurship and creativity are currently perceived we could possible come up with the following chart;

![Chart](https://via.placeholder.com/150)

This chart depicts a linear relationship between education, business and R&D, which is incomplete. The main problem on this chart is the role of education and the fact that innovation becomes a synonym of R&D without bearing in mind other dimensions such as social innovation and the role of civil society.

Regarding the role of training and education in terms of fostering and promoting entrepreneurship I believe that entrepreneurship can be encouraged but cannot be taught. This is related to the definition that each one of us is giving on entrepreneurship. I believe that the main driving force for someone to become an entrepreneur is the inner need for creating something different, for making a change, for delivering something with a unique value proposition, for filling the gap. And this cannot be done without prior working experience, observation and daily accumulation of real knowledge, practices and know-how.

If we see entrepreneurship simply as tools then yes, tools can be taught. If we see entrepreneurship as skills then skills can be developed.

I believe that the role of education is not to teach entrepreneurship or intrapreneurship but to “unlock” the inner energy and willingness to engage into difference. To bring upfront an alternative picture on the table. To challenge the fact that there might be another interpretation on the way things work. Entrepreneurship, must not be seen as the solution, the medicine to unemployment. It takes one minute to realize that yes I want to make a difference but years to be able to do it. And this requires prior working experience and not simply knowledge. The era of planned economy has passed. And the most important element of entrepreneurship is passion and this cannot be taught. It can be encouraged.

I believe that a more complete picture of the ecosystem would be the following:
I believe that innovation as a process is not linear and it does not follow only a top-down diffusion path but also a down-top way of establishing innovative frameworks. The above chart depicts the process of fermenting innovation by being open to diverse and different influences. In our view, being open on innovation means being able to create a dynamic organizational mindset that encourages the exploration and exploitation of diverse knowledge inflows and outflows, leading to innovation continuity and incremental organizational change, through the establishment of trustworthy, culturally sensitive and sustainable relationship.

Aiming only at reforming higher education is simply not enough because until the person has reached the level of higher education the personality, the skills and competences have on a certain degree already been formulated and developed leading to a difficulty in adopting new ways of thinking, working and “unleashing” creativity.

The discussion as a whole is circulated under the aim of increasing European sustainable growth and competitiveness by reinforcing the innovation capacity of the EU. This can be interpreted in a different ways however the prevailing interpretation is perceived under the development of a new generation of innovators and entrepreneurs. Here comes another very important question regarding the ability to “teach” entrepreneurship and innovation in a sense that there is a need to balance the inherent skills and competence of becoming an entrepreneur by thinking innovatively and “out of the box” (creativity) and the ways of coaching and facilitating the urge for entrepreneurial initiatives through innovation and creativity. In one sense this could also be translated as management of mindsets which needs to be further developed but not only via higher education.

**Report Encoding**

<table>
<thead>
<tr>
<th>Country</th>
<th>Main Points</th>
<th>Things to be improved</th>
<th>Interesting know-how</th>
</tr>
</thead>
<tbody>
<tr>
<td>Norway</td>
<td>Policy framework to promote innovation in the Norwegian economy</td>
<td>Norway does not rank among the top countries in international comparisons of innovation and business research</td>
<td>• The Research Council of Norway</td>
</tr>
<tr>
<td></td>
<td>• Better conditions for SMEs</td>
<td>Norway does not rank among the top countries in international comparisons of innovation and business research</td>
<td>• The Industrial Development Corporation of Norway</td>
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<td></td>
<td>• Strengthening education and</td>
<td>• Innovation activities</td>
<td>• The Norwegian Design Council</td>
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<td><strong>Norwegian puzzle</strong></td>
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<td>Country</td>
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<tr>
<td>Spain</td>
<td>- A more innovative public sector</td>
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<td></td>
<td>- Industrial structure not favored by innovation surveys</td>
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<td></td>
<td>- Underestimated impact of the model</td>
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<td></td>
<td>- Innovation activities of petroleum industry are underreported</td>
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<td></td>
<td>- Diverse and multiple definitions of creativity and innovation which do not lead on a common policy</td>
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<td></td>
<td>- Innovation policy mainly related to petroleum industry</td>
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</tbody>
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<tr>
<th>Spain</th>
<th>Considerable progress</th>
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<tr>
<td></td>
<td>Convergence process</td>
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<td></td>
<td>National Innovation Strategy</td>
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<td></td>
<td>Need to support a new innovative enterprise network</td>
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<tr>
<td>Key elements</td>
<td>- Innovative creation</td>
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<td></td>
<td>- Cooperation</td>
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<td></td>
<td>- Exporting</td>
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<tr>
<td></td>
<td>The international financial and economic crisis has an enormous impact on the economy</td>
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<td></td>
<td>Innovation management and economic growth</td>
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<tr>
<td></td>
<td>Developing new profiles and competences to boost the change, become key leaders and face successfully the challenge of innovation</td>
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<td></td>
<td>Different funding systems for science, technology and enterprises</td>
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</table>

<table>
<thead>
<tr>
<th>UK</th>
<th>Innovation: one of the five drivers of productivity and growth</th>
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<tbody>
<tr>
<td></td>
<td>Inability to harness innovation and difficulty into translating innovation into economic growth</td>
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<td></td>
<td>Government Department for Innovation/ Department for Innovation, Universities and Skills</td>
</tr>
<tr>
<td>Promoting science, research, adult education and skills</td>
<td>Difficulty in understanding the way innovation delivers economic benefit</td>
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<td>Innovation does not typically follow a pipeline or linear model</td>
<td>EBacc oriented and not creative oriented school system curriculum</td>
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<tr>
<td>Innovation happens in a much broader field of life and business and not only under an R&amp;D perspective</td>
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<tr>
<td>Design as a driver for economic growth</td>
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<tr>
<td>Creativity and Cultural Education</td>
<td></td>
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<tr>
<td>Investing in the talents of the people</td>
<td></td>
</tr>
<tr>
<td>Encouraging private sector to provide funds and direction to research efforts</td>
<td>19th place in the Global Creativity Index</td>
</tr>
<tr>
<td>Discussion for the creation of a National Agency for Innovation</td>
<td>Moderate innovator with a below average performance</td>
</tr>
<tr>
<td>National Strategic Framework and regional policy</td>
<td>Limited investments, linkages and entrepreneurship</td>
</tr>
<tr>
<td>National Research Program targeting the valorization of the human capital</td>
<td></td>
</tr>
<tr>
<td>• Raise quality, enhance competitiveness through knowledge</td>
<td>Integrated system approach is still missing</td>
</tr>
<tr>
<td>• Establishment of training programmes</td>
<td>Many different definitions of creativity</td>
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<tr>
<td>Priorities</td>
<td></td>
</tr>
<tr>
<td>1. Creativity and cultural industries</td>
<td></td>
</tr>
<tr>
<td>2. Recognition of creativity and excellence</td>
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</tbody>
</table>
| 3. Creative talent in the cultural industry – high

*Italy*
The following matrix depicts the rationale behind the existing know-how and the initiatives which are extracted from the reports and their implementation so far. It can also be seen as a starting point of a discussion on the future of education and the way skills and training are being embedded within the EU 2020 framework.

Through this matrix it is very important to see the role of innovation in accordance with both the policy-making perspective and of course under the diversity of the Europe as a geographical area. Culture plays a highly important role in the entrepreneurship and creativity are perceived on a national level and how innovation could be implemented within the national educational and training curricula, a sector which is highly protected as a national policy.

If I could extract some best-practices already implemented in the abovementioned reports which could cover different ways of exploration, it would be useful to create the following chart which shows how this important know-how can be interpreted and be used a pathway for other members to adopt, adapt and implement within their own educational and training frameworks. It is important to underline that these best-practices fall within the perspective of the abovementioned matrix which gives the broad picture of the report orientation and the establishment of a common policy and understanding.
It is important to underline two main questions emerging from the reports regarding the role of creativity and innovation. The first one is related to the contribution of creativity in stimulating concrete innovation in business models, new processes and new products/services in public as well in the private organizations. The second one is related to the role of the learning chain and the educational and training methodologies which emerge and their application in different contextual environments.

**Business Model Innovation and Creativity**

By definition a business model describes how an entity organizes itself to create value and produce revenue. Following a business oriented approach business model innovation is about rethinking how a company or an organization delivers value through the customers and how it delivers value to itself through making profit. This is done not only thinking about the way to enable the change in the way it makes money but how resources, processes in an organization as part of delivering customer value proposition and making money are organized. It is fundamental since it is about the DNA of a company/organization. Thinking about innovation within a business model regardless being within the private or the public sector the primary focus should be the embeddeness of creative leadership and the promotion of new business model thinking. There is a need for a more innovation private but also public sector and quoting from the Norwegian report “this cannot be solved merely by increasing resources and personnel [...] it is also necessary to innovate new solutions and to organize work in a smarter way”. This is not enough either since it does not focus on the core of the organizational culture and the business model per se.

The link to education is the fact that creativity and innovation as core skills are of utmost importance for success and in order to work under this direction they should be included in the overall education and lifelong learning framework. When talking about creativity it is
important to realize that we need to forget about linear models. As it will be discussed later on, innovation per se is a non-linear process.

Business model innovation is about organizational culture, is about bringing upfront an emerging creative mindset which needs to be imbued to the employees through continuous lifelong learning activities. It is not enough to focus only on product and service innovation but on how to create the right organizational culture through the correct changes within the business model per se. The two models of creativity proposed by the Italian report underline the duality of conceptualizing creativity either for innovation or for social equality. This is important but it can be challenged since creativity should always promote innovation and more specifically social innovation.

Trying to picture creativity within an organizational perspective it is important to bear in mind the following:

Note: Developed by author based on Sutton (2001)

However, it must be clear that creativity is not innovation but it is the antecedent of innovation. In other words this means that innovation is the practical picture of creativity and it should be fostered and inspired by non-traditional thinking. By the encouragement of experimentation, effective learning is developed which leads to product-service developments, and development systems and technologies that maximize learning. Collaboration and active participation is the key along with time, trust, freedom of expression and space of personal and collective development. “Innovations and creative ideas often come for community members external to the business, which requires radical new techniques for process management and decision-making, among other things” (ACOT, 2008, p. 27).

The abovementioned funnel depicts the role of creativity regarding the development of business model innovation. Creativity which is translated via experimentation, collaboration and participation leads to the creation of a culture which supports and reinforces innovation for learning and fostering ingenuity. Here comes also the role of education and lifelong learning which should generate the continuous developments of these skills. And this is because learning and innovation skills include critical thinking, problem-solving and communication skills. “Organizational interests in innovation are driven by the need to
constantly reinvent. The factors related to innovative environments include group autonomy, group socialization, mentoring, knowledge transfer, innovation norms, innovation sequence, cultural valuing of innovation and a culture of risk taking. In addition there seems to be a strong correlation between levels of innovation and job satisfaction” (ACOT, 2008, p. 28).

Creativity and Innovation in the Learning Chain

A highly interesting number of education and training methodologies applied in different contexts within the learning chain emerge from the submitted reports. The learning chain can be perceived under the following three sectors:

![Diagram of the learning chain]

Based on the reports from the participating countries some interesting practices can be extracted and grouped as on the following chart:

<table>
<thead>
<tr>
<th>Country</th>
<th>Education &amp; Training Methodology</th>
<th>Learning outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>United Kingdom</td>
<td>Teaching through creativity</td>
<td>Creative learning</td>
</tr>
<tr>
<td></td>
<td>Creative curriculum</td>
<td>Student aspiration, progression and achievement in art, craft, design and media practices</td>
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<td></td>
<td>Progressive learning</td>
<td>Personal, professional and cultural transformation</td>
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<tr>
<td></td>
<td>Guided activities and structured play</td>
<td>Development of social skills</td>
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<td></td>
<td>Inspirational specialists</td>
<td>Interdisciplinary approach</td>
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<td></td>
<td>Student and industry collaboration</td>
<td>Business meeting research</td>
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<td></td>
<td>Eco incubator</td>
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<td></td>
<td>Prototyping</td>
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<tr>
<td></td>
<td>Creativity for innovation</td>
<td>Interdisciplinary and stimulating cultural environment</td>
</tr>
<tr>
<td>Italy</td>
<td>Creativity for social quality</td>
<td></td>
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<tr>
<td></td>
<td>Cultural heritage</td>
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<td></td>
<td>Education and training</td>
<td></td>
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<tr>
<td></td>
<td>University, research and innovation</td>
<td>Raising the quality of human capital</td>
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<td></td>
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<td>Enhance competitiveness through knowledge</td>
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<td></td>
<td></td>
<td>Establishing training programmes</td>
</tr>
</tbody>
</table>
Regional interest

- Italy: Human capital development and collaborative applied research
- International network of cultural and creative companies
- Innovation Supply Chain
- Networking of knowledge intensive sectors
- Productive District
- Innovation and local partnerships
- Creative (right brain) approach
- Training for innovation and entrepreneurship – sustainable emerging sectors

- Norway: Different modes of innovation
  - Science, technology innovation
  - Doing, using, interacting
  - Project, communication, infrastructure
- Forms of learning
  - Scientific knowledge
  - Problem-solving
  - Creative process

- Spain: Organizational transformation
- Personal transformation
- Innovation management
- Systematic strategy and innovation
- Changing management through people

Reflecting upon the outcomes of the reports regarding the role of education and training methodologies in relation to the learning chain it is important to underline that despite the fact that creativity and innovation are encouraged among the participants of CLEAR project there is evident that different policy frameworks are taking place depicting an unclear understanding of the concepts. The methodologies are mainly focused on the formal and academic sector and there is a highly limited focus on continuous training and non-academic education.

Learning chains should foster sustainable learning and create value and impact via the promotion of informal learning. “Learning chains dramatically improve learning performance and sustainability by integrating informal learning into formal learning” (Accenture, 2010, p.3). The integration of formal and informal learning within the learning chain will create a major business impact via sustainable competence building. As it can be seen on the abovementioned chart a typical learning chain subsumes alternative and various methods of delivering, supporting and enabling learning. It is important to understand that the shift from a traditional learning model to an informal learning model will enable all types of learning, learning will be perceived as a continuous process and enrich learning opportunities.
SECOND PART

Establishing a new framework for education and training

Building upon the abovementioned analysis I identify three alternative pillars within the priority framework for innovation in education:

- Build educator’s capacity to innovate
- Deepen existing best practices
- Focus on replicating proven practices

Identifying, sharing and replicating effective practice is a key improvement strategy, but it does not necessarily follow that innovations can always be successfully transplanted. Constraints to adopting and adapting new models, and under what conditions the process is most effective is definitely a topic under discussion and consideration.

It about the openness to experiment and customize the delivery of classes and lessons in class as per the requirement and interest of students than sticking to the standardized curriculum and forcing the student to learn what has been thought for decades together.

The priority for innovation in education is to be purposeful and address student learning priorities. If an innovation addresses real problems in a cost effective way, teachers will immediately recognise the potential. Further, if an innovative learning service is purposeful and designed to be intuitive there will be reduced demands for professional development and faster adoption into mainstream classroom practice.

In order to be able to see the way innovation and entrepreneurship are perceived we need to initially understand the driving forces which frame a definition of innovation. Understanding the way innovation is perceived can give us very interesting insights on how it can be elaborated further.

The following chart shows us the interrelated pillars:

Talking about innovation, entrepreneurship and creativity should always be done bearing in mind the learning within a real world. This means that education should be brought to life. Learning can be passive and theoretical. In order to change it is important to look at increasing the motivation and effectiveness in learning by participating to real-world issues.
Entrepreneurship is about bringing upfront real-life experiences which will increase the skills and competences and will develop new training connected to reality.

Almost none of the reports is referring to early childhood and school education which is the starting point of building mentalities, characters and imbue students with the appreciation to fostering a long-term learning ability. The paradox here is the awareness of the universal side of education which is grounded upon local contexts. Adaptation is of course important but it is important to be able to extend the benefits and best practices to other geographical regions and cultures.

A fundamental element regarding the role of education is the duality of business and societal orientation; the main focus of education lies within the education to employment perspective and how a person can gain and also sustain “employability”. Employability refers to a person's capability for gaining and maintaining employment (Hillage and Pollard, 1998). For individuals, employability depends on the knowledge, skills and abilities they possess, the way they present those assets to employers, and the context (e.g. personal circumstances and labour market environment) within which they seek work (Hind and Moss, 2011). As such employability is affected by both supply-side and demand-side factors which are often outside of an individual's control.

The 2012 McKinsey report “Education to employment: Designing a system that works” finds that:

- Employers, education providers, and young people live in parallel universes with dramatically different perspectives and little engagement
- The education-to-employment journey is fraught with obstacles
- The education-to-employment system fails for most employers and young people
- Creating a successful education-to-employment system requires new incentives and structures
- Education-to-employment solutions need to scale up

Innovation in education is not only about establishing new practices but also innovative models that will enhance quality, equity and access. Innovative financing mechanisms should have the ability to reduce the effects of the limitation of resources concerning education and training and should promote the effective and efficient collaboration between the public and the private sector in order to increase quality standards. This also includes new ways of bringing education through formal, non-formal and informal learning strategies to hard-to-reach communities.

The most effective innovations often occur when people from diverse backgrounds collaborate in new ways to achieve common goals. Moreover, if innovation is to have a sufficiently transformative impact upon education, it will be necessary to go beyond addressing current symptoms and shortcomings. Effective leadership, policies and principles need to open up the field and share the ability and the willingness to guide international, multi-sectoral collaboration in building the future of education.

The learning ecosystem encompasses all forms of education in formal, non-formal and informal contexts, as well as different sectors. In many cases these methods and players are not coordinated, and potential learning gains are not being realized. The total learning environment should collaborate more effectively to expand the scope and quality of education for learners of all ages.

Last but not least multiple and diverse views on education exist around the world and it is of utmost important to understand and see how to harness this wellspring of creative thinking

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to design a sustainable global vision by considering the future priorities of education, including the role of the UN Millennium Development Goals beyond 2015.

In our view, there are many priorities for the future of education under a global perspective some of which apply to the European Union too;

- Achieving universal access to primary education
- Greater access to secondary education
- Greater access to Technical and Vocational Education and Training (TVET)
- Greater focus on innovative financing

Opening up on a new education and training framework

The infusion of innovation within education and training and the role of entrepreneurship and creativity need to be explored within many different approaches. The initial question to be asked is why; why innovation is important and what it actually means for education. The EU 2020 policy framework establishes an initial reply and gives a rationale under which the four countries participating in the CLEAR project try to align. Enhancing creativity and innovation including entrepreneurship and all levels of education and training is the answer to the question of how. However this answer based upon the reports produced by the participating countries and the approach given by the European policy makers brings a vague aspect which needs to be explored further. The practices emerging from the reports bring out some very interesting initiatives which could be used as an example from other countries too however the main element I think is missing is the actual applicability of these reforms and the need for more innovative approaches.

Innovation has certainly become the buzz word especially in the area of new modes of educational delivery given the fact that it has been discovered in a myriad of ways that traditional models cannot prepare the people for their role in the 21st Century global marketplace. While it is important to keep embracing traditional learning theories, it becomes imperative to start building new methods and new educational and training frameworks. Frameworks which are engaging, collaborative, social, and challenging in terms of using knowledge to solve actual and real world problems.

Innovation is a social process and in terms of education and training it should be defined within the following three ways: (not wishful thinking but vision) – several approaches, create the answers, generate answers

- Educating how to think
- Educating how to learn
- Educating by instilling a love for continuous learning

Here emerges the role of the civil society and the important societal changes which are brought up education. Opening up the scope of education by giving the opportunity to the actual users to be part of the decision making procedure, to be able to develop several approaches, to create questions and generate answers is the place for a customized education perspective which leads into active citizenship, engagement and the development of a globalized mindset.

Innovation can also be defined in relation to the role of ICT and the new educational technology solutions which are identified within the national educational and training curricula. However, education is more than that. The important element to seen into the core is the fact that education is an never ending process whilst training is more pragmatic and can be elaborated within the infusion of entrepreneurship and innovation. This means that education which is the broader perspective should coat training activities, lifelong and
long last training processes which will equip current and future human capital into establishing an entrepreneurial mindset and master highly talented creative communities.

Another important parameter is the role of experience which can be translated both under the creation of future leaders and the adoption of creative and innovative strategies which will ultimately lead to sustainable growth and financial robustness. Experience is important so as a leader can become agile, strategic, self-aware and wise. Experience can be identified both as direct and diverse. Direct means specialty, means talent. However, it should be combined, and, here comes the role of creativity with diversity; meaning that individuals who have learnt to be cossetted in one discipline will not be able to confront the speed of challenges required to become strong leader. Diversity here is interpreted as the skill to be able to be well-placed to lead others, even without processing direct experience on the field. So the role of creativity and innovation is highly relevant to the development of critical intangibles of leadership.

It is widely accepted that the 21st century belongs to the creatives. It goes without saying that the educational framework for Europe so be prepared to educate more of them. I strongly believe that providing them with the skill in innovation and creativity, and setting them loose on the world to create the conceptual age it simply not enough. It is important to give them an ethos, a raison d’être as it were, for innovating. And show them how hard the journey will be.

Being creative and bringing in parts of what works can ensure better results. The world is changing, after all, and will continue to do so, so creativity is a way to continually be on top. Creativity can is related mainly to radical innovation and this is the reason why it is not easy to be understood and implemented. Creativity is also highly related to ingenuity; lack of ingenuity simply means no longer ability to keep up with forward thinking people. So the infusion of creativity in education and training means embracing ingenuity.

Another important parameter which needs to be explored is the role of education and training regarding the hyper-competition which characterizes today’s marketplace. The ultimate goal for education and training is to prepare talented and fully equipped professionals who will be able to apply their skills, culture and mindsets into the market leading to sustainable growth, creation of jobs, revenue generation and establishment of Europe as a global player.

In order to achieve this differentiation it is important to realize that the “one size-fits for all” approach is no longer adequate. This drives the fact that Europe which is united to diversity needs to understand that in order to stand upfront the global competition diverse learning goals should be met. Education and training is definitely about the development of knowledge and skills but at the same time it is imperative to be complemented by the development of personal values, career empowerment, leadership, social engagement and desire to learn. A distinction here between adult higher education, continuing education and early education is important but at the same they should be seen a continual and incremental learning chain which is committed to

- Developing unique personal and professional development goals
- Striving for a more personalized learning experience
- Nurturing different personality indicators in order to enhance self-understanding
- Cultivating personal and organizational leadership learnings which are related to leadership successes and challenges
CLOSING REMARKS-RECOMMENDATIONS

Personal Comments

Combining the outcomes of the reports and the EU framework I can see that there is a demand on innovation which needs to be thoughtfully managed. Innovation, entrepreneurship and creativity are related to culture. So as a matter of fact it is important to shape a new culture on innovation. But this is not easy since it means

- Crafting a new mission and vision
- Explaining the realities of the functionality of the external environment and bringing upfront the importance of innovation
- Understanding the meaning of innovation and what are the aims of becoming more innovative

The following chart depicts our understanding on the role of culture in terms of promoting innovation as part of education and training.

**Organization** means processes, structures and tools to enable and work with innovation.

**Employment** means employee needs, objectives and identification with why we want innovation to take hold.

**Interpersonal relationships** mean effective and efficient teamwork, openness, collaboration and networking.

**Leadership** means the exploration of the real environment and the management of an existing culture which can hinder innovation and stop creativity.

In order to be able to understand the infusion of innovation in education and training it is important to set the framework of understanding and preparing the field. Innovation cannot be taken for granted but being a broad topic it requires the existence of the following antecedents:

- open knowledge sharing attitude
- ambidextrous thinking
- collaborative culture and
- diversity management (visible, invisible, talent management, organizational backgrounds)

Innovation and entrepreneurship are not embedded factors per se within the educational and training framework and of course it requires tremendous efforts in order to set the necessary field of implementation.

It is important to look on the systemic innovation in education as a process of change in highly complex multi-level systems- this has not been reflected in many of the projects both under large scale top down reforms or bottom-up pilot initiatives. Educators cannot innovate if governance frameworks do not allow for rigorous experimentation, so it is impossible to create an interdisciplinary learning environment.

The way creativity is perceived in the reports is depicted on a different levels of understanding. This understanding is also in relation to the fact that it is highly difficult to be perceived and integrated within a training and educational framework. Theory says that creativity can be seen under three interrelated conditions

- **Initial charge**: provides the creative impetus
- **Directional antennae**: required to recognize phenomena which are in the air. These antennae are the component in the creative process that uncovers and selects among a number of facts and existing conditions, potentially profitable ideas that were always there but were visible only to eyes not blinded by habit
- **Capacity to tolerate static**: creative concepts always have a disruptive as well as a constructive aspect. They can shatter set patterns of thinking, threaten the status quo or at the very least stir up people's anxieties. Often when people set out to sell or implement a creative idea they are taking a big risk of failing, losing money or simply making fools of themselves. This is why they will to cope with criticism, hostility and even derision, while not necessarily a condition of creative thinking does seem to be as important characteristic of successful innovative strategists. This is the static-tolerance component of creativity. Nevertheless, there are habits of mind and modes of thinking that can be acquired through practice to help free the creative power of the subconscious and improve the odds of coming up the winning strategic concepts

Creativity, mental productivity and the power of strategic insight know no national boundaries; they are universal. Achieving uniqueness might require reducing the emphasis on achieving purpose.

In drawing up the short-list of opportunities that merit detailed consideration we need to balance creativity and open-mindedness with realism. It is important to be able to facilitate new ideas to come forward, to encourage brainstorming that will generate fresh thinking, to
give a hearing to a highly motivated champion. Be positive about new suggestions and supportive of “thinking the unthinkable”. Creativity also brings upfront the fact that there is a realistic willingness to accept that some promising ideas maybe clouded by considerable uncertainty.

**Recommendations and agenda for a future discussion forum**

<table>
<thead>
<tr>
<th>Key pillars</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>Policy-making</strong></td>
<td>Innovation in education and training is linked not only to business but mainly to civil society. Sustainable growth can be defined both as calculative and non-calculative</td>
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<tr>
<td></td>
<td>Education is linked to culture and cultural diversity. Innovation is also related and interpreted within the ad hoc cultural framework and the established practices. Shifting to new mindsets mean changing cultural orientation for which the only pathway is education and training</td>
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<td>It is important to define both the role and need for innovation in education and training; Innovation simply for the sake of innovation, or because it is «trendy” can be counter-productive. Innovation is about changing mindsets, it is about changing an existing routine and creating new sets of rules which will cater for global changes</td>
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<td></td>
<td>The era of planned economy has ceased and there is a need for a new human interest model of business</td>
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<td>Reforms need to start from early childhood education</td>
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<td>Creating an environment for entrepreneurial and intrapreneurial initiatives</td>
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<td></td>
<td>Creating a vision for education and training and looking beyond the fear of innovation and the fear of changes brought by innovation</td>
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<td>Promoting regionalization and glocalization of education and training by listening to the wisdom of the crowd and the voices on a global perspective</td>
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<td>Creating a new vision for the future of education on a European and global level, a vision which is open to everyone to be able to contribute</td>
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<td>Appreciating and understanding the fear that is grounded in the lack of trust or confidence in people’s competences for dealing with the unfamiliar. These unfamiliar opportunities associated with innovation, creative efforts, and entrepreneurial or intrapreneurial efforts offer the greatest opportunities to make a difference, to contribute - in any field but certainly in education</td>
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<td></td>
<td>Realizing that there can be no one size modelling for innovation in education and training but only general guidelines and tools to facilitate the process</td>
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<td></td>
<td>Bringing innovation, entrepreneurship and creativity in education and training helps the change in society. The next generation needs to be better prepared for the reality of today and tomorrow, so they are well equipped to make this world a better place.</td>
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<td></td>
<td>Understanding that education and training create a sustainable system that will help civil society to solve the contemporary fundamental problems such as the financial crisis, energy supply, overpopulation and healthcare</td>
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<td>Cultural norms and multilingualism are a priority regarding the role of</td>
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innovation in education and the way the cognitive learning outcome arises

Deciding on a common definition or indicators of perceiving entrepreneurship and developing not only the business but also the social perspective in relation to the role of the civil society

What capabilities does a good education system promote and how at each age and in each region how are we going to do that?

Transforming corporate learning for a new generation of leaders

**Tools**

Establishment of regional innovation councils to facilitate the creation of educational and industrial cluster with the support from government at both the national and local level

Creating an innovation ecosystem by involving the right people, by cultivating the network and by educating others.

Creation of business environments which will promote and encourage new business formation and offer stable and transparent legal systems

Enhancing collective learning process within innovation networks

- Removal of legal and regulatory obstacles to inter-firm cooperation.
- Collaborative research between industry and universities
- Access to professional services and the fostering of social networks.

Active engagement of non-government organizations

Scoreboard for measuring and evaluating innovation impact on education and training by setting up all the necessary goals and indicators to follow up performance, success and failure, effectiveness and efficiency

Promotion of local and global networks including engagement with other countries in cross-border knowledge exchange for education, research and industry collaboration

 Adopting an open innovation model for innovation and encouraging user innovation, co-creation and open source platforms

Higher education plays a vital role and its contribution to innovation is of vital importance. Combining the 2012 OECD report which identifies several ways that higher education institutions could ramp up their contributions to innovation and prosperity and the frames developed by a paper, Betts and Lee (2004) which can see the emerging of a new university profile: the university as trainer, innovator, partner, regional talent magnet, and facilitator

**Resources**

Establishing innovative financing strategies and ensuring the necessary financial resources which will help the establishment of collaborative initiatives between educational institutions, business and society

It is not important only to find the right resources but the correct way to

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5 I would like to take the example of the Nordic Innovation Centre and their Measured and Managed Innovation Program which aims at enhancing the competitiveness of Nordic Businesses through the creation of an Innovation Radar
distribute financial resources and consider them as a vital investment for the empowerment of entrepreneurship and creativity

Administration & Management

Each country should figure out what their problems, funding sources are and what other resources can they tap.

Innovation is not a linear process, it comes both from top-down and down-top directions.

Encouraging intrapreneurship and involving current employees both in the management of innovative projects but also encouraging an entrepreneurial mindset

Let the students, the employees, the entrepreneurs and the society in general show the way to policy makers, politicians and managers

Finding the right balance between innovation, entrepreneurship and creativity since not all people are created equal for innovation. This is a key reason that not everyone should work with innovation per se. Education and training will assist in the bringing upfront the individual talent

Closing remarks

Asking for a more innovative, entrepreneurial and creative education and training within the European Union is a major step which covers a substantial number of parameters and which encompasses the European integration.

Envisioning a better Europe, equal Europe, with talented, committed future and current leaders should be the top priority of the leaders and politicians of today and tomorrow. Education remains the alpha and omega of human development and creates the cognitive and learning capacities of cultural appreciation, understanding and willingness to adapt to change. More specifically becomes and imperative priority for Europe, a Europe united to diversity, to be able to set upfront a new global profile.

Innovation, creativity and entrepreneurship should be linked to the civil society and be established within a political vision on where Europe is going. This can be perceived both under a long-term and a short-term perspective; understanding the global vision of education in relation to sustainability, growth and education and the paradigm shift and engagement to change by the society.

Linking education and training only to business should not become a panacea. It is important to realize and envision the change through other forms of non-business social innovation. It is a matter of horizontal and vertical decision making policies which leads on the one hand on a broader definition of what innovation is for education and training and on the other hand what specific needs, cultural norms, and changes does it bring. It is a matter of both political will, policy-making and real openness for everyone to contribute.

Entrepreneurship on the other hand should not only be perceived as the creation of a new company but also a dynamic mindset which is imbued both to newcomers and already established professionals. I believe that it should be seen only an alternative to the established traditional employment paradigm but as another way of thinking intra or extra organizationally. It is a matter of education, inspiration, training, intuition and encouragement both on a starting level but also on an employment level with important managerial implication, i.e. intrapreneurship.

We are looking on a new transitional labor market, where skills, talent management and effective vocational training will reinforce the position of entrepreneurship and intrapreneurship under a global perspective. Education is bound to be linked to reality, is
bound to be able to offer all the necessary tools that will lead to an adaptation of the mind like in the business world. A change in the educational approach becomes imperative. This is part of the conceptual age paradigm\(^7\) animated by a new form of thinking. It is a new world where aptitude for high concept and high touch is highly prized. Pink defines high concept as capacity to detect patterns and opportunities, to create artistically, to craft narratives and combine seemingly unrelated ideas into something new. He also defines high touch as the ability to empathize with others, understand the subtle yearnings, and interactions of human beings, and pursue beyond the everyday for new purpose and meaning; in other words, creativity.

The value that innovation, entrepreneurship and creativity bring to education and training is of utmost importance. What is important is the realization of the true need for change and the implementation of the change within a European level, an implementation which will increase the value of innovation. Political will, financial support, realization of change, top-down and down-up decision making procedures, openness and commitment are the necessary tools to move forward.

I would like to share some of my personal cognitive take-aways from EVTA conference on Sharing Knowledge to build a stronger European economy driven by human capital, which I think bring an added-value to the discussion on the role of innovation, creativity and entrepreneurship into education and training.

1. Education is more than knowledge and skills; is a pathway to develop attitudes, cognition, culture and incentives to learning, changing, social engagement and development of both hard and soft skills
2. Education should drive collaborative learning and encourage open knowledge
3. Skill development is far more effective if the world of learning and the world of work are effectively integrated. Always bear in mind the phrase by Andreas Schleicher, OECD during WISE 2012 in Qatar that "Skills have become the central currency of 21\(^{st}\) century economies".
4. Expertize is not the one that matters anymore; it is the ability to accumulate experiences which will help into adjusting into new globalized environments. It is a matter of culture, mindset, attitude and character.
5. More education does not automatically translate into better skills and competences. It is important to understand and deliver skills in a way that they make a difference.
6. Schools need to offer a broad-based education. Schools are preparing people not just for jobs but to be citizens of a globalized society, to be people. Introducing liberal arts and critical thinking because they are very important both the business

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\(^7\) Pink, D. (2005) A Whole New Mind: Moving from the Information Age to the Conceptual Age, Riverhead Hardcover.
culture and the civil society. It is not possible to get innovation without cultivating imagination.

7. Capabilities relate to a country’s development and the importance of educating people in order to help them become active responsible citizens.

8. Long term and not short term perspective and the debate on education should be endorsed by voices from the art, humanities with a concept of education for human capability, for the capability to be active in citizenship which takes the ability to argue, the ability to imagine but also the capability to live a whole meaningful life.

9. The new ecosystem proposed by EVTA which brings together the pillars of employment, innovation, entrepreneurship and training is the realization that global world changes do not happen globally: a change always starts from somewhere, i.e. the combination of regional cooperation at a policy level.

10. The link between the four pillars of the ecosystem is people; the skilled, motivated, creative and driven by inspiration the human capital.

I would like to close this report by using the following quotation:

“The real challenge of our time is to complete the system we have given rise to-to build the broader creative society that can harness the creative energy we have unleashed and mitigate the turmoil and disruption it mitigates. That’s a very tall order. New kinds of social institutions and policies will be needed to complete the system and make it work well. We can’t know what these will look in advance. It will take a long time to figure this out. Adapting to the industrial age took long decades, with lots of give and take, lots of experiments that didn’t work.”

I hope that these recommendations could really improve and define the current situation and be able to extract recommendations to be useful for all countries.

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8 Prof. Martha Nussbaum from the University of Chicago Law School. Interview during WISE 2012, Doha, Qatar

List of References


Haydn Shaughnessy, Why innovation succeeds. 05.12.2012 Forbes


Mona Mourshed, Diana Farrell and Dominic Barton (2012), "Education to employment: Designing a system that works", The McKinsey Center for Government (MCG), McKinsey & Company


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Dimitrios holds a BA on Public and Business Administration and two Masters in European Studies and Educational Psychology. He is a recent graduate of the Master in Entrepreneurship and Innovation by the University of Luxembourg with First Class Honors.

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