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Prospective Report on the Future of Social Innovation in Education

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Prospective Report on the Future of Social Innovation in Education

Report prepared by AIT and IHS



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Executive Summary

One of the most important challenges for our society today and in the future is how we view and organize learning and education in the light of building a sustainable, prosperous and robust society. However, numerous social, economic and technological developments keep on bringing changes to the context in which policy making aims at shaping the future of education. Consequently, there is an interest in analysing trends, anticipating developments and envisage a coherent policy approach towards the future of education. To respond to this challenge the European Commission, DG for Education, Youth, Sport and Culture (EAC) launched study projects with the objectives of providing qualified opinions on the future development of different aspects of education and learning. The results are expected to generate new, forward-looking policy ideas as well as supporting elements for the successor of the Europe 2020 strategy and the "Future of Learning" agenda.

A specific topic addressed is the likely future development and importance of social innovation in education. On the basis of an in-depth analysis and extrapolation of trends that have been identified as crucial for the future role of social innovation in education, this foresight study offers three probable scenarios of the evolution of social innovation in education in Europe, in the mid-term future. The proposed developments in assessment and in policymaking seek to stimulate a European level debate on the future of social innovation in education and present to Member States possible avenues for future policy development and forward-looking policy action.

The study is the result of a trend impact and driver analysis, and a strategic foresight exercise. In order to provide a vision of the future of social innovation in education, major trends and drivers with relevance to social innovation and education were identified in a review of relevant academic and policy studies. These trends were assessed by an online Delphi survey involving around 200 educational stakeholders from different sectors and countries at national and EU level. Based on the outcome of their assessment, three scenarios and their corresponding implications for society, economy, and education systems have been developed and discussed.

This study was conducted by the Austrian Institute of Technology (AIT) in collaboration with the Institute for Advanced Studies, Vienna.

Following a clear definition of social innovation, the analytical research clustered and categorized of major trends and drivers according to the STEEPV scheme (social, technological, economic, educative, political, value-related). Trends and drivers identified by educational stakeholders and experts in an online survey as bearing the highest uncertainty and the highest estimated impact were further explored in a scenario workshop. The resulting three different scenarios describe a best case, a business as usual, and finally a polarised view of one extreme.

The following paragraphs describe the scenarios in brief:

Scenario 1: „ Learning intensive society “

This society has overcome the dogma of material wealth creation and material growth and entered a phase of sustainable production and consumption. The overarching objective of this society is to generate wellbeing, to create human capital and to grant to every individual her/his right to develop. In the learning intensive society scenario, people have the awareness that they need to act collectively in order to ensure the success of their vision. This awareness is also based on comprehensive knowledge and information of what is going wrong in society, locally as well as globally, relating to social issues as well as to environment and climate change issues. Curricula are adjusted to account for the multicultural society, including new languages and new subjects and projects. Education is free, publicly financed and regulated, including transport to and from schools, books, teaching materials, educational travels, way to school, etc.). Social innovation for, in and

by education connects students and teaching personnel with the social hot spots of this society to give everybody a fair chance to shape their own educational setting. Children are empowered and co-create learning with parents and also with other adults, e.g. from social projects, the community, social innovators etc.

Scenario 2: “Dichotomy of education in a polarized world”

This society is characterized by an increasing economization of the education systems. Private education institutes provide interdisciplinary, advanced and reform pedagogies and are affordable only for the upper 15% of society. Private schools and universities are compensating for the deficits of public schools which are entirely incapable of dealing with the challenges posed by a society that is facing an unprecedented polarization of wealth distribution. This education system is perpetuating the increase in inequality as a social trend. The stratification for adults and people already in a job is reflected by the education opportunities for these people: training during the job or 2nd/3rd career trainings are available only commercially, thus only affordable for the very few and their employers. As a consequence, families with low income, single-parent, families with many children, migrants from the global south etc. are strongly disadvantaged. Social innovation in the context of education is an ephemeral phenomenon, inspired by a few social groups to support marginalised people for some improvements in their education careers.

Scenario 3: “The Information-industrial complex

Big data is the main driver of this society which has arrived in the digitalization age. Data has become the world’s most valuable resource. Only a few multi-national companies have total control of data and are the providers of crucial data to national governments, e.g. for multiple surveillance purposes. In this scenario, almost all spheres of life are permeated by digital technologies. For the education sector this means that schools are fully digitalized, children learn from early on to handle the technology and work with it, be innovative in developing technologies even further. However, outside of using digital devices, there is little room for creativity. The same applies to adult education, for which only digital content is provided. Within the education system, STEM subjects (Science, Technology, Engineering, Mathematics) are promoted at all levels, leaving other subjects behind. Not only the infrastructure of artificial intelligence for schools is provided by big digital companies, but also many education institutes as well as the algorithms deciding who will have access to which education facility or programme and how to evaluate students, workers, and scientists. Social innovations are enabled and enforced through digital tools. Students connect easily to each other and to social projects, beyond local boundaries. Helping each other in using digital technologies and in using digital technologies to solve some social problems is a common practice.

Policy conclusions that can be derived from the report tackle the following aspects: awareness raising for social innovations in, for and by education institutions, budget adjustments to engage in social innovations, competence expansion for upcoming societal challenges among all actors involved, flexibility of structures, processes and actors, and increased cooperation among stakeholders who did not necessarily cooperate in the traditional education system. A crucial topic is that societal issues have to be brought into the classroom setting, and that the classroom setting – at least occasionally – has to move to challenging societal environments. Social innovation in education includes openness for a broad range of societal issues and for diversity – for classrooms of different ages, nationalities, ethnic backgrounds and different learning and locomotive capabilities. Changes toward more openness will provide more opportunities to acquire social skills, empathy and tolerance not only in the learning environment but also long-term. Social skills will thus provide society with responsible citizens, better leaders and managers, better teachers and policy-makers.

To develop policies for the support of building broad ecosystems for social innovation, based on networks integrating the various actors and stakeholders engaged in education, is the main challenge in politics. More mission-oriented politics, taking such a perspective towards social innovation in building lifelong learning structures, could be an alternative to the traditional silo oriented political sectors focusing on the fragmented education institutions as well as to the neoliberal politics of competition, marketization and privatization based on the management practices of the private enterprise sector.

1 Introduction

In their Communication to the European Parliament, the Council and the European Economic and Social Committee and the Committee of Regions, the European Commission pointed to the social dimension as a key factor for the future of education (European Commission, COM (2017) 673). While unemployment rates were falling prior to 2017¹, they differed substantially from one country to the other, especially among young people. At the same time, 40% of European employers reported that they had difficulties in finding people with the skills they needed to grow and innovate. These figures point to crucial differences within Europe – and within countries. Yet, while a common identity can strengthen Europe, there lies also “unity in diversity”. Sixty years after the signing of the Treaties of Rome, strengthening the European identity remains essential and education and culture are the best vectors to ensure this. (European Commission, COM (2017) 673).

One of their visions formulated by European leaders at the Gothenburg forum was that of a “European Education Area, building on the New Skills Agenda for Europe and the investing in Europe's youth initiatives” (European Commission, COM (2017) 673). Education is part of the solution to get more people into decent jobs, respond better to the economy's skills needs and strengthen Europe's resilience in a context of the rapid and profound changes induced by the technological revolution and globalisation. This last aspect was addressed in the Commission's Reflection Paper on harnessing globalisation (European Commission, COM (2017) 240), which pointed to the key role of social and education policies in ensuring resilience, innovation and competitiveness.

Social innovation in education has been strongly driven by bottom-up initiatives, often starting in universities or higher education institutions, or related to a better transition from school to work. Networking and decentralized support, often by players in the digitalisation industries, have been important drivers. Scaling up these initiatives and approaches to broader impact is a main policy challenge. A central topic of social innovation skills is the competence to bring them into practice, and to develop a mind-set including the ethical responsibility, and the skills of “making change” for tackling social needs, and to develop solutions for identified problems.

A main aspect of social innovation education is to connect students with social communities where the needs arise, and thus bring education institutions nearer to their environment and to civil society (Harlam et al. 2017). The political challenge is to develop educational governance in this direction, first to provide the opportunities and mechanisms of embedding education in the (local) community, and second to provide the resources for scaling up the bottom-up initiatives and making them viable and sustainable. The neoliberal Global Education Reform Movement (Adamson et al. 2016) has strengthened central – often narrow – standardization and financing through market like mechanisms, with strengthening competition and private engagement often at the expense of austerity and weakening of public engagement. Thus these dominating policies have undermined the public education structures, and to some extent strengthened entrepreneurship; however, at the same time also weakened the social missions of public education, and a sense of ethical human responsibility for society, oriented at the triumph of the self-interested individual and the rationality of the Homo economicus (Lassnigg 2017).

Social innovation approaches take a broader perspective, and politics and policies, to support these approaches also need to take broader perspectives towards societal betterment. The human capital perspective needs to be broadened towards a broader perspective oriented towards social needs that have been identified in analyses of ongoing attempts towards social innovation in education. The practice fields of reduction of educational disadvantages; new learning arrangements and interactive education; entrepreneurship education and promotion; alternative forms of educational activities and

¹ reaching 7.5% in September 2017, which is the lowest rate recorded since November 2008

training (e.g., towards consulting, mentoring, and new strategies and structures for lifelong learning have been identified as main existing fields for social innovation (Schröder, Krüger 2019). One action to contribute to this trend was the Social Investment Package 'Towards Social Investment for Growth and Cohesion' (SIP, introduced by the European Commission in 2013). It was designed to enable social innovations to contribute to economic growth and to protect people from poverty. Other steps taken by the EC to promote social innovations were funding through the European Social Fund and the Employment and Social Innovation programme, Horizon 2020 programme, and the cohesion policy programme 2014-2020. The trend toward more awareness and actions among policy makers of the social and economic contribution of social innovation was underlined in the 'European Pillar of Social Rights', in support of more upward social convergence, increased resilience to economic shocks and strengthening social cohesion within the EU. The European Pillar of Social Rights mentions education as a means to implement some of its principles.

While there is a noticeable trend that the focus and approach of innovation policy making toward the social dimensions is opening up and becoming more complex, education policy is going into a similar direction. The ET 2020 Working Group, set up in 2016, pursued the goal that education promotes citizenship and the common values of freedom, tolerance and non-discrimination. Other influential documents and declarations followed suit:

- the New Skills agenda for Europe: promoted ten action points to improve quality and relevance of skills formation (2016)
- the initiative Improving and Modernising Education (2016) stated the European objective on the quality of education
- the Rome Declaration (2017), published by the EU-27 leaders in the European Council, the Parliament and the Commission spoke in favour of the young generation to receive the best education and training across the European continent
- The White Paper on the Future of Europe (2017), issued by the EC took the same approach and stressed lifelong education systems
- The Reflection Paper on the Social Dimension of Europe (2017) saw the European education and training system as the basis for Europe's future innovations, labour markets and welfare systems
- The paper on School Development and Excellent Teaching for a Great Start in life (2017) is crucial for social innovations and education. It identified three areas for improvement: 1. developing better and more inclusive schools; 2. supporting teachers for excellent teaching and learning; 3. the governance of school systems should become more effective, equitable and efficient.
- The vision of a European Education Area formulated by the EC identified the policy priorities: language learning, early school leaving, digital competences and entrepreneurship, participation in life-long learning, and also innovations in education.
- The Forum on the Future of Learning (2019) anticipated on future issues of education and training up to 2030, including some of the grand societal challenges such as demographic change, environmental concerns; investments for reforms and governance, inclusion and citizenship, digitalisation of society; technological change and the future of work.

This report is dedicated to the current and future trends and drivers, possible scenarios as well as policy implications with regard to the future of social innovation in education. One significant result of this analysis is that other than so much debated topics as informal and non-formal learning and international collaboration in education, the topic of social innovation in education neither has a clear definition nor an academic community or a community of practice to promote the debate. Accordingly, one of our first activities for the EAC study was to present a possible definition of the meaning of social innovation in education. Thus, a definition is presented in this report. The definition is based on a

literature review touching the cross overs between social innovation and education, in chapter 3.

On the basis of this definition, the subsequent part of this report presents the findings from the literature analysis of policy documents, foresight and future related studies, academic literature and social media analysis on the future trends and drivers of social innovation in education. Following a brief description of our methodology in chapter 4, we classify the trends and drivers according to the STEEPV categorization (social, technological, economic, educative, policy-related, value-related) in chapter 5, giving first a summative account on the general developments in each category, and in the next step short statements that relate to social innovation in education. An elaborated selection of these statements was also used for the stakeholder survey on the future of social innovation in education that we conducted among some 800 experts in the fields of education, social innovation and foresight. The respondents were asked to assign the trends an impact as well as an uncertainty value. Significant are the following four critical uncertainties:

- 65% of the experts participating in the survey believe that the extension of classroom-based projects would have a strong or very strong impact on the future of social innovation in education.
- 74% of the experts are of the opinion that developing partnerships to extend the classroom to the community is going to have a high or very high impact on social innovation in education.
- 77% of responding expert say that the promotion of creative thinking in secondary and tertiary education is likely to have a high or very high impact on social innovation in education.
- The last of the four critical aspects on the future of social innovation in education combines the previous three approaches and points to a general tendency or even movement, the increasing empowerment of civil society. As 67% of responding experts say that increasing empowerment of civil society will have a high or very high impact on the future of social innovation in education.

Those trends and drivers with the highest uncertainty and the highest estimated impact were further explored in depictive scenarios. For these scenarios, we conducted a scenario workshop with some 30 participating experts.

Chapter 6 explains how the scenarios were constructed and displays the three scenarios in more detail and for scenario 1, which can be regarded as the “best case scenario” we added a few examples of social innovations in education already achieved. From the scenarios and as an additional result of the workshop expert consultation we derived some policy conclusions.

Finally, the conclusion in chapter 7 gives a view from a meta-perspective on the major challenges we are facing in the future of education and how or if social innovation can offer adequate solutions.

The annex behind the chapter with the references display the overview of the survey results.

2 Towards a Definition of Social Innovation in, for and by Education

As our research has shown, there is no common definition of social innovation in education we apply a two-step approach: First referring to common definitions of social innovation; and secondly, setting a refined approach of social innovation in the context of education, thereby pointing out how social innovation can be differentiated as “in, for and by education.”

2.1 Common definitions of Social Innovation reconsidered

In the context of recent EU policies (2017), the term social innovation was used in relation to the “European Pillar of Social Rights”² in order to confirm the EU’s commitment to the three categories of

1. Equal opportunities and access to the labour market
2. Fair working conditions
3. Social protection and inclusion

This policy document also confirmed the importance of having access to training opportunities and the development of skills related to life-long-learning.

This project took a more precise approach, backed by several academic projects and studies recently finished. Generally, innovation means putting a novel idea into use. Innovation hence means that not only something new is created, but it involves also its being used by people, leading to a certain transformation, its implementation in an organization, diffusion in markets, or acceptance by societies. Implementation is necessary to consider it as innovation and have some form of benefit and impact. Acquiring new knowledge and learning is closely associated with innovation. Knowledge codified as well as tacit, is the outcome of a social process. Learning is a cumulative and social activity, past accumulations of knowledge and understanding shape the capacity to acquire newly offered information (Cowan et al. 2000; Borrás & Edler 2014). Thus, innovations of any kind are characterized by interactive (Kline & Rosenberg 1986) and complex socio-cultural processes of learning, involving diverse actors and sources of knowledge (Garud et al. 2013).

The term “social innovation” has existed for decades (cf. Drucker 1957) and has been used in a variety of contexts. As a result, there is a plethora of definitions that emphasize differentiated aspects of social innovation. A well-known broad definition is that of The Bureau of European Policy Advisers which defines social innovation (SI) as “relating to new responses to pressing social needs and creating new social relationships or collaborations. Hence, social innovations are innovations that are social in both their ends and their means” (BEPA 2010).³

Rüede and Lurtz (2012) have conducted an interdisciplinary literature review on the concept of social innovation of a total of 318 articles, books, reports and book contributions in German and English. This leads to the following top three categories in terms of numbers of contributions (out of seven in total): Social innovations “**do something good in/for society**” (127 contributions), “**change social practices and/or structure**” (52 contributions) and “**contribute to local development**” (39 contributions).

² https://ec.europa.eu/commission/priorities/deeper-and-fairer-economic-and-monetary-union/european-pillar-social-rights/european-pillar-social-rights-20-principles_en

³ Some of the EU Directorate General have taken up the term social innovation and interpreted it according to their goal settings. DG ENTR used in the context of entrepreneurship orientation: DG EMPL used a definition tailored for the context of social policy and social policy reform (Sabato et al. 2017)

In a comprehensive and systematic literature review, Edwards-Schachter and Wallace (2017) extracted 252 definitions of social innovation as a term, through 2239 documents. They found that social innovation mostly aimed at “**social aims/social values**” (106 contributions) and “**addressed unmet social needs**” (105 contributions). In the organization of social innovation processes, “**collective creativity**” (174 contributions) and actors like “**civil society/Third sector/NGO/social and grassroot movements**” (157 contributions) played a major role.

Social innovations are basically new services, and hence have a strong foundation in the service innovation literature which elaborates on the special properties of services (see Gallouj and Savona (2009) for an overview). However, the above literature reviews show that social innovations have distinctive features that make them a special sub-group of service innovations. Some services with regard to education need to be included here.

Social innovation is characterised by specific motivations and triggered by specific **incentives**. In addressing unmet social needs, issues of social justice and societal challenges, social innovation are driven by principles different from profit motives. In the field of education, we find many of such unmet needs. As Noya (2011) states “Social innovation is needed because many social challenges are resistant to conventional approaches to solving them.[...] Social innovation’s major aim is therefore to tackle complex social challenges by providing innovative solutions.” (p21). This does not imply that commercial service innovations do not induce well-being, yet they are incentivised by expected profits whereas social innovation is incentivised by value created to society as a whole (i.e. *externalities*). This is also suggested by the definition of The Stanford Social Innovation Review (Phills *et al.* 2008) which defines social innovation as ‘a novel solution to a social problem that is more effective, efficient, sustainable, or just than existing solutions and for which the value created accrues primarily to society as a whole rather than private individuals. This holds true for solving social problems through education just the same.

Therefore, social innovation often is referred to as new solutions serving societal needs and/or problems **better** than practices used before did. Even more pronounced are definitions that see a **positive quality** inherent of SI (Mulgan 2006, Howaldt & Schwarz 2010, Rammert 2010). There are numerous effects of social innovations and they can emerge over a longer range of time, not all necessary at the same time. Innovation studies distinguish between incremental and disruptive innovations. The incremental ones introduce a moderate change or improvement of existing solutions but do not question the solution already in place. This is contrasted by disruptive or radical innovations. They introduce new products, processes or structures for certain challenges and problems.

Importantly, especially in the context of education, many definitions of social innovation emphasize **empowerment** of citizens as a major aim. This distinguishes social innovations from other services that are rather consumed and driven by demand based on prices, income, and preferences. Social innovations attempt to assign new roles and relationships (e.g. between groups in society) to individuals or parts of society in need, they develop assets and capabilities and/or the more efficient and environmentally sustainable use of existing assets and resources, for example, learning how to learn (cf. Science Communication Unit 2014; Chiappero & Von Jacobi 2015; Windrum *et al.* 2016).

Social innovation usually involves also very different **types of actors**. Edwards-Schachter and Wallace (2017) state that the identification and addressing of societal and wicked problems as drivers of SI, goes along with the participation of ‘non-traditional’ actors such as civil society, third sector, NGOs, social movements, social entrepreneurs and activists. So, non-commercial and non-state actors, at least in the early phases of social innovation. Often, in later (implementation) phases, cross-sector partnerships are formed. In the context of this study, this means that society / communities are involved as actor; that is to say as clients and/or participants in educative solutions. One example for large scale social innovations according to these definition approaches would be social housing. At a smaller case, examples are food cooperatives to support local farmers, community services

taking care of school drop outs by giving them a place spend their daytime and learn crafts, voluntary services collecting left over food and distributing it to charity organisations.

As these examples show, the definition of social innovation is more characterised by the purpose and intention of the activity, less by the technical means used to put the activities into place. Thus, inventions such as Facebook, Twitter, Airbnb, Uber etc. do not per se qualify as social innovations. They could, however, in part help implement social innovations.

Other than many technical innovations, social innovations often face the problem of upscaling. Deriving from a certain socio-economic context, the rollout of a social innovation to other contexts is quite difficult which explains the fact that most social innovations are limited to their originating settings.

2.2 Social Innovation and Education

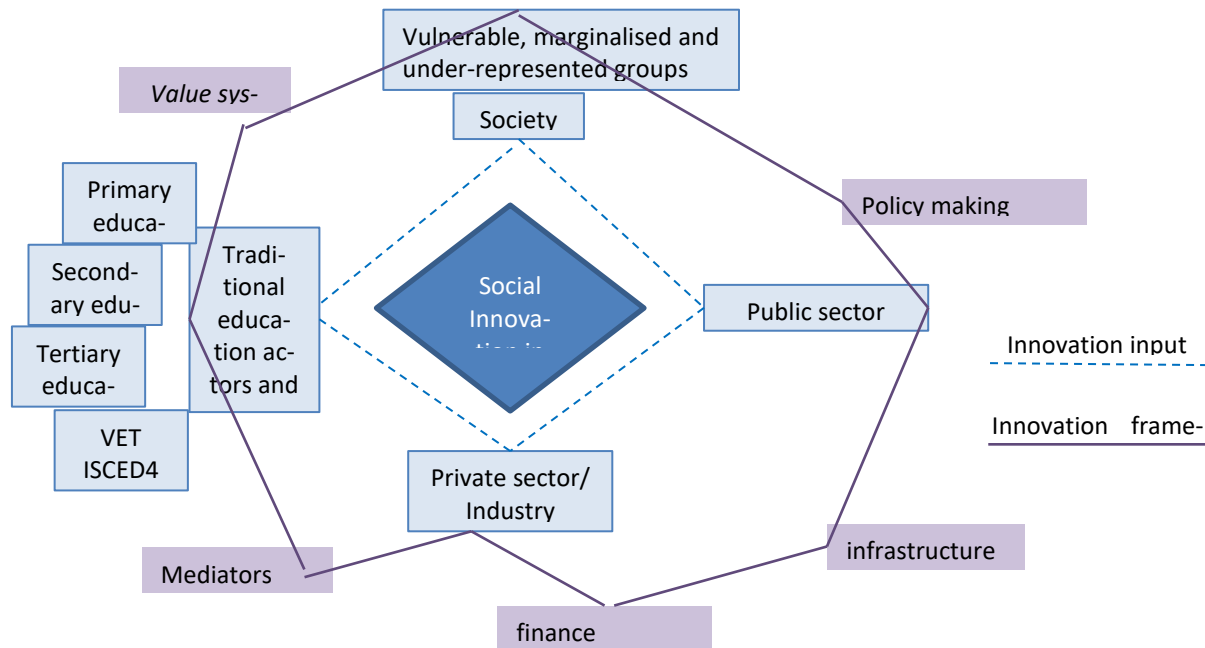
In the field of education, the pedagogical concept of “education for sustainable development” (ESD) can serve as an example meeting this definition of social innovation and bridging the spheres of SI-theory and practice in the field of education. The educational system plays a crucial role concerning the development of an ecological and ethical consciousness, values, competences and behavior that are compatible with sustainable development. The pedagogical concept of ESD instead of traditional fact-learning-education is oriented towards the promotion of critical awareness, values and competences securing a livable environment for future generations (Bormann 2013).

These previous studies and theoretical approach formed the foundation for our understanding of social innovation in education. In essence, we are dealing with three dimensions: for, by and from education. First, social innovation on the input side helping educational institutions to deliver a better quality of education in traditional education systems, in the work environment, and in society (see figure below). The second dimension covers social innovations coming out of education institutions, meaning that they were developed in such institutions to address specific social needs. The third dimension defines education institutions as loci for social innovations. Here, education institutions provide the resources and approaches to develop social innovations with and for parts of society that exists not only inside the institutions but also outside. The social innovation system of education and the three dimensions are further explored in the following paragraphs:

For defining the relevance social innovations might have in education we have to narrow down our scope and determine what are the institutions, processes and actors that take part in the social innovation system in, for and by education. This system is displayed in graph 2. The education system as such is not an end in itself but has interactions with neighboring sectors: The blue elements define the sectors that give an input to the innovation process, whereas the yellow elements define the innovation framework: institutions that are highly relevant for realising social innovation in education. Their interaction is crucial for giving people the chance to become capable of their education needs and to fulfil these needs in order to be integrated in and contributing to society.

Social innovations **for** education involve actors, institutions and process that are usually not part of the education system and create a social innovation to generate a better quality of education for certain target groups, for example. These external activities are represented in the blue left box in graph 1. A social innovation from outside the education system but affecting it can be for example, opportunities that give all school children the same access to education, no matter what gender, age, ethnicity, religion, or equity they have, and in doing so, responding to pressing social needs and creating new social relationships. New forms of governance, e.g. sociocracy or holacracy, also provide inputs for social innovations for education.

Graph 1: Framework model for social innovation in education



Social innovations **in** education take place within the education system and they are addressed to processes, institutions and/or actors within this system. This approach is represented by the grey boxes in the middle of graph 2. Here the education sector comprises not only the education system of school, universities, etc. but also education related activities at work/industry and within society, for example to promote the "Teilhabe" of formerly marginalised people in education. This definition of the education sector also takes into account the different levels in which social innovations can be started with relevance for education: at the macro level the (education) policy, at meso level the organisational activities and at micro level the individual activities. All three, macro, meso and micro level, can be starting points as well as targets of social innovations. MOOCs or Wikipedia are examples of technical vehicles for such social innovations originating from the education sector and addressing it. Here, the motivation lies in bringing education to a broad spectrum of people with a high participatory potential and with low entry barriers. Another, non-technical, example are the folk high schools that originated in the 19th century to bring lifelong education in a popular manner to people without academic training. This innovation started out of the worker education councils and can thus be regarded as originating from within the education system. Similar, innovations in teaching and organisational practice within the education institution classify as innovations in education.

On the output side, the green box of graph 2, we find social innovation activities originating from the (wider definition of the) education sector reaching out to the community (if small scale) or society as a whole (if large scale). This defines social innovation **by** education. It intends to make a social contribution that was developed by students, for example, to address unmet social needs. The "Fridays for Future" movement would fall into this category because it originated – at least in part – at school or from students and addresses climate change. Approaches to foster social innovation as a tool for students that enables them to later develop and implement social innovations themselves would also fall in this category if targeted to the life outside the education institution. Thus, teaching and learning

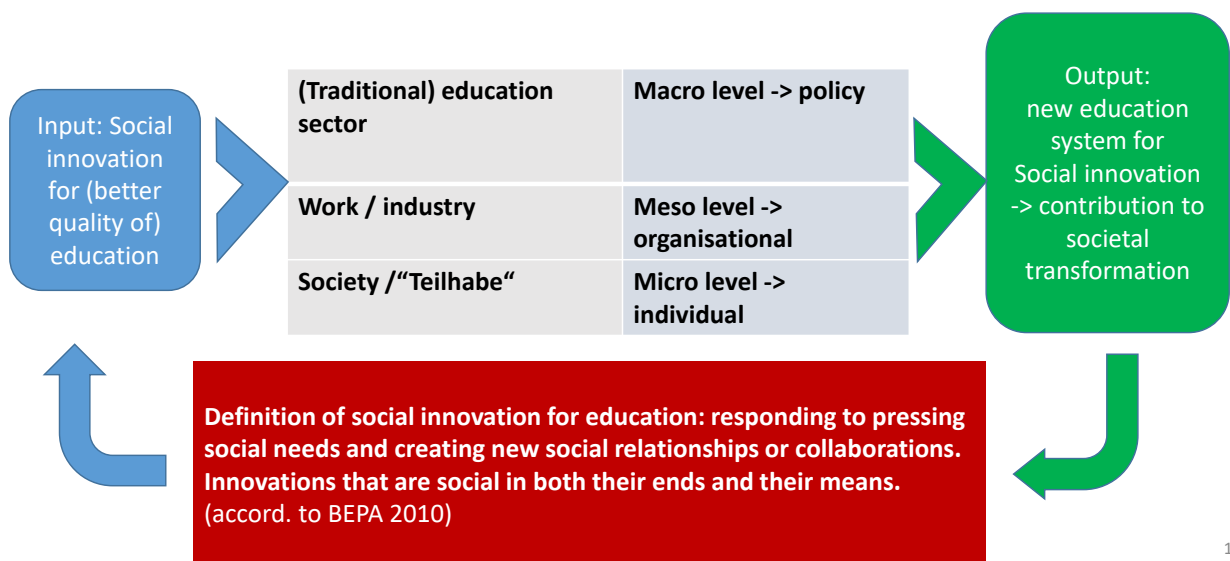
how to deal with complexity, apply critical thinking, prepare future innovators as agents of change is part of social innovations by education. Similarly, the NEMESIS project defined 'social innovation education' as "a learning experience that should empower and enable students to create new responses to pressing problems in the different areas of society" (Kalemaki et al. 2019, 16).

Involvement of non-traditional education stakeholders in such innovation processes may fall either in the first or third category. Governments play a role in passing new laws that might induce noticeable changes for education. Non-governmental organisations can be both a source and a partner/addressee of social innovations by education institutions. The same is true for local communities as partners and addressees, whereas companies often provide support for social innovations but do not so much function as addressees, although that would also be possible.

2.3 Our definition

Based on the above, we summarize for the purposes of this project that social innovations in education are new services that

- involve 'non-traditional' educative actors (such as civil society, third sector, NGOs, social movements, social entrepreneurs and activists)
- to address unmet social needs and societal challenges with regard to education and training,
- provide better solutions than practices used before did,
- thereby empowering people in assigning new roles, and creating social practices and structures, thus coming in control of their own educative undertakings.

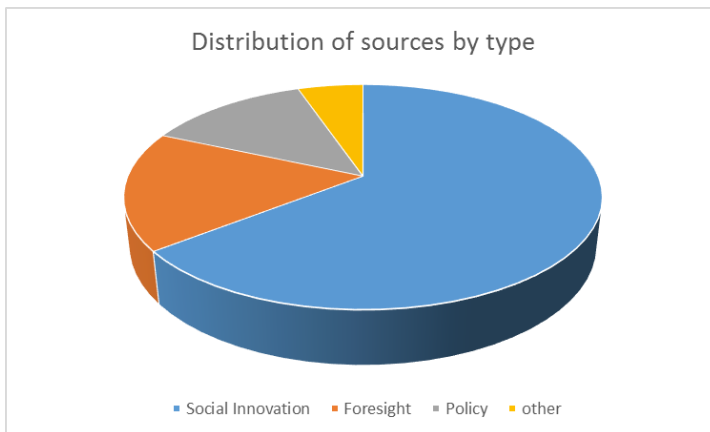


Graph 2: Three Dimensions of Social Innovation in, for and by education

3 The Methodology – Exploration and Analysis

The basis of this study was in-depth desk research comprising a structured analysis of the literature sources with regard to the future of social innovation for, by and from education. A horizon scanning approach served as the framing in order to identify those trends and drivers that will have a potential effect on (the implementation of) social innovation in education. The documents used as sources can be classified as representing discussions from the social innovation community, from education policy and from Foresight and forward-looking studies.

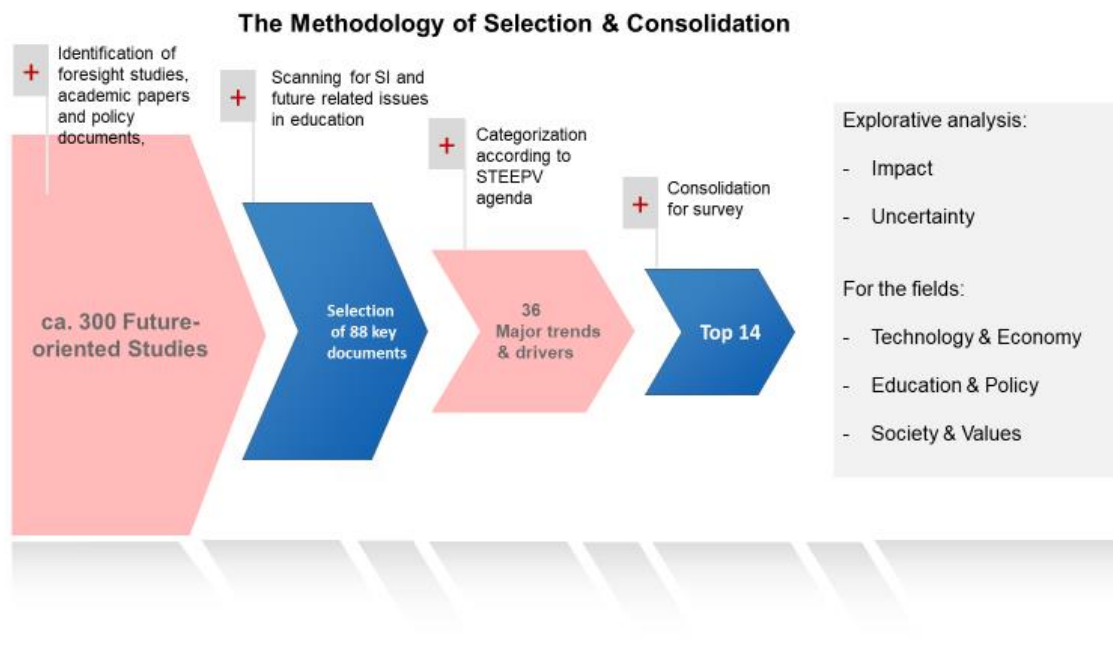
Graph 3: Distribution of sources analysed



From a corpus of some 300 sources the first scanning filtered 88 documents that were analysed in more detail for drivers and trends pointing towards a time horizon of 2030. From these analyses, 36 major trends were identified which are documented below in chapter 5. With these 36 trends we started an internal valorization process among the consortium members, which issued the top 14 trends according to two criteria: first, highest impact, combined with

second, highest uncertainty. The combination of these two criteria is essential in order to construct differentiated scenarios. They gave input to the scenarios to be explored in chapter 6. The logic behind the selection is that trends that have a high impact and are rather certain will happen anyway, so they are not apt to build possible but different future scenarios. Vice versa, trends that are uncertain but are not likely to have large impacts anyway, are negligible for distinguishing future scenarios. However, those trends that have major impacts but large uncertainties are the ones that really make a difference in future prospects and allow different prospective lines of thinking. So 14 trends were identified that represent the ones with the estimated highest impact and the highest uncertainty. As these were the basis for the scenario building they needed to be assessed by a wider audience of experts and stakeholders. They build the basis for a survey among almost 800 addressees and 169 respondents. (see section on survey in the chapter on scenario building below).

Graph 4: Methodology of source selection and consolidation⁴



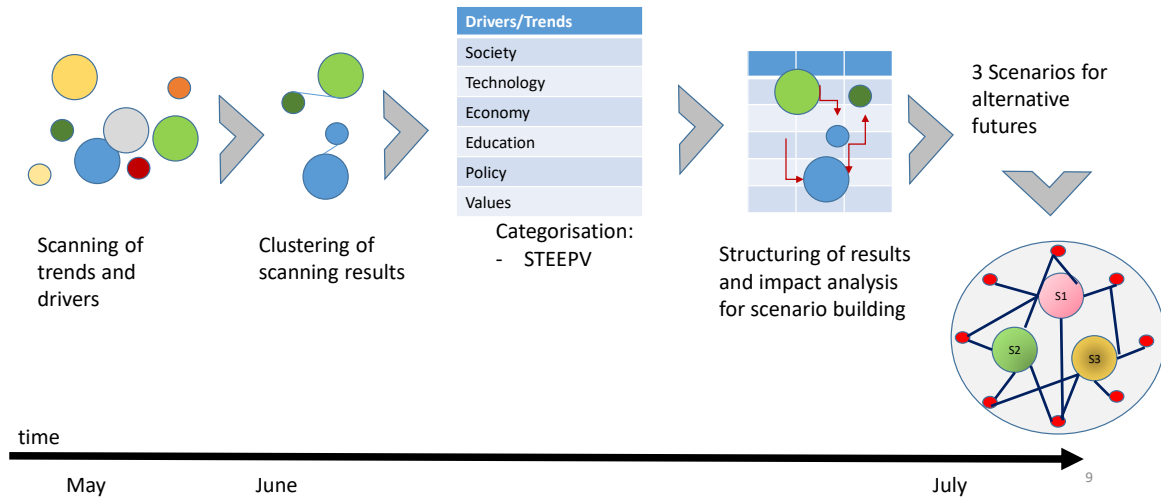
The analysis of the various sources included potential challenges, opportunities, threats, weaknesses, wild cards and weak signals. Our horizon scanning approach went beyond the beaten paths and also considered out-of-the-box thinking, black swans and unconventional aspects. The findings now structured according to a STEEPV (society, technology, economy, education, policy, values) analysis (order is slightly changed in this report).

For clarification, we define drivers as developments causing change, affecting or shaping the future - a driver is the cause of one or more effects. For example, increasing unemployment can be a driver for increased truancy and school drop outs. A trend on the other side is a general tendency or direction of a development or change over time. It can be called a megatrend if it occurs at large or global scale. A trend may be considered as strong or weak, increasing, de-creasing or stable, e.g., the trend of privatization of the education sector. There is no guarantee that a trend observed in the past will continue in the future. Megatrends are the great forces in societal development that will very likely affect the future in all areas over the next 10–15 years, for example urbanization or demographic change.

The graph below shows the process of identifying trends and drivers and how the initial mass of findings is then systematized to related clusters, structured trends and drivers along the STEEPV matrix and analysed for the scenario building.

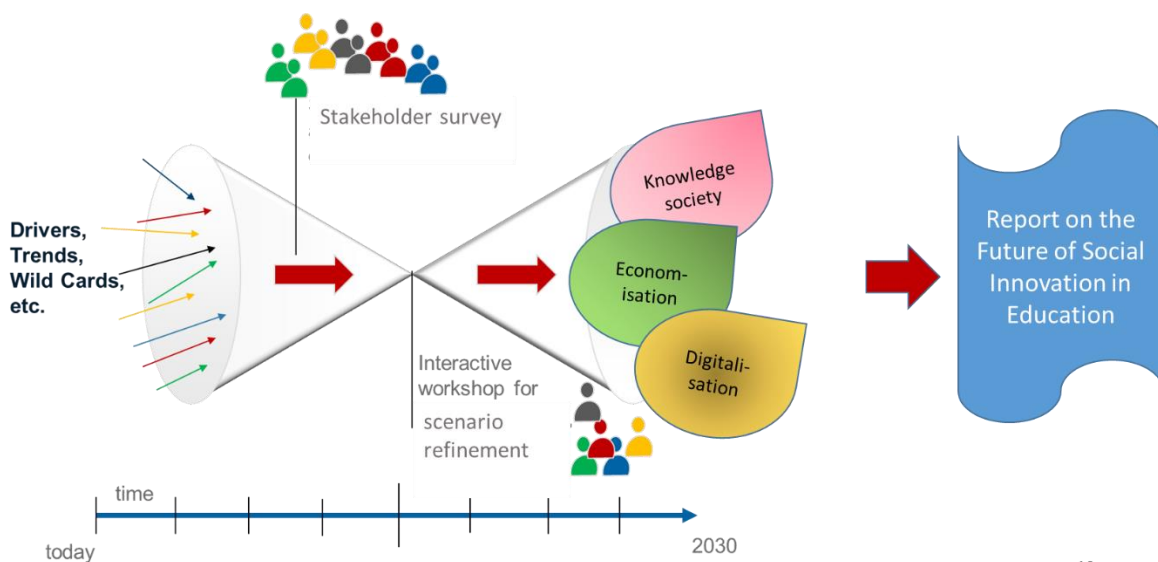
⁴ The questionnaire consisted of three content-related section. In order to keep the effort for the respondents as little as possible and still give a good overview to them, the STEEPV areas were matched to pairs that had already a reference to each other: 1. Technology & Economy, 2. Education & Policy, 3. Society & Values.

Graph 5: Approach for Identifying Trends & Drivers



This approach comprised Tasks 1 and 2 and was part of an overall strategic foresight approach that continued with some interactive elements, namely a survey among expert and a scenario workshop with stakeholders. The results from the horizon scanning were thus more and more refined until at the end we formulated three different scenarios which are included in this report.

Graph 6: Strategic Foresight Approach



4 Major and Remarkable Trends and Drivers

In line with the strategic approach mentioned in the previous chapter the drivers and trends categorized in STEEPV typology, though in a slightly different order: technology, economy, society, education, values and policy.

4.1 Technology

One of main drivers in our society today is the advancement of technologies, especially digitalisation, and the expert literature agrees that this trend will continue over the next decades in an unprecedented way. It will also have noticeable effects on education systems. (Selwyn 2011; Huseynova, 2017; Cobo et al. 2017; Commission Communication 2016; European Commission DG CNECT 2016; OECD 2019)

By 2030 the digital culture taken up by society will be heavily influenced by its *level of personalisation of digital technologies, the internet of things and hyper-connectivity*. Behaviour, values and perceptions will be shaped by the complexity of digitalisation, with complex digital knowledge (compound technology that requires elaborated skills) as valuable in education as mathematics, science and languages. Digital culture here signifies the level of technical & scientific preparedness of citizens in the post-digital age to react to, learn from as well as create with IT Digital culture then becomes a pillar of intellectual and social capital (in the more advanced societies) (Faucher 2018). In 2050, the more digitally proficient a society is in complex digital technologies, the more it can control, manipulate and stay ahead of it. Complex digital technology proficiency will be commonly measured by the popularization and accessibility to future and emerging technologies as well as coding literacy levels and education entrepreneurship levels (as new ways of production will have changed due to the separation of capital and labour, shifting the focus of higher education institutions from organizer of citizen personnel to enabler of social entrepreneurs) (EC 2018; ECDL Foundation 2019).

Technology offers many possibilities to engage in education and to reach out to large parts of society, and these possibilities have to be taken up in a constructive way by the actors and institutions in the education sector. Trainers and teachers must acquire the appropriate skills to be up to date and to be able to integrate the knowledge that is already available within their students' capacities. Thus an increasing burden for learning lies with the students themselves. While virtual and augmented reality assistance makes individualized school, university and on-the-job training routinized, standardized and paced according to a learner's capabilities at the site of the study desk or work action, these technologies are themselves changing dynamically and might be outdated already tomorrow. The technology producing firms are supporting the development of their use and application, e.g. through the channels of Corporate Social Responsibility, social entrepreneurship, and programmes of social innovation education (Osburg, Schmidpeter 2013; Waterford 2019). This engagement is embedded in a broad ecosystem of actors and institutions from all sectors of society to arrive at inclusive solutions (Schröder, Krüger 2019; Schröder, Kuschmierz 2017). Public and civil society institutions and networks have also joined in the development and support of ecosystems of social innovation in education (EFC 2017; EUCIS-LLL 2012).

Universities and tertiary educational institutions that were forerunners in the development of digital technologies have increasingly taken up the trend towards social entrepreneurship, and have developed this further towards social innovation education. These approaches are built on critical, transformative, or epistemological pedagogy (Alden Rivers et al.2015) and focus on the demand for taking social responsibility for living together in a sustainable world. Social innovation education has spread from small specific courses (Russo, Mueller 2013; Esque, Roth, Arati 2013), towards whole universities

(Harlam et al. 2017; Kim 2015; Kanani n.d.) and are subsequently also established in the earlier stages of education (IFTE 2019).

Big Data will be increasingly used to record the multiple dimensions of systems. Big Data will also provide the evidence to inform policy decisions at all levels. Systems' principles and rules will be encoded in resilient algorithms that will take into account the aspirations of individuals (e.g. to build a new house) and the system-level constraints (e.g. the need to comply with security rules and urban plans). This will lead to new decision making models combining scientific evidence elicited from big data with the emotional and rational intelligence of people (McAfee et al., 2012).

With regard to social innovation in education, we derived the following trends driven by digitalisation:

1. Continued technological advances in areas such as artificial intelligence and the Internet of Things will increasingly determine and change the ways we learn, teach, live, work and play.
2. Digital games will be increasingly applied to teach and reinforce professional skills such as collaboration, problem-solving, and communication.
3. The schools increasingly embrace digital learning and are willing to disrupt their traditional delivery systems by creating a new hybrid of on-site and on-line class room.
4. There will be an increasing necessity to balance digital opportunities and offers in teaching with analogous teaching, training and skilling.
5. To avoid a "diginclusion" gap, teaching and trainings will increasingly have to encompass a broad range of digital skills (not only e.g. social media, and low skills in all other segments, like internet safety and security).
6. Increase in mismatch between skills (provided by education institutions) and demand (of labour market) as technology makes jobs and required skills change much faster.

4.2 Economy

By 2030, the world's economy may change significantly, driven by the advent of new technological and societal innovations. Do-It-Yourself suggests that products will be more and more self-designed and manufactured just-in-time, so the roles of consumers and producers will become more indistinguishable (Perez, 2016). The concept of participation in a "**shared economy**" will be reinforced by consumers extracting maximum value from produced goods as well as by the flourishing of a DIY economy. The sharing economy simply means that things already produced will have a greater social utility for a longer period of time and is not primarily committed to short and one-way life (and waste) cycles. Instead, the sharing economy adapts the traditional social practice of sharing through innovations and re-design of the typical interactions that such practice involves (Shareground/Universität St. Gallen 2015).

Multi-national companies in the digital information sector like Alibaba, Microsoft, Google, Amazon or Apple have privatized information and thus not only regulate the data we (may) use every day but also control economic value chains (Huws, 2016). They are already the big players of the platform economy, setting standards for digital economic interaction of our society. But also many entrepreneurs are still trying to conquer the scene. Entrepreneurs will contribute to tackling major social issues and offer new ideas for wide-scale change. New finance models such as crowd funding will grow in significance and new and alternate currencies, and non-monetary systems such as internet-based bartering systems, will become an integral part of the economy. Individuals will contribute to new perspectives on collective "ownership".

Communities will evolve around local and global interests. The market will be shared between multi-national companies and small local enterprises, operating across borders within a new governance framework (World Economic Forum 2015; Accenture 2016).

New lifestyles and behaviours will emerge as a result of an increased awareness of the sustainability challenges and sharing of values. The dichotomy between economy and ecology may find a dialectic dissolution in the concept of “natural capital”. It may integrate topics such as resilience through biodiversity, energy efficiency through maintenance of habitats and many more. When natural capital becomes a fundamental component of economic calculation, green and sustainable economic and social practices prove to outperform their business as usual counterparts but agreeing on a valuation for ecological systems (Natural Capital Coalition, 2018).

As the planet’s natural resources are considered to be exhausted and more investments are poured into immaterial online technologies the economy as a whole may be on the edge of a major disruption – with implications that reach beyond the economic realm. The so-called new modes of social currency give credit to social reputation rather than economic hard facts (Dörre, 2016). Organizations promoting the reputation economy aggregate a person’s social merit and trust as a tradable value.

Game media evolve as open source platforms for players to create their own worlds, action rules, and plot dynamics – the boundaries between gaming and learning blur even more as motion capture ‘libraries’ of famous actors enable anyone to insert them via CGI (computer-generated imagery) into games, videos, and personal content. Against this background of economic drivers, we identified the following key trends with regard to social innovation in education (Committee for the Future. Parliament of Finland, 2015):

1. Increase of economic liberalisation of education
2. Gaming companies and publishers increasingly take over, competing with traditional instructional programs.
3. Rise in unemployment, especially youth unemployment and among (other) vulnerable groups (disabled, immigrants, low skilled)

4.3 Society

By 2030, people will be more empowered than ever to share knowledge, become aware of their environment, and take informed and responsible decisions. They will become active players in the global scene. New platforms for social networking will allow citizens to self-organise into communities which will emerge as new powers able to exert influence and address shared problems in a more structured, responsible, and concurrent manner. Communities of empowered individuals will likely challenge the roles of the representative decision makers currently running politics, information, education, and welfare systems. Politicians will interact with their citizens and networks differently and their leadership will become more participatory (Owen et al., 2012; Levidow, L., & Neubauer, C. 2014).

Do-it-yourself movements will deploy advanced technologies to help communities decide how to best produce solutions that meet their needs. Open source coding, maker labs, innovation hubs, bio hacking – it is yet unclear if or how education institutions of the future will be able to provide the infrastructure to train adequate skills, assess the consequences of such developments and at the same time become the locus of social innovations for societal demands.

Apart from signs of societal progress there are also trends that indicate a growing social divide along very different lines in terms of space or geography, income or wealth, gender, demography and ideology. Looking at Europe, the spatial divide takes a particular form when seen in a global context. Although European countries are on top of the world income ranking countries, within Europe and the EU, and within each European country traditional and new dividing lines are visible. Unemployment, job loss and low wage are results of

crisis and austerity policies and have at the same time effects on living standards, a slump in consumer demand and thus contributing to the investment deficits. Between EU15 countries and EU13 countries income disparities are also severe and poverty in some countries of the latter group is growing significantly when compared to EU average. Especially in those countries where the Gini coefficient is highest, we find also the highest social divide (Wilkinson/Pickett 2009): these countries have higher shares of people imprisoned, they have the least life expectancy, especially among the poor, the biggest health problems, the highest rate of adolescent pregnancy, sexual abuse, and drug abuse (UK, Greece, Italy; Atkinson 2015). Countries like Finland or Denmark with the lowest rate of such social problems also have a more equal distribution of wealth. (Wilkinson/Pickett 2009)

Although it is very difficult to forecast the developments up to 2030, the tendency is that the at-risk-poverty-rate in the EU is rising as it has been doing during the last years, shown by Atkinson (2015), with "6.7 million more people living in poverty or social exclusion since 2008, a total of 124.2 million people for the EU28 or close to 1 in 4 Europeans in 2012. Poverty and social exclusion has increased in more than 1/3 of the Member States in both 2011 and 2012." (Social Protection Committee 2014) To make the context of this observation clear: In its 'Europe 2020 Strategy', the EU set the goal of reducing by at least 20 million the number of people who are either at-risk-of-poverty, severely materially deprived, or living in "jobless households".

Migration is another line of spatial and social division in Europe. Only a few countries have to bear with unprecedented masses of migrants, notably Italy and Greece, due to their geographical location. (Giesecke 2012, World Economic Forum 2015; Cilliers 2015; Cilliers, Schünemann, Moyer 2015) Climate change, war, and demographic explosion will increase the pressure of migration on the EU.

However, safe and supportive environments are crucial for the wellbeing of children and adolescents. WHO Europe emphasizes "safe, secure, inclusive homes, schools and social environments in which to develop and thrive. [...] In the WHO European Region, there is a high and increasing rate of mental and behavioural health problems in adolescents at population level."⁵ This has effects on classrooms as evidenced by OECD's Teaching and Learning International Survey (TALIS). Classroom climate seems to be a challenging part of teachers' daily work. "TALIS 2018 finds that on average more than 60% of teachers report that they frequently or always engage in practices that aim to maintain an orderly classroom, such as calming students who are disruptive (65%), as well as asking students to quieten down quickly (61%)."⁶ TALIS 2009 was more explicit in stating that one teacher in four in most countries loses at least 30% of lesson time to disruptive student behaviour or administrative tasks, and some teachers lose more than."⁷

Furthermore, major societal transformations will have an impact on society in that aging in combination with low fertility rates will lead to overall developments, so that by 2050, the number of over-60s and the number of children will amount to equal proportions (OECD 2016).

In the context of social developments, we identified the following trends with regard to social innovation in education:

1. Increasing empowerment of civil society towards participation in all political agendas

⁵ WHO, Regional Office for Europe, 2018, Adolescent mental health in the European Region. http://www.euro.who.int/__data/assets/pdf_file/0005/383891/adolescent-mh-fs-eng.pdf?ua=1, last accessed October 3rd, 2019.

⁶ OECD, 2018, TALIS 2018 Results (Volume I). <http://www.oecd.org/education/talis-2018-results-volume-i-1d0bc92a-en.htm>, last accessed October 3rd, 2019.

⁷ <https://www.oecd.org/berlin/43024880.pdf>, last accessed October 3rd, 2019.

2. Increase in behavioural problems of students (e.g. anti-social behaviour, crimes and delinquency, dysfunctional families)
3. Increase in migration bears potential for new approaches in education
4. Increase in population age bears potential for new approaches in education
5. The neo-liberal value system, based on competition, quality and individualism, increasingly promotes an unprecedented stratification of society in a very short period, generating winners and losers

4.4 Education

The education landscape in 2030 will be characterized by “blurring of boundaries” between the different levels and directions of education, between higher education and industry, between education and the community, and due to the penetration of digital between informal learning and formal education. Assessment may proliferate and blur with learning through digitalisation and change its role and quality.

Due to an increase in single parent households and higher levels of female labour market participation, non-parental childcare in the EU has become more widespread. There are considerable variations between countries in the age that children are guaranteed a place in early childhood education and care, in the fees that parents have to pay, and in qualification requirements for early child care.⁸

Early school leavers are a major topic in education and education policy. According to Eurostat, in 2018 an average of 10.6 % of young people (aged 18-24) in the EU were early leavers from education and training, ranging from 3.3 % in Croatia to 17.9 % in Spain. Although the overall share of early leavers from education and training fell in the EU by 1.3 percentage points between 2013 and 2018⁹, this is also due to a trend of explicitly addressing this issue in daily education practice, i.e. making individualisation one of the basic principles of modern teaching. Individually approaching every student in order to provide them exactly with what they need in their learning pathways is of course a challenging task for teachers as it requires a major change in the organisation and delivery of teaching.

Digitalisation will provide room for greater flexibility in designing educational pathways tailored to individual needs and in combining several education modalities into a life-long and stimulating learning experience. Educational structures and institutions as they were known for centuries as bureaucratic public organisations are deeply challenged not only by technology but also by the trend towards marketisation and privatisation on the one hand and by the social differentiation and the increasing empowerment of (parts of) their clients and civil society on the other. To cope with the disruptive tendencies they can open up towards the market and/or the community and can fight for retaining their responsibility for the public good, which is undermined by individualisation, neoliberalism and populism.

However, with access to all kinds of information via the worldwide web, the spread of disinformation has risen as well. Social media, search engines etc. using algorithms can serve as echoes of pre-existing beliefs, views and fuel animosities and prejudices. It will be increasingly the tasks of educational systems to foster critical thinking, analytical thinking, information evaluation and media literacy as a basis for critical citizens.¹⁰

⁸ https://eacea.ec.europa.eu/national-policies/eurydice/topics/early-childhood-education-and-care_en, last accessed October 3rd, 2019.

⁹ Eurostat, 2019, Statistics explained: Early school leavers. https://ec.europa.eu/eurostat/statistics-explained/index.php/Early_leavers_from_education_and_training#Overview, last accessed October 4th, 2019.

¹⁰ European Political Strategy Centre, 2017, 10 Trends Transforming Education as We Know It, https://ec.europa.eu/epsc/sites/epsc/files/epsc_-_10_trends_transforming_education_as_we_know_it.pdf, last accessed October 4th, 2019.

In the course of these programs broad profiles of skills and competences have been developed that expand the profiles of employability and 21st century skills (ATS2020) towards change making and social engagement (Alden Rivers 2015). Thus, in the near future, complementary skills will be required in addition to traditional ones for the whole population, concerning not only employability but also the necessary competencies to take part in consuming and leading a sustainable and socialising life. For example, creative skill (incl. the arts, the development of alternative perspectives, and problem-solving capacities) might be highly appreciated in the future work place where human-machine interaction demands specific skills which cannot be automated. Developing new modes of pedagogy and practices that encourage creative thinking and action in close cooperation with communities and social groups will be necessary. (Leber 2019)

Against this background, these are the prevalent trends identified:

1. Curricula and organisation of delivery of teaching will increasingly have to change in order to keep pace with students and adults who operate in an increasingly mobile world. Teachers expand the use of technology to change how they teach, not merely to make traditional practices more digital
2. Teachers' training and classrooms will adapt to a focus on learning rather than teaching;
3. Project-based learning as a pedagogical concept will further increase
4. New pedagogical concepts will spread more widely (e.g. ideation and design thinking pedagogy) to unleash collaborative inquiry and problem-solving in students
5. There will be an increase of classroom-based project(s) with students on issues of local and/or global needs
6. More partnerships will be developed and maintained to extend the classroom to the (local) community and beyond
7. Increased integration of civil society early childhood education (adults volunteering in education institutions)
8. Increased promotion of creative and analytical thinking, media literacy and envisioning in secondary and tertiary education
9. Dissatisfaction of teachers due to increased stress level
10. School districts increasingly provide a coherent focus across the entire education organization to develop and support rigorous and relevant instructions and learning for all students.
11. Evaluation systems for education institutions are increasingly oriented towards social engagement
12. Evaluation/grades of students are increasingly oriented towards social engagement
13. New awards with community-orientation are created for education institutions
14. International new teaching practices, new empirical evidence on international teaching practices becomes more widespread.

4.5 Values

A key driver for the ongoing and future value change in European countries is the increase of individualization. It implies that individuals have been increasingly required to construct their own lives as traditional social ties of families, work, communities and also education are becoming loosen. As a counter point, social interactions -- as in the sharing economy -- will increase social participation and create stronger, solidified, and action-capable communities.

Already emergent are alternative forms of living, working and studying, in part induced by sharing models on a material basis, and in part facilitated by digitalisation and online-communication. As planetary consciousness grows in communities around the globe, those organizations contributing highly to the growth of the ecological footprint are prone to be the first target of social retribution.

Reducing our ecological footprint while restructuring our lives is another outcome of this development which at the same time acts as a driver for further change. This awareness has also wide implications for the content as well as the social and technical context of learning and education. In particular, consumption patterns are being challenged by sustainability oriented value systems.

Food, eating habits and health are related to this. Europe is torn apart between groups in society that consciously choose their food and are well-informed about their choices and consequences in an environmental and a health perspective; and other parts of the population that tend to unhealthy habits with consequences like malnutrition, obesity, and diabetes. Schools and education systems started to incorporate a focus on healthy habits, health literacy and nutrition in their teaching, which traditionally was not part of their tasks (see for example the EU Platform for Action on Diet, Physical Activity and Health).

Traditional values such as appreciation of scarce resources and long-lasting care of products may experience a revival. Innovative patterns such as "cradle to cradle" and locally oriented production may foster different values, competencies and infrastructures such as for instance a new appreciation of traditional and local craftsmanship. Adequately responding to this behavioural change at the nexus of consumption and sustainability is seen as a core challenge by several studies. They point out that a new type of interaction between the government, business and the communities is required to tackle this challenge. Media are expected to play a relevant role as well.

Detrimental movements are transported and perpetuated with diverging impact not only by individuals and to well-organized groups but also by influential policy makers and ruling parties. Their attitude ranges from "me first" to "our country first" and is often accompanied by radicalized mind-sets of sometimes contradictory provenience. Uniting the various forms of radicalization is their attack on the achievements of Western-style enlightenment, e.g. liberty, democracy, economic prosperity, equality, freedom of the mind, freedom of the arts, the press, etc. In some cases and in some countries it is accompanied by a backlash on women's rights and propagation of xenophobia and homophobia (Rohac 2015). Trends identified with relevance to social innovation in education in the context of changing values are the following:

1. Increased work integration with social enterprises or in co-operation with companies provides training and enables marginalised, vulnerable, disabled people that would have problems to find a job in the regular labour market otherwise
2. Extending curricula beyond socially inherited education (social selection of access and success, support of vulnerable groups: e.g. indigenous people, migrants, lower social class, low-skilled workers)
3. Educational communities are emerging, sometimes with the support of non-governmental organizations
4. Education initiatives increasingly tackle unhealthy eating, smoking, excessive drinking etc. (health literacy)
5. Increased importance of sustainable and environment friendly life-style
6. Schools increasingly take over education tasks that traditionally belong to the private and family sphere, particularly in terms of environmental and community consciousness, food and eating habits etc.
7. Community groups are increasingly approaching education institutions for help to solve social problems

8. Local residents and pressure groups become partners/clients of education institutions

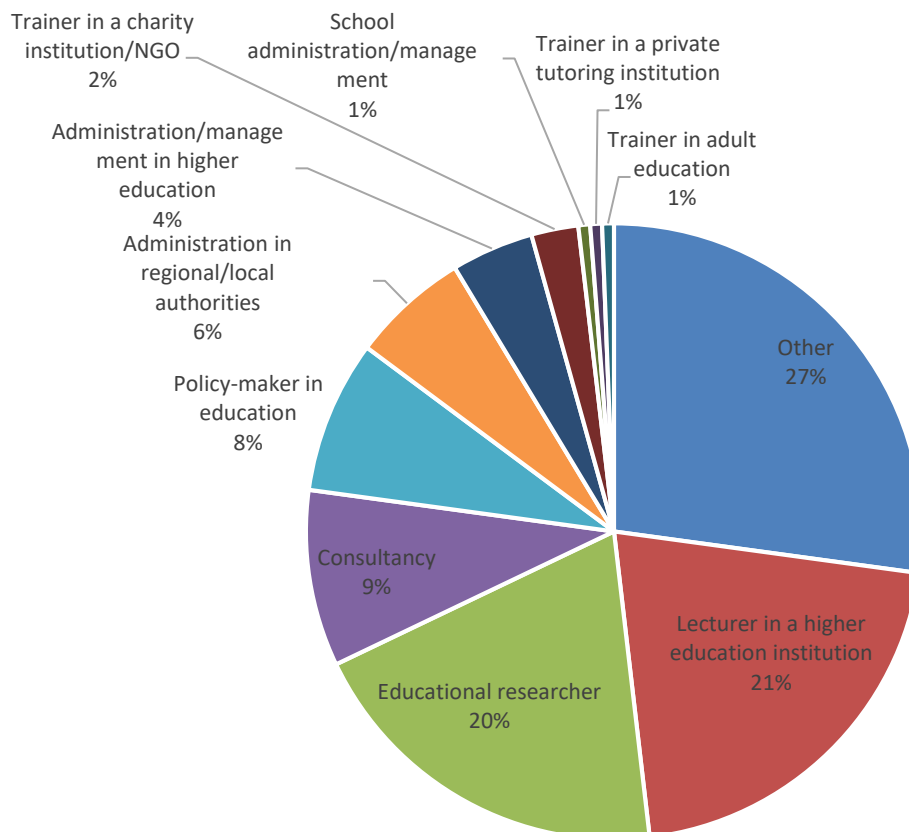
In order to construct the scenarios, the project team took a well-established approach: after identifying trends and drivers relevant for the issues under investigation, a consolidation process was initiated to start a stakeholder evaluation by means of a survey.

5 Survey

In order to assess the trends and drivers identified above we ran a short online survey engaging decision-makers and experts in education institutions across Europe. In addition, the internal motivation and barriers concerning the introduction of social innovation in the education sectors was analysed. The results are summarised in this chapter. The online-survey was conducted based on SurveyGizmo which is a particularly user-friendly survey tool. The questionnaire first contained key trends and drivers which were assessed with regard to their estimated impact and (un)certainty on a time horizon of 2030. Another section addresses the topic of typical barriers which gives indication for future challenges and possible policy measures to promote the adoption of social innovations within education institutions.

The online survey was started June 8, 2019 and ran for six weeks. The project team invited some 800 experts from the fields education, foresight, and social innovation to take part in this survey. The response rate with more than 20% (169 participants) was unusually high. We relate the success of the survey first to the interesting topic that covers many issues and challenges identified not only by the project team but independently by the experts as well. Secondly, the success of the survey is also endowed to the appealing design and the virtue of its compactness. The geographic scope was concentrated on Europe (not only EU countries), but considered also expert views from outside of the EU in order to capture a broader field of perspectives, such as Russia, Australia, South Korea, North and South America, the India-Pacific rim. The following data document the number of respondents as well their professional background and country where they reside.

Graph 7: Respondents of the survey by occupation (%)



5.1 Responses on Impact and Uncertainty

The following diagram gives an overview on the correlation of all trends and drivers assessed according to the impact they would have by 2030 and according to the uncertainty that this trend will take place until that time as evaluated by the experts. The plotting visualizes a limited number of critical uncertainties, which was used to sketch highly contrasted, alternative visions of possible future developments (following the approach of Schoemaker (1995)).

The diagram consists of four quadrants: Quadrant A shows what respondents estimated to have the highest uncertainty and the lowest impact. These results can be neglect for the scenario building because if in the unlikely case that they occur, they will not have a noticeable impact, at least not until 2030. Quadrant B displays the trends and drivers with the highest estimated impacts and the highest uncertainty to take place. These are the most interesting trends and drivers for the construction of the scenarios in the subsequent steps of the study because the usually reflect the events or trends that are seldom thought of, especially by policy makers. But if they occur, they might have a very big impact. The next, quadrant C, displays the trend and drivers with the highest certainty and the highest impact. They are sometimes taken for scenario construction, but usually, they are taken care of by policy makers, so there is less need to point to these trends and drivers.

The last quadrant, D, shows not results, thus no one considered any of the trends and drivers in the survey as having a high certainty and a low impact.

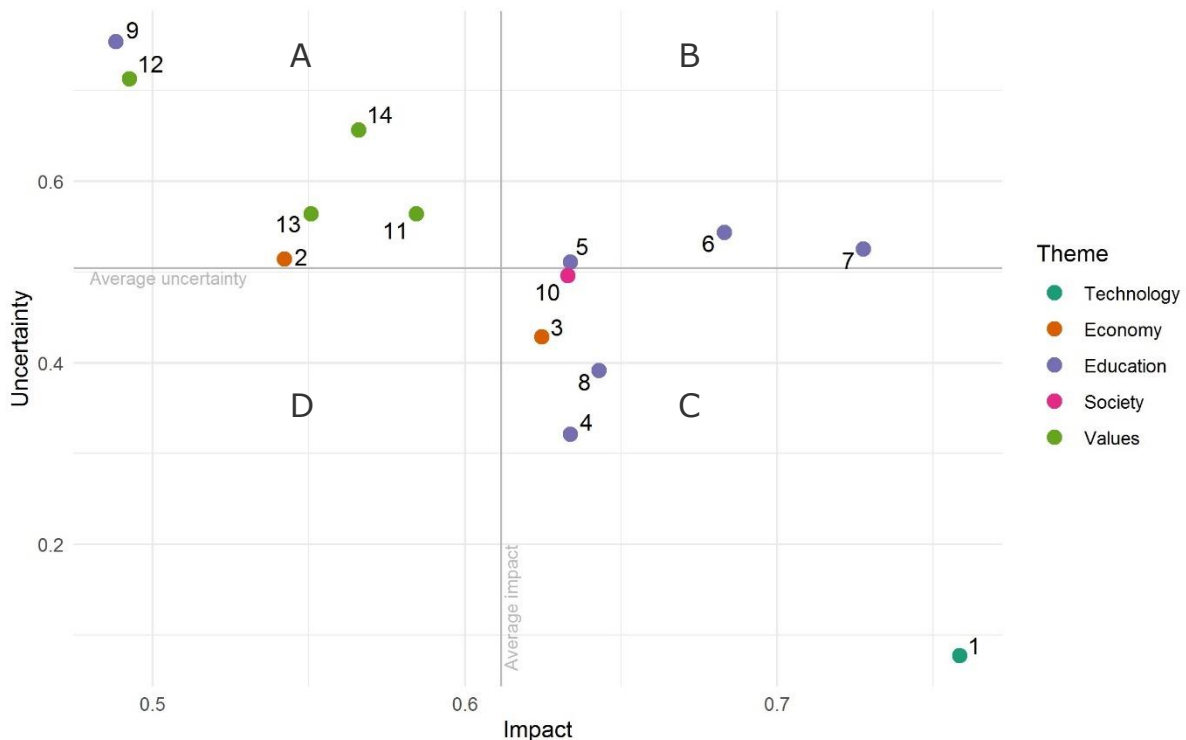


Figure 1: Average responses to the questions “How do you assess the future impact?” (Impact) and “How certain are you that this development will become true?” (Uncertainty) for each driver. Dots correspond to the numbered driver list below. Answer categories are aggregated as follows: Little impact – 0; Some impact – 0.33; Strong impact – 0.66; Very strong impact – 1 and Uncertain – 1; Certain – 0. From the STEEPV classification, critical uncertainties were identified for the fields social, technology, education, economy and values, not for policy.

Technology	
1	Continued technological advances increasingly determine how we learn, teach and work
Economy	
2	Increase of economic liberalisation of education
3	Rise in unemployment (youth and vulnerable groups)
Education	
4	Change of curricula to keep pace with changes in the mobile world
5	Extension of classroom-based projects for social engagement
6	Develop partnerships to extend the classroom to the community
7	Promotion of creative thinking in secondary and tertiary education
8	Teachers expand the use of technology to change how they teach
9	New awards for education institutions with community-orientation
Society	
10	Increasing empowerment of civil society
Values	
11	Collaboration with social enterprises helps to reintegrate marginalised people in the job market
12	Extending curricula towards socially inherited education
13	Emergence of self-organised educational communities
14	Community groups are increasingly approaching education institutions to solve social problems

Table 1: List of trends and drivers for assessment of the impact and uncertainty, by stakeholders in the survey.

6 Construction of Scenarios

In Foresight projects, the scenario method is a policy analysis tool that helps describe a possible set of future conditions. At national, regional and local level scenarios can be used to improve planning capacity, to enrich strategic public policy decisions and to guide major capital investments. For example, the development of scenarios allows new insights into the opportunities and risks involved in making decisions about education and learning approaches that would have major consequences for the significance of social innovations in education in the next few decades. To be effective, scenarios must be plausible, consistent and offer insights into the future. Scenarios can help public sector executives to think in a disciplined way about the future when making public policy decisions. The method helps the decision-maker to consider the range of plausible futures, to articulate preferred visions of the future, to use what is learned during the scenario development process in the formal decision-making process to foster exceptional leadership. It also helps to stimulate creativity and to break from the conventional obsession with present and short-term problems.¹¹

Therefore, one of the purposes and uses of scenarios is to help decision-makers acquire knowledge and understanding to anticipate the context in which they have to act.

Based on the identification of trends and drivers from the literature and their validation through experts with respect to first: highest impact, and second: highest uncertainty, three distinctive scenarios were sketched by the project team. Following the practice of many foresight exercises in research and development, it is common practice to explore three to four scenarios. The number of three scenarios has the advantage that one best practice scenario can be developed, contrasted by one that depicts the "business as usual (what happens if not much is changing), and one worst case. Where there are four scenarios, the fourth one often depicts an unexpected and/or polarized direction. In the process of scenario development for the topic of social innovation, we chose one best case (scenario 1), the business as usual contains equals the negative case (scenario 2), and the third scenario gives a polarized view (scenario 3). These were subsequently elaborated and discussed in participatory scenario workshop with stakeholders. For the best case scenario several examples of already practiced future oriented projects combining social innovation and education are given. They serve as an orientation for future activities in this direction.

¹¹ For more information see <http://www.foresight-platform.eu/community/forlearn/how-to-do-foresight/methods/scenario/>

6.1 Scenario 1: The Learning Intensive Society

YOUNG SOCIAL INNOVATORS

Social Innovation Action Programme by Young Social Innovators aims to build social capital and helps young people create a fairer and more caring society through youth-led, team-based innovation learning. Young Social Innovators (YSI) is a non-profit organisation that believes in the power of youth and supports secondary education students and their educators to develop innovative solutions to tackle social problems in their communities and the wider society. Students work in teams and choose a social issue they feel passionately about. After gaining an in-depth understanding of their issues, they establish fruitful collaborations with each other and their educators and create links with their local communities. Students feel empowered and have the confidence to take action and bring real social change.

Taken from: Kalemaki, Garefi, Kantsiou, & Protosaltis (2018: 57)

6.1.1 Society at centre stage

The learning intensive society has overcome the dogma of material wealth creation and material growth and entered a phase of sustainable production and consumption. The overarching objective of this society is to generate wellbeing, to create human capital and to grant to every individual her/his right to education, no matter from what family background they come or how much money they can spend.

It is a society in which the Universal Declaration of Human Rights has been fully implemented. In many parts of the world, including the wealthier states of the EU, policies are SDG¹² oriented and SDGs are integrated into learning practices. People consider pursuing of the SDG implementation in order to keep society and nature sustainable and suitable for the generation of grandchildren. The civil sector is growing in parallel to the empowerment of citizens, the latter of which is also explicitly addressed as a goal in many curricula. In the economy, mass production has been widely overcome and the major motivations are not profit-orientation or growth maximisation but the achievement of a social welfare economy based on sharing and production within the community and caring for the participation of everybody in this process or in the outcome. Life is not organized for work anymore but work (not always remunerated) is organized for life. People work and operate less in hierarchies but in networked autonomy. The introduction of universal basic income in many European countries has set capacities free for many citizens to fulfil their mission orientation toward more social commitment. Accordingly, more potential for social innovation and the transfer of good practice from one community to the other, even from one country to the other could be used.

¹² Sustainable Development Goals by the United Nations

6.1.2 New values - new awareness

One major driver for the learning intensive society is the change of values compared to the society of 2019. In the learning intensive society scenario, people have the awareness that they need to act collectively in order to ensure the success of their vision. This awareness is also based on comprehensive knowledge and information of what is going wrong in society, locally as well as globally, relating to social issues as well as to environment and climate change issues. This collective awareness includes the acknowledgement of responsibility for the limited resources on the planet earth and the will to reduce waste.

6.1.3 System change

The change in the value system over the last ten years was accompanied by a shift in the political landscape. This shift was ignited by a growing inequality in the EU and within European countries. An inequality that had been funnelled by a traditional education system with too little focus on diversity. Since then, future oriented policy-making has acknowledged the fundamental responsibility the education systems carries out for social peace and well-being of all citizens, across Europe, in rural as well as in urban areas. In 2030, the majority of society feels the urgency to stabilize the new achievement of the knowledge sharing society. In order to respond to future developments and requirements, younger people are more active, outspoken and demanding a voice to be heard – not only in policy making. In social innovations and activities for shaping the future, the younger generation always plays a creative part, thus bringing new narratives and new solutions to the surface. Entrepreneurial competences are widespread in the younger population and become manifest in new business ventures as well as in social enterprises, initiatives and projects.

TIMUROVTSY (VOLUNTEERS) OF INFORMATION SOCIETY (ELIMINATION OF COMPUTER ILLITERACY) (RUSSIA)

The "TIMUROVTSY of information society" project is aimed at eliminating computer illiteracy, primarily among socially vulnerable groups: unemployed citizens; unemployed mothers with children; citizens who lost their job during crisis; laid-off military men who were transferred to the reserve, in particular in connection with reductions in the size of armed forces; people with disabilities; pensioners; etc.

The project activities allowed the development of a special educational program called "KiberLikbez" (cyber elimination of computer illiteracy). The programme features educational courses that are taught not by trained educators, but by young people, i.e. school children, students who, firstly, have more developed skills of working with IT-technologies than the older generation, and, secondly, have the potential of passing on their knowledge.

The courses are taught at schools, higher education institutions, and libraries. Thus, the implementation of the project handles one more important social task, i.e. arranging intergenerational communication, lowering intergenerational differences, and improving relations between children and parents.

The "KiberLikbez" programme is built in an interactive game form and is taking into account the age structures of participants entering the courses. Thanks to such an approach, strong generational relations are being built, the general emotional and psychological climate of the movement's participants is being balanced, and in addition the patriotic mood is also being developed.

Taken from: www.si-drive.eu, last accessed August 1st, 2019. Deliverable 4.3, p60

6.1.4 Introducing the European education tax

In order to finance the new education system, a European education tax has been installed, thus addressing inequalities and increasing fairness not only within the education system but in society as a whole. An inter-European transfer system allocates the money into regions and education centres where it is most needed. Increasing mobility raises multicultural and collective awareness.

Curricula are adjusted to account for the multicultural society, including new languages and new subjects and projects. Education is free, publicly financed and regulated, including transport to and from schools, books, teaching materials, educational travels, way to school, etc.). Children are empowered and co-create learning with parents and also with other adults, e.g. from social projects, the community, social innovators etc.

6.1.5 Modern educative institutions and the expansion of teaching approaches

Educative institutions are characterized as open, flexible, permeable. For primary and secondary education, students and parents are involved at equal level with teachers to provide the learning content and methods that takes the individual talents and needs into account. To ensure that students get the skills required to initiate social innovations and/or become social entrepreneurs, respective topics are part of the curriculum.

Educative institutions are committed to provide the skills and means for solving societal problems WITH the community. Therefore, teachers have a heterogenic professional background. It is common, that education is divided up between teaching practice and regular periods of social practice (e.g. in community projects), everybody is a student from time to time. Peer-to-peer learning has become a standard in education and teaching. Social media as a tool for sharing knowledge is part of the regular school curriculum. Teachers have the freedom and the responsibility to experiment with unconventional teaching methods. There is little lecturing and more project-based learning and group work where the students learn from each other, and from and with the community, in a co-creative way, sometimes inter-generational, to develop innovative solutions for challenges that open up in front of the school doors or even within schools, e.g. appreciating waste as an educational resource, increasing the durability of goods, upscaling old school furniture, cooking healthy food in the cafeteria, engaging in urban gardening, applying maintenance techniques such as sewing, manual repair, etc.

Non-formal and informal learning approaches are integrated into this practice. Schools often cooperate with other schools or with parts of universities to realize larger projects for a community.

The ultimate achievement of this society is to endow every citizen with the capability to care for his/her own education and personal development.

6.1.6 Reaching out to communities

Public teaching institutions are modernized and part of this modernization is to invite NPOs and NGOs into schools to contribute to more and critical information and teaching. Education institutions are inclusive, open, participatory, and connected to their surrounding community, e.g. with regard to social developments, but also activities for the students in the neighbourhood. Through this practice, students acquire social innovation competence for democratic culture as well as for entrepreneurship.

Curricula are primarily project based, involving not only teachers but different stakeholders from various parts of society. Focus of the curricula is not on traditional subjects in particular, but on transversal and social skills. STEM subjects are not taught as isolated disciplines, separated from each other, but with real life world problems.

THESSALONIKI HIGHSCHOOL (GREECE)

At the Thessaloniki School there is a group of 15-16-year-old students participating in the NEMESIS programme. After school, students chose to deal with issues they encounter in their everyday life and to find solutions by applying new ideas and suggestions. They worked on two main topics: restored and abandoned buildings and vulnerable groups of the population.

– The first group of students noted abandoned buildings in the neighbourhood and identified one that needed restoration. They took the responsibility for solving the problem by sending emails and calling 80 different construction companies in order to find sponsors. However, there was a legal problem, because a school cannot be responsible for such a project and there was nobody willing to help.

– The second group talked to the parental association of children with neoplastic illnesses called “Blink”. They organized a day at school to inform all students about becoming bone marrow and platelet donors when they become adults. Also, they participated as volunteers in a downtown area to inform passers-by, distributing flyers and balloons about the topic.

– Another team made a record of all the schools and public buildings in the area in terms of their accessibility for people with mobility problems. They continue now with a collection of the dining and entertainment venues in the same framework. A meeting with the NGO “Action for something else”, which deals with people with mobility problems, was arranged.

– The last team contacted the “Sierios” Center for the Prevention of Addictions and Promotion of Mental Health. They are to organize a group therapy workshop at school.

Taken from: <https://nemesis-edu.eu/portfolio/four-problems-students-can-solve-through-social-innovation/>, last accessed August 1st, 2019.

6.1.7 Assessment was yesterday – appreciation is now

Likewise, assessment practices in all education institutions (school, universities, adult education centres, etc.) have changed, too. They have become challenge-based, observation-based, in qualitative evaluations in essence. There are no more competitive tests in the classroom. Social skills are evaluated, e.g. how students help and support each other, how much they share knowledge. For educative as well as for work institutions the 360-degree evaluation discussion has become common practice: Members of a group evaluating a person are discussing with this person where her/his competences are and what additional support s/he would need. Thus, evaluation has made place for appreciation.

6.1.8 Universities as hubs for social innovations

Universities serve as hubs for social innovations. There are programmes for how to solve societal challenges. Next to PhD programmes in social innovation and social entrepreneurship courses, social innovations are also part in many faculties in connection to communities in need for social support. Philological faculties supporting immigration communities to adapt the new language, interdisciplinary effort to engage in sustainable production and consumption, computer and pedagogy faculties in a concerted effort teaching IT skill to individual in the neighbourhood or even hosting similar problems in disadvantaged areas abroad. Universities give incentives to students for practicing social innovation (ECTS, recognition etc. supported also by Erasmus at schools and Social Erasmus).

Tuition at universities are covered by the state and universities run programmes not only for “traditional” students but also for younger ones and for adults. In many programmes, adults can take part in the regular curriculum to learn more about social innovation and how to implement it

in their specific context, either as part of their job or in parallel. People in need for funds to finance a living while studying find options of grants from universities, governments or other kind of organisations.

6.1.9 Organisational changes within education institutions

The interchange between education and social innovation also required some changes at governance level of education institutions. Organisational structures have become flatter and participation and sharing of responsibilities have become more prominent. Although hierarchies have not disappeared, decisions are usually taken by consent, involving the people affected by these decisions or by the people responsible for the execution of these decisions. More and more educative institutions are turning toward sociocratic mode of organization. Teachers are trained in social innovation thinking and competences.

6.1.10 Teaching social innovation from core to periphery

Social innovations in, for and by education systems have contributed to this transformative change. However, this transformation within Europe has been taking place at different pace. While most "old" EU countries have implemented the knowledge intensive society in many realms of life, they have become very attractive for people from the later generation of accession states as well as non-EU countries and face a lot of migration challenges. The other countries, accordingly, face a serious brain drain and cannot keep up with the transition toward the knowledge intensive society. Some EU countries are frontrunners in SI, they "teach" and "transfer" their practices to other countries lagging behind and have developed innovative tools, such as "Social Innovation Transfer Labs" to promote peer-learning activities between EU countries, regions, cities, organisations; involving policy-makers, practitioners, civil society, entrepreneurs.

6.2 Scenario 2: Dichotomy of education systems in a polarized world

This society is characterized by an increasing economization of the education systems. Private education institutes provide interdisciplinary, advanced and reform pedagogies and are affordable only for the upper 15% of society. Private schools and universities are compensating for the deficits of public schools which are entirely incapable of dealing with the challenges posed by a society that is facing an unprecedented polarization of wealth distribution. This education system is perpetuating the increase in inequality as a social trend. The stratification for adults and people already in a job is reflected by the education opportunities for these people: training during the job or 2nd/3rd career trainings are available only commercially, thus only affordable for the very few and their employers. As a consequence, families with low income, single-parent, families with many children, migrants from the global south etc. are strongly disadvantaged.

Society faces severe demographic challenges. One challenge is political and economic migration. Migration is misinterpreted and abused by populist leaders to deal with fears many people have because of globalization and their scare of knowledge society. Because knowledge is dangerous for populists there is no investment in education for the masses. Another demographic challenge is ageing of population. Therefore upskilling and reskilling should be strengthened but as mentioned above, these trainings are available only for very few people, who can afford them.

At the same time, due to the deficit in the education system there is an increasing shortage of qualified labour, endangering economic growth on the one hand, and a rise in unemployment, lack of demand and consumption on the other. The mismatch between the talents of the individuals and their education is enormous and constantly growing.

Society in this configuration has been a very static one for a long time. Competition in the upper 15% and excessive pressure to survive for most of the others is blocking any changes. The paralysis builds upon a lack of interest from the side of the ones well-off and the deprived, who are heavily disappointed. Ignorance, narrow mind-sets, scepticism and a lack of critical thinking underpins stagnation.

Politics – supported by mass media producing massive disinformation – benefits from this situation where thoughts of change cannot reach a critical mass to fight the structures in power. The toxic hegemony of the educational system, mass-media and politics legitimizes an uneven distribution of resources, a lack of adequate investments and prevents any form of meritocracy to gain influence.

6.2.1 How does education look like in this scenario-context?

The public education is characterized by material shortages, but the really motivated teachers are to be found in the public sector. These teachers are driven by passion but their burn out is leading to an erosion of the educational system in the public sector.

In the private sector (the Top-15%), people involved suffer from increasing pressure and competition. No social ideas can there be found any more. There is just struggling, huge influence and pressure of marketing in the curricula, competition among providers and students. The main focus is on profitability in the short run.

These huge differences between private-public results in a dichotomy between elite education and mass education in terms of: quality in content, methodology and pedagogy, networking among students, mobility, culture, how knowledge is qualified, validated and certified. Since there is no diversity in classrooms any more this lowers emphatics and emotional intelligence.

Educational institutions as such will equal educational multi-level-firms managed on the basis of return on investment. These educational firms will serve all educational needs on different levels and from early childhood education throughout adult and further education. Within the institutions virtual systems will take over huge parts in both sectors. Not many teachers can be found in classrooms. Teachers are replaced by robots because they are cheaper.

SOCIOCRACY IN AUSTRIAN SCHOOLS

THE FREE MONTESSORI SCHOOL FREISTEIN, Austria, introduced the sociocracy principle to put children, parents and teachers in close contact with more respectful and appreciative interaction. All members are organized in working circles (teams) to get projects done and practice consent-oriented decision-making.

<http://www.freistein.at/schule/soziokratie/>

KREAMONT KREATIVES LERNEN NACH MONTESSORI in St. Andrä-Wördern, Austria is a free school for 6 to 14 year olds organized according to Montessori and applying sociocratic principles in order to have better cooperation among children, parents and staff. The cooperation is facilitated in several equal working circles. Thus decisions concerning pedagogy, marketing, financial issues etc. are taken at equal basis and by consent.

<https://www.soziokratie.at/2017/03/privatschule-kreamont/>,
<https://www.kreamont.at/verein/arbeitskreise-und-delegiertenversammlung/>

6.2.2 Social Innovation in education in this context:

One role of social innovation is that some initiatives from well-to-do people help the marginalized, e.g. offering language classes to migrants at all ages; some companies offering internships for school drop-outs or marginalized people. Some cities offer programs for marginalized young people to give them some kind of day structure and individual learning opportunities. But in total, these initiatives are insufficient to cope with the bulk of the problems as they are not implemented universally. There is no concerted structural political approach to the problem.

Thus, there is the urgent need for social innovations to create an education system that can cope with the challenges of the current situation and raise the learning output, improve employability and at the same time integrate the marginalized. This does not only concern the re-integration of drop-outs but also adults as well as older people with outdated skills. Structural interventions and curriculum reforms to cope with pressing societal challenges are missing in the educational system.

There are almost no regulations for private education sector. Society finds itself in a political debate on the future direction of the education systems whether or not private institutions should be obliged to reserve parts of their profits for public education and the disadvantaged or reap the profits themselves; whether the private institutions have to devolve the payoff of to the less wellbeing institutions; and whether political should prevent segregation, polarization and dichotomy.

This laissez-faire approach in education policy, however, provides room for more privately-run school with different foci: there is an increase of free schools organized by the parents. There is more opportunity for flexibility of the curricula as well as teaching methods, and more flexibility as to who is qualified as teacher. At times, this approach is more demand oriented (e.g. towards industry needs) and future oriented. It also has more flexibility with regard to the mixture of students in a class and the size of the class, and some free schools are more appropriate for highly talented children.

At the same time, there is also an increase of schools run by religious group according to traditional standards, pointing into the more rigorous direction of school governance.

And finally, there are more corporate schools and universities, run by various big multinational corporations, educating and training the skills they think are more appropriate for the future orientation of the company, covering all costs of schooling.

This variety leads to an uncontrollable, almost chaotic proliferation of education institutions.

6.3 Scenario 3: The information-industrial complex

6.3.1 Struggle for democracy and public control of data: empowered policy delimits the power of multinational companies

Big data is the main driver of this scenario with far reaching implications. A few multinational companies have managed to control most of the data and have become also the providers of crucial data to national governments, e.g. for multiple surveillance purposes. These companies also have crucial influence on the geopolitical development through the high impact of digitalisation on all societal and political fields, including the military. Global political governance has by far fallen short of controlling the multinationals.

Struggles for the enforcement of a stronger and more competent state are trying to develop means to shape and control the development of digitalisation, to develop IT-capacities and competences in the public sector to be independent of the big companies. To reap public resources by taxes to invest into “public good” creating a legal bases is a main challenge in this scenario. Regulation of IT commercialization and data protection at the European level is essential.

Consequently, how to shape the development of the relation between state and companies is a big question in the struggles for public control. A part of this struggle is the question of how the algorithms as a main element of the platform economy can impact the political system, and who creates the algorithms. The creation of high digital competences of all kinds within the public sector is a key necessity. A power struggle about the development of free applications and open source software as alternatives to the big data companies will arise. Data privacy and cyber security are main aspects of this struggle, too.

6.3.2 Increasing inequality, intensification of the climate crisis, and erosion of civil rights

In this scenario it is envisioned that society is strongly market and growth driven with a lot of innovation activities and disruptive development. The development is very resource intense, contributes to a massive increase of waste, pollution, and the climate crisis.

Increasing inequality is a driver of economic and societal development at the same time. Wages skyrocket in the core competencies of Artificial Intelligence (AI), causing high inflation, and increasing living expenses that cannot be compensated by people employed in non-core digital jobs. This development causes a new social disorder. In parallel to increasing AI knowledge and development, breaches and fraud are part of the day-to-day business, and increase the mechanisms of data driven surveillance and control, and consequently undermine the civil rights. Some societal forces are aware that measures in the form of social innovations are necessary to keep social peace, for example by providing educational measures for marginalised people to take part in the economic life. But so far, social innovation projects to counteract the dramatic developments are missing because there is no sufficient funding, neither private nor public.

People not able to comply with digital logics are excluded from the economic development as well as from moving ahead in the social stratification structure. The emergence of bottom-up social innovations provide open-source applications to support access to social services for vulnerable people and to encounter the socio-economic contradictions.

Economic imperialism tends to play down topics such as social sciences, the arts, humanities, crafts, philosophy, etc. that are regarded as nice to have but meaningless. Automated translation systems have made learning of languages superfluous. Creativity and chaos other than that created by economic disruption are regarded as menaces.

EXCHANGING EDUCATION FOR HABITATION (A BAR- TER BUSINESS MODEL) (GERMANY)

The initiative for exchanging education for habitation ("Tausche Bildung für Wohnen" TBfW) was developed in 2011 grounded on a former broader approach that failed. Based on this experience the initiative is concentrating and aiming at improving equal opportunity and integration for children with a precarious living background. Reducing prevailing social disadvantages by offering a new learning environment, the initiative is offering young adults (mostly students) a true-to-life field of work (teaching, supporting and coaching), the disadvantaged children a new perspective and is thus impacting the disadvantaged local district of a city (Duisburg-Marxloh) positively (social integration and regional development). Core of the idea is that so-called godparents (the students) can live without paying rent in the district; in return, they educate and supervise children from structurally disadvantaged neighbourhoods.

Taken from: www.si-drive.eu, last accessed August 1st, 2019. Deliverable 4.3, p16

6.3.3 Risks and opportunities of digitalisation in employment

Digitalisation will allow to abolish many tedious routine jobs and provide the opportunity for more leisure and time to do "good" work, such as care. Well-paid jobs can almost only be found in the big data industry with the incumbent companies. Competition for these jobs increases sharply, and selection mechanisms are also digitalized. Big data and data mining give inputs to human resource methods. This development results in a turnover of existing certification systems related to the education system.

The transformed economy needs less workers. Thus only a small part of society can benefit from this transformation. The development creates an increasing group of working poor who have to be supported by measures for inclusion.

6.3.4 Almost all spheres of life are permeated by digital technologies

Digitalisation is a strong driver for this scenario making the influence of social networks ubiquitous and leading to further changes in the relationship of people. A range of reactions are provoked by the digitalisation of life, while some people are mainly happy with it ("brave new world"); others are discontent ("big brother"). Family life and local communities are permeated by the digital technologies, several activities can be dealt with from home (consuming, working, learning), depending on access to sources and the ability to use the technologies productively.

6.3.5 Emergence and support of new balanced learning ecosystems

Education systems and institutions are very different from today: The digital technologies provide sources and room for learning and instruction, their use depends on access and capabilities: people learn where they are, live and work. Learning is no longer confined to schools and educational institutions; it includes a variety of public and private sites, and much informal and individualised learning, independent from time and space of instruction. Obviously, access to the digital technologies (tools, internet) is essential for participation in learning in this scenario.

The diversity of learning sites and institutions for learning as well as of sources of instruction has very much increased. Cooperative tools alleviate collaboration and support learning from various sites. Qualification demanded by industry is satisfied in connection with working life. Home and family are a basis for home schooling due to wider availability of digital tools. Studying from home has increased. Digital tools have provided platforms for parents (also accessible in the countryside) which allow students to connect easier with their peers, increasing co-learning and co-creation, digital learning communities have evolved.

The diverse sites of learning and instruction have been coordinated into new balanced learning ecosystems comprising policy making, the economy, and the civil society together with educational institutions in order to solve challenges commonly. Short termism has been overcome by a shared vision on the aims of education between multiple the stakeholders, including closer collaboration with industry towards meeting common goods. The struggle for the protection of data and human rights has been essential for that common policy.

Different learning tasks need different sites and institutions. A dichotomy between creative face-to-face learning of complex content and the digital distribution of facts and easy skills (e.g. MOOCs) must constantly be re-balanced. However, policy continuously struggles to coordinate the diverse learning sites into a living ecosystem. Those excluded by the industrial digitalisation process must be supported and policy tries hard to enhance digital social inclusion.

Overall the perspective in education has gradually changed from an institutional focus to a learner perspective. From a biographical developmental perspective early childhood education has been extended (e.g., obligatory day-care for all children between 1 and 5) and activities in the field of "learning to learn" for age 6-12 have been strengthened. Changing environments lead to adult compulsory education (e.g., renewal of degrees every ten years).

In this digitalized world social innovations can emerge through bottom-up action through social networks, or as marketable goods.

6.3.6 Digitalisation tends to overcome traditional practices of schools, digital divides arise

As the continued technological advances increasingly determine how we learn, teach and work, the new technologies and practices have permeated the reluctant school sector. Different sectors have emerged, some schools are fully digitalized, others of remained outside this change. Some children learn from early on to handle the technology and work with it, and are developing technologies even further. However, outside of using digital devices, there is little room for creativity. The same applies to adult education, for which only digital content is provided. Within the education system, STEM subjects are promoted at all levels, leaving other subjects behind. The use of augmented virtual reality, for instance, has gradually become a standard in educational institutions, doing scientific experimentation in virtual labs of big multi-national companies that sponsor education institutions.

To develop a balanced public education system policy struggles with different challenges in this scenario to include schools into the learning ecosystem: on the one hand digitalisation must be spread over the system; on the other hand, democracy, deliberation and citizenship skills and competences must be developed and strengthened in the whole system. The use of (systematic) experimentation both at classroom level of teaching and learning, and at the system level of policy making has been established.

Civil society engagement and more and new forms of collaboration with external stakeholders and enterprises are essential for creating a learning ecosystem that is

GREEN SCHOOL (BALI, NEW ZEA-LAND)

Green School Bali is renowned as an inspiring model of learning. Championing progressive education and learning for sustainability, Green School is a showcase, with impacts far beyond the boundaries of its beautiful campus. As the School marks 10 years since the bamboo gates opened in 2008, it stands today as a vibrant community of 35 different nationalities, over 800 full-time and part-time students and as a leader in educating for sustainability. With the students of Green School at the centre, the School has developed an ecosystem of learning. A values-based and community-based place of learning, Green School has broken the mold on what 'school' is. Local community integration, international and local teacher training programs, adult learning, immersive visitor experiences and social enterprises that solve real problems, this is A Community of Learners, Making Our World Sustainable. Over the course of 2017/18, Green School took significant steps forward in refining its educational foundations, namely the Learning Framework, and Green School Skills. Shaping a new Primary School program, developing a project-based diploma pathway, bringing more technology to the jungle, establishing a Green Projects Hub and establishing a parent coworking and learning space, represented a year of growth and forward momentum.

Taken from: www.greenschool.org, last accessed August 1st, 2019. Annual report 2017/18.

harnessing collective intelligence by the use of digital tools. Moreover, teachers and educators continuously need professional development on digital matters, and on civil society engagement.

6.3.7 Inclusion of commercial digital infrastructure into learning ecosystems

The IT-related companies are developing and providing various kinds of digital infrastructure for education. Not only the infrastructure of AI for schools is provided by such companies, but also learning material as well as the algorithms deciding who will have access to which education facility or programme and how to evaluate students, workers, scientists, etc. Such companies also take influence on the curricula and on hiring people directly after graduation. A small digital elite has the power to develop and implement the key algorithms according to which not only education systems but many other areas of society are run. Here the challenge of public control of this infrastructure in case of use in the public education system arises.

6.3.8 Digitalized assessment and certification expand in the EU

AI and algorithm-based assessment of skills spreads through the human resources practices of enterprises as well as through the education system. Competence-based education and evaluation driven by companies pushes students to demonstrate they can identify social needs and develop products that solve them (e.g. apps). These new practices question established traditional assessment practices. The assessment by enterprises with assessment specialization might also have effects on over-education.

These tools can support individualized learning based on the individual biography and demand. For adults a personalized profile can be established and the validation of qualifications can be provided through e-form online. The variety of open source materials (e.g. smaller chunks, unstructured) vs. broader digital learning environments (fee-based) can be distinguished, and combined with "digital" certification.

6.3.9 Skills for the 21st century encompass more than STEM: digital problem solving, green transition, and civic competence

A push for the 21st century society skills blurs the line between schools and their communities (e.g., project-based and service-learning gain presence). In order to empower the young generation strong emphasis on civic competence must be set, including the competence of researching knowledge critically, and considering the deliberative nature of teaching and learning; schools support students in building social networks, and education fosters tolerance for diversity. Thus, learning to learn is an essential competence.

More adequate skills and competences are developed for preparing for green transition, e.g., supporting the circular economy, repairing skills. Enabling platforms and co-creating solutions in these fields must be supported.

However, a subject obsession with STEM is much too narrow for preparing for digitalisation, embracing the multidisciplinary nature of problem solving (more computational thinking not coding, and higher student agency) is necessary.

Education must support the inclusion of neurodiverse students, whose skills are much valued in the digital economy (e.g., autistic people by software companies), and think about innovative ways to make disadvantaged fit for the digital society.

6.3.10 Formal school education inhibits social innovation

Formal school education has its traditionally established practices of instruction and assessment that are resistant to change. These practices tend to reproduce the structures and inequalities in their environment. The influence of the digital industries has not changed these basic mechanisms, rather reinforced them. An exception in higher education has tended to integrate and support digitalisation (inventions in the Silicon Valley have been strongly supported by people from the universities in this area). Overall, there are signs for poor pedagogical use of technology, and also very restricted policy strategies towards digitalisation.

Social innovations that satisfy societal needs emerged from the margins and from interaction with the social or political environment and need scaling up by public support. Essential aspects are that social innovations in education help overcoming the gap to the non-digitalised work and distributing power and (economic) well-being more equally.

6.3.11 Digital platforms for social innovation

There is some silver lining at the horizon as some educational institutions start to prepare learners for social innovation needs by applying new digital infrastructures as well as face-to-face social learning. Combining different data sources and setting up digital platforms (and maps) help to improve the educational practices and provide space for engaging external supportive stakeholders.

Newly established social innovation platforms improve networking and exchange of good practice. It also allows to bring social innovators and entrepreneurs together by providing infrastructure, enabling pilot projects and funding to scale up initiatives.¹³ The big IT firms (Google etc.) are offering services for setting up such platforms supporting social innovation (and collect data and make profits through these services. Alternatively, “pirate” state-less digital platforms also provide alternative education online sources as tools for insurgency.

¹³ An example of social innovation is “NORDWÄRTS”, a project of the City of Dortmund (Germany).

7 Conclusion

Social innovations in, for and by education institutions are already existing but they are needed on a larger scale and thus need the support of policy makers, educators and mediators between society and education.

The discussion on the role of social innovations in, for and by education reflected in this report takes up the ongoing changes that education institutions are experiencing and at the same time lead to a re-definition of our common understanding of education as such.

A new division of educational responsibilities fits into this picture. The various stakeholders need more autonomy, peer learning increases, centralized-decentralized learning arrangements rise, and citizen participation in top-down/bottom-up gets more impact. Schools can take stronger roles in their environment as kinds of community centres to promote citizenship empowerment.

The role education institutions can take in society is much larger and much more extensive than imagined or experienced so far, not the least to encounter the rising inequalities in the European society. E.g. the teacher-student relation is not a hierarchical one per se. Rather, it defines the relationship of the individual with her/his environment and with other people. It involves the knowledge sharing of both sides. With the larger societal challenges, we are presently facing and in the future, a broader understanding of education in conjunction with social innovation is a pre-condition for the mutual understanding of conflicts and differences and feasible mechanisms to solve them.

The definition of education is about to leave the traditional understanding of institutions such as schools and universities, actors like teachers and students. Education in the context of social innovation has been understood as enabling people to achieve the capabilities they need to take part in our society at all levels. The "Fridays for Future" movement is a case in point. Students take the responsibility of their education into their own hands and remind the rest of society that education should have a direct relation to real life and enable students to take an active part in society in a self-determined way. They organize public workshops, combine education and climate protection and educate each other. As we could see in this study from the survey results and the explorations in the scenarios, social innovations by, in and for education are crucial to enable the empowerment of students to become responsible citizens.

As 67% of responding experts say that increasing empowerment of civil society will have a high or very high impact on the future of social innovation in education, we see this development in many other areas as well, e.g. in health, patients are claiming more empowerment to participate in diagnosis and treatment, in city planning, citizens want to get more involved, in hot topics such as climate change.

We can identify three different roles education institutions could play with regard to social innovation in the following ten years:

- First, education and training systems could play a key role to engage in social innovation activities that usher transformative momentum and are social both in their ends and their means. These transformative moments are anticipated in various areas facing major disruptions. Thus, innovation in education can become crucial in providing solution for the communities they are located in. Project-based content in curricula of education institutions could provide approaches to integrate marginalized people into jobs, social networks, training etc. These institutions are also crucial in providing approaches to reach global dimensions from a local perspective, for example, for some of the Sustainable Development Goals. As almost two thirds of the responding experts in the survey believe that the extension of classroom-based projects would have a strong or very strong impact on the future of social innovation in education, this underlines the definition of social innovation to make socially relevant topics with real-life challenges part of the

curriculum. These can be topics that touch critical issue some of the students are confronted with directly or indirectly, or come across regularly outside their school life. Examples of such topics are migration, joblessness, homelessness, single parents, shop vacancies, deportation of asylum seekers, climate change, animal welfare, and many more. A similar strategy was supported by a vast majority of experts (74%), namely to develop partnerships with projects and social organisations outside the education institution in order to extend the classroom to the community. The acknowledgement that partnerships are essential to establish sustainable social innovation projects points to the opportunity to cooperate with social projects outside the education institutions or to initiate projects with suitable partners to develop small scale solution approaches addressing the challenges mentioned. This model does not stop in the traditional classroom of a primary or secondary school. The understanding of classroom needs to be broadened as well and include college and university classes as well as job training and informal and non-formal learning.

- And thus, the second role of education institutions is to integrate social innovation approaches into curricula. They have to provide the opportunities to develop coping strategies for the grand societal challenges of the future, including the necessary skills and the technological infrastructure. Teaching needs to undergo a radical change as well and move away from ex-cathedra teaching toward cooperative peer-to-peer learning. This asks for a radical redefinition of the role of teachers and students and includes all levels as we all will always be learners, no matter if we are children, adults, workers or retired.
- Thirdly, institution of education could play a major role in investigating the success factors and life cycles of social innovations from a meta-perspective, thereby developing future oriented and appropriate approaches of cooperation, teaching and learning.

A precondition for these three crucial aspects is the understanding of decision makers and major actors in the social innovation system of education on what social innovation actually is and how it relates to education. This common understanding has to be negotiated among the people and groups involved, e.g. policy makers, teachers, students, parents, social partners, economy, representatives from various social groups and social projects, etc. Thus, a dialogue process in civil society with very good and competent moderation is urgently needed to discuss these matters. The negotiation process needs to provide a common understanding of all stakeholders about the needs and possibilities and the framework conditions of promoting social innovations in education.

One essential framework condition is sufficient funding, this is addressed to policy makers. Another is sufficient room to change existing curricula and include social innovation activities: Their detailed definition and explorations have to be cared for by the actors directly involved. This requires some flexibility on the side of policy makers, but especially on the side of administrators responsible of education agendas. Flexibility of the mind, however is also required from teachers, students, and parents in order to break with traditional mind-sets and open up for ad hoc topics, new methods, external actors and holistic responsibilities. New learning ecosystems are needed and also new governance structures – and at times also accompanying regulatory adjustments!

Social innovation in education also includes openness for diversity – for classrooms of different ages, nationalities, ethnic backgrounds and different learning and locomotive capabilities. Mixed classrooms or learning groups thus provide more opportunities to acquire social skills, empathy and tolerance not only in the learning environment but also long-term. Social skills will thus provide society with responsible citizens, better leaders and managers, better teachers and policy-makers and prevent populist short-termism and the promise of easy solutions for complex problems. This call for more diversity includes also the promotion of creative thinking in secondary and tertiary education. It was strongly

supported by the survey results to have significant impact on social innovations in education. One crucial question for education is whether standardized curricula are still necessary today and if so is it possible to provide more room for non-standardized creative activity? This does not stop with traditional creative disciplines such as art, music, theatre and the like. Instead, what is needed is a genuine interdisciplinary approach that uses creative methods to teach traditional topics or even to tear down the ridged classification of disciplines and subjects and to teach and learn about societal problems that are contemporary as well as future oriented and point to actual challenges. This does not always mean that solutions have to be developed in the classroom. First of all, it is necessary to raise the awareness of teachers and students about societal challenges and to let them enter the classroom. Secondly, in such a new context the question arises, who is the teacher and who the students. Do some students from a certain societal background and with specific experiences possibly qualify as teaching the rest of the class about their cultural background, including the “teachers”? What students need to be provided with in order to engage in creative thinking is a variety of tools and methods to communicate their needs and experience and how to share this with others (Dominici 2018).

Strengthening and scaling up of social innovation skills and projects towards new educational ecosystems led by all kinds of education institutions brings formal education nearer to the social communities and civil society as well as to the dynamically changing institutions of the world of work thus proving the opportunity of tackling simultaneously the challenges of increasing inequality and polarisation in society and of increasingly complex problems of skills mismatch driven partly by demographic trends of ageing societies and workforces (CEDEFOP 2018, 2019). A more learner oriented approach to education and strengthening lifelong learning of adults instead of incremental improvements of the fragmented educational institutions driven by path dependency can lead towards a social innovation ecosystem including a new and more active role of universities realising their Third Mission. New more inclusive governance and financing arrangements can help to overcome the challenges of a reduction of educational disadvantages, establishing new learning arrangements, and developing new strategies and structures for lifelong learning (Schröder, Krueger 2019).

With regard to new technologies as tools for learning, teachers from the traditional education system are not always up to date. Their students and the world outside school (and sometimes university) have overtaken them. A new, better digital infrastructure (hard- and software) must be established across the system. Education as investment must provide an enabling environment for technology to fulfil its role in public goods and produce good social outcomes. Essential inputs are to train the teachers, to provide public subsidies, and to invest in the digital infrastructure. Room needs to be given to students and teachers to learn from each other and among their peer groups, especially with regard to new and digital technologies, the ease and enthusiasm of young students can help teachers to learn about new tool, methods, and applications. It is, however, important, that all actors are aware that technologies are for people and that people determine the paths of technological development and not vice versa. Only then can digital technologies be part of social innovations and even enable the uptake of social innovations at a larger scale. Social innovations can function as a bridge to overcome what Dominici coined the “fracture between the human and the technological” as education is crucial to teach responsibility and complexity (2018:8)

To develop policies for the support of building broad ecosystems for social innovation, based on networks integrating the various actors and stakeholders engaged in education, is the main challenge in politics. More mission-oriented politics (Mazzucato 2018; Schröder, Krüger 2019), taking such a perspective towards social innovation in building lifelong learning structures, could be an alternative to the traditional silo oriented political sectors focusing on the fragmented education institutions as well as to the neoliberal politics of competition, marketization and privatization based on the management practices of the private enterprise sector. In this sense, a political perspective on social innovation can

potentially bridge to some extent the ideological and hostile gaps between orientations towards private vs. public structures, and better integrate the civil society into politics and policy making. New research about understanding and tracking educational mismatch also has shown the broader causes and implications of this phenomenon, and points to the perspective of social innovation ecosystems for solutions, rather than narrow market and human capital-based approaches (CEDEFOP 2018, Lassnigg 2012).

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Annex

The table below gives an overview of the assessment of the impact and uncertainty of all 14 investigated trends and drivers within the categories: Technology and Economy, Education and Policy, Society and Values.

#	Drivers and trends	AVERAGE ¹⁴		IMPACT			
		Uncertainty	Impact	Very strong	Strong	Some	Little
TECHNOLOGY AND ECONOMY							
1	Continued technological advances increasingly determine how we learn, teach and work	0.077	0.759	43%	43%	14%	1%
2	Increase of economic liberalisation of education	0.514	0.542	11%	44%	40%	4%
3	Rise in unemployment (youth and vulnerable groups)	0.429	0.625	25%	42%	28%	5%
EDUCATION AND POLICY							
4	Change of curricula to keep pace with changes in the mobile world	0.321	0.634	20%	51%	27%	1%
5	Extension of classroom-based projects for social engagement	0.511	0.634	27%	38%	32%	3%
6	Develop partnerships to extend the classroom to the community	0.543	0.683	33%	41%	24%	2%
7	Promotion of creative thinking in secondary and tertiary education	0.526	0.728	42%	35%	21%	1%
8	Teachers expand the use of technology to change how they teach	0.391	0.643	23%	48%	28%	1%
9	New awards for education institutions with community-orientation	0.754	0.488	13%	29%	51%	8%
SOCIETY AND VALUES							
10	Increasing empowerment of civil society	0.496	0.633	27%	40%	31%	3%
11	Collaboration with social enterprises helps to reintegrate marginalised people in the job market	0.564	0.585	20%	40%	37%	4%
12	Extending curricula towards socially inherited education	0.713	0.493	10%	38%	40%	11%
13	Emergence of self-organised educational communities	0.564	0.551	20%	30%	43%	6%
14	Community groups are increasingly approaching education institutions to solve social problems	0.657	0.566	21%	34%	40%	6%












¹⁴ Answer categories are aggregated as follows:

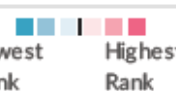
- Impact: Little impact – 0; Some impact – 0.33; Strong impact – 0.66; Very strong impact – 1
- Uncertainty: Uncertain – 1; Certain – 0. Uncertainty averages are equal to the percentage of respondents indicating “Uncertain”.

Figure 1: The most fundamental barriers hindering the inclusion of social innovation in the education sector

Interpretation of barriers...

Respondents were asked to rank the top 5 factors

Item	Overall Rank	Rank Distribution	Score	No. of Rankings
Culture within the education institutions	1		327	98
Lack of support from the policy	2		317	91
Lack of flexibility due to regulation	3		294	91
Lack of support from management in education institutions	4		210	75
Lack of awareness of societal challenges	5		208	68
Lack of skills of teachers	6		155	62
Lack of motivation from teachers	7		152	56
Assessment of performance	8		114	36
Lack of demand from society	9		97	33
Assessment of procedures	10		69	28
Lack of motivation from learners	11		35	13



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