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OPEN SCIENTIFIC AND ARTISTIC PARTNERSHIP AND LIFELONG LEARNING CONTRIBUTING TO THE SUSTAINED QUALITY DEVELOPMENT OF A SMART SOCIETY

Introduction. The big changes in contemporary society are strongly influenced by the rapid development of the versatile new technologies, which especially are based on extensive digitalization and urbanization, and often characterized as the 4th industrial revolution or smart city development. This general trend has a major impact on all areas of society. Although the development is based on the technologies, however, people have the most important role to play in it as individuals and members of various organizations and societies. For instance, the development has big impacts on occupations and working conditions (Schwab and Samans, 2006). This development provides opportunities for the well-being of individuals, but there is also a risk of human mechanization, and in terms of privacy, the situation is challenging. Also, the old question of human-machine relations and the human possibilities of intelligent machines have become a topic of discussion. Although it is unlikely that the machines will become too human-like, a more current risk is that people become machine-like creatures that do not care about each other and cannot handle each other humanly. Artificial intelligence changes our perception of humanity. The intelligence should be developed to maintain the balance between human intelligence and machine intelligence. Understanding the importance of things that only a man is able to do is crucial (Hautamaki, 2018).

This article consists of a theme and aspects, which we also are examining in our practical example relating to an initiative of the intercultural scientific and artistic collaboration and lifelong learning that strives for stimulating the societal quality in the situations of the 4th industrial revolution and smart city. This initiative aims at practicing open cross-border operations and takes into account the multidisciplinary interests of practitioners and experts to advance the open science and arts and its impact on society.

Large-scale urbanization and digitalization in the society

We can recognize strong urbanization everywhere in the world together with the development of multicultural societies, which in turn gives rise to significant challenges in the development of the whole society. Also, we confront with big global risks (Eurasia Group, 2017). Large-scale urbanization all over the world and a wide range of disruptive technological innovations (Christensen, 1997) have in many countries influenced the development of Smart Cities (Mohanty et. al., 2016). Smart cities also are concrete manifestations of the 4th Industrial Revolution (Schwab, 2016) or Industry 4.0 (European Parliament, 2016), which are currently the subjects of extensive discussions in the international fora. The smartness of the cities or society is a fuzzy issue and a never-ending and emergent process towards the smart, smarter and smartest societal environments. The smart city is not an isolated entity; it has no clear borders with the surrounding society, and its members are in continuous interaction with the actors outside the smart city area. Interactions take place over the entire world and are reinforced by the growing trend towards 'global village' (McLuhan, 2000; Dixon, 2009) and 'global citizenship' (Israel, 2012). The different components of the smart cities cover all essential areas of the whole society, including smart governance, smart education, smart security, smart healthcare, smart building, smart infrastructure, smart transportation, smart mobility, smart energy, and smart

technology (Frost & Sullivan, 2013). The information and communication technology (ICT) is the main enabler to transform traditional cities to smart cities. For instance, the 5G mobile networks and Cloud services, Internet of things (loT) and Industrial Internet, Big data, Artificial intelligence (Al) and Intellectual robotics, Machine learning, Virtual reality, 3D printing, and Blockchain, provide many unlimited opportunities for the development of the smart city services.

The 4th industrial revolution has radically altered the operating conditions of people and organizations compared to the earlier industrial and information society. Everywhere in the world, organizations and societies are preparing for this development. However, today's situation is fragmented, stagnated and even aggravated, and 'functional stupidity' (Alvesson and Spicer, 2012) prevents to solve the problems. If this development is not addressed, negative development can gain more power and the situation will get worse. Responding to the development, on the other hand, provides ways to open and implement entirely new kinds of opportunities. This new social order related projects and implementations are widely available throughout the world. The Finnish perspective has been charted, among other things, by The Committee for the Future in the Parliament of Finland (CFP, 2018).

The general development of society requires the intercultural and multidisciplinary open scientific and artistic collaboration of practitioners and experts and lifelong learning of all people in order to ensure positive impacts on the quality of society.

People in an evolving society

In the smart city development, an interesting and important area is human-focused research and development. Although the smart city realizations often emphasize technological aspects, however, the smart citizens (Frost & Sullivan, 2013) have a crucial role in the success of the smart city operations. More citizen proactivity is expected in adopting smart concepts and smart products, including lifestyle choices. Digitalization has a strong influence (Samarina and Bryansky, 2017) on people's operations, occupations and careers, management, the organization of work, employeeship, consumption patterns, and social relationships. These aspects are considered in the context of digital humanities research, which is also considered in the European research program SSH (Socio-economic sciences and humanities) (European Commission, 2017a).

Smart city orientation creates increasing demands for skills, competencies, and operations to respond with the new ways to the development of the society. Particular general viewpoints that are needed include (1) innovative and adaptive thinking, (2) virtual collaboration and social intelligence, (3) ability to work across disciplines, (4) literacy in different types of media and (5) computational thinking and analytics (Lee, 2016; Schwab and Samans, 2006; Samarina and Bryansky, 2017).

From the point of view of society, significant changes have taken place in the power relations and opportunities to influence. In this context, we also should consider the 'dark side' of the digitalization and smart cities, which particularly is related to the information aspects in the smart city services and their influence on human behavior and mind. People can be confused or misled as individuals or groups by massive information overload, misinformation, purposefully selected or fake news, or alternative facts. Hence also in the attitudes of people, a shift regarding knowledge and truth may take place, when a decline of the public valuation of science in general and of humanities, in particular, can be recognized (Zaliznyak, 2016). The threats of cybersecurity can be serious for the societal infrastructures, information security and privacy (Anttila and Jussila, 2017a) of individuals and large groups of people regarding their belongings, life, and identity. The hostile actors can act more effectively through all-inclusive social media facilities. Also, the too strong influence of the digital environment may damage the human mind, especially through addictions and the mental development of young children (Kashmanian, 2000; Rowan, 2014).

Today's challenge to the individuals, organizations and the whole society is the fact that societies have developed from certainty and predictability to uncertainty and ambiguity. In turbulent and risky environments, organizations or societies may encounter a crisis that results from 'authority without responsibility'. Sennett (Sennett, 2006) describes this ever-mutable form of capitalism as 'Mp3 Economy' that includes:

• Conditions of instability or danger in social, economic, or political affairs
• Unique situations that have reached difficult or dangerous culminating points

- Times of great disagreement, suspense or suffering
- Drastic changes in business culture wrought by downsizing and outsourcing
- Appreciation of reality where one should continuously jump from task to another or at least have the capability to continuous change
- Erosion of certainty and the need to adapt to changing circumstances
- Changes in work and societal ethics in the attitudes toward merit and talent in public and private institutions ('specter of uselessness')

According to Spicer (Spicer, 2018; Spicer, 2017), business people use meaningless business jargon that kills a genuine business focus. The organizations have become vast machines for manufacturing, distributing and consuming bullshit. This confusing language of management also has spread through schools, governmental and non-governmental organizations, politics and the media.

It is a great challenge to try to understand the complex state of the world and its development in an unbiased way. The idea that the innate characteristics determine the destinies of people, countries or cultures and that things, for ineluctable reasons, are as they are and will never change, often are feelings disguised as facts. This 'destiny instinct' blinds us of the revolutionary transformations in societies happening all around us (Rosling, 2018). President Barack Obama criticized in an interview in Helsinki (Obama, 2018) that governments are slow in the modern world and unable to respond to changes in technology sufficiently quickly, even if the consequences of the changes are apparent. He also stressed that, in spite of everything, the world is more good than bad (Rosling, 2018).

Learning people and society

In general, education is regarded as the main driver and of crucial importance for the continuous adaptation and development of people, organizations and society as a whole to new needs and expectations. Especially, education should be examined from the perspective of its main purpose, learning. The lifelong education covers the individual education from pre-school level to university level and organization-internal training and education of organizations' leaders and employees. Today also the learning of senior citizens, disabled people, and expatriates is important in order to prevent their social exclusion. Traditionally, learning is seen as a formal education activity but actually, learning takes place in the formal, non-formal and informal ways, and the most learning is informal and supported by social interactive means (Cross, 2003) and collaboration. Learning needs to be shifted from Teaming to know and do' to 'learning to be and live together', and quality is imperative in all education for all (UNESCO, 1996). Hence, education and learning phenomena as a whole are very complicated.

Basic learning needs consist of the learning tools of literacy, oral expression, numeracy, problem-solving, etc. and learning contents like knowledge, skills, values, attitudes, etc. that in the modern society may be demanding. The broad scope of learning needs includes ethics and culture, science and technology, and the economy and society. Our particular focus is on the human aspects of how people can first learn to understand and then internalize what the changing world is for them and how to live and behave as 'smart citizens' (Frost & Sullivan, 2013). Challenges to learning include awareness and sensibility, attitude and interests, belief and new smart human skills and capabilities, and the socio-economic-human impacts should be taken into account.

Universities have a special status with regard to societal development. In general, the universities aim at supporting regional social cohesion, economic growth and future competitiveness (Anttila and Jussila, 2018). Contribution to the smart city development means increasing demands for skills, competences and quality and requires to respond in new ways. Universities' influence through their three merged responsibilities:
- The highest level of education for citizenship and expertise (including teachers)
- Academic research and disseminating research results
- Partnership with the surrounding society for training, research, and development projects with public and private organizations.

Societies as networks

Societies are scale-free networks (Anttila, 2010; Anttila, and Jussila, 2015) of independent but

interactive actors of distinct identities and development status, and consist of citizens, visitors, institutions, private companies, organizations of public civil service and the not-for-profit third sector. A society may be a local, nation- or country-wide, regional, or global entirety, or an issuespecific group of people.

People have a central role in all societies. Human individuals institute society, and the same individuals are influenced and developed by the instituted society (Castoriadis, 1997). Hence, human aspects are crucial in order to reach a high and sustained quality of society.

The society develops through its members', individuals' and organizations' collaboration and learning. In a liberal network, individual network-members or their groups may, according to their own decisions, sporadically liberate themselves from the network or join with the network. The development of society is managed by nobody. However, societal development is not random but influenced by strong society members or external bodies having a powerful position or using effective information and communication means. Recent researchers also bring forward emergency and teleology (Nagel, 2012) as explanations for the long term development of all our existence.

Society members are encompassed by a wide range of infrastructural artifacts, and live in a close interrelationship with nature, 'Mother Earth'. The society members also own and control different kinds of assets in order to ensure their existence and development, and through which they can meet debts, commitments or legacies, and to provide a future benefit. In societies, there always are also competing and even hostile actors, and particularly in the digital networks these actors may be invisible.

Quality Society

Our expression 'Quality Society' is a comprehensive antireductionist concept that implies a society of high quality or a well-functioning and well-developing society that largely satisfies the needs and expectations of all interested parties of the society (Anttila and Jussila, 2015). Quality Society aims at a holistic perspective to consider societal development in a proactive and human way.

Quality of society develops through the activities and interactions of people directly or via different organizations and institutions. Hence, the society's quality development is based on individual and organizational learning, innovation, and diffusion. Information technology solutions offer unlimited possibilities for this. On the other hand quality of society ensures people learning and organizations developing towards the ever higher level of quality. Strong network actors (hubs) keep the network alive, and the quality of the network facilitates its growth.

No well-established practices exist for describing or evaluating societies from the point of view of overall quality. Current society examinations and comparisons are very fragmented into many specialized local, regional, and national aspects, including municipality operations, environment, nature, culture, family issues, feminist issues, migration, employment, education, industry, agriculture, corruption, tourism, innovation, welfare, wellbeing, aging, healthcare, happiness, human capital, sport, communication, food supply, security, religion, etc. We have drafted a holistic reference framework of the Quality Society that provides a possibility for examining the quality of society consistently, comprehensively, and in a human-centered way. This framework consists of the following inherent characteristics of a society (Anttila and Jussila, 2015):

• Society services and their effectiveness and integrity

• Serviceability (i.e. service accessibility and service retainability), including capacity, capability, and availability

• Security with regard to property, belongings, societal stability, and local, regional and national defense

• Social resilience

• Human identity and intimacy, privacy, self-esteem, self-actualization, and respect

• Human rights and equality

• Morality and ethical performance

• Social performance, including education, creativity, connectivity, interactivity and sharing, and incorruptibility

• Nutrition, cleanliness, and health

- Esthetics
- Ecology
- Economy and efficiency and cost of poor quality

All of these aspects are lifelong learning items of people. Incorporated needs and expectations, i.   e. societal quality requirements, strongly depend on culture and the prevailing and developmental situation of the society. Learning for societal quality should be considered as a multidisciplinary concept. For instance, the concept sustainability that includes economic, social and environmental aspects (UN General Assembly, 2015) is a sub-domain of the Quality Society (Anttila and Jussila, 2017b). All societal quality characteristics are created and perceived by human beings directly or indirectly via different organizations and influence on the lives of individuals.

Culture is very closely related to the inherent characteristics and quality of society. Culture consists of manifestations of human intellectual achievement regarded collectively and the ideas, customs, and social behavior of a particular people or society. Culture is learned, and we grow thereto in our community through interaction with other people and institutions of the society. Universities are important in the evolution of the culture of a smart society. As an example, Humboldt University (founded 1810 in Berlin, Germany) provided the model of the 'University of Civilization', based on the idea that science provides the basis for civilization. This means that the University's societal responsibility arises when its research and teaching address challenges of the society, which have an important impact on people's lives and well-being and whose solution requires interdisciplinary and broad interaction with the various stakeholders.

The human aspects are crucial in order to strive for the high and sustained quality of society. Only with personal engagements individually and in organizations, can we achieve successful results in the development of the quality of society. Many extraordinary personalities have had a significant impact on the positive development of society. However, even ordinary people can also have a positive influence on the development of society and the world (Open Culture, 2017).

Open collaboration in sciences and arts for the societal development

Technical aspects are often being highlighted in the practical implementations of the 4th industrial revolution and in the related literature references. Because the subject is difficult and complex and has significant implications for people, organizations, and society as a whole, the issue should be examined multidisciplinary. In addition, the different arts can provide useful additional perspectives on the subject for its broad understanding and effects. In particular, arts have often played a major role in social upheavals. The following examples illustrate the possibilities of the positive interaction between science and art:

- Leonardo da Vinci: One of the seven Da Vincian Principles of a creative personality is Arte/ Scienza (Art/Science), which means the whole-brain thinking and the development of the balance between science and art, logic and imagination (Gelb, 2000).
- Steve Jobs (Apple): He likened himself and his employees to artists; he deployed his mercurial personality in the ruthless way that artists sometimes do. He cared about his products the way that artists care about their art (Rothman, 2015).
- The RSA (The Royal Society for the Encouragement of Arts, Manufactures and Commerce): The RSA combines science and art to enrich society through ideas and action through sharing powerful ideas, carrying out cutting-edge research and building networks and opportunities for people to collaborate (RSA, 2018).
- Edgar Allan Poe (1829): In the well-known poem 'Sonnet - To science', he highlighted damaging implications of science within the 1st industrial revolution. This poem has been referenced a lot in many contexts. What could be the sonnet of the 4th industrial revolution?

Science and art are well suited to complement each other. Science consists of an intellectual and practical activity encompassing the systematic study of the structure and behavior of the physical and natural world through observation and experiment. Art is based on expression or application of human creative skill and imagination, for instance in a visual form such as painting or sculpture, producing works to be appreciated primarily for their beauty or emotional power.

Open collaboration (Levine and Prietula, 2013) is a challenge in both science and art. Open collaboration

implies an activity based on goals but loosely coordinated participants who interact to create value-generating solutions, which they make available to contributors and noncontributors alike. Open science (European Commission, 2017b and 2018; University of Helsinki, 2019) is scholarly research that is collaborative, transparent and reproducible and whose outputs are openly available to all of society to be used as a shared knowledge base. It is related to open innovation (Chesbrough et al., 2011), too. Open art (Eco, 1989) is a more complicated concept. Open artworks are like 'works in movement' and still 'works in progress' but it is also involved with interactive art and open artwork.

Multisectoral international initiatives for collaboration - Practical examples

Our particular practical example, the East-West Quality Society Initiative, EWQSI, implies a cross-border collaboration founded and started between Finland and Russia by a few active individuals. EWQSI is a networking-based initiative and catalyst for a better society and supports open collaboration, open sciences, and open arts, and lifelong learning (figure 1).

Figure 1. The framework of the East West Quality Society Initiative, EWQSI.

In general, an initiative is a flexible form for cooperation, which implies strategy and acts intended to resolve a difficulty, improve a situation, or provide a fresh approach to something. Typically, this kind of collaboration have the following general features:

• Collaboration is loosely organized with a flexible way of operating for a given area of activity and is largely based on volunteering. Initiatives do not necessarily take place as organizations but through networking.

• Locality and territoriality of the collaboration vary. There are differences between the sectors of activity, for instance, in the motivation base and in the ways in which the operations are organized.

• The initiative-based collaboration is characterized by strong practical orientation and doing together.

Regarding the EWQSI, the topic and time are opportune to the this kind of initiative of mutually fruitful 'Modus Vivendi' networking and collaborating of the individuals of different societies and focusing on the challenges and people's needs and expectations in the 4th industrial revolution and smart society.

The aim of EWQSI is to promote societies-wide quality development by avoiding unilateral and stereotypical approaches and questioning prevailing perceptions. Hence, the initiative challenges the possibilities of art and science and takes into account the multidisciplinary views and interests of pragmatists and specialists. Different cultural traditions, human characters, and individuality are potential strengths for emphasizing values, humanism, and creativity. These factors may also influence attitudes towards new technologies and societal changes resulting therefrom. The members of our network have multi-annual and versatile cross-border practical relationships as well as experiences in the different fields of science and arts.

The activities of the EWQSI may consists of the following:

• Introductory activities including conference presentations in different countries, academic research articles, core group meetings, and network development.

• Expanding and activating the network of researchers and artists and sharing experiences and strengths within the network and utilizing the established relationships.

• Open collaboration and open science/art among individuals and organizations including higher education institutions and adult education organizations.

• Perceiving and understanding the contemporary and future society, especially the 4th industrial revolution and smart city, by the means of science and art.

• Promoting the quality of society in a professional way.

• Utilizing wide-range lifelong learning in intercultural cooperation, highlighting the importance of new mental values and getting rid of the old way of thinking.

• Disseminating ideas and knowledge by using physical and digital means.

• Contributing to professional conferences and other events to highlight the critical and relevant issues for scientific and artistic communities.

• Initiating specific collaborative projects.

As another example, also the Middle and Southeast European Countries Quality Initiative, MSEECQI, is similar to the EWQSI. It was originated from Croatia and is supported mainly by the Croatian Quality Managers' Society, and consists of associations, societies, unions and organizations countries of the North, South, East and West Europe. The basic purpose of establishing the MSEECQI and the cooperation is combined engagement on promotion and improvement of quality as a science, a business philosophy, and a pragmatic approach.

Many initiatives have also been formally organized and have achieved a significant international position in their field. Examples include the Crisis Management Initiative,_CMI, and the Kantara Initiative for the trustworthy use of identity and personal data.

Conclusion.

Individuals institute society, and individuals are influenced and developed by the instituted society. Organizations and societies are for people. Individuals' actions and creativity influence the development of society directly or indirectly via different organizations and institutions. High quality in inclusive and equitable lifelong learning ensures the sustained multiform positive development of the individuals' quality of life and thereby the quality of the society. 'Quality society' starts from personal engagement and continual learning and ends to people's benefits. Lifelong learning can support sustainable development also aligned within the emerging technological and societal megatrends for meeting human needs and expectations while sustaining the natural resources and ecosystem services upon which the economy and society depend.

Actually, in the changing world situation, it is increasingly important to strive for the quality of people's lifelong learning (UNESCO, 2005). Otherwise the foundation of welfare principle and economy - the belief that when the basic human needs are met and the adequate education and freedom of self-realization are given a person to live a good and dignified life - does not happen in practice. Freedom dismisses the values, and only a few people are capable of independent judgment, healthy, and dignified life. Prosperity without civilization and morality is nothing more than a primitive good feeling. When ideologies come to the end, it is only a matter of time when the values finally collapse in the eyes of the thinking people (Lyytinen, 2015).

The 4th industrial revolution and smart cities are challenges to the benefit of human individuals, organizations, and society as a whole. Technologies and structures have instrumental value. However, according to an old saying (Quote Investigator, 2016): 'We shape our tools, and thereafter our tools shape us.'

The cross-border collaboration of the neighboring countries provides unprecedented opportunities for considering the challenges of the industrial and societal megatrends by the means of open science and arts.

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