UNIVERSITY OF TURKU

ABSTRACT

	Bachelor's thesis
X	Master's thesis
	Licentiate's thesis
	Doctoral dissertation

Subject	Futures Studies	Date	5.2.2021
Author(s)	Tero Villman	Number of pages	78 + appendices
Title	THE PREFERRED FUTURES OF A HUMAN-CENTRIC SOCIETY A case of developing a life-event-based visioning approach		
Supervisor(s)	Ph.D. Osmo Kuusi, Ph.D. Ville Lauttamäki		

Abstract

The field of futures studies is affected by a lack of consensus in many regards. From the terminology and methodologies to the overall definition of futures studies and its purposes. However, the considerations regarding alternative futures and an orientation towards the pursuit of futures better than the present have continued to be foundational to the field. Furthermore, visions and visioning are considered key concepts of futures studies, and visioning one of the methods unique to the field. Still, they share the same issues as many other concepts and methods in futures studies: multiple meanings, dissimilar and sometimes contradictory definitions, characteristics and principles, and an array of techniques and methods have surfaced.

To develop as a field, increasing understanding regarding visions and visioning, more rigorous visioning methodology and visions of higher quality are called for. For that purpose, this research explores the various interpretations for visions and visioning as concepts in futures research and foresight through multiple lenses. The research discusses definitions, types, forms, qualities, processes and functionings, and as result proposes definitions for both vision and visioning. In addition, the research studies the conceptual frame, Futures Map, to examine the possibilities of applying it for understanding and visualizing a dynamic futures landscape and the role of visions in them. The research suggests to view the creation of a vision and actions towards it as a journey on a dynamic Futures Map: developing a shared understanding of the futures landscape and the preferred destinations, committing to a path leading to their direction, constantly gaining awareness of and adapting to both internal and external change, and revising the destination, direction and actions.

Furthermore, this practically-oriented research describes the process implemented in the national artificial intelligence program AuroraAI to develop and pilot a participatory approach for visioning the preferred futures of a human-centric society through the lenses of life-events and situations in life. The developed approach was piloted with a single life-event, and as result of the visioning process the preferred futures of human-centric society in Finland 2040 from the perspective of 13–16-year-olds in basic education were constructed with participants representing the age group and their stakeholders. Both the further examination of the Futures Map and the utilization of life-event-based thinking in the visioning approach may be considered new research contributions.

Key words	vision, visioning, images of the future, preferred futures, futures map, human-centric, life-event, futures studies

TURUN YLIOPISTO

TIIVISTELMÄ

	Kandidaatintutkielma
X	Pro gradu -tutkielma
	Lisensiaatintutkielma
	Väitöskirja

Oppiaine	Tulevaisuudentutkimus	Päivämäärä	5.2.2021
Tekijä(t)	Tero Villman	Sivumäärä	78 + liitteet
Otsikko	IHMISKESKEISEN YHTEISKUNNAN TOIVOTTAVAT TULEVAISUUDET Elämäntapahtuma-ajatteluun pohjautuvan visiointimallin kehittäminen		
Ohjaaja(t)	Ph.D. Osmo Kuusi, Ph.D. Ville Lauttamäki		

Yhteisymmärryksen puute vaikuttaa tulevaisuudentutkimukseen monessa suhteessa. Käsitteistä ja metodologioista tulevaisuudentutkimuksen määritelmään ja tavoitteisiin. Silti tulevaisuuksien vaihtoehtoisuutta koskevat näkökulmat ja suuntautuminen nykyisyyttä parempien tulevaisuuksien tavoitteluun ovat pysyneet keskeisinä. Lisäksi visioita ja visiointia pidetään tulevaisuudentutkimusten keskeisinä konsepteina ja visiointia yhtenä sen ainutlaatuisista menetelmistä. Siitä huolimatta niitä koskee samat kysymykset kuin monia tulevaisuudentutkimuksen käsitteitä ja menetelmiä: on useita merkityksiä, erilaisia ja ristiriitaisiakin määritelmiä, ominaisuuksia ja periaatteita, sekä on esitetty lukuisa joukko erilaisia menetelmiä ja tekniikoita.

Tulevaisuudentutkimuksella on kehittyäkseen tarve kasvattaa visioita ja visiointia koskevaa ymmärrystä sekä tuottaa korkealaatuisia visioita ja perusteellisia visiointiprosesseja. Tähän tarkoitukseen tässä tutkimuksessa tutkitaan visioita ja visiointia tulevaisuudentutkimuksessa ja ennakoinnissa useiden linssien kautta. Tutkimuksessa käsitellään määritelmiä, tyyppejä, muotoja, ominaisuuksia, prosesseja ja toimintoja, ja niiden perusteella esitetään määritelmät visiolle ja visioinnille. Lisäksi tutkimuksessa tarkastellaan käsitteellistä kehystä, tulevaisuuksien karttaa, tarkoituksena tunnistaa mahdollisuuksia soveltaa sitä dynaamisen tulevaisuuksien maiseman hahmottamiseen ja visualisointiin sekä kuvata visioiden roolia niissä. Tutkimus esittää, että vision luontia ja sen suuntaan johtavia toimia voidaan kuvata matkana dynaamisella tulevaisuuksien kartalla: kehitetään yhteinen näkemys tulevaisuuksien maisemasta ja toivottavista määränpäistä, sitoudutaan toivottuun suuntaan johtavaan polkuun, jatkuvasti rakennetaan ymmärrystä ja mukaudutaan sisäisiin sekä ulkoisiin muutoksiin, ja uudelleenarvioidaan sekä päivitetään toivottua määränpäätä, suuntaa ja tarvittavia toimia.

Lisäksi tämä käytännöllisesti suuntautunut tutkimus kuvaa kansallisessa tekoälyohjelmassa AuroraAI:ssa toteutettua prosessia, jossa kehitettiin ja pilotoitiin osallistavaa lähestymistapaa ihmiskeskeisen yhteiskunnan toivottavien tulevaisuuksien visioimiseksi elämän eri tilanteiden ja tapahtumien näkökulmasta. Kehitettyä lähestymistapaa pilotoitiin yhdellä elämäntapahtumalla, ja visiointiprosessin tuloksena rakentui ihmiskeskeisen yhteiskunnan toivottavat tulevaisuuskuvat Suomessa 2040 yläkouluikäisten näkökulmasta kyseisen ikäryhmän edustajien ja heidän sidosryhmiensä kanssa. Sekä tulevaisuuksien kartan tarkastelua, että elämäntapahtuma-ajattelun hyödyntämistä visioinnissa voidaan pitää uutena tutkimustyönä.

Avainsanat	visiot, visiointi, tulevaisuuskuvat, toivottavat tulevaisuudet, tulevaisuuksien kartta, ihmiskeskeisyys, elämäntapahtuma, tulevaisuudentutkimus

UNIVERSITY OF TURKU
Turku School of Economics

THE PREFERRED FUTURES OF A HUMAN-CENTRIC SOCIETY

A case of developing a life-event-based visioning approach

Master's Thesis
in Futures Studies

Author(s):
Tero Villman

Supervisor(s):
Ph.D. Osmo Kuusi
Ph.D. Ville Lauttamäki

5.2.2021
Tampere

The originality of this thesis has been checked in accordance with the University of Turku quality assurance system using the Turnitin OriginalityCheck service.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1 INTRODUCTION

1.1 Visioning and the field of futures studies

The interdisciplinary field of futures studies, whether or not it can be referred to as a single field (Bell 2002; Marien 1985), is affected by a lack of consensus in many regards. From the terminology and methodologies to the overall definition of 'futures studies' and its purposes (see, for example, Bell 1997; Dator 1996; Poli 2018; Sardar 2010; Son 2015; Spaniol & Rowland 2018; Vinnari & Tapio 2013). Even the terms used to refer to it are many – futures, future studies, futures studies, futures research, futurology, futuring, futurism, futurible, foresight and so on (de Jouvenel 2012; Sardar 2010; Son 2015; Voros 2001). Furthermore, the practice of modern futures studies has recently been stated to suffer from fragmentation and an identity crisis (Kuosa 2011; Son 2015).

Many typologies have been presented to describe the evolving futures field and modes of thinking (see, for example, Inayatullah 1990; Mannermaa 1991; Minkkinen 2020; Tapio & Hietanen 2002). As an example of continuity, one taxonomy has remained influential for 40 years: the division of possible, probable and preferable futures (Amara 1981; Bell 2002, 441; Minkkinen 2020, 20). In addition, as Bell (2002, 441) maintains, there is continuity in the field regarding the values futures studies serve. Although the field is said to have shifted its focus from a humanistic orientation and aiding society in the development of common good towards serving specific projects or organizations (Kuosa 2011; Son 2015), continuity may be observed from the conception of futurology and its proposed research themes in the 1940s by Ossip K. Flechtheim to the 15 research themes defined by an international panel for the Millennium Project 60 years later. Ranging from issues related to, e.g., peace and conflict, democratization, population, resources, and human conditions, the similarities are significant. (Malaska 2013, 21; Millennium Project) Connecting with the origins of contemporary futures studies, the underlying purpose of the field is to influence that, of all possible futures, the future realized is essentially better than the present and good for the well-being of all life and the planet (Bell 1997; Flechtheim 1966).

On a more general level, the pursuit of desired futures has been described to be and, despite a possible shift of focus, has continued to be one of the purposes of futures studies (Amara 1981; Bell 1997; Dator 1996; Minkkinen 2019). When futures research in general assists in informing perceptions, alternatives and choices regarding future by exploring

possibilities, examining and evaluating the probability of possibilities, and by expressing and implementing preferences (Amara 1991), it is visioning that specifically focuses on the latter – choices and preferences – or "the desirable, the imagined, the intended, the compelling, indeed, the mythic" as Ziegler (1991, 516) conveyed. While the future is not predetermined, nor predictable, future outcomes may be influenced by choices (Amara 1981). Therefore, visions and visioning are considered foundational to the field of futures studies (Inayatullah 2013, 58). Furthermore, Lum (2002, 475) argues that "[f]utures studies is *the* field for exploring the normative", and continues:

> *"The unique strength of FS [Futures Studies] lies in its explicit focus on creating preferred futures. Unlike most other fields, FS exists to ask people what they want of the future, in all its totality. FS is not aimed at mapping out in detail all of the laws and phenomena in a narrow area of experience. Nor is intent upon explaining the world through a single lens of perception and understanding. Whereas science asks 'what is?', FS asks 'what should be?'. For most fields, this question is not their reason for being, but simply one possible application of their work."*

In his description of the preferred future for futures studies, Lum (2002, 475) calls for a "renewed focus on preferred futures" arguing that futures studies will always include the exploration of trends, emerging issues and changes, but it is the normative futures work that yields the greatest value. The importance is even further emphasized by the interpretation that where many futures studies approaches are used to open the future, visioning is used to close the future (van der Helm 2009, 100). On the contrary, Slaughter (2020) questions the notion of alternative futures entirely. He argues that the wide belief of meaningfully exploring alternative futures, selecting preferred futures as aspirations, visualizing such emergent futures, and realizing a vision through cooperation and effort is no longer valid as the palette of alternative futures is developing towards a single macro-future. Instead, new options and strategies must be found to bring humanity out of the created traps, access appropriate values and turn the deficit of futures potentiality into visionary potential. (Slaughter 2020, 22-23). Looking at it from either perspective, quality visions and visioning capabilities can play a crucial role in changing how the future's outlook is perceived and what decisions and actions ought to be implemented.

However, visions and visioning share the same issues as many other concepts and methods in futures studies: the concepts have multiple meanings, dissimilar and sometimes contradictory definitions, characteristics and principles, and an array of techniques and methods have surfaced (van der Helm 2009). Still, the terms vision and visioning have been used as if their meaning had been simple, clear and well understood (Shipley 2000). Furthermore, according to van der Helm (2009, 103), the theory regarding visions and visioning is lacking, and the 'vision phenomenon' as they describe it, has not received sufficient theoretical attention. For example, visions and images of the future are frequently used interchangeably without actually referring to the same phenomenon. They contend that it could be the reason why some practitioners of the field avoid using the term 'vision'. (van der Helm 2009, 103)

In addition, the quality of visions is an issue. Visions must not be trivial, limited by the answers of today or made irrelevant by the pre-planned actions for tomorrow, but be fluid, aspire high and build on the possibilities emerging in the future (Bezold 2009; van der Helm 2009; Irwin 2015; Senge 1994). Indeed, to make sense of the world, it has been described as volatile, uncertain, complex and ambiguous, i.e. VUCA, and more recently brittle, anxious, non-linear and incomprehensible, or BANI for short (Cascio 2020). The visions and visioning processes created must take the operational environment into consideration or otherwise, they are potentially made obsolete by the environment.

Furthermore, visions alone are of limited value. While the value of visioning has been demonstrated with case studies, not often the vision is automatically implemented (Moore et al. 2014). Combined with methods enabling and assisting the realization, visions become invaluable by lighting the preferred futures and providing a shared platform for the efforts. As Meadows (1992, 224) suitably claims, "[v]ision without action is useless. But action without vision does not know where to go or why to go there. Vision is absolutely necessary to guide and motivate action. More than that, vision, when widely shared and firmly kept in sight, brings into being new systems.". Therefore, visioning should be viewed as part of a broader intended change (Moore et al. 2014; Wiek & Iwaniec 2014).

Since visions and visioning are foundational to the field and for their potential, research is required to advance the discussion, remove obscurity, solidify the foundation, and create value to the practitioners and commissioners of futures research and foresight work. Further consideration is needed regarding the forms of visions and the nature of visioning processes: how to develop quality visions and visioning processes to better work in the world of tomorrow and improve their operationalization?

To answer to the call of combining visioning with the creation of the future, the researcher considers the conceptual frame called Futures Map by Kuusi, Cuhls and Steinmüller (2015a, 2015b) appealing. It integrates several key concepts of futures studies, especially visions, scenarios and roadmaps, to construct a 'whole picture' of the outcomes of a futures research process and to discuss the quality criteria related (Kuusi et al. 2015a, 22). How might a vision be developed in a way that essentially guides large-scale transformations towards the preferred futures and enables various organizations to discover their paths? Is it plausible and does it create additional value to utilize the Futures Map in the process?

1.2 Research questions and relevance

The research aims to address the following research questions:

1. What are the various interpretations for vision as a concept in futures research and foresight?
2. How to integrate visioning with high quality foresight processes and a comprehensive futures landscape formed with images of the future, visions, scenarios and roadmaps?
3. How to develop and organize visioning in a participatory foresight process utilizing the life-event approach?

The research questions highlight the two main interests of the thesis. First, to increase understanding regarding visions and visioning as more rigorous visioning methodology and visions of higher quality are called for, but concurrently the concept of vision has various distinctive meanings and the process of visioning suffers from a lack of theoretical understanding (van der Helm 2009, 103; Wiek & Iwaniec 2014, 508). This interest is approached through a research of literature mainly from the field of futures studies and foresight, but it is complemented with research from other fields as futures research methods are employed to various purposes in different domains.

Second, to answer to the call presented by Tapio, Rintamäki, Rikkonen and Ruotsalainen (2017, 41) for practitioners of the field to pay more attention to "hybrid futures studies methods, i.e. methods combining several techniques". The call is relevant as different futures research methods are typically used together, or mixed, in foresight exercises (Popper 2008). For example, an increasing number of publications encourage combining elements of scenario planning with elements of roadmapping (Hussain et al. 2017)

as they are complementary and both have certain advantages (Saritas & Aylen 2010). Furthermore, the disadvantages of both can be countered by applying the other making the integration even more desirable (Saritas & Aylen 2010). Like the aforementioned example, visions and visioning are typically used with and/or mixed with other methods. Developing frames, which enable this kind of an integration, with the potential of increasing the quality of the practice through established validity criteria is an interesting research opportunity. As a thesis of futures studies, the research aims to contribute to the field of futures studies by exploring the conceptual frame Futures Map by Kuusi, Cuhls and Steinmüller (2015a, 2015b) to enrich the concept of vision and to examine ways to build bridges with the vision to support alignment of decisions and actions towards the desired direction. Since the frame is relatively recent, further research or documentation regarding attempts of utilizing it have not been made public, if conducted, to the researcher's knowledge. Therefore, the research may be considered to provide methodological insight.

In addition, the two aforementioned interests are explored in practice by developing and piloting a participatory visioning process. The work is conducted jointly in the national artificial intelligence program AuroraAI and it aims at developing an approach for visioning the preferred futures of a human-centric society in 2040 through the lenses of life-events. For the purpose of integration and coherence, the definitions and approaches applied in the AuroraAI programme are be used in the context of the research. Primarily, the concept of human-centricity is approached from the perspective of life-event-based thinking, which, in the programme, is defined to include both life-events and situations in life (AuroraAI – Towards a human-centric society; National Artificial Intelligence Programme AuroraAI).

Following the research interests, in the context of the research foresight is defined as "a systematic, participatory, future-intelligence-gathering and medium-to-long-term vision-building process aimed at enabling present-day decisions and mobilizing joint actions." (European Foresight Platform 2010). Therefore, the research is essentially a foresight project and process. To provide an efficient scope, scenarios and roadmapping are considered out of the extent of the research although connections with the examined concepts are briefly discussed. Furthermore, although the personal, organizational and societal capabilities connected to visioning and related to futures thinking and foresight are essential for visioning activities, they are considered out of scope of the research.

1.3 Structure of the thesis

The thesis is structured as follows. First, to provide the context and outline the relevance of the research, chapter one discussed visioning in relation to the field of futures studies and presented the research questions. The second chapter constructs the theoretical framework for the research by examining visions and visioning through different lenses based on literature, and by discussing the integration of visions in a dynamic futures landscape visualized with the conceptual frame called Futures Map. Then, a visioning approach is developed within the case programme in chapter three and piloted in chapter four. In chapter five, Discussion, the key findings, theoretical and methodological issues, limitations and further development, and opportunities for future research are discussed from the perspective of the developed and piloted visioning approach and its further application, and from the perspective of visioning and the field of futures studies. Lastly, the thesis is ended with the Summary.

2 THEORETICAL FRAMEWORK

In this chapter, the theoretical foundation of the research is formed. First, visions and visioning are viewed through different lenses to appreciate the different types of visions, develop a definition for 'vision', understand what a vision is made up of, how is it prepared, what are the functionings of visions, and what constitutes as a quality vision. Then, the conceptual frame, Futures Map, is studied to examine the possibilities of applying it for understanding and visualizing a dynamic futures landscape and the role of visions in them.

2.1 Vision by definition

Similarly as with many other terms and concepts in the field of futures studies, there are several meanings for the term 'vision' (Auvinen et al. 2012, 195; van der Helm 2009, 103). In the dictionary, it refers to the action of seeing physically or with the mind's-eye. In addition, it may refer to an object of sight, a person seen in a dream or trance, or something, e.g., a scene, of atypical beauty. The sight or object may have prophetic, mythical or even supernatural characteristics. Consequently, by definition, vision can be seen as the act of thinking about something unreal or not realized, ability to consider what might be realized, and as result, a visualized imaginative mental concept. (OED Online)

In the field of futures studies, 'vision' has been used as a reference to an image of the future or a particular image of the future with desirable nature, even interchangeably. (Auvinen et al. 2012, 195, van der Helm 2009, 103) More closely, image of the future is broadly defined as "expectation about the state of things to come at some future time." (Bell & Mau, 1971, 23). While the concept of image of the future was presented by Polak (1973), his focus was especially on the positive images of the future. Expanding on the concept, Amara (1981) portrayed possible, probable and preferable images of the future: Of an infinite number of possible images of the future, some are probable, some preferable and some both. Altogether, according to Voros (2017), there are seven or even eight types of alternative futures (see Figure 1).

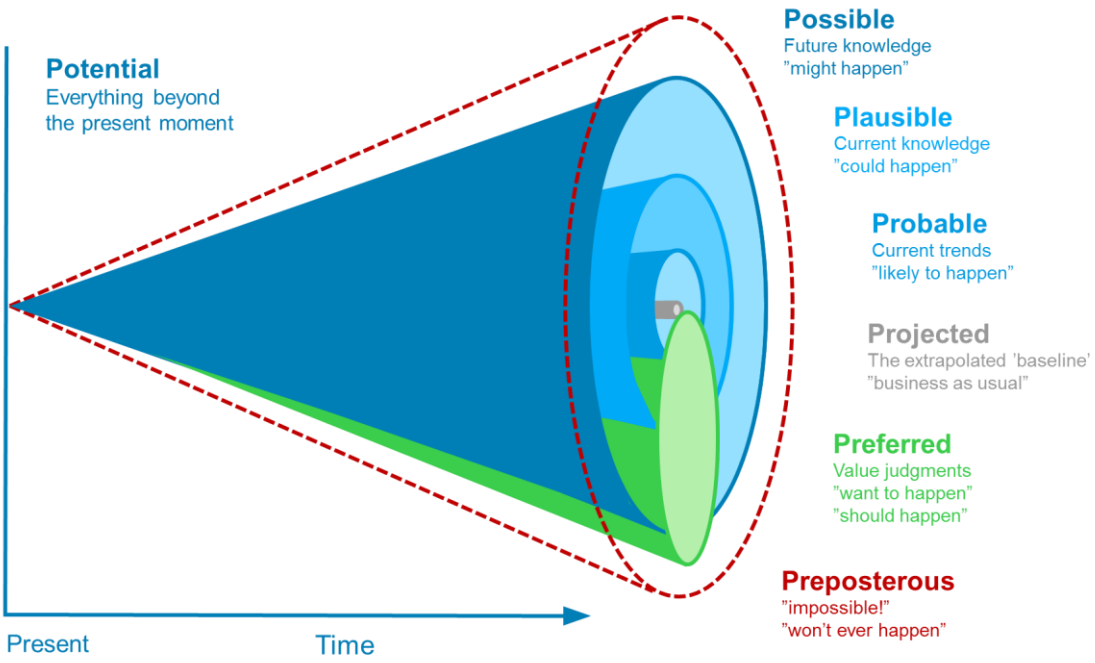


Figure 1 Futures Cone (adapted from Voros 2017, 11)

Therefore, 'image of the future' may be viewed as an umbrella concept including several distinct types of images of the future, and subsequently visions above all refer to the subset of preferable or "images of ideal futures" (Schultz 1995, 28). In addition, while both the images of the future and visions stem from within the minds of individuals and groups (Slaughter 2020, 1), an image of the future describes an expectation about the state of things to come (Bell & Mau 1971, 23), and a vision portrays the expectations of an individual or a group on influencing the future (van der Helm 2009, 97) – a distinct, subjective and active characteristic of a vision.

Furthermore, some definitions and descriptions include explicit statements regarding the vision as an object, its characteristics, the process for creating it, and the purpose why a vision is needed (see Table 1). Acknowledging the several meanings of the term, in the context of this research, a vision is defined as a meaningful expression portraying the fundamental nature and characteristics of a preferred future to unite and empower the actions of those who want to create it.

Table 1 Definitions and descriptions of visions

Perspective	Descriptions
Object	"statement of intentions that defines a destination or future state of affairs" (Nanus 1996, 21), "more or less explicit claim or expression of a future" (Helm 2009, 100), "a representation of a desirable future state" (Wiek & Ivaniec 2014, 497), "expression of the organization's and stakeholders' values organized around a mission or purpose" (Bishop & Hines 2012, 242), "statement or image of the future we are committed to creating" (Bezold 2004, 5), "a preview of the annual report" set in the future (Wilson 1992, 19), "shared multi-actor constructions" (Quist, Thissen & Vergragt 2011, 886)
Characteristics	"realistic, credible, attractive future" (Nanus 1996, 2), "carefully formulated" (Nanus 1996, 2), "futures for the heart" (Bezold et al. 2009, 4), "coherent and powerful" (Wilson 1992, 18), "part rational (the product of analysis) and part emotional (the product of imagination, hunches and values)" (Wilson 1992, 18), "a self-fulfilling prophecy" (Bezold et al. 2009, 4),), "compelling, motivating, aligning, transforming, and differentiating" (Bishop & Hines 2012, 239)
Process	stated by an individual or a group (Nanus 1996, 21) "method for long-term foresight" (Auvinen et al. 2012, 195), "undertaken in diverse action-settings" (Ziegler 1991, 521), participants form "a community of learners" (Ziegler 1991, 522), "intensive process that involves soul-searching and should not be undertaken lightly" (Bishop & Hines 2012, 236)
Purpose	"something that people can get excited about (Bishop & Hines 2012, 236)", "inspire the noble within each person by calling individuals to sacrifice the short term for the longer term, for the greater good" (Inayatullah 2013, 58), "to mobilise present potential to move into the direction of this future." (Helm 2009, 100), "required when transformational change is needed." (Bishop & Hines 2012, 245), "potential to guide actor behaviour" (Quist et al. 2011, 886), "showing the way and giving direction to future strategies." (Auvinen et al. 2012, 195)

2.2 Vision by typology

Visions are put to use in diverse contexts for various purposes. Van der Helm (2009, 97-99) identified seven different types of visions based on their relation to a particular approach or a field of use: religious, humanistic, political, business or organisational, community and personal visions. Regardless of the specific characteristics of each type, all refer to the future, portray an idealised future and aim to convergence actions into the desired direction (van der Helm 2009, 100).

The oldest type of visions are religious or eschatological visions. Distinguished by the characteristics of "[w]orldly life in relation to the hereafter" (van der Helm 2009, 97), religious visions have previously connected us with our limited existence through eschatological values and they remain "quintessential for understanding human's eternal attempt to transcend the existing." (van der Helm 2009, 97). Eschatological visions rely on a higher power to realize (Polar 1973). Recently the previously otherworldly visions have been substituted by images of a more secular nature as human lifespans have increased (van der Helm 2009).

Humanistic visions, which are generally considered as universal since "they (pretend to) build on universal humanistic values of an ideal human society" (van der Helm 2009, 97), are some of the most overarching visions of the future. Social and technological utopias are important examples, as the distinguishing character of humanistic visions is universal betterment.

Visions specifically directed at steering decision-making and prioritization and gathering support behind it, are considered political visions. They are closely linked to ideologies as ideologies often represent a particular vision of the future, which can be closely examined through the definition of ideology: "a coherent set of exclusive principles on how society is or should be organised" (van der Helm 2009, 98). In addition to support, political visions are characterized by strong leadership.

Business or organisational visions describe the organisation's ambition. Visionary leadership, a specific type of leadership, is centred on a person's ability to inspire and motivate others, and thus become a leader with a following. "Leaders create the potential to transform the whole picture by offering a vision of what the picture could become" (Schultz 1995, 64). Therefore, the vision has been described as the most powerful tool of a leader (van der Helm 2009, 98). Similarly, as in the case of political visions, organizational visions are characterized by leadership, though the aim is at creating convergence of actions, not only rally support.

Community visions are characterized by the aim of bringing like-minded actors together to develop a joint vision and collective actions to bring it to life, and keeping the actors together (van der Helm 2009, 98). The vision functions as a shared platform or common ground as Weisbord and Janoff (2010) describe it.

In the field of public policy, policy or policy support visions aim at influencing policy decisions to push them into a desired direction. Sustainable development and visions based on the principles of sustainable development are examples of policy visions. These

visions include elements from political, business, community, humanistic and even in some cases religious visions. According to van der Helm (2009, 98) “[p]olicy visions are developed in the particular context in which a network of policy relevant actors develops a vision in order to influence the network’s decision-making process.”.

Personal visions are developed or emerge from personal development projects. The purpose is to give meaning to one’s life, assist with career and life changes, and help fulfil personal dreams. (van der Helm 2009, 98)

In the context of this research, the type of vision is not limited to the characteristics of a singular type, but conceivably encompass community and policy support visions based on the objectives.

2.3 Vision by forms

Visions take many forms, even implicit. “Everyone makes decisions based on vision, on their idea of a preferred future, even if that vision is never consciously articulated.” (Schultz 1995, 76). Although argued, that an implicit vision functions best from the perspective of social psychology depicting, discussing, debating and deciding involve the vision to be made explicit (van der Helm 2009, 102). Hence, in the context of shared visions and this research, the focus is on the explicit.

Visions are commonly presented in the form of a vision statement depicting statements of identity, statements of values, descriptions of a preferred future, or a combination of all the above (Bezold et al. 2009, Bishop & Hines 2012). However, as typical as it may, visions and visions statements should not be understood as one and the same. The vision statement may be described as the tip of the iceberg: "The vision statement may be a statement of the vision, but unless the members of the enterprise ‘see’ the vision, the statement will have little or no effect at all." (Bishop & Hines 2012, 241, 244). “What does it [the vision] look like? How does it feel? What does it taste like, sound like?" (Bishop & Hines 2012, 236). The vision must therefore be expressed and explored through multiple layers and different means to gain the depth and breadth required for the ones subscribed to the vision to experience it with their senses.

Since a vision is also an image of the future, it can be presented in the form of a desirable future state (Wiek & Iwaniec 2014) through models such as VERGE (Lum 2013), the Seven foundations of worldbuilding (Zaidi 2017) and the many adaptations of ETPS (Aguilar 1964) widely-known as STEEP or PESTE. Other forms used to describe and communicate visions include metaphors, images, videos, maps, tables, time lines and

even tree structures (Auvinen et al. 2012, 198; van der Helm 2009, 102; Wiek & Iwaniec 2013, 505). In addition, storytelling is a particularly effective, inspiring mean of communication, and it may function as a way to explore the sensitivity and elasticity of the vision (Auvinen et. al 2012, 198; Wiek & Iwaniec 2013, 502). Although rarely especially businesses have the possibility to invest the time to elaborate the vision in detail, similarly as in Star Trek, "[e]very community should aspire to such richness of detail for its vision." (Schultz 1995, 100). The richer the vision, the more compelling it is (Senge 1994, 302).

Schultz (1995, 100) identifies four components of a vision; the icon, logo or slogan used as a catalyst. The preferred scenario used to describe the ambition. The mission, which identifies the who and the why. The fourth component is the plan describing the what, the when, the how and the with whom of actions required to realize the vision. The depth of the fourth component seems to be a matter of discussion. Similarly as Schultz, Bezold (2004, 8) gives emphasis to the importance of outlining daring, clearly defined, exciting, time-bound and measurable targets, or audacious goals as he calls them, to realize the vision. However, van der Helm (2009, 101) argues that visions function as mental frameworks used to evaluate and then accept or reject potential actions, but they do not describe the actions. In fact, planning may be viewed as a separate step in a foresight project as presented by Bishop and Hines (2012, 252).

In addition to the vision itself, all visions at least implicitly include what the vision is not (van der Helm 2009, 99). Whether or not the 'not-vision' is made explicit, it is advisable to understand what the vision excludes from existence or simply steers away from. Consciousness in the decision-making is important as the role of a vision is to define the direction for the future or close the future as van der Helm (2009, 100) articulates. Therefore, implicitness of the not-vision may be viewed as intentional or unintentional. When intentional, is there something that is, e.g., politically or ethically debatable, are there complex issues unanswered, or simply something which the holders of a vision do not want to reveal, yet? Engaging in the discussions regarding challenging issues and choices a vision entails and the potential implications is crucial for a deliberate vision. However, visions do not need to present solutions. Instead, as stated previously, they represent aspirations, while solutions are a matter of implementation. When the not-vision is unintentionally left out, is there a lack of, e.g., knowledge regarding visions or understanding related to the meaning of the excluded futures? As with all work, acquiring knowledge and familiarizing oneself about the task at hand is important for quality results. Visions are no exception. The role of the excluded futures is an interesting one. On the

other hand, they are alternative images of the future, and on the other, characteristics of futures the holders of a vision do not want to realize. Both should be addressed when preparing a vision.

Through the understanding of both the vision and the not-vision it is potentially possible to define the border between and to improve the coherence of a vision. For example, Zaidi (2017, 25) recommends to state rules for preferred futures, in addition or instead of preferred future states, for allowing emergence and flexibility instead of a specific solution. Zaidi (2017, 26) continues, “[i]t also allows for possibilities outside of a single vision of the future and outside of the original work, as long as those possibilities are coherent with the remainder of the world.”.

In the context of the research, it may be useful to express visions through multiple layers and combine different means to gain the depth and breadth required for an open cross-sectoral network to co-create a vision they and others may subscribe, and lead to the same preferred direction without too much specificity that would limit the possibility for interpretation and emergence. For the same reason exploring what the vision is not may result in discussions deepening understanding, supplementing communication, and furthermore steering away from the undesired futures.

2.4 Vision through quality

Setting aside the process of visioning, many qualities are required to create a truly impactful vision. For example, the results must be legitimate and shared, express the highest aspirations of people, stretch the current limits of realities, and ultimately be achievable within the set timeframe (Bezold et al. 2009), or as Bishop and Hines (2012, 239) claim, "[a] successful vision has several attributes that make it work: it is compelling, motivating, aligning, transforming, and differentiating.". While these examples provide specifics and direction, they lack in extent.

Based on a review encompassing diverse fields of study, Wiek and Iwaniec (2014) present quality criteria for visions and visioning in sustainability science. The quality criteria may be used as design guidelines in the development of visioning methodologies to support the creation of high-quality sustainability visions. Although their primary field of study is sustainability science, it is worthwhile to examine, how the same qualities may be applied in other fields, too, as all visions and visioning processes, or work in general, benefit from specified quality criteria to describe the sought qualities of the process and

the outputs. Needless to say, any references to a particular field must be observed with care to provide a more generic consideration.

According to Wiek and Iwaniec (2014, 501), the overall quality of a vision is based on 10 distinctive, but connected qualities, divided into three groups (see Table 2). The core of a vision lays within the normative quality comprising of the visionary and the contextual criterion of a vision. As described in Vision by definition, a vision must communicate certain aspects in order to be a vision, thereby fulfilling the visionary criteria. The contextual criteria specify the positioning or lens of a vision. For Wiek and Iwaniec (2014, 500, the position or lens is sustainability and hence they originally refer specifically to the criterion of sustainable: "Sustainability visions are a specific type of visions. These visions ought to be not only desirable but to guide us towards sustainability.". However, by generalizing the aforementioned notion, it may be possible to associate different types of visions presented in Vision by typology to the otherwise context-specific quality criteria by Wiek and Iwaniec and expand the application of the criteria to other thematic areas. The key notion is that the context of a vision must be reflected in the design of a visioning process and the outcomes should connect with the concepts, principles, structures and processes of the context.

Table 2 Qualities of a sound vision (adapted from Wiek & Iwaniec 2013, 501)

Construct Quality	Normative Quality	Transformational Quality
Systemic	Visionary	Relevant
Coherent	Contextual	Nuanced
Plausible		Motivational
Tangible		Shared

The second group of criteria refer to the quality of the vision as a construct ensuring complexity, coherence, evidence, and specificity are accounted for. The systemic criterion relates to the depiction of a vision as a system, i.e., how different parts of a desirable future state function together. Coherence provides the notion of internally consistent visions without incompatible and conflicting goals. In addition, coherence connects with the tensions emerging from the implementation of a vision, and thus require recognition and elaboration within the vision. The criterion of plausibility advocates that a vision

should be based on evidence, i.e., empirical examples, theoretical models and pilot projects, at least to some extent. Contrasting the notion that visioning communicates the desirable or even the mythic (Ziegler 1991), plausible visions include elements that have been proven to work or to be at least realizable. As discussed in Vision by forms, visions should be made explicit, or tangible as Wiek and Iwaniec (2014, 502) suggest to communicate goals, thresholds, tipping points or other reference points. In addition, "[s]pecific targets give substance to the vision; yet, they need to be contextualized and embedded through narratives, stories, and visuals in order to make them experiential and meaningful." (Wiek & Iwaniec 2013, 502).

Third, quality visions entail transformational features connecting with the shape of the vision (discussed in Vision by forms) and the process of visioning (discussed in Vision as a process). Visions need to be relevant, nuanced, motivational and shared. Relevancy connects the promises, requirements and implications of a vision with its stakeholders. "Real people, their actions and activities, their roles and responsibilities, their motives and rules—all of these aspects make a desirable future state relevant." (Wiek & Iwaniec 2013, 503). When developing a vision and then implementing it, clear priorities assist in focusing attention and resources. Visions include elements of various desirability, i.e. nuances, which value judgments and priority setting make tangible. As van der Helm (2009, 102) states, "[a] vision does not describe what to do, but it provides a mental framework by which potential actions can be (tacitly) evaluated, and hence accepted or rejected.". In addition, commitment to the vision is critical as the realization of the options regarding the future depend on the coordinated actions of many (Kuusi 1999, 118-119). Hence, visions need to be motivational; create buy-in, acceptance, ownership and action, which in turn requires visions to be legitimate and shared for alignment and for converging the actions of many towards the desired direction (Bishop & Hines 2012, 239-240; van der Helm 2009, 100; Schultz 1995, 98; Wiek & Iwaniec 2013, 503). Shared, however, does not denote unanimous or instantaneous agreement. Common ground and open dialogue are needed to identify points of agreement and disagreement, and to work out the differences without getting in the way of addressing, e.g., conflicting opinions or minority viewpoints, and avoid forced 'consensus' (van de Kerkhof 2006, 297).

In the context of the research, the quality criteria are used as design guidelines in order to support the development of the visioning approach and the vision.

2.5 Vision as a process

In the field of futures studies, the process of developing a vision is referred to as visioning (Bezold et al. 2009; Bishop & Hines 2012; Schultz 1995; Stewart 1993), envisioning (Meadows 1996; Wright 2010; Ziegler 1991) or simply vision building process (Auvinen et al. 2012) many times interchangeably (van der Helm 2009). It is regarded as one of the methods unique to the field and, on the other hand, not "considered a 'normal', 'usual', or otherwise taken-for-granted method by any other field or discipline" (Poli (2018, 5). However, there are many alternative ways to conduct the process, and similarly to other methods in futures studies, there is a lack of or even an "absence of a well developed theoretical understanding of what visioning is" (van der Helm 2009, 103). Possibly an example of this is that visioning is not explicitly stated in the Foresight Diamond, a classification of futures research methods, or it is included within other methods (Popper 2008). Overall, it is essential to state a clear definition and process for developing a vision to develop shared understanding of the work at hand.

In the context of this research, the process for developing a vision is referred to as visioning, which in turn is defined as a group of activities performed for the pursuit of developing a meaningful expression portraying the fundamental nature and characteristics of preferred futures to unite and empower the actions of those who want to create it. The definition references a group of activities, since the activities typically referred to as visioning are often a part of a foresight process, but the whole exercise may be framed as a visioning process, too. Based on the purpose of the endeavour, it is possible to view visioning from the inside out, i.e., as all the steps related to a process of developing a vision, or the outside in, i.e., as a particular step including methods and techniques particularly designed for expressing preferred futures. For the same reason, this definition intentionally excludes the process, specific steps of the activity, inputs and outputs, as there is no one-size-fits-all way to do it, but "[d]ifferent approaches make sense based on the particular context." (Bishop & Hines 2012, 249). Therefore, it is constructive to discuss various examples.

First, let us briefly explore four different foresight processes where visioning is only one of the steps. As an example of a comprehensive foresight method, the Framework

Foresight (Bishop & Hines 2012; Hines & Bishop 2013, Hines, Gary, Daheim & van der Laan 2017; Hines 2020) consists of the following steps[1]:

1. Framing: Scoping the project, defining the focal issue and current conditions
2. Scanning: Exploring signals of change
3. Forecasting or Futuring: Identifying baseline and alternative futures
4. Visioning: Developing and committing to a preferred future
5. Planning or Designing: Developing the strategy and options to realize the vision
6. Acting or Adapting: Developing action agendas, communicating the results, monitoring indicators, and institutionalizing strategic thinking

Of those steps, it is possible to perform only specific ones based on the purpose of the foresight project. For example, steps one to three to develop alternative futures, or steps four to six, when starting from pre-existing scenarios to focus on their implications (Hines & Bishop 2013, 32). In addition, the Framework Foresight may be viewed as a meta-method. Based on a modular approach, the steps may be performed with various methods and techniques suited for the goals of the step (Bishop & Hines 2012; Hines & Bishop 2013, 31).

An example of "a method for long-term foresight, showing the way and giving direction to future strategies" (Auvinen et al. 2012, 197), is the three-step vision building process:

1. Environmental scanning: Mapping and structuring relevant forces of change
2. Constructing futures tables and visions: Building a futures table, choosing a starting point for each vision, and finding the paths for the visions
3. Describing visions: Writing a manuscript for each vision and exploring alternative development paths

The three-step process functions as an independent visioning exercise. Although named differently, the steps loosely resemble the steps two, three and four of the Framework Foresight method. In addition, depending on the purpose of the visioning exercise, it may be beneficial to scope the project and add steps to devise a plan and act, corresponding to the remaining steps one, five and six of the Foresight Framework method.

---

[1] According to Hines (2020, 12), the Framework Foresight method will receive an update to incorporate the language of the APF Foresight Competency model (Hines et al. 2017): Forecasting changes to Futuring, Planning to Designing, and Acting to Adapting.

The Future State Visioning by Stewart (1993, 90-91) provides the third example consisting of the following steps:

1. Stakeholders and participants
2. Assessing the future environment
3. Building the future state vision
4. Contrasting the present state with the future vision
5. Supporting the vision with values
6. (Translating vision into action)

The fourth example is from creating a Futures Map (Kuusi & Kamppinen 2002, 163). The steps are[2]:

1. Description of the present
2. Shared vision
3. Identification of megatrends
4. Identification of weak signals
5. Creation of scenarios
6. Creation of strategies for each scenario
7. Actions in the near future

The similarities with the Framework Foresight method are noticeable although the Futures Map process specifically refers to scenarios and there are further differences at the level of details. However, a specific high-level difference may be underlined: whereas in the Framework Foresight method, the three-step vision building process and the Future State Visioning process visioning is performed after scanning and forecasting activities, it is performed before those steps in the abovementioned process of creating a Futures Map. Indeed, visioning may take place in different points of a process. Both Bishop and Hines (2012, 242) and Kuusi and Kemppainen (2002, 165) make note of this. The question is whether this is a matter of preference: some futurists choose to create a vision first in order to produce it from a clean slate, and some favour forecasting before visioning as it increases the level of reality of the process (Bishop and Hines (2012, 242). To improve the aim and hence reduce the scope of the scanning activities, visioning is sensible first

[2] The steps are translated from the original source (Kuusi & Kamppinen 2002, 163): 1) Nykytilanteen kuvaus, 2) Yhteinen visio, 3) Megatrendien tunnistaminen, 4) Heikkojen signaalien tunnistaminen, 5) Skenaarioiden laatiminen, 6) Toimintastrategioiden laatiminen skenaarioittain, 7) Lähiajan toimenpiteet

as then there is at least a preliminary idea of the desired direction and it can then be used to guide the rest of the efforts (Kuusi & Kemppainen 2002, 165). Likewise, Stewart encourages starting from the vision: “What is can be a great barrier to what could be. Those who want to move forward through bold and effective change, should begin at the end – with where they want to be.” (Stewart 1993, 98). “Either way!” as Bishop and Hines (2012, 242) declare, but in a meaningful sequence especially when the methods and techniques employed are dependent on one another (Wiek & Iwaniec 2014, 504).

While foresight processes are largely viewed as linear exercises, they ought to be iterative and continuous, especially in the case of visioning as continuous review, reflection and revision is required (Wiek & Iwaniec 2014, 504). Since a vision is conceived, it is communicated with the larger audience of stakeholders to create buy-in. When communicating or conversing about the vision, the vision is interpreted by people who have not taken part in the visioning process and hence have not learned about the reasoning behind it. For example, they may present information challenging the reasoning, or questions that the vision does not address though it might need to based on the context, e.g., organizational values, which may result in more visioning exercises to interpret the vision or revisions to the vision, leading to collective learning (Bezold 2004, 13; Robinson 2003). In addition, as the vision should portray the fundamental nature and characteristics of a preferred future, and although the vision should be designed as fluid, the context and environment change as it is acted upon. The environment may experience a fundamental shift, e.g., through an unforeseen event challenging previous modes of thinking or even changing the alternative futures landscape drastically. Moreover, the vision must also express the preferred future of those creating it. In the context of a society or an organization, when the participants change, this may not be the case anymore. Preference is relational and subjective; what some see as desirable, might be unappealing for others. As a response, Dator (2009, 3) suggests adding a step for institutionalizing futures research with three implementation options:

1. Set up a unit to keep the process going, scan emerging opportunities and challenges, and inform the stakeholders.
2. Agree when the entire process is carried out next time.
3. Agree a way in which the “process can begin again if the original vision is felt to be insufficient in the light of experience and/or information about new challenges and opportunities from the futures”.

Overall, the vision must welcome additions, modifications and corrections in some way to be valid in the minds of the stakeholders, including society, to produce aspiring impact and to be reached, or be replaced, ignored or rejected (van der Helm 2009, 101). Therefore, it is essential to accommodate continuity or continuation in an agreed form. Depending on the form, the institutionalization may be an additional step in the process, or incorporated into the overall organization of the process, such as in the Acting step of the Framework Foresight method (Bishop & Hines 2012). Another case of 'Either way!' perhaps depending on the aims, context and resources.

Similarly, to the examples of foresight processes, there are various approaches to the visioning step in itself involving various visioning techniques. Common denominators for quality visioning include participatory settings and techniques employing creativity and visualization (Wiek & Iwaniec 2014, 504-505). As aptly described: "Visioning is an exercise in structured idealism. It means wrenching our 'common sense'-ibilities away from the practical to indulge in daydreaming and wishlisting. It not only assumes that people can create the future, but also that a sufficiently inspiring vision of a preferred future motivates people to action. Most simply, it is an iterative brainstorming process, relying heavily on imagination, ideals, and intuition." (Schultz 1995, 98).

Despite the methods or techniques used, the key question is as Stevenson (2006, 669) asks, "who has the right and the competence to construct and select a preferred vision on behalf of any social unit and to work backwards towards enacting the journey into the future?". To design a participatory process, identifying the stakeholders and participants should be one of the first tasks as in the Future State Visioning process (Stewart 1993, 92-93). Senge (1994, 314) presents five potential starting points for the development of a vision (see Table 3). Organizations on the left are typically more reliant of a strong leader providing answers, e.g., what the vision should be. On the right, organisations are characterized by leadership, setting directions and capacity for learning. Leaders are facilitators of robust processes. For visioning and implementation of the aspirations, this means that "a somewhat formal, concerted shared visioning process" is highly recommended to effectively gain active participation (Senge 1994, 315). They advise to shift right towards co-creation as does Sanders (1998, 136) by pointing out that visioning needs to be based on a foresight process rather than one person's image of the future. For example, as response, selecting a group of participants diverse enough to represent key stakeholders inside and outside the organization or community, but "small enough to create consensus and a shared sense of commitment" (Bezold et al. 2009, 7).

Table 3 Starting points for a visioning process (Senge et al. 1994, 314)

Telling	Selling	Testing	Consulting	Co-creating
The leader announces the vision and others need to follow it	The leader has the vision, but needs to get the buy in from others	The leader has an idea about the vision and wants to know the reactions of others before proceeding	The leader is preparing a vision and wants input from others	The leader together with others build the vision through a collaborative process

Visioning is typically done in workshop settings where the participants come together. An example visioning workshop by Bezold et al. (2009) present a two-day workshop process to create understanding regarding potential futures, get into an aspirational mindset, reflect values and what is considered success, develop a shared vision and audacious goals, and consider next steps. Between or after the sessions, a selected person or a smaller group may write a draft vision statement. Alternatively, the drafting may include the whole group creating stronger buy-in but requiring stronger facilitation. (Bezold et al. 2009) However performed, "exploring possible futures and envisioning preferred futures problematize the present (and, to some extent, the past), providing a tool for the critique of structures of dominance which limit action in the present." (Schultz 1995, 53)

In the context of this research, the project should be scoped based on the objectives and resources. Then, the visioning process steps and techniques should be designed to reflect objectives and resources, and the practices presented in this chapter. In addition, the starting point for the visioning process leans greatly towards co-creation.

2.6 Vision by metaphors

As previously discussed, a vision may be examined through multiple lenses, and often the lens relates to its nature and characteristics as an object or the process of creating a vision. However, "a vision is real in its functioning, and not in its shape." (van der Helm 2009, 101). For example, Senge (1993, 138) highlights the central function of visions as an active force by quoting Robert Fritz: "It's not what the vision is, it's what the vision does.". Likewise, Bezold et al. (2009, 4) point that, "[v]isions and visions statements may be more important for what they do than what they say—it is the commitment to them and their effective implementation that makes the difference.". In other words, "the future is not the domain of knowledge but of action" (Ziegler 1991, 521). Positive images of the

future combined with human agency serve crucial role in the ways the future unfolds and what becomes of it. As Polak (1973, 19) famously states:

> *"The rise and fall of images of the future precedes or accompanies the rise and fall of cultures. As long as a society's image is positive and flourishing, the flower of culture is in full bloom. Once the image begins to decay and lose its vitality, however, the culture does not long survive."*

One approach to understand what a vision does is by looking at the numerous metaphors used to describe the concept (van der Helm 2009, 101). Each of the metaphors present a unique perspective to the functionings of visions.

The most widely known and used metaphor for a vision is the magnet. Devised by Polak (1973), vision as a magnet refers to the inspirational nature of the vision and the creative (Senge 1990, 135) or transformational (van der Helm 2009, 101) tension between the future and the present to create a pull towards the preferred future. Vision as a compass refers to the use of the vision as a mean to show the way towards the preferred future, and is the most widely claimed function for visioning (van der Helm 2009, 101-102). Somewhat similar to the magnet and the compass, but with additional focus on the role of actors, a vision could be seen figuratively as a subjective "hitching point" to which an actor as a climber first throws a rope and then uses the rope to pull oneself toward: the particular hitching point acts as a source of stimulus, and the pull depends on the strength of one's intention (de Jouvenel 2012, 28). As de Jouvenel (2012, 28) conveys, "[a]n assertion of the future is not indicative of a fact, but of an intention.".

Furthermore, vision as a platform refers to the function of the vision to bring people together, converse about their desires and ambitions with each other and elevate the group as a whole (Weisbord & Janoff 2000). In addition, vision may be seen as a crowbar "converging all energy to break open some future otherwise unattainable." (van der Helm 2009, 101). Intriguingly, visions may also be approached as seeds (Bennett et al. 2016; Masini 2006), i.e., existing initiatives of transformative change as pathways towards more positive futures. In addition, visions are used as a motivator for action and change, trigger for commitment and to critique the present, but they may also create a 'secure cocoon' or an 'ideological box', e.g., constraining action (Schultz 1995, 46-53). Thus, the functionings of visions are many and they develop over time with the vision.

2.7 Vision as part of a futures landscape

As discussed in Vision as a process, visioning is typically preceded or followed by an examination of alternative futures, and followed by planning how to achieve the vision. However, the future is not singular even though a vision has been conceived, but actions need to ensue, the environment needs to be scanned, and course changes are probably needed. The key question is, how to understand, visualize and maintain focus on the whole picture, the current and changing situation, and the paths towards the preferred futures in relation to the vision and actions taken and actions planned.

In a sense, this may be called the 'big picture' or the futures landscape, which as such, is a term already used in the field of futures studies and other fields as well. Especially to Inayatullah (2008, 7-9), the futures landscape is one of the visual methods for mapping the future – a tool to assist in understanding the position of an organization on a landscape of four levels: From the jungle as a state of survival to the chess set as a state of goal-orientation and responsiveness, to the mountain tops portraying alternative futures and "the broader social contest we find our organizations in" (Inayatullah 2008, 8), and the star as the vision of the future. In addition, Geels (2002, 1260) uses the term landscape in the multi-level perspective as a metaphor to represent the macro-level of sociotechnical change. Alternatively, the futures landscape could be viewed literally as a dynamic scenery of futures perceived by actors looking into the future with specific purposes in mind. Next, the conceptual frame called Futures Map by Kuusi, Cuhls and Steinmüller (2015a, 2015b) is examined as a portrayal of the futures landscape, and the role of the vision in the landscape is discussed.

Following the map analogy and the original concept by Malaska and Virtanen (2009), Kuusi et al. (2015a, 62) define:

> *"A Futures Map is the comprehensive description of the outcomes of a futures research process. It comprises all relevant pictures of the future identified during the process and all relations between these pictures and between them and the present state as well as assessments about time frames, desirability and possibility of these pictures."*

Whereas a map represents information, e.g., symbols and patterns regarding geographic scenery (Malaska & Virtanen 2009, 68), the Futures Map utilizes several key concepts of futures studies to construct a whole picture of a futures study or a futures mapping process (Kuusi et al. 2015a, 61-64):

- roadmap as the committed path on the planning horizon,
- decisions or events as bifurcation points,
- scenarios as pathways on the mapping horizon,
- images of the future as future states, and
- vision as the shared dream future.

Similarly to a geographical map, the Futures Map is represented visually, though, as a figure with two axes since alternative futures and images of the future can be characterized by their assumed time of realization (x-axis) and desirability (y-axis) (see Figure 2). The more preferable an image of the future or a scenario is, the higher it is on the map as the locations and paths to the vision and acceptable futures indicate, while undesirable, avoidable or, i.e., "bad futures" (Kuusi et al. 2015a, 64) lead below the acceptable futures. It is particularly important to note that in this context 'acceptable futures' refer to a sufficient level of ambition, while a lack of ambition is unacceptable (Kuusi et al. 2015a, 76).

In the same way as the Futures Cone (see Figure 1), the Futures Map opens up to the possibilities of the future over time. The most significant difference between the two is that besides the preferred futures the Futures Cone may portray alternative futures 'independent' of actors, but the Futures Map entails a dependency of actors and a level of subjectivity inherently. This is because desirability is one of the two dimensions. As a result, the Futures Map is an appealing frame especially for visioning.

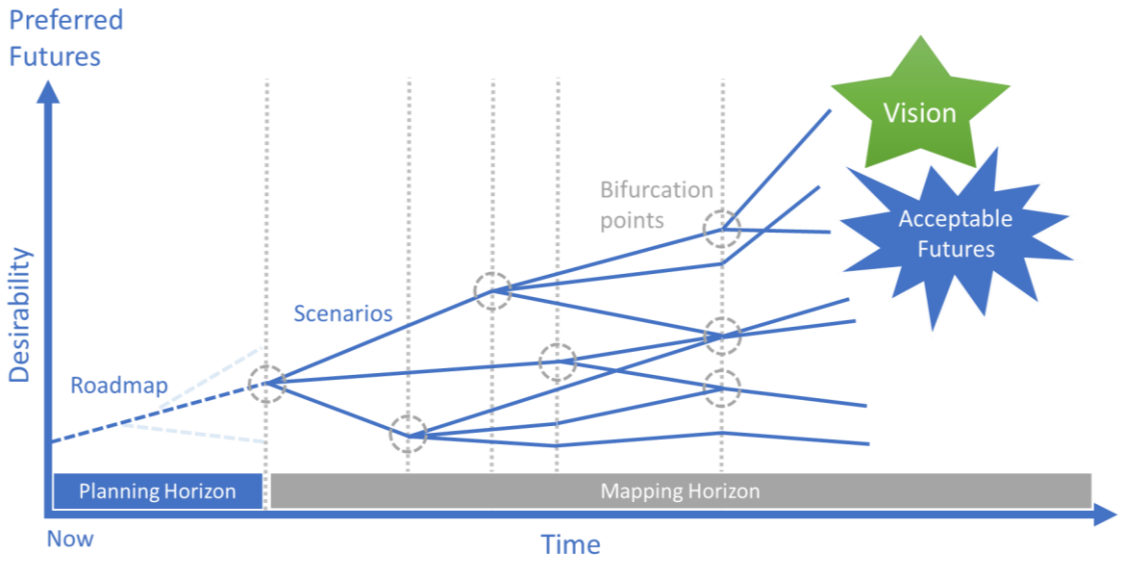


Figure 2 Futures Map (adapted from Kuusi et al. 2015a, 63)

Where the Futures Cone positions the most probable futures in the middle, the Futures Map does not necessarily indicate probabilities, at least not directly. Kuusi et al. (2015a, 64) state that it is reasonable to substitute probability with accessibility since in order to reach preferable futures, actions are required. Similarly to its geographical equivalent, the points of interest on either types of maps may be vastly different or similar for each map holder. The rational aspiration level of actors should aim for the maximum expected value, which considering accessibility, resources and uncertainties, may be calculated as the multiplication of the expected desirability and the expected accessibility (Kuusi et al. 2015a, 64).

While the vision as a dream state originates from one's own interests and ambition, the acceptable futures' states are ambitious, but require the reconciliation of interests between actors in cases other than personal visions. Friendly future states that arise from the interests of others, but take no importance in the ambitions of the actor may be tolerable, but should not be seen as preferable. The severest of bad futures are detrimental for the actor and thus intolerable. These futures to avoid may originate from the interests and ambitions of other actors or from no one's interests. Following these descriptions of futures states, preferred futures can include an actor's dream state and the futures states which, from the actor's point of view, represent sufficient ambition and which they are thus prepared to accept. Consequently, in regards to the concepts of the Futures Map, the dream states and the acceptable futures may be positioned within the boundaries of preferred futures, while the tolerable and intolerable futures reside outside the borders (see Figure 3).

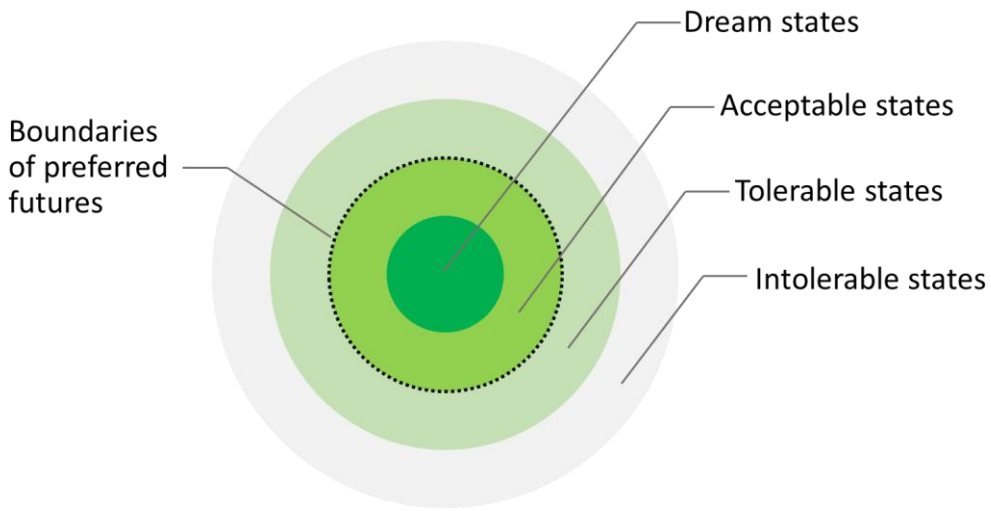


Figure 3 Futures states and the boundaries of preferred futures

In addition to the preferred futures, mapping horizon and planning horizon are key concepts of the Futures Map. The mapping horizon describes possible futures and pathways, and connects to the concepts and methods related to scenarios and the reasonability of options. The planning horizon depicts planned decisions and courses of action, and connects to the concepts and methods related to roadmaps and roadmapping and the commitment reasonability. Therefore, when a group of actors work together on a foresight process such as visioning, the Futures Map could be used to visualize the futures landscape including possible choices and paths, the shared interests of actors and the committed direction. In practice, therefore, the actors must be able to decide together on the direction of action based on an orienting image of the future such as preferred futures images, agree a time frame and goals for the time frame. Once the committed path has been traveled, the orienting futures images need to be re-evaluated since the conditions have changed from those of the starting point – both because of the actors' actions and the actions of others. This does not imply that earlier alterations to the plan should not be made. On the contrary, regular evaluations and adaptations are recommended for the orienting futures images and the plans. Thus, the Futures Map should be considered as a dynamic futures landscape interpreting options and depicting commitment by actors using the future with a specific purpose. (Kuusi 1999, 116-117; Kuusi et al. 2015a, 64-65; Kuusi et al. 2015b, 5)

Besides the outcomes of a futures research process, Kuusi et al. (2015a) argue, that the Futures Map frame is also suitable for the discussion of the quality criteria in futures research as there is no common understanding of the quality of futures studies nor even the criteria on how to evaluate it. Indeed, futures research is riddled with quality and conformity issues. The research evaluation community is debating, what exactly should be looked at when evaluating a study; "did we do things right, or have we been doing the right things?" (Van der Steen & Van der Duin 2012). This is a serious issue as Piirainen et al. (2012, 472) contend: "Without trust and satisfaction with respect to a project, foresight has little impact, and without quality of execution and technical excellence, futures studies is useless or even dangerous and thus irresponsible." Without trust in the methods, futures studies will not be used by practitioners. In fact, building trust and credibility of futures studies is a crucial feat as decision makers are often unconvinced about the potential of foresight. (Van der Steen & Van der Duin 2012)

One of the aims of the Futures Map is to help evaluate how futures researchers have constructed, invented, examined, evaluated and proposed possible, probable and preferable futures, or, i.e., promoted the purposes of futures studies as defined by Wendell Bell (Kuusi et al. 2015b, 3). This is claimed to be achievable with the six pragmatic validity criteria presented in Table 4 (Kuusi et al. 2015b).

Table 4 Pragmatic validity criteria for futures mapping processes (Kuusi et al. 2015b, 6)

Criterion	Description
1	The number or the scope of possible futures that might be relevant from the point of view of the vision or acceptable futures
2	The most relevant or important possible futures are identified
3	All kinds of causally relevant facts are covered by the identified futures
4	Causally relevant facts are effectively interpreted with as few scenarios as possible
5	Many kinds of users of the Futures Map are able to understand and use it
6	Key customers of the Futures Map are able to understand and benefit from the Map

As described by Kuusi et al. (2015b, 7), the purpose is not to aim to fulfill all the criteria as it is not even possible by design, but to select which ones are the most valuable and relevant for the particular Futures Map, and aim for those. In a selective foresight project or a futures mapping process such as visioning, the criteria two, four and six are considered particularly relevant, while explorative studies focused on the long term relate to criteria one, three and four. (Kuusi et al. 2015b, 22)

3 DEVELOPING A LIFE-EVENT-BASED VISIONING APPROACH

This chapter describes the process of developing a participatory visioning approach jointly in the national artificial intelligence program AuroraAI. First, the context of the case, objectives and limitations are presented. Then, the work related to preparing and designing the approach are described.

3.1 Towards human-centric society in the age of artificial intelligence

This research was conducted in collaboration with the national artificial intelligence programme AuroraAI coordinated by the Ministry of Finance and implemented through the cooperation of an open cross-sectoral network between the public, private and third sectors. The programme, running from 2020 to 2022, is "based on the strategic objective of building a dynamic and thriving Finland" (National Artificial Intelligence Programme AuroraAI).

Preceding the programme, a preliminary study project was conducted between September 2018 and February 2019 to examine the changes needed in service provision and management when utilizing AI-based services. As result, the project proposed "the launch of an implementation programme for the development of a human-centric society in the context of selected life-events and business activities" (AuroraAI – Towards a human-centric society, 8). The programme referred to as AuroraAI is the aforementioned implementation programme and the concept of AuroraAI is defined as "human-centric and ethical society in the age of artificial intelligence" (AuroraAI – Towards a human-centric society, 9).

The AuroraAI programme aims to "to implement an operations model based on people's needs, where artificial intelligence helps citizens and companies to utilise services in a timely and ethically sustainable manner" (Implementation of the national AuroraAI programme). The purpose is to improve the ability of the society to solve difficult issues related to, e.g., the sustainability gap in the national economy, the aging population or the social exclusion of young people. In the long term, the goal is to enable digital transformation from a society focusing on efficient administration to a human-centric and proactive society. In the former power, responsibility and resources are distributed among different organisations, which focus on the efficient execution of their responsibilities leading to organisational efficiency. In the latter, organisations collaborate to ensure people

can easily and conveniently deal with the various events during all the stages of their lives leading to the improvement of overall well-being, since "[a] human-centric society is based on the holistic welfare of its people, businesses and society as a whole." (AuroraAI – Towards a human-centric society, 8).

Since the transformation requires the ambition, resources and joint effort of all sectors of society, and significantly more time than the programme period, the programme is considered as an open platform and a catalyst for change. First, a shared vision is needed to discuss and depict what the society of the future could and should be like, and what should happen, and then, to work as the North Star lighting the way.

The programme organization includes a steering group accountable for the direction of public sector strategy and implementation and essential digitalization programmes including AuroraAI, and an internal programme steering group and teams such as the implementation support, analytics and technical development and support. In addition, there are 10 acting theme groups open for anyone to join, e.g., AuroraAI Research, AuroraAI Legislation, AuroraAI Change Agents and AuroraAI Service Ecosystems, focused on specific objectives, and a joint AuroraAI Coordination group with representatives from all the theme groups. The people in and around the programme form an open network. The network uses services such as Slack, Google Drive and Microsoft Teams (formerly Skype) to connect, communicate and collaborate. The communication platform Slack has a total of over 700 members as of October 2020 and, e.g., open channels for the theme groups, Google Drive is used to share materials, and Microsoft Teams to organize meetings.

A theme group called AuroraAI Vision is tasked with 1) preparing the AuroraAI vision for the AuroraAI Coordination group, 2) supporting the AuroraAI Coordination group with the organization of AuroraAI conferences, and 3) preparing an approach, e.g., a toolkit, to enable continuity for the visioning after the programme. Following the operating model of the AuroraAI programme and the open network, the theme group has a channel in Slack through which open invitations to join the activities of the group are presented to the entire network. This research is performed within the AuroraAI Vision theme group and its' objectives.

3.2 Objectives and limitations

The vision and visioning process aims to support public policy-making and private strategic decision-making in the short and the long term, in order to guide the decisions and

actions collectively towards human-centricity in the society. The programme provides the pragmatic objectives and the theoretical framework presented in chapter two informs the design and implementation. The visioning approach supports the AuroraAI Vision theme group with the primary task of preparing visions. Furthermore, the approach aims to enable continuity for the visioning. As a foresight project, the steps reflect the notions presented in Vision as a process and the objectives of the project:

1. Framing: Scoping the project, identifying stakeholders and participants
2. Scanning: Collecting information regarding the present and future
3. Futuring: Describing alternative futures
4. Visioning: Constructing the preferred futures, the vision.

Visioning is typically followed by steps translating the vision into action. In this case, the steps are not overlooked, but considered essential actions for organizations participating in the visioning process or otherwise subscribing to the vision, to interpret the collaboratively formed preferred futures from their perspective. For example, the vision may be taken as a starting point for a backcasting exercise, or it can be used to scan and identify actors and initiatives already working towards the desired direction. In addition, institutionalizing the futures research was omitted due to the nature of the work as a pilot for the visioning approach.

As Popper (2008, 46) indicates, resources, e.g., "the budget, the availability of expertise, political support, technological and physical infrastructure, and time", affect decisions regarding the methodological framework. The aim was to design and test a visioning approach during 2020. The project engaged the AuroraAI Vision theme group for designing, implementing, supporting and participating in the visioning approach. The group was composed of individuals from public, private and third sector organizations, including the sponsor and participants from the AuroraAI programme, and the researcher. In addition, the visioning process engages stakeholders as participants based on the life-event in question, and their interests and expertise.

At the time of the project, preventative actions had been taken to prevent the spread of the coronavirus disease (COVID-19). Social distancing, e.g., restricting physical contact and moving to remote work practices, needed to be considered in the project work and in the design of the visioning process. The initial intention was to implement the first visioning process within physical conference settings during the spring and fall of 2020 as planned by the programme. Due to the situation, the process needed to be carried out

virtually and the physical conferences substituted with various forms of online collaboration.

3.3 Designing the approach

The AuroraAI Vision theme group gathered for the first time in February 2020. Since the participants represent diverse fields and specialities, the concept of vision and an example of a visioning process was discussed, and examples such as the Society 5.0 for Sustainable Development Goals (Keidanren 2017), the Seven foundations for world-building (Zaidi 2017) and the Futures Map (Kuusi et al. 2015a) were depicted to open thinking and develop shared understanding. In addition, ideas and expectation regarding the vision and visioning were discussed. As a summary, the vision should take a bold stand and look far, disconnect from the acute challenges of today, be an invigorating and inspiring crystallization and a collection of stories. The process should be participatory as per life-event and, e.g., private companies should be encouraged to join, although ultimately, the vision may 'fail' and the diverging interests of, e.g., private companies may succeed. In addition, the desired characteristics of images of the future were discussed, but since the theme group focuses on the visioning approach, the content remains to be considered within the visioning process. The Futures Map was further elaborated to create a mutual platform for thinking about the vision, preferred futures, horizons, scenarios, roadmaps and decisions points. Based on the feedback, the Futures Map worked well in visualizing the different concepts of futures studies and in linking the AuroraAI programme as the committed path on the planning horizon with visions and scenarios in the mapping horizon.

Based on the theme group's second meeting, the domain of the vision and visioning was defined as the preferred futures of human-centric society in Finland 2040. For the purpose of integration and coherence, the definitions and approaches applied in the AuroraAI programme were to be utilized in the vision as well. Primarily, the guiding concept of human-centricity approached from the perspective of life-event-based thinking as individuals and knowledge of various situations in life are at the core of life-events and life is composed of various life-events. Three life-events had been selected as the initial scope of the AuroraAI programme. First, to develop and test the visioning approach, the work focuses on one of the life-events: 13–16-year-olds in basic education. Thus, the full description of the domain is the preferred futures of human-centric society in Finland 2040 from the perspective of 13–16-year-olds in basic education. The other two life-events relate to integrating to Finland and engaging in working life through lifelong learning.

Continuing the development of integrating the Futures Map with the life-events, it was observed that the vision and the accepted futures may be used to form an area covering the preferred futures of different life-events and thus creating boundaries for the futures. In addition, as depicted in Figure 4, if it is possible to assess the scope, timeline and desirability of visions that different actors subscribe to, each of the visions may be placed on the Futures Map in relation to each other (grey circles) and the boundaries of the preferred futures (blue circles). An actor's vision may completely coincide with the preferred futures of life-events, but limits its impact on one life-event, such as the life-event C, or partly such as D. An actor's vision may coincide with the preferred futures of multiple life-events, such as A and C. Furthermore, the whole or parts of the actor's vision may not coincide with the combined boundaries of the preferred futures, and as such the actor's aspirations may be seen as more or less desirable, such as the visions overlapping or located outside the boundaries. There might also be preferred futures, which multiple actors aim at, such as C, or no actor is aiming at, such as E. It is also important to note, that different actors have different means and resources, therefore the preferred futures may be reached earlier or later, for example, comparing C and B. In addition to the visions and the images of preferred futures, the Futures Map may also be used to identify bifurcation or decision points of the scenarios included. It is especially valuable to examine the points which create crossroads between multiple scenarios as those points may have wide implications and turn the direction of several pathways towards more or less preferred futures.

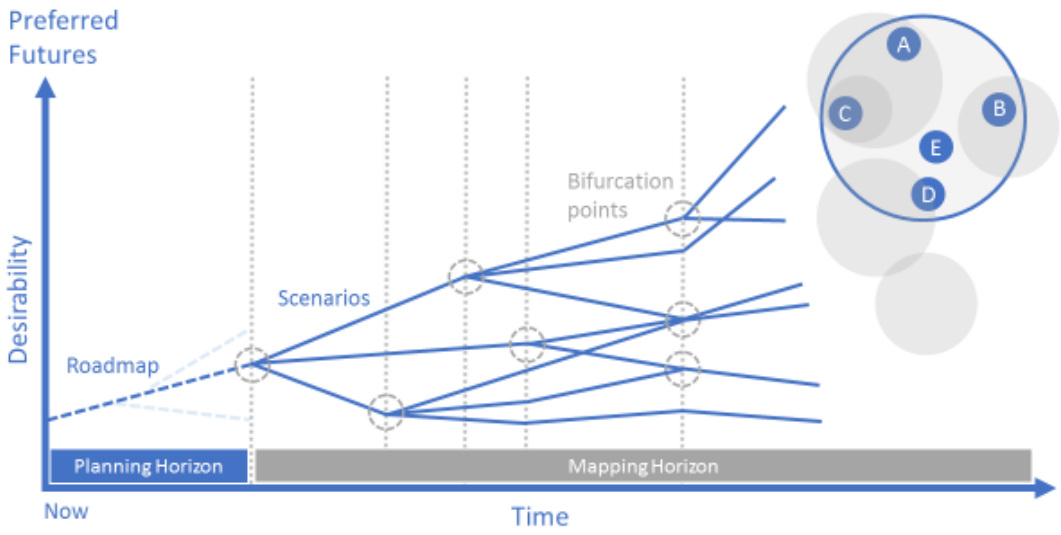


Figure 4 **Visions of different actors in relation to each other and the boundaries of preferred futures on a Futures Map**

Furthermore, the programme had previously selected a frame referred to as "the Stiglitz model" (AuroraAI – Towards a human-centric society, 36) to be used in practice to understand human well-being holistically and to create 360-degree situational snapshots regarding specific life-events. Thus, the model is used in the context of the visioning, too. According to the model, well-being is multi-dimensional, and all dimensions should be considered simultaneously as they affect the well-being of people in its entirety (Stiglitz et al. 2009, 14-15). The dimensions are (Stiglitz et al. 2009, 14-15):

i. Material living standards (income, consumption and wealth)
ii. Health
iii. Education
iv. Personal activities including work
v. Political voice and governance
vi. Social connections and relationships
vii. Environment (present and future conditions)
viii. Insecurity, of an economic as well as a physical nature

In addition to considering the transformation towards a human-centric society, the domain specifically includes the geographic scope and time horizon. Originally, in the programme, the time horizon was defined as 2035, but based on the discussions within the theme group, changing to 2040 was perceived to create more space for thinking and opportunities for technological advancement as opposed to the more specific time horizon of 15 years.

As decided with the AuroraAI Vision theme group, the visioning approach starts with the preferred futures of an individual life-event to understand the current situation of people within that specific life-event, and then develops a vision. Through each life-event, the whole picture of the preferred futures for human-centric society is formed piece by piece. Like a puzzle, all the preferred futures must fit together in order to define compatible and unconflicting goals to guide the transformation. Approaching the visioning and the transformation from bottom-up, from the individual life-event to the bigger picture of human-centric society, it may be possible to reconcile both the similar and dissimilar characteristics of each life-event as the preferred futures regarding one life-event may correspond or contrast with the desirabilities of a different life-event. The similarities portray the essential characteristics of the envisioned human-centric society as a whole, while the dissimilaries depict the distinctive characteristics of individual or multiple life-

events – both of which should be reflected upon. The approach also considers impact and resources, as the bottom-up approach starts small and aims on influencing the idealised futures of each life-event as the visioning and actions progress. If the work is discontinued, impact may have been gained on the life-events already worked on.

The visioning process consisting of the first life-event was agreed to be implemented by the end of 2020 and by making use of the programme's biannual conferences. Based on the schedule and conference settings, a draft of the visioning process was developed by the researcher for the AuroraAI Vision theme group. The main idea was to

- develop a vision statement,
- define the boundaries of the preferred futures,
- identify the rules and tensions related,
- create paths from the preferred futures to the present, and
- bring the preferred futures to life through everyday narratives and storylines.

Due to the preventative actions taken to prevent the spread of the coronavirus disease (COVID-19), the process had to be reconsidered, as the organization of physical conferences were suddenly restricted and remote work practices were instituted in place. While the situation was challenging and it may have been possible to carry out the process virtually almost as such, it also presented an opportunity to question the common practices and assumptions related to visioning. Instead of asking if it is possible to organize the process virtually, the question became: what could be achieved virtually that is not possible in physical settings. By going virtual, it is possible to organize a geographically distributed process involving various audiences and appreciating the anonymous input of all participants equally regardless of their age, gender, social status or other feature, than their thinking and self-expression. In addition, virtual environments may be accessed asynchronously and multiple times as opposed to the restrictions of physical collaboration and settings. Though physical settings may involve regular feedback and continuous learning through multiple rounds or meetings, the possibilities with virtual environments are more open and accessible especially without the limits of distances. While some of these aspects may be incorporated to the virtual equivalent of the physical process, some opportunities are left unused. However, it is important to consider, what might be the downsides, too, and consider appropriate approaches. In the case of visioning and anonymity, the commitment of participants may be affected due to the disconnect between

the message and the messenger. The affect might be of positive nature if the results of the process build on and even supersede the original views and interests of a participant. On the other hand, a lack of commitment to the results or a disconnect from the process altogether might occur if the views and interests of a participant are disregarded and they feel that they have not been heard in the process.

Based on the aims of the visioning process, research into the options, and open discussions within the AuroraAI Vision theme group and with senior practitioners in the field of futures studies, the researcher prepared an initial plan for a virtual visioning process and presented it to the AuroraAI Vision theme group, which endorsed it. The prepared visioning approach is summarized in Table 5 step by step. Based on the objectives of each step, suitable methods were researched and discussed. Essentially, the ideas of the virtual process embody the principles of the Policy Delphi variant Argument Delphi by Kuusi (1999, 126) with characteristics of Real-Time Delphi; All views are respected and approached by the content of the argument. All arguments are visible to all participants for a predetermined time enabling the mixing and even changing of views based on the levels of argumentation, learning and consensus. Furthermore, the construction and evaluation of alternative and preferred futures should be done in a participatory manner with people in the selected life-event and their stakeholders. While the pilot described in the next chapter is limited in scope, the developed approach includes considerations regarding the whole scope, e.g., for organizations utilizing the constructed preferred futures of life-events. Moreover, it is important to note that the presented approach was revisited and refined iteratively during the extent of the project, and while the steps are presented in a linear fashion, in reality there are overlaps.

Table 5 The life-event-based visioning approach

Step	No.	Activity	Outcome
Framing	1	Selecting the life-event or situation in life and defining the domain of the work	• Domain description
	2	Mapping the target group and stakeholders of the selected life-event	• Stakeholder analysis
Scanning	3	Assessing the current situation regarding the life-event	• Current assessment
	4	Identifying forces of change, e.g., based on expert interviews or desk research	• Future-oriented statements
Futuring	5	Evaluating the future-oriented statements, e.g., via a Delphi process or in workshops	• Evaluated desirability, plausibility and impact of statements • Justification for the evaluations and commenting others' comments
	6	Constructing alternative images of the future for the life-event in a participatory manner with people in the selected life-event and their stakeholders	• Individual preferable and unpreferable images of the future • Logic for the images of the future • Futures table
Visioning	7	Constructing images of preferred futures for the life-event with people in the selected life-event and their stakeholders	• Everyday narratives and storylines • Images of preferred futures • Overview statement of the preferred futures images
	8	Evaluating the preferred futures images with a broader audience, and addressing the undesirable features and shortcomings	• Evaluated desirability, undesirable features and shortcomings • Revised material
	9	Analysing the implications from the perspective of a specific organization, e.g., with the Futures Wheel	• Implications analysis
	10	Describing the organization's vision	• Organizational vision statement
Planning	11	Constructing the paths of the mapping horizon with backcasting from the preferred futures to the present	• Backcasting scenarios
	12	Creating the roadmap for the organization's planning horizon with roadmapping	• Roadmap
	13	Identifying indicators for the preferred and unpreferred futures, and the described goals	• Leading indicators
Acting	14	Acting on the roadmap	• Results
	15	Monitoring the results and indicators	• Signs of change

Institutionalizing	16	Planning the continuity of the process regarding the selected life-event, all of the life-events and the transformation towards human-centric society	• Continuity plan

4 PILOTING THE APPROACH

This chapter describes the pilot of the developed visioning approach performed collaboratively in the national artificial intelligence program AuroraAI. The performed steps of the approach are presented in a chronological order.

4.1 Framing

The main purpose of framing was to select the life-event and define the domain of the work. As discussed if the previous chapter, the domain was defined as the preferred futures of human-centric society in Finland 2040 from the perspective of 13–16-year-olds in basic education. In addition, a stakeholder analysis representing individuals of the life-event, their relatives, and different sectors of society and dimensions of well-being were created to identify stakeholders and potential participants.

4.2 Scanning

The main purpose of scanning was to assess the current situation of the 13–16-year-olds in basic education, and research both signals of change and inputs for change.

4.2.1 Assessing the current situation

To understand the current situation of the 13–16-year-olds in basic education, the School Health Promotion (SHP) study data by the Finnish institute of health and welfare was used to create situational snapshots, i.e., perform clustered data analysis. This work was carried out by the CSC, a non-profit state enterprise.

In addition, the core work group interviewed the representatives of the city of Espoo regarding the results and observations from the city's School Health Promotion study. The representatives were asked to describe the current situation and raise issues based on the results. The interview was recorded for further use in the process.

4.2.2 Identifying forces of change

The initial focus of the environmental scanning was on expert interviews. Gordon and Glenn (2009) note that conducting an expert panel is one of the several ways to carry out

environmental scanning. Other ways include, e.g., reviewing relevant literature, performing internet searches with relevant keywords, and tracking expert presentations and lectures.

As with the Delphi method, an expertise matrix was created to identify people for the breadth of the inquiry. According to Kuusi (1999), experts should be on top of their fields, interested in different fields, able to see connections between national and international, and present and future development, able to observe issues from unconventional perspectives, and interested in doing something new. With the life-event approach, it is especially important to consider the people in a particular life-event – in this case 13–16-year-olds in basic education – as experts. As result, the expertise matrix represented individuals of the life-event, their relatives, and different sectors of society and dimensions of well-being. In addition, the dimensions of the Seven foundations for world-building (Zaidi 2017) were used as a support framework to ensure that the different dimensions of society, which are often in the shadows of widely-used STEEP dimensions, e.g., science, philosophy and art, are considered, too.

The environmental scanning consisted of 10 one-hour expert interviews led by the researcher. In addition to the interviewee and the researcher, one or two members of the core work group participated in the sessions. The interviews were semi-structured. All interviewees were asked to watch a recorded discussion regarding the School Health Promotion (SHP) study of Espoo before the interview to obtain up-to-date information to reflect upon. The interviews were divided into three parts: Current situation, Images of the future 2040, and Change between 2020 and 2040. Pre-formed questions were used based on the flow of the conversation within the interview. The questions can be thought of as initiators of the discussion with the aim of delving into the interviewee's views. For example, the discussion may focus on a specific topic that is important to the interviewee, or the discussion may cover all questions in the planned order. The interviews were anonymized, recorded and partially transcribed.

The purpose of the interviews was to recognize arguments and issues that explore the futures of 13–16-year-olds in basic education in an open and diverse way, while broadening the thoughts of the participants in the next phase of the process in terms of holistic well-being, different actors and changes in the operating environment. Based on the interviews, the core work group formed future-oriented statements, which were to be evaluated in the next round. Initially, the number of statements was 20, but to keep the workload of participants moderate and the quality of answers high for each statement, they

were refined into 10 statements belonging to five different themes identified from the material (see Figure 5 and Appendix 1). The themes and statements were then discussed in the AuroraAI Vision theme group. In addition, the theme group discussed about the scales used to evaluate the statements and decided on using desirability, feasibility and impact. The widely used probability was replaced with feasibility since the purpose of the evaluation is to assess if the statement is seen as desirable and achievable with impact, instead of whether or not the statement will come to be as such without the actions of the stakeholders. To test, how the assessment would work in the virtual conference, the theme group evaluated different options for the scaled assessments and the representation of the results, e.g., bar charts and pie charts, and decided to use checkboxes with the answer options right next, and pie charts to present the division of answers.

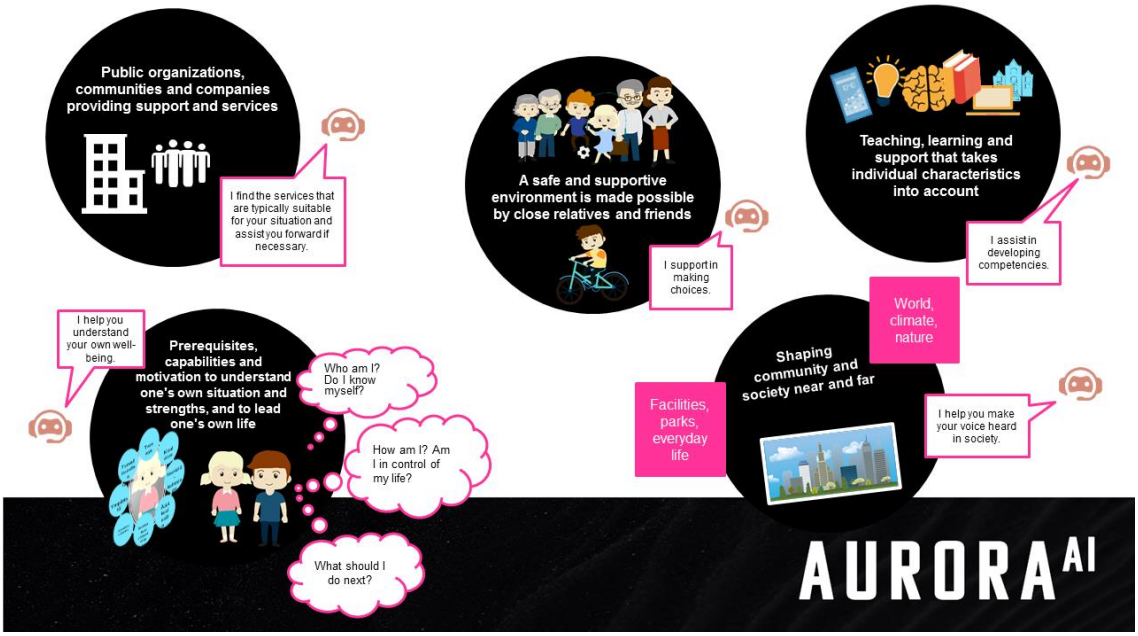


Figure 5 The five themes of future-oriented statements[3]

In addition, although a useful statement is revealed in use through active participation, commenting, argumentation and revision of positions, criteria for good questions and statements were used to evaluate and improve the quality (Linturi, Linturi & Jauhiainen 2019):

- the question is clear, comprehensible and unambiguous (reliability)

[3] The figure is translated from the original source (Yläkouluikäiset 2040). The original version is presented in Appendix 2.

- the question is surprising, interesting and inspiring (appeal)
- the question is divisive, i.e., the opinions of the panelists are divided on a scale (diversity)
- the question is forward-looking and contains an identifiable change to the current state (change)
- the question is concrete in terms of the phenomenon and describes activity in the indicative mood (functional)
- the question is neutral and does not persuade the respondent in one direction or the other (neutral)

Each statement was placed in a table with all the aforementioned evaluation criteria. First, the core group who prepared the statements discussed each statement based on the criteria and refined the statements as seen needed based on the criteria. Then, the statements were tested by the theme group. Although a completely separate test group with no earlier exposure with the context could provide a more comprehensive evaluation, the time and resources might not be available. In this case, only one of the testers had taken part in the development of the statements, and the others saw them for the first time. Based on the testing, some of the statements were refined to a more understandable form and description texts were added to open the meaning of a statement.

4.3 Futuring

The main purpose of futuring was to evaluate the future-oriented statements and construct alternative images of the future regarding the life of 13–16-year-olds in 2040.

4.3.1 Evaluating the future-oriented statements

The Real-Time Argument Delphi was commenced in a virtual conference titled Yläkouluikäiset 2040 (translation: 13–16-year-olds in basic education 2040) on May 19, 2020. The conference program was designed with the purpose of informing the participants regarding the context of transformation towards a human-centric society, futures thinking, and the current assessment of 13–16-year-olds in basic education to orient to the assignments regarding the futures of 13–16-year-olds in basic education (see Appendix 3 for the program description). As a virtual conference, a digital platform was used to

stream the presentations and to work on the assignments, while the program was facilitated by a group of four people, including the researcher, from a temporary studio. Furthermore, the opportunity to watch the stream without otherwise participating to the conference was provided in order to promote the transformation towards a human-centric society with the larger audience.

When entering the digital platform used in the conference, the participants were asked to enter background information, including their age group, region, sector and dimensions of expertise. The latter was presented both in the form of the dimensions of well-being and the dimensions of the Seven foundations for world-building, and therefore the expertise in based on participants self-assessment. The background information was provided by 73 participants. According to the information, there were participants from 13 to over 66 years of age, and of those 44% between 36 to 45 and 11% between 13 to 16 years of age. Participants were from 12 of the 19 regions in Finland, and of those 62% were from Uusimaa, 11% from Pirkanmaa and 10% from the Southwest Finland. From one to three participants were from the other regions. Regarding expertise, the participants represented all of the dimensions. 59% of participants included Scientific & Technological dimension in their area of expertise, 51% Social & Cultural, 27% both Political and Economic, 14% both Artistic and Philosophical, and 8% Environmental. On the dimensions of well-being, Social connections and relationships (49%), Political voice and governance (45%), Personal activities including work (40%) and Education (38 %) were more represented, while Insecurity (25%), Health (16%), Environment (15%), and Material living standards (11%) were less represented. In addition, the participants were asked identify the actor or sector they represent in the conference: 63% of participants representing the public sector, 19% the third sector, 12% the 13–16-year-olds in basic education, 8% private sector, 3% family or close relatives of the 13–16-year-olds in basic education, and 5% other. Based on the background information, participants of ages between 36 to 45, from Uusimaa region, with Scientific & Technological expertise, Social connections and relationships dimension of well-being, and working in Public sector were most dominantly represented. Since the expertise was based on self-assessment, the numbers include a degree of inaccuracy and uncertainty, but they can be used to assess potential dimensions requiring further additions or participants.

The virtual conference started with a welcoming speech from one of the sponsors of the AuroraAI programme and continued with presentations. After an introduction to the

conference, the program included guidance to futures thinking and the human-centric approach as primers for the assignments. Then, the current assessment including situational snapshots of 13–16-year-olds in basic education today based on the School Health Promotion were presented.

After the aforementioned presentations, the program continued with the first assignment related to the visioning process: the evaluation of future-oriented statements prepared based on the interviews. To begin with, the researcher presented the assignment: what the assignment is about, what future-oriented statements are, what they are not, how the questions are presented and how to work within the digital platform. The statements were presented based on the identified themes, which resulted in five sections with two statements each. Each statement was evaluated based on its desirability, feasibility and impact on a scale from three minuses (‘---‘) to three pluses (‘+++’): the scale for desirability ran from undesirable to desirable, feasibility from non-feasible to feasible, and impact from no impact to wide impact. In addition, participants were asked to describe the reasoning behind their assessments and describe what effects the realization of the statement could have in their areas of expertise or how the realization of the statement could be reflected in the daily life and well-being of 13–16-year-olds in basic education. Both the scaled answers and open comments were visible to all participants, and thus provided the common grounds for open dialogue and the discovery and addressing of agreements and disagreements. None of the parts were mandatory, which allowed the participants to answer based on their time and interests. First, the participants had 40 minutes for the assignment. After a break of 60 minutes, the results were briefly presented based on the summaries provided by the platform, and followed by a panel discussion lead by a representative of the 13–16-year-olds in basic education.

4.3.2 Constructing alternative images of the future for the life-event

The second assignment in the conference was inspired by the Futures Time Travel technique by Markley (1998) and the Reverse the negative exercise by Shultz (1995). The core work group had prepared a time travel exercise, where the participants would travel to the year 2040 in their imagination to meet a person of their choosing. The narrative used in the exercise was scripted, recorded and edited in advance to support the progress within the exercise, and to create an immersive atmosphere with the help of music and visualizations. Then, in the conference, the recording was played to the participants.

First, the participants were asked to identify the person who they were going to meet, e.g., a 13–16-year-old, a family member or close relative of one, a leading expert of their field, corporate executive, or a member of the parliament. Then, the narrative started with a short description of a future which had not developed favourably and had not been spared of surprises, either. The narrative continued with a prompt of discussion about questions related to the life of 13–16-year-olds in 2040:

- What does the everyday life look like?
- How and with whom do they spend their time and money?
- In what kind of community and environment?
- What services and products do they use?
- What affects their overall well-being the most?
- What significant change in society has taken place in this regard?
- How has this happened?

Next, the traveller was transferred into another dimension, a future that seemed quite the opposite from the first. Once again, the participants discussed the daily life of a 13–16-year-old in 2040, but in this dimension, their overall well-being was on an excellent level and the future looked bright. The concerns of the previous dimension had been replaced by a spectrum of possibilities and a hopeful future – the transformation to a human-centric and proactive society had taken place:

- What does the life of a 13–16-year-old in basic education look like and feel in this dimension?
- How and with whom do they spend their time and money?
- What kind of community and environment do they live in?
- What services and products do they use?
- What affects their overall well-being the most?
- What significant change in society has taken place in this regard?
- How has this happened?
- For which issues have workable solutions been found?
- What has made the changes possible?
- What obstacles have been resolved on the path to change?
- What has been found successful and seems to have remained the same as in the past?

In the last part of the exercise, the participants were described to have returned to the present feeling impressed and enthusiastic about what they imagined, as the experience left a lasting impression to build a future like the one experienced. As the final question, the participants were asked 'Where are the seeds of the desired future already growing and what are they?'. As the exercise was then over, but the transformation towards a human-centric society had already started, the participants were praised for their contribution thus far. The time travel exercise gathered 26 responses in total with a high variance in the level of questions answered.

After a final break, the results were presented based on the summaries provided by the platform as with the first assignment, and the progress of the AuroraAI programme and the visioning process was discussed. In addition, the participants were asked feedback, which then was immediately discussed. On a scale from one to four, the conference received an average grade of 3.07 and the tools used for the purpose of the agenda an average grade of 3.03.

To enable further contributions and reflections, the platform used in the virtual conference remained open for 10 days after the event during which the participants were allowed to change their previous answers as well. Reminders were sent to the participants every other day to keep the discussion and commenting active.

4.4 Visioning

The main purpose of visioning was to first construct and then to evaluate the images of preferred futures of human-centric society in Finland 2040 from the perspective of 13–16-year-olds in basic education, an overview statement summarizing the images of preferred futures and narratives portraying life in them.

4.4.1 Constructing images of preferred futures

The visioning continued with the inputs from the conference. As expected, the statements received different amounts of grade assessments and comments (see Appendix 4). While the first statement was evaluated by 43 participants, the last received 30 evaluations. However, the statements in between received from 33 to 38 evaluations in an inconsistent trend. Based on the evaluations, all the statements were mostly seen as impactful, while the desirability and feasibility gathered more variations. Most of the statements were seen

as feasible, rather than infeasible, except statements one and nine. The desirability gathered most variation. While most of the statements were seen as desirable, rather than undesirable, statements one, two, three, four and eight were most controversial. Although the inputs were processed in an anonymized manner, each participant was identified by an ID number connected to every evaluation and comment added in the digital platform. Therefore, it was possible to connect the graded evaluations with the comments and identify, e.g., reasoning behind an undesirable evaluation.

For the next step in the visioning process, the comments were categorized based on the desirability evaluation connected with them as the premise was that by analysing the conference responses it could be possible to identify desirable and undesirable characteristics of the future and the tensions between them. Then, text comments were copied as such for the basis of concrete preferred images of the future and for notices on what to look out for in the images of the futures. Literally based on the comments by copying the responses, the AuroraAI Vision theme group created 10 images of preferable futures, one per future-oriented statement (see Appendix 5). In addition, the theme group analysed the responses to identify tensions, which could function as the logic for the creation of preferable images of the future. The recognised tensions are listed in Table 6.

Table 6 Identified tensions[4]

Internal control	–	External guidance
Own well-being	–	Well-being of communities
Own benefits	–	The interests of society
Serving special groups	–	Serving everyone
Public	–	Private
Public services	–	Commercial services
Individual	–	External actor
Proactive	–	Reactive
Anticipating a need	–	For a need
Remote	–	Proximity
Virtual presence	–	Physical presence

[4] The content of the table is translated and adapted from the original source (AuroraAI Vision theme group 2020a).

As a number of tensions was recognised, the researcher prepared examples of matrices using pairs of tensions to create sets of four distinct images of preferred futures and sample Futures Tables with copied content from the conference responses. Then, based on the discussions considering the identified tensions and the examples, and decisions of the theme group, the researcher prepared the next version of the logic and descriptions for the preferred images of the future (see Figure 6) and a corresponding Futures Table to be used as the basis in the next step of the process.

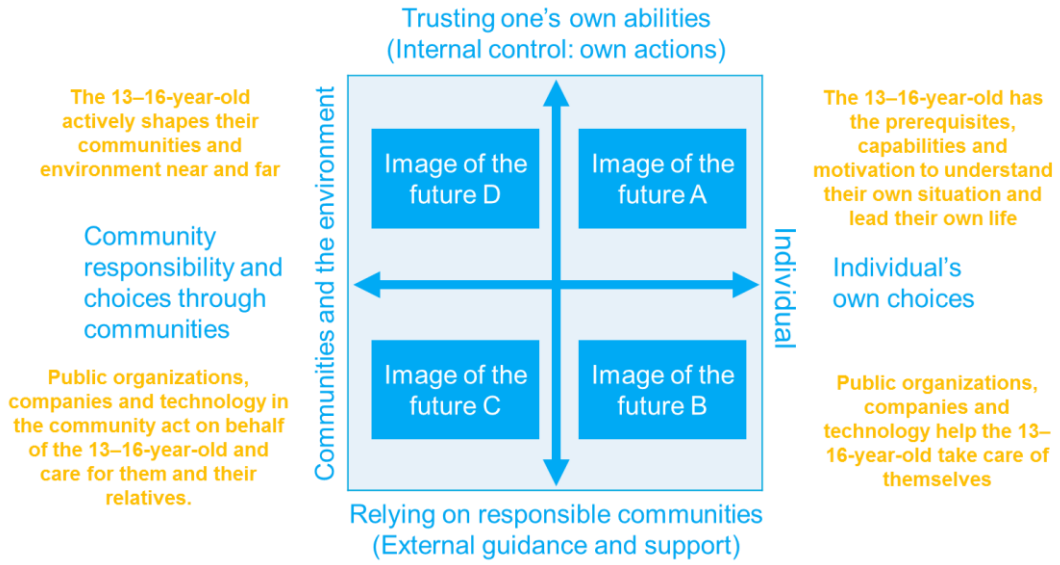


Figure 6 Initial logic and descriptions for the preferred images of the future[5]

Ideally a diverse group of persons from the target group evaluate, shape and enrich the preferred futures images from their perspectives, and develop narratives or storylines depicting the life of a peer from the year 2040 in the context of the preferred futures. In the case of 13–16-year-olds in basic education, the Union of Local Youth Councils in Finland organised the participation of people representing the target group.

First, a group of nine persons from various parts of the country participated in four online sessions between September and November, 2020. In the sessions, the context, scope and goals of the work were presented, and the logic for the preferred images of the future, the content of each of the four preferred images of the future and an overview statement for them were discussed and shaped. The refined preferred futures of a human-

[5] The figure is translated from the original source (AuroraAI Vision theme group 2020b). The original version is presented in Appendix 6.

centric and proactive society in 2040 from the perspective of 13–16-year-olds in basic education are depicted in Figure 7. In addition to the iterations to the descriptions of the preferred images of the future, the overall logic and mode of expression were developed further. Furthermore, keywords depicting the society from the perspective of the 13–16-year-old were added as topics for each preferred image of the future.

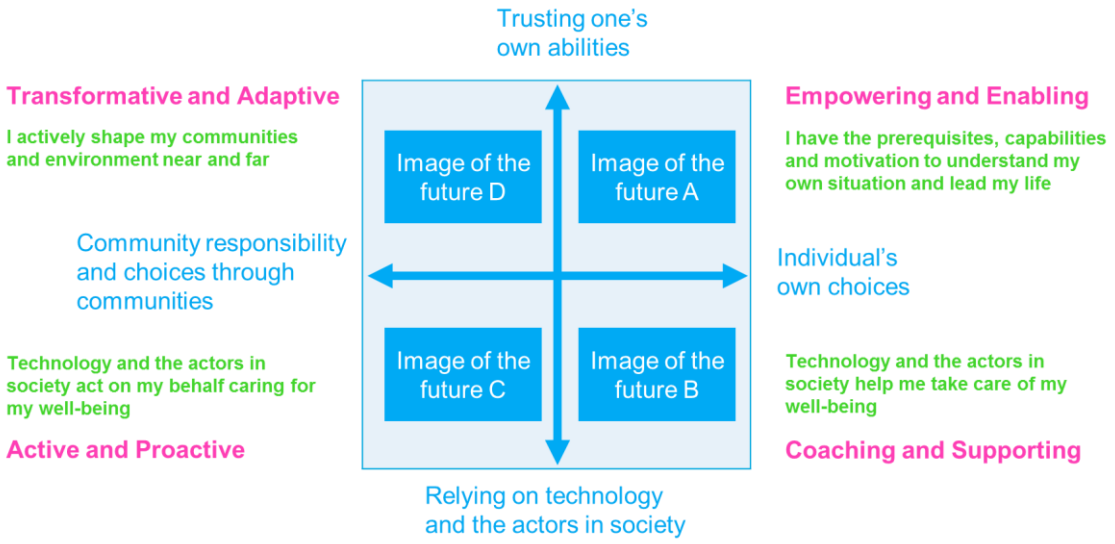


Figure 7 The preferred futures of a human-centric society in Finland 2040 from the perspective of 13–16-year-olds in basic education[6]

In addition, the participants wrote seven narratives describing the daily life of a 13–16-year-old in basic education in 2040 to concretize the futures images. The narratives were prepared as the first task, and afterwards linked to the image of the future they were seen to characterize the most. However, it is notable that a single narrative may include characteristics from multiple images of the future. Figure 8 describes the structure of the prepared materials.

The participation to the sessions varied as in one instance only individual members of the group were active and in some instances the whole group was active. In addition to the target group and the core work group, two representatives of the city of Turku participated in the sessions as they use the results in the planning for a transition towards human-centricity in the city organization.

[6] The figure is translated from the original source (AuroraAI Vision theme group 2020c). The original version is presented in Appendix 7.

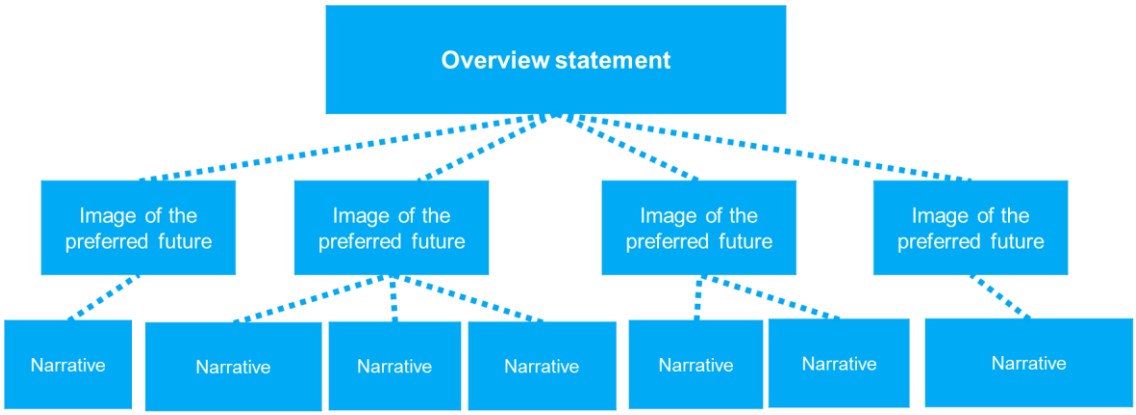


Figure 8 Structure of the materials

4.4.2 Evaluating the preferred futures images

To gain the perspectives of a broader audience, the context and results were presented to the participants of the general assembly of the Union of Local Youth Councils in Finland on November 21, 2020. Based on the information provided by the organizers, the participants of the event were between the ages of 13 and 20, and thus well-suited to evaluate and comment the materials. Due to a very limited time for the presentation and for the participants to access the content, the evaluations were gathered with a survey, which was open to the participants from November 21 to November 29 (see Appendix 8). During that time, 23 participants from nine different regions on Finland responded: 11 from Uusimaa, three from Pirkanmaa, two from North Ostrobothnia, and one from South Ostrobothnia, South Savo, Lapland, North Karelia and Päijät-Häme.

The main objective was to learn how desirable the described overview statement and the images of the future were, what was seen as particularly desirable, what would the participants want to avoid, and if something was missing from the images. According to the responses, in a scale from zero to 10, when asked would a future like the described overview match one's hopes for the 13–16-year-olds of 2040 in a human-centric society, the average were 7.18 and the median 8.00. For the preferred futures images, there averages varied between 7.05 and 8.55, and the medians were either 8.00 or 9.00. In addition, the survey made it possible to ask, which of the narratives depicting the life of a peer from the year 2040 were seen most inspiring and what the reasons were.

Based on the evaluation, it can be stated that the described futures images were considered desirable and therefore can reasonably be used as the preferred futures images,

the vision, while attending to the responses. Thus, the responses to the open-ended questions were used by the AuroraAI Vision theme group to address the undesired features and shortcomings of the evaluated material to further increase their desirability. In addition, the characteristics of unpreferable futures or, i.e. futures to be avoided, were identified and drafted based on the responses.

The results of the visioning process and the work of the AuroraAI Vision theme group during 2020 were presented in an open session on December 17, 2020. The AuroraAI programme will develop the outputs of the visioning process to their final and publishable formats, and decide the steps ahead regarding the scope of the programme.

5 DISCUSSION

In the following chapter, the key findings, theoretical and methodological issues, limitations and further development, and opportunities for future research are discussed. First, from the perspective of the developed and piloted visioning approach and its further application. Second, from the perspective of visioning and the field of futures studies. In addition, ideas for continued research are presented.

5.1 Considerations regarding the visioning approach

5.1.1 Evaluation

The value of the approach as such, the fit of the approach to the context, and the impact of the work should be assessed. The target audience must find the futures research process and outcome convincing to be encouraged to act (Piirainen, Gonzalez & Bragge 2012). The visioning approach may be developed further by considering and integrating evaluation criteria to it. The criteria should consider both the quality of the work and the relevancy of the results to the target group and stakeholders of a life-event, to the process.

With the implemented approach, each step of the process fed the upcoming steps. For example, the interview included in the current assessment both informed the interviewers about the local results of the School Health Promotion study and functioned as an introduction to the context since the recording of the interview was distributed to the next interviewed experts. From there on, as described in Piloting the approach, a path may be traced on how the end results were formed. Next, to evaluate the work, the pragmatic validity criteria for futures mapping processes (see Table 4) and the qualities of a sound vision (see Table 2) are reflected upon. Although there is some overlap, the perspectives of the two sets of criteria may be considered complementary.

The developed life-event-based visioning approach made use of multiple methods:

- Semi-structured interviews to understand the current situation of the life-event and identify forces of change
- Real-time Argument Delphi to evaluate future-oriented statements
- Narratives to construct alternative images of the future
- Visioning to construct images of preferred futures
- Survey to evaluate the outcomes

According to the assessment by Kuusi et al. (2015a, 75-76), the wide scope of possible future paths (criterion one) are taken into account well or especially well with Argument Delphi and scenario writing. Within the scope of the pilot, images of possible futures were constructed but the connecting paths to or from the present were not. In addition, the performed Real-time Argument Delphi considered a range of possible futures through future-oriented statements.

Since the approach was developed for the purpose of visioning, the second criterion regarding the most relevant or important futures is central. In the process, four images of preferred futures were constructed with and evaluated by people from the selected life-event. Based on the evaluation, the images of the future and related narratives were considered preferable. For a visioning process and the life-event-based visioning approach, this should be one of the main aims. Furthermore, the relevancy should be assessed based on the plans and actions the visioning process has led to. Preparing and committing to a roadmap leading towards the preferred futures is the step each actor subscribing to the vision must make. As an example, the representatives of the city of Turku participated in the visioning process and planned their roadmap.

For criteria three and four, regarding the scope and effectiveness of interpreting causally relevant facts, the current analysis and interviews provided the basis. However, all potential futures were not considered, but the focus was on identifying preferences. Thus, it could be possible to argue that the focus was more on effectiveness than scope. Effective interpretation is also taken well into account with roadmapping, based on the assessment by Kuusi et al. (2015a, 75-76).

As a foresight project, the work had “key customers” as Kuusi et al. (2015a, 72) describe criterion six. They continue, that each Futures Map is customer-specific, and thus the customers’ interests have to be considered. Furthermore, the customers have to be able understand and benefit from the results. In this particular case, the key customers are broad: from the 13–16-year-olds in basic education, the AuroraAI programme, and the stakeholders from different domains and sectors of society. Further steps are needed to ‘establish’ the constructed vision and work with the stakeholders for impact. In addition, the wider scope of the visioning, the transition towards human-centric society, requires that the results are understandable to many (criterion five). The developed format should help the wider audience to understand the ambition and direction towards the vision.

Based on the criteria, the developed and piloted visioning approach focused on criteria two, four and six. In addition, criterion five was important, too, and its importance can only be expected to grow: from the perspective of the transition towards a human-centric society, all actors of society may be considered as customers. Furthermore, as Stevenson (2006, 669) poses, it is paramount to consider who has the rights to represent a social unit, to construct a vision and to work towards it.

In addition to the pragmatic validity criteria for futures mapping processes, the qualities of a sound vision adapted from Wiek and Iwaniec (see Table 2) can be used as a basis for evaluation. The constructed vision reflects the visionary quality by portraying the preferred futures of the selected life-event to the age group and their stakeholders, using a timeframe of 20 years and different forms of expression. Similarly to the sustainability visions guiding towards sustainability, the life-event-based visions should guide towards human-centricity. The choices regarding the design of the life-event-based visioning approach were based on the life-event approach, the dimensions of well-being, and the presented theoretical framework. In addition, the outcomes of the process made use of the concepts and structures of the context. For example, the dimensions of well-being were used in the stakeholder analysis and the Futures Table, and the visioning approach utilizes the Futures Map by visualizing the preferred futures of different life-events.

The visioning approach considers the different levels of society from the individuals to the organizations and the society, and describes the preferred futures from the perspective of individuals of the life-event. Further efforts are required to consider the implications, for example, to describe how different parts of society work together within the preferred futures, and to describe the not-vision. Coherence is approached by examining the recognized desirabilities and tensions, which were used as the logic of the preferable futures images. Thus, the visioning approach appreciates the differences of ambitions and interests presented by the participants of the process. Furthermore, if the approach is applied to other life-events, there is a potential need to reconcile the dissimilar characteristics of the preferred futures of different life-events to preserve coherence.

In regards to the criterion of plausibility, although the probable pace of forces of change were not explicitly evaluated, the elements depicted in the preferred futures have roots in the present. The vision was presented in the form of four preferred images of the future and an overview statement for them. Furthermore, seven narratives were written to

concretize the images of the future. Hence, the vision was made tangible to a certain extent. Still, as discussed, the definition of leading indicators could make the vision and progress more explicit. Additionally, as each organization subscribing to the vision plans goals they can commit to, the questions of 'what does this mean?' and 'what does this mean to us?' are answered to and the level of tangibility increases. The same questions need to be considered to make the vision relevant to its stakeholders especially if they have not participated in the visioning process. With an organizational vision, the members of the organization prepare the vision and act on it. With a broader, societal vision such as the human-centric society and its preferred futures, from whose perspective should the vision be prepared in order for it to be relevant and motivational, and to lead to action?

In the project, participants were considered in the beginning as well as during the process, e.g., to identify potential and relevant participants to the virtual conference and to the preparation of the outcomes and their evaluation. The participants represented the 13–16-year-olds in basic education, their stakeholders and the AuroraAI programme, and the number of participants were disclosed in the Piloting the approach. Overall, participation to the development and pilot was open to all interested parties. Therefore, the basic assumption was that the participants want to see the vision come true and contribute to its realization from their part. Since the outcomes of the visioning process include elements of various desirability but overall all of the images of the future were considered preferable, the vision may be described as nuanced.

Based on the pragmatic validity criteria for futures mapping processes and the qualities of a sound vision, the different aspects of the process may indeed be evaluated. For a more detailed and possibly a comparative evaluation it would be beneficial to further elaborate the validity criteria and the qualities of a sound vision. Additionally, the explicit selection and integration of an evaluation framework with the life-event-based visioning approach would likely improve the maturity of the approach and its applications, and provide opportunities for continued research.

5.1.2 Operationalization

The developed approach has several identified limitations, which provide opportunities for further development and research. While the developed approach was used to construct a vision regarding a selected life-event, the experiences are limited since only one life-event has been worked with, and different life-events and situations in life have distinct characteristics.

As a whole, the operationalization and generalization of the approach will require more use, and formalization of the process, the methods and the tools. If the approach is to be applied to further life-events, scaling the process would certainly benefit from clear guidelines, checklists and templates. In addition, the experiences from the pilot should assist in assessing how successful each method were, and in improving the efficiency and efficacy of the process as a whole. If a particular method or tool is deemed inefficient or lacking in some way, substituting it with an alternative is not an impediment. In any case, exploring and experimenting alternatives may produce new benefits and certainly expand the toolkit. Although every life-event requires its own considerations, formalizing the approach so that the full scope of visioning a selected life-event is achieved within a specific timeframe could be a meaningful direction for the operationalization. Providing an estimate of the time and resources needed and describing the roles and responsibilities involved will help communicate the input required to apply the approach and address expectations.

Since the described preferred futures are not linked to specific organizations, each actor subscribing to the vision needs to interpret it from their own perspective, identify and assess the implications, or prepare a plan they can commit to. In its current form, the approach does not provide tools for the actors to work with the results. Developing such tools and making them accessible could improve the operationalization of the vision. Moreover, the tools should be approachable and user-friendly to begin with, and additional guidance and promotion may lower the barrier and widen the audience.

Besides the first application of the approach, the continued use may enable new possibilities. As the approach is refined through further applications and lessons learned, also the outcomes are developed further and grow in numbers. Analyzing the outcomes of visioning multiple life-events makes it possible to elevate the perspective from the preferred futures of individual life events to the full spectrum of life-events, their similarities, dissimilarities, interconnections, and to identify effective goals and priorities with wide impact. Although the results of a visioning exercise are not generalizable as such because of their subjective nature, it could be worthwhile to examine what it would mean to utilize the outcomes of visioning a life-event as a basis for visioning of another life-event. For example, could the preferred futures images of a life-event be evaluated and revised by the representatives of another life-event and their stakeholders?

5.1.3 Measuring progress

In the presented case, the development of a vision regarding the preferred futures of human-centric society in Finland 2040 from the perspective of 13–16-year-olds in basic education, was the starting point for the visioning approach. Indicators, e.g., metrics regarding the holistic well-being of people, are needed to monitor whether future decisions, actions, and changes in the environment are leading closer or further away from the preferred futures. The indicators need to be connected to the preferred futures as comparable states or rules, and wide-scale information is required to gain awareness of the then-current situation and direction of change. An interesting possibility would be to deconstruct the vision into the form of value pairs between which resides the boundary of the preferred and unpreferred futures. Since the desired transformation relates to the different levels of society and essentially a complex societal change, the leading indicators should be carefully defined and transparent.

While the initiative for the transformation towards a human-centric society is fairly recent, there are actors already working to achieve it. Therefore, additionally, the preferred futures may be used as a base for defining the characteristics of the 'seeds of a human-centric society', i.e., existing initiatives and actors already working towards the desired direction (cf. Bennett et al. 2016; Masini 2006). By presenting a clear and inspirational direction with positive examples, the network of actors that share the same ambitions may grow and strengthen.

5.1.4 Institutionalization

The additional step of 'institutionalizing' futures research is important for the continuity or continuation of specific futures work as too often projects or processes are one-off. Since the visioning approach was only developed and piloted, it is important to first assess whether the approach adds value and functions in a relevant manner in the specific context. If the fit and impact is seen to be positive, the systematization and institutionalization require attention. Since a vision should be revisited regularly to ensure that the direction is still valid from the perspectives of the actors and the environment, the steps for continuity should be agreed.

Should the approach be utilized with other life-events or in other contexts, consideration should be paid to this step from the beginning as, e.g., decisions regarding roles and responsibilities have long term impacts. For example, if the persons or organizations that

will be responsible after the process has been performed once, know their future role from the start, it will likely affect their participation and commitment to the process and its results. On the contrary, if the end results are handed over to an actor that has not been preparing them, they may not commit to them. Furthermore, involving and gaining the support of participants external to a selected life-event, but relevant in the wider context of life-events, situations if life and the transformation towards human-centric society could assist in the future. Therefore, while institutionalization may be listed as the last step, it is the one of first steps to be considered after deciding the domain of the exercise.

5.2 Considerations for futures studies

5.2.1 Towards shared concepts

Visioning is at the core of futures studies. While regarded as one of the methods unique to the field, there is a bereft of theory or at least a lack of consensus about the key concepts and terms related. Therefore, the research explored the concept of vision through multiple lenses to understand the various interpretations for and around it within futures research and foresight.

While acknowledging the several meanings of the term, the research proposes the definition of a vision as ‘a meaningful expression portraying the fundamental nature and characteristics of preferred futures to unite and empower the actions of those who want to create them’. The definitions centers on ‘the preferred futures’. A distinct character of a vision compared to any other idea about the future is the inherent value judgment regarding what should happen, as opposed to what could or is likely to happen. It must portray the nature and characteristics of the preferred futures to communicate the aspirations and assess the gaps. Since a vision may relate to an individual, organization, or society, or in the case of the life-event approach, to specific life-events and the people within or affected by those events, and the individuals, organizations and wider society around them, it should be portrayed in a meaningful format or formats to enable impactful communication with all stakeholders. Unlike other types of alternative futures, visions should by definition be targets of action. Thus, actors are essential: there must always be an individual or a group subscribing to the vision and committing to it. In addition, the vision should inspire and empower the actors to become and stay energized. The proposed definition includes the notion of the uniting functioning of a vision since a vision should be utilized to focus both intentions and actions.

The research identified three layers for ‘visioning’. First, visioning may imply the utilization of specific techniques, such as the Futures Time Travel, to envision preferred futures. Second, visioning may be used in reference to a foresight project aimed at creating a vision. Third, in addition to creating a vision, progress and changes should be evaluated in relation to the vision, and the thus, visioning ought to include continuous evaluation and possible revisions – a process. Thus, the research proposes the following definition: ‘Visioning is the group of activities, methods and techniques that aim to construct a vision or a revision to a vision’. Granted that the activities performed to pursue a vision are included in the Acting step of the Framework Foresight method, extending the definition of visioning to include the implementation activities could possibly create further ambiguity. Therefore, the steps after visioning may be considered as part of the larger foresight or futures mapping process. However, the Acting step could be interpreted to include possible adaptation to the unfolding uncertainty and changing preferences, which in turn may result in the need of revising the vision. Thus, the activities related to revisions of visions should be included in the definition.

From a different perspective, visioning may also be defined as a constant act of dialogue between an actor’s highest aspirations, intentions and agency as they make choices and take actions independently and collectively every day. While using the term ‘vision’ should entail a notion of an actor’s aspiration and intention, it is too often used to present an idea regarding possible futures. In such cases, consideration is required from the audience on interpreting what was actually communicated: an idea regarding a potential future or, for example, a future worth working towards. Discussing potential futures should not be confused with the portrayal of one’s intentions. For the academic field of futures studies, maintaining a consistent terminology would be an additional step of maturity – with the considerations on language developing over time of course. The non-academic communication needs to be considered, too. While the use of terminology might not be regarded as important as in the academic field, promoting the use of other terms than ’vision’ when communicating something without the inherent value judgments belonging to a vision would beneficial. For example, in such cases, substituting vision with a specific form of alternative futures if not even just referencing alternative futures. While a vision represents a specific type of an alternative future, promoting the general thinking and awareness of alternative futures would benefit the field significantly in the non-academic communications, too.

Furthermore, selecting a specific framework or multiple for different purposes of evaluating futures research and foresight projects, such as visioning, on a wide scale could be beneficial in regard to increasing the maturity of the processes and evaluating their impacts. The methodical use of evaluation frameworks combined with the reflection on usage would enable learning, and the further development of the evaluation frameworks and consequently futures research design, including the development and use of visioning approaches. Van der Steen and Van der Duin (2012) even claim that improving the evaluation would increase the outcomes of a study and therefore make the measurement itself invalid.

5.2.2 Futures Map

Futures landscape is a construct depicting the system of change, the interaction of a long term vision and short term action plans, and the alternative paths and bifurcation points in between, which can be visualized in the form of a Futures Map. Regarding the above-mentioned definition for a vision, the vision and acceptable futures of the Futures Map may be considered as the preferred futures and the basis of a vision. After a vision is created, paths from the preferred futures may be constructed with a backcasting exercise and scenarios, and thus describe the mapping horizon. Furthermore, to lead towards the vision, a roadmapping exercise and a roadmap may be used to depict the planning horizon. With the Futures Map, visions and visioning are not the starting point of detailed long term planning, and the nature of future as uncertain is considered. With the two horizons, the Futures Map encourages to think the long term, but to plan for the short term – for the period to which it is possible to commit to in the light of current knowledge. If the situation changes in a degree that makes the roadmap no longer valid, reassessment of the situation and a change of direction are needed. Consequently, an actor may consider the preferred futures on the Futures Map as reference points for acting on their values and mission, i.e. a destination, and proceeding towards that ideal while constantly gaining awareness of and adapting to external and internal change.

The role and functionings of a vision evolve over time. First, bringing people together to converse about their desires and ambitions, forming and elevating a group around the shared intentions, shaping and portraying a shared ideal and a direction, and guiding decisions and actions to enable the imagined desired future to come alive. Furthermore, the vision must be kept firmly in sight. Over time, the environment in which the vision was originally shaped changes both as result of the decisions and actions related to the vision

and everything else that take place in the environment, for example the decisions and action related to the visions of others'. Therefore, a vision should be revisited regularly and the visioning processes need to take this into account by promoting continuity. Furthermore, a vision that no longer serves the interests of its holders and the environment, or simply does not inspire, should be revised or even rejected and replaced as a result of a fitting visioning process. Consequently, a vision should be seen not as a rolling stone trying to blaze a trail with force, but as an adaptive stream of water enlarging existing waterways, creating new channels, and opening new pathways. Some visions will run dry or set, and some will carry far and even create new waves.

The Futures Map could be used to present the several functionings of visions described in Vision by metaphors. Each of the metaphors highlights different questions, which may be presented through a joint metaphor: viewing the creation of a vision and actions towards it as a journey on a dynamic Futures Map (see Table 7). The metaphors and questions may be used individually; however, combining them during visioning and when revising a vision could result in deeper understanding of divergent views, interests, enablers, barriers, and assumptions, and hence produce richer results. Still, further research is needed to evaluate, revise and operationalize the questions.

Table 7 Visioning metaphors as questions related to a futures journey

Metaphor	Questions
Platform	Where do I want to be in the future? Who am I with on the journey to the future? Where do others want to be in the future?
Motivator	Why do I or we want to get there?
Trigger	Why would others want to get there?
Hitching point	What are my intentions on getting there? What is the collective level of intentions to get there?
Critique	What is wrong with where we are now?
Crowbar	What stands on the way? How do we get pass it?
Secure cocoon	What is keeping us here?
Seed of change	What is moving us there already?

Magnet	What is different between where we are and where we want to be? What is pulling us there? How strong of a pull is it?
Compass	Which direction should we be heading? How do we know if it is the right way?
Ideological box	What do we take for granted? When do we know we need to change direction?

5.3 Further research

The possibilities for continued research are many from the issues presented in the discussion to emerging opportunities. Since the research was one of the first reported cases examining the utilization of the Futures Map frame, further research is needed. While the research focused on the vision and acceptable futures, and was able to develop a visualization for them, the mapping and planning horizons could benefit from continued research and experimentation. There is potential in the cross-utilization of these concepts and methods to enable the creation of compelling visualizations as a product of a structured process combining the best elements of visions, scenarios and roadmapping to a dynamic futures landscape visualized with the Futures Map.

The developed life-event-based visioning approach can be used to integrate the preferred futures of life-events and situation in life to a dynamic futures landscape. Additional uses of the approach to construct preferred futures for multiple life-events could provide the opportunity to further develop the approach and the integration of different preferred futures to the same visualization. In addition, the preferred futures of various life-events could provide an interesting starting point for further research of pluralistic backcasting and integration of multiple visions in a new context (see, e.g., Tuominen et al. 2014). From a different perspective, although the research did not examine the theoretical basis for life-events or life-event-based thinking, the broader context of life-course research may provide interesting research opportunities for the field of futures studies (see, e.g., Komp-Leukkunen 2020).

In addition, it would be interesting to examine how the results of the visioning process relate to other visions, for example the Strategy for Public Governance Renewal or

the 2030 Agenda for Sustainable Development, or to expand the presented research regarding visions and visioning with lenses related to personal, organizational and societal capabilities.

6 SUMMARY

Visions and visioning are key concepts of futures studies and one of the methods unique to the field, although there is a lack of consensus and theoretical understanding about the terminology and processes related. Therefore, the first aim of the study, to increase understanding regarding visions and visioning, was approached by exploring the various interpretations for vision as a concept in futures research and foresight. The research discussed definitions, types, forms, qualities, processes and metaphors, and as result presented definitions for both the concept of vision and the process of visioning.

The second aim, to increase attention for hybrid futures studies methods, was approached from two perspectives. First, by exploring the conceptual frame called Futures Map, which integrates several key concepts and methods of futures studies to construct a whole picture of a futures study, and then, through the development and pilot of a participatory visioning approach integrating multiple methods and concepts used in the field. Since the main focus of the study was on visions and visioning, the research studied the Futures Map to examine the possibilities of applying it for understanding and visualizing a dynamic futures landscape and the role of visions in them. The research suggests to view the creation of a vision and actions towards it as a journey on a dynamic Futures Map: developing a shared understanding of the futures landscape and the preferred destinations, committing to a path leading to their direction, constantly gaining awareness of and adapting to both internal and external change, and revising the destination, direction and actions.

The observations from the study of visions and visioning, and the Futures Map were used in the national artificial intelligence program AuroraAI to develop and pilot a participatory approach for visioning the preferred futures of a human-centric society through the lenses of life-events and situations in life. The developed approach was piloted with a single life-event, and as result of the visioning process the preferred futures of human-centric society in Finland 2040 from the perspective of 13–16-year-olds in basic education were constructed with participants representing the age group and their stakeholders. Both the further examination of the Futures Map and the utilization of life-event-based thinking in the visioning approach may be considered new research contributions as to the researcher's knowledge such work have not been conducted to date. The final contribution of the research was the discussion regarding the considerations for the further use of the developed visioning approach and the field of futures studies.

Affecting that the future is better than the present is one of the underlying purposes of futures studies. However, the concept of vision and the understanding regarding visioning processes and practices must evolve to address the previously observed deficiencies and fit the ever-changing complex environment they are used in. Currently, amidst a confluence of crises, it is of tremendous importance to create inspiring and hopeful visions with engaging and empowering means, to guide the decisions and steer the actions toward better futures for the well-being of the people and the planet. Visioning develops the ability of different actors in society to imagine, innovate and adapt. Furthermore, combined with methods enabling and assisting in the realization, visions become invaluable by lighting the preferred futures and providing shared platforms bringing people together.

> *"Futurists must think in terms of developing visions, attaining the capability of searching for and listening to the seeds of change in the process of history, and of building projects for the future through actions based on clearly articulated values, while acknowledging the legitimacy of other perceptions. Future studies can and must change in these directions so as to become a means for helping human beings better equip themselves to live in a changing world and to steer change to achieve their common benefit."* (Masini 2006, 1168)

REFERENCES

2030 Agenda for Sustainable Development. Prime Minister's Office. <https://kestavakehitys.fi/en/agenda2030>, retrieved 18.12.2020.

Aguilar, F. (1964) *Scanning the Business Environment*. Macmillan, New York.

Amara, R. (1981) The Futures Field: Searching for Definitions and Boundaries. *The Futurist*, Vol. 15(1), 25–29.

AuroraAI – Towards a human-centric society. Ministry of Finance. <https://vm.fi/documents/10623/13292513/AuroraAI+development+and+implementation+plan+2019%E2%80%932023.pdf >, retrieved 11.3.2020.

AuroraAI Vision theme group (2020a) Yläkouluikäiset 2040 – Tulevaisuuskuvien muodostaminen. Presentation on August 26, 2020.

AuroraAI Vision theme group (2020b) Ihmiskeskeinen ja ennakoiva yhteiskunta yläkouluikäisten näkökulmasta & Turun kaupungin siirtymäsuunnittelu. Presentation on September 16, 2020.

AuroraAI Vision theme group (2020c) Yläkouluikäiset vuonna 2040 – Ihmiskeskeinen ja ennakoiva yhteiskunta. Presentation at the general assembly of the Union of Local Youth Councils in Finland November 21, 2020.

Bell, W. – Mau, J. (1971) *The Sociology of the Future: Theory, Cases, and Annotated Bibliography.* Russell Sage Foundation, New York.

Bell, W. (1997) *Foundations of Futures Studies: History, Purposes and Knowledge. Human Science for a New Era. Vol. 1*. Transaction Publishers, New Brunswick.

Bennett, E. – Solan, M. – Biggs, R. – MacPhearson, T. – Norstrom, A. – Olsson, P. – Pereira, L. – Peterson, G. – Raudsepp-Hearne, C. – Beirmann, F. – Carpenter, S. – Ellis, E. – Hichert, T. – Galaz, V. – Lahsen, M. – Martin-Lopez, B. – Nicolas,

K. – Preisser, R. – Vince, G. – Vervoort, J. – Xu, J. (2016) Bright Spots: Seeds of a Good Anthropocene. *Frontiers in Ecology and Environment*, Vol.14 (8), 441–448.

Bishop, P. – Hines, A. (2012) *Teaching about the Future*. Palgrave Macmillan,

Bezold, C. – Peck, J. – Bettles, C. – Olson, B. (2009) Using Vision in Futures. In: Futures research methodology, Version 3.0., ed. by Glenn, J. – Gordon, T., CD-ROM. The Millennium Project, Washington D.C.

Cascio, J. (2020) Facing the Age of Chaos. <https://medium.com/@cascio/facing-the-age-of-chaos-b00687b1f51d>, retrieved 21.7.2020.

Dator, J. (1996) What futures studies is, and is not, in Dator, J. (2019). Jim Dator: A Noticer in Time. Selected Work, 1967–2018. Springer, Cham, Switzerland.

Dator, J. (2009) Alternative futures at the Manoa School. *Journal of Futures Studies*. Vol. 14 (2), 1–18.

European Foresight Platform (2010) What is Foresight?. <http://www.foresight-platform.eu/community/forlearn/what-is-foresight/>, retrieved 27.5.2020.

Flechtheim, O. K. (1996) *History and Futurology*. Verlag Anton Hain. Meisenheim-am-Glan, Germany.

Geels, F.W. (2002) Technological transitions as evolutionary reconfiguration processes: a multi-level perspective and a case-study. *Research Policy*, Vol. 31 (8-9), 1257-1274.

Gordon, T. J. – Glenn, J. C. (2009) Environmental scanning. In: Futures research methodology, Version 3.0., ed. by Glenn, J. – Gordon, T., CD-ROM. The Millennium Project, Washington D.C.

van der Helm, R. (2009) The vision phenomenon: towards a theoretical underpinning of visions of the future and the process of envisioning. *Futures*, Vol. 41 (2), 96–104.

Hines, A. (2020) Evolution of framework foresight, *Foresight*, Vol. ahead-of-print No. ahead-of-print. https://doi.org/10.1108/FS-03-2020-0018

Hines, A. – Bishop, P. (2013) Framework foresight: Exploring futures the Houston way. *Futures*, Vol. 51 (2013), 31–49.

Hines, A. – Gary, J. – Daheim, C. – van der Laan, L. (2017) Building foresight capacity: Towards a foresight competency model. *World Futures Review*, Vol. 9 (3), 123–141.

Hussain, M. – Tapinos, E. – Knight, L. (2017) Scenario-driven roadmapping for technology foresight. *Technological Forecasting and Social Change*, Vol. 124 (2017), 160–177.

Inayatullah, S. (1990) Deconstructing and reconstructing the future: Predictive, cultural and critical epistemologies. Futures, Vol. 22 (2), 115–141.

Inayatullah, S. (2008) Six Pillars: futures thinking for transforming. *Foresight*, Vol. 10 (1), 4–28.

Inayatullah, S. (2013) *Futures Studies: theories and methods*. in Fernando Gutierrez Junquera, ed., There's a Future: Visions for a better world. Madrid. BBVA. 36–66.

Irwin, T. (2015) Transition Design: A Proposal for a New Area of Design Practice, Study, and Research. *Design and Culture*, Vol. 7 (2), 229–246.

de Jouvenel, B. (2012) *The Art of Conjecture*. Routledge, New York.

Keidanren (2017) Society 5.0 for SDGs. <https://www.keidanren.or.jp/en/policy/csr/2017reference2.pdf>, retrieved 8.2.2020.

van de Kerkhof, M. (2006) Making a difference: on the constraints of consensus building and the relevance of deliberation in stakeholder dialogues. *Policy Sciences*, Vol. 39 (3), 279–299.

Komp-Leukkunen, K. (2020) What life-course research can contribute to futures studies. *Futures*, Vol. 124 (December), 102651.

Kuosa, T. (2011) Evolution of futures studies. *Futures*, Vol. 43 (3), 327–336.

Kuusi, O. (1999) *Expertise in the Future Use of Generic Technologies. Epistemic and Methodological Considerations Concerning Delphi Studies*. Doctoral dissertation. Government Institute for Economic Research, Helsinki.

Kuusi, O. – Kamppinen, M. (2002) Tulevaisuuden tekeminen. In: *Tulevaisuudentutkimus - Perusteet ja sovellukset*. ed. by Kamppinen, M. – Kuusi, O. – Söderlund, S. Suomalaisen Kirjallisuuden Seuran Toimituksia 896. Kirjakas/Tallprint, Helsinki.

Kuusi, O. – Cuhls, K. – Steinmüller, K. (2015a) Quality criteria for scientific futures research. *Futura*, Vol. 1, 60–77.

Kuusi, O. – Cuhls, K. – Steinmüller, K. (2015b) The Futures Map and Its Quality Criteria, *European Journal of Futures Research*, Vol. 3 (1), 22.

Linturi, H. – Linturi. M. – Jauhiainen, O-P. (2020) Uudistuva Delfoi-metodi ja eDelphi 2020. Delfoi-sarja 2/2019. Metodix Oy, Helsinki. <https://metodix.fi/2020/01/06/uudistuva-delfoi-metodi/>, retrieved 6.4.2020.

Lum, R. (2002) When in doubt, vision your way out. *Futures*, Vol. 34 (2002), 471–477.

Malaska, P. – Virtanen, I. (2009) Theory of Futuribles and Historibles. *Futura*, Vol. 1 (2009), 65–84.

Mannermaa, M. (1991) In Search of an Evolutionary Paradigm for Futures Research. *Futures*, Vol. 23 (4), 349–372.

Marien, M. (1985) Toward a new futures research: Insights from twelve types of futurists. *Futures Research Quarterly*, Vol. 1 (1), 13–14.

Masini, E. (2006) Rethinking futures studies. *Futures*, Vol. 38 (2006), 1158–1168.

Meadows, D.H. – Meadows, D.L. – Randers, J. (1992) *Beyond the Limits*. Chelsea Green Publishing Company, White River Junction VT.

Millennium Project, 15 Global Challenges <http://www.millennium-project.org/projects/challenges/>, retrieved 15.10.2020.

Minkkinen, M. (2019) Theories in Futures Studies: Examining the Theory Base of the Futures Field in Light of Survey Results. *World Futures Review*, Vol. 12 (1), 12–25.

Minkkinen, M. (2020) A breathless race for breathing space: Critical-analytical futures studies and the contested co-evolution of privacy imaginaries and institutions. Doctoral dissertation. Finland Futures Research Centre. Turku School of Economics. University of Turku. Turku.

Moore, M.L. – Tjornbo, O. – Enfors, E. – Knapp, C. – Hodbod, J. – Baggio, J.A. – Norström, A. – Olsson, P. – Biggs, D. (2014) Studying the complexity of change: toward an analytical framework for understanding deliberate social-ecological transformations. *Ecology and Society*, Vol. 19 (4), 54.

National Artificial Intelligence Programme AuroraAI. Ministry of Finance. <https://vm.fi/en/national-artificial-intelligence-programme-auroraai>, retrieved 11.3.2020.

OED Online, "vision, n.". Oxford University Press. <www.oed.com/view/Entry/223943>, retrieved 9.2.2020.

Piirainen, K. A. – Gonzalez, R. A. – Bragge, J. (2012) A systemic evaluation framework for futures research. *Futures*, Vol. 44 (5), 464–474.

Polak, F. (1973) *The Image of the Future*. Translated and abridged by Elise Boulding. Elsevier Publishing Company, Amsterdam.

Poli, R. (2018) A note on the classification of future-related methods. *European Journal of Futures Research*, Vol. 6 (15).

Quist, J. – Thissen, W. – Vergragt, J. (2011) The impact and spin-off of participatory backcasting: From vision to niche. *Technological Forecasting and Social Change*, Vol. 78 (2011), 883–897.

Robinson, J. (2003) Future subjunctive: backcasting as social learning. *Futures*, Vol. 35 (2003), 839–856.

Sardar, Z. (2010) The Namesake: Futures; futures studies; futurology; futuristic; Foresight – What's in a name?. *Futures*, Vol. 42 (3), 177–184.

Saritas, O., – Aylen, J. (2010) Using scenarios for roadmapping: The case of clean production. *Technological Forecasting and Social Change*, Vol. 77 (7), 1061–1075.

Schultz, W. (1995) Futures fluency: explorations in leadership, vision, and creativity.

Senge, P. (1990) *The fifth discipline: the art and practice of the learning organization*. Doubleday Currency, New York.

Senge, P. (1994) *The fifth discipline fieldbook: strategies and tools for building a learning organization*. Currency, New York.

Spaniol, M. J. – Rowland, N. J. (2018) The scenario planning paradox. Futures, Vol. 95 (January 2018), 33–43.

Van der Steen, M. – Van der Duin, P. (2012) Learning ahead of time: How evaluation of foresight may add to increased trust, organizational learning and future oriented policy and strategy. Futures, Vol. 44 (5), 487–493.

Stevenson, T. (2006) From vision into action. *Futures*, Vol. 38 (2006), 667–672.

Stiglitz, J. – Sen, A. – Fitoussi, J-P. (2009) Report by the Commission on the Measurement of Economic Performance and Social Progress. <https://ec.europa.eu/eurostat/documents/118025/118123/Fitoussi+Commission+report>, retrieved 25.3.2020.

Strategy for Public Governance Renewal. Ministry of Finance. Available: <https://publicgovernancestrategy.fi/>, retrieved 18.12.2020.

Son, H. (2015) The history of Western futures studies: An exploration of the intellectual traditions and three-phase periodization. *Futures*, Vol. 66 (February 2015), 120–137.

Tapio, P. – Hietanen, O. (2002) Epistemology and public policy: using a new typology to analyse the paradigm shift in Finnish transport futures studies. *Futures*, Vol. 34 (7), 597–620.

Tuominen, A. – Tapio, P. – Varho, V. – Järvi, T. – Banister, D. (2014) Pluralistic backcasting: Integrating multiple visions with policy packages for transport climate policy futures. *Futures*, Vol. 60 (2014), 41–58.

Tapio, P. – Rintamäki, H. – Rikkonen, P. – Ruotsalainen, J. (2017) Pump, boiler, cell or turbine? Six mixed scenarios of energy futures in farms. *Futures*, Vol. 88 (2017), 30–42.

Vinnari, M. – Tapio, P. (2013) Is futures studies a scientific discipline? – Who cares as long as the food is good! Paper presented at the Futures for Food, Turku. <https://futuresconference2013.files.wordpress.com/2013/06/ws6-vinnari-tapio.pdf>, retrieved 15.7.2020.

Voros, J. (2001) A Primer on Futures Studies, Foresight and the Use of Scenarios. *Prospect: The Foresight Bulletin*, Vol. 6 (1).

Voros, J. (2017) Big History and anticipation: Using Big History as a framework for global foresight', In: *Handbook of anticipation: Theoretical and applied aspects of the use of future in decision making*, ed. by Poli, R., Springer International, Cham.

Weisbord, M. – Janoff, S. (2010) *Future Search: Getting the Whole System in the Room for Vision, Commitment, and Action*. 3rd edition. Berrett-Koehler, San Francisco.

Wiek, A. – Iwaniec, D. (2014) Quality criteria for visions and visioning in sustainability science. *Sustainability Scienc,* Vol. 9 (4), 497–512.

Wilson, I. (1992) Realizing the power of strategic vision. *Long Range Planning*, Vol. 25 (5), 18–28.

Yläkouluikäiset 2040. Virtual conference on 19.5.2020. AuroraAI. Ministry of Finance. <https://www.facebook.com/103065048089498/videos/244723810084126>, retrieved 18.12.2020.

Zaidi, L. (2017) Building Brave New Worlds: Science Fiction and Transition Design. OCAD University.

Ziegler, W. (1991) Envisioning the Future. *Futures*, Vol. 23 (5), 516–527.

APPENDICES

APPENDIX 1 FUTURE-ORIENTED STATEMENTS

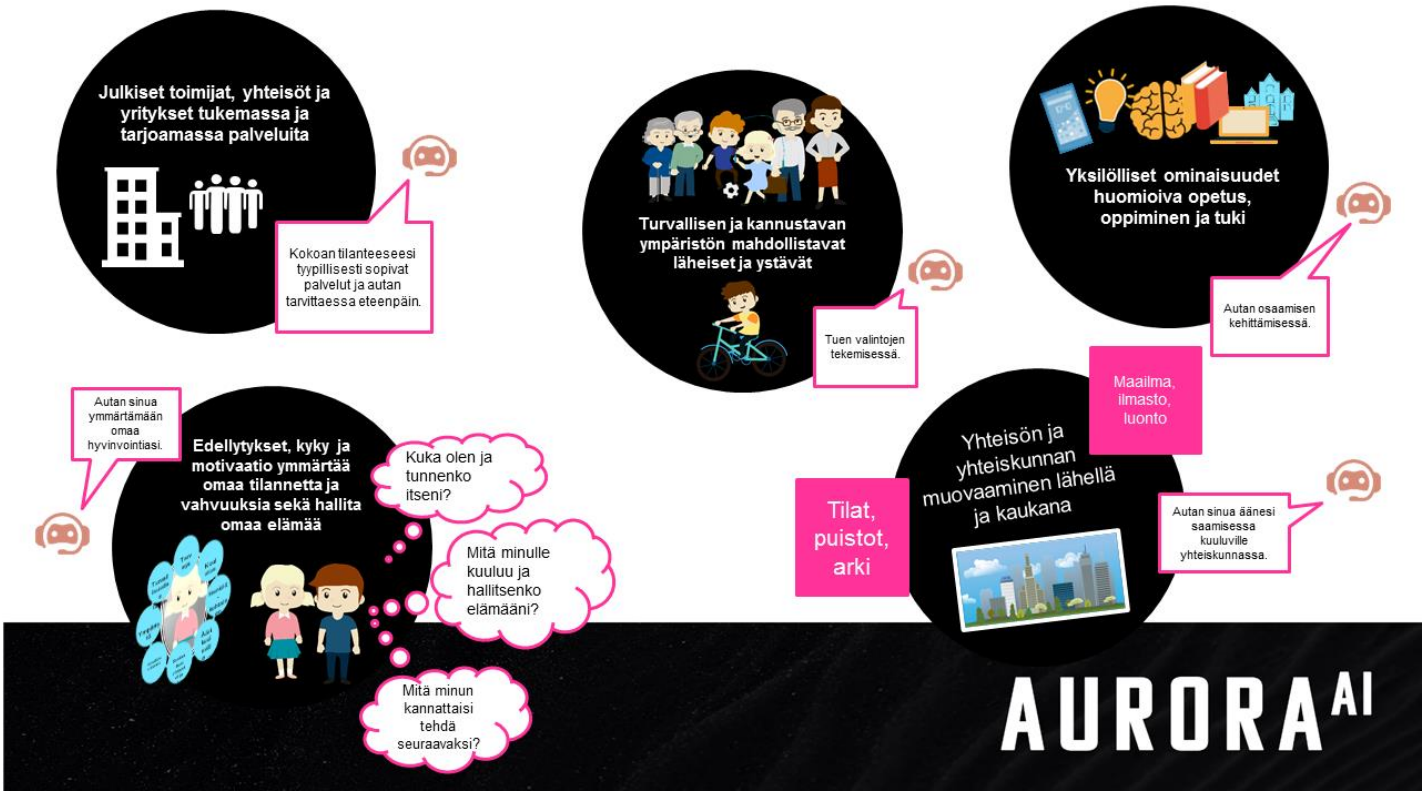
The following table consists of the future-oriented statements, which were formed based on expert interviews, belonging to five different themes. The content is in its original language.

Väite
Edellytykset, kyky ja motivaatio ymmärtää omaa tilannetta ja vahvuuksia sekä hallita omaa elämää
Väite 1: Vuonna 2040 yläkouluikäinen tuntee itsensä ja hänellä on kokonaiskuva omasta elämästään sekä kyky elää sitä haluamallaan tavalla ilman vanhempien tai läheisten erillistä ohjausta.
Väite 2: Virtuaalinen henkilökohtainen assistentti tai ihmisen kyvykkyyksiä täydentävä tukiäly on vuonna 2040 yläkouluikäisen yksityinen, luotettu kumppani, joka oppii ja kasvaa käyttäjänsä kanssa koko hänen elämänsä ajan.
Yhteisön ja yhteiskunnan muovaaminen lähellä ja kaukana
Väite 3: Vuonna 2040 yläkouluikäiset ovat täysivaltaisia yhteiskunnan jäseniä. He osallistuvat julkiseen päätöksentekoon kaikilla yhteiskunnan tasoilla omilla ehdoillaan ja tavoillaan, ja heidän kyvykkyyksiään ottaa osaa ja vaikuttaa kehitetään järjestelmällisesti.
Väite 4: Vuonna 2040 teknologia toimii yläkouluikäisen puolesta ajaen hänen etujaan, hoitaen hänen asioitaan ja turvaten hänen hyvinvointinsa.
Turvallisen ja kannustavan ympäristön mahdollistavat läheiset ja ystävät
Väite 5: Vuonna 2040 yläkouluikäinen kasvaa parhaaksi mahdolliseksi jäseneksi yhteisöönsä yhdessä läheistensä, koulu- ja elinyhteisönsä ja henkilökohtaisen virtuaalisen assistenttinsa kanssa.
Väite 6: Vuonna 2040 julkiset ja virtuaaliset tilat suosivat yläkouluikäisen elämää, olla kavereidensa kanssa ja toteuttaa itseään turvallisten aikuisten mahdollistaessa, kannustaessa ja tukiessa toimintaa.
Yksilölliset ominaisuudet huomioiva opetus, oppiminen ja tuki
Väite 7: Vuonna 2040 opetus valmentaa yläkouluikäisiä heidän tulevaisuuksiinsa, vahvuuksiensa tunnistamiseen ja kehittämiseen, sekä elinikäiseen oppimiseen yksilöllisesti. Samalla opetus on laajentunut koulun ulkopuolelle osaksi yhteisön toimintaa, jossa jokainen nuori käyttää vahvuuksiaan yhteisönsä hyväksi.
Väite 8: Vuonna 2040 opetus ja oppimisen tuki järjestetään pääosin virtuaaliympäristöissä.
Julkiset toimijat, yhteisöt ja yritykset tukemassa ja tarjoamassa palveluita

Väite 9: Vuonna 2040 julkiset organisaatiot, yhteisöt ja yritykset yhdessä ymmärtävät yläkouluikäisen ja hänen perheensä kokonaisvaltaisen tilanteen ja tarjoavat heidän tarvitsemat ja heille hyödylliset palvelut ennakoivasti.
Väite 10: Vuonna 2040 koulutusjärjestelmä, talousjärjestelmä ja hyvin pitkälti koko yhteiskunta ovat rakenteiltaan ja palveluiltaan pysyneet yhtä hyvinä kuin vuonna 2020.

APPENDIX 2 THEMES OF THE FUTURE-ORIENTED STATEMENTS

The following figure portrays the five themes of the future-oriented statements as originally presented in the virtual conference on May 19, 2020. The content is in its original language.



APPENDIX 3 THE PROGRAM OF THE VIRTUAL CONFERENCE

The following table describes the program of the virtual conference titled Yläkouluikäiset 2040 (translation: 13–16-year-olds in basic education 2040). The content is in its original language.

Aika	Ohjelma
9:10	Tervetuliaispuhe, alivaltiosihteeri Päivi Nerg
9:15	Infoa tapahtumapäivästä, Aleksi Kopponen, Valtiovarainministeriö
9:20	Johdatusta tulevaisuuteen, Mikko Dufva, Sitra
09:40	Ihmiskeskeinen digitalisaatio, Suvi Uski
10:05	Yläkouluikäiset tänä päivänä, Riikka Ikonen, THL
10:30	Tauko 10 min
10:40	Johdatus väitetyöskentelyyn, Tero Villman
10:50	Väitteitä 2040-luvulta
11:30	Tauko 60 min
12:30	Yhteenvetoa käsittelemistämme väitteistä
12:40	Paneelikeskustelu
13:00	Taukojumppa ja tauko 10 min
13:15	Paneelikeskustelu jatkuu
13:30	Tulevaisuuskuvat 2040
14:15	Tauko 15 min
14:30-15:30	Yhteenveto & kiitokset - miten tästä eteenpäin?

APPENDIX 4 EVALUATION OF THE FUTURE-ORIENTED STATEMENTS

The following table portrays the results from the evaluation of the future-oriented statements. Each statement was evaluated based on its desirability, feasibility and impact on a scale from three minuses ("---") to three pluses ("+++"): the scale for desirability ran from undesirable to desirable, feasibility from non-feasible to feasible, and impact from no impact to wide impact. The content is in its original language.

Väite	---	--	-	+/-	+	++	+++	Vastauksia
Väite 1: Vuonna 2040 yläkouluikäinen tuntee itsensä ja hänellä on kokonaiskuva omasta elämästään sekä kyky elää sitä haluamallaan tavalla ilman vanhempien tai läheisten erillistä ohjausta.								
Toivottavuus	8	5	6	1	11	6	6	43
Toteutettavuus	6	11	9	2	9	3	2	42
Vaikuttavuus	0	0	2	10	8	12	11	43
Väite 2: Virtuaalinen henkilökohtainen assistentti tai ihmisen kyvykkyyksiä täydentävä tukiäly on vuonna 2040 yläkouluikäisen yksityinen, luotettu kumppani, joka oppii ja kasvaa käyttäjänsä kanssa koko hänen elämänsä ajan.								
Toivottavuus	3	4	1	5	9	10	5	37
Toteutettavuus	2	2	1	4	11	12	5	37
Vaikuttavuus	0	1	0	5	8	7	16	37
Väite 3: Vuonna 2040 yläkouluikäiset ovat täysivaltaisia yhteiskunnan jäseniä. He osallistuvat julkiseen päätöksentekoon kaikilla yhteiskunnan tasoilla omilla ehdoillaan ja tavoillaan, ja heidän kyvykkyyksiään ottaa osaa ja vaikuttaa kehitetään järjestelmällisesti.								
Toivottavuus	3	4	3	4	10	3	10	37
Toteutettavuus	2	1	5	2	12	8	7	37
Vaikuttavuus	1	2	0	7	7	9	11	37
Väite 4: Vuonna 2040 teknologia toimii yläkouluikäisen puolesta ajaen hänen etujaan, hoitaen hänen asioitaan ja turvaten hänen hyvinvointinsa.								
Toivottavuus	6	5	1	5	5	9	7	38
Toteutettavuus	1	0	4	10	5	9	9	38
Vaikuttavuus	0	2	0	6	8	12	10	38
Väite 5: Vuonna 2040 yläkouluikäinen kasvaa parhaaksi mahdolliseksi jäseneksi yhteisöönsä yhdessä läheistensä, koulu- ja elinyhteisönsä ja henkilökohtaisen virtuaalisen assistenttinsa kanssa.								
Toivottavuus	1	0	3	6	5	6	13	34
Toteutettavuus	1	4	1	5	9	7	7	34
Vaikuttavuus	1	0	3	4	6	7	13	34

Väite 6: Vuonna 2040 julkiset ja virtuaaliset tilat suosivat yläkouluikäisen elämää, olla kavereidensa kanssa ja toteuttaa itseään turvallisten aikuisten mahdollistaessa, kannustaessa ja tukiessa toimintaa.								
Toivottavuus	0	0	1	4	2	12	14	33
Toteutettavuus	2	1	1	5	0	14	10	33
Vaikuttavuus	0	1	0	4	7	11	10	33
Väite 7: Vuonna 2040 opetus valmentaa yläkouluikäisiä heidän tulevaisuuksiinsa, vahvuuksiensa tunnistamiseen ja kehittämiseen, sekä elinikäiseen oppimiseen yksilöllisesti. Samalla opetus on laajentunut koulun ulkopuolelle osaksi yhteisön toimintaa, jossa jokainen nuori käyttää vahvuuksiaan yhteisönsä hyväksi.								
Toivottavuus	0	0	0	5	3	7	23	38
Toteutettavuus	0	0	4	6	5	10	13	38
Vaikuttavuus	0	1	2	2	5	14	14	38
Väite 8: Vuonna 2040 opetus ja oppimisen tuki järjestetään pääosin virtuaaliympäristöissä.								
Toivottavuus	6	11	7	3	1	2	3	33
Toteutettavuus	1	1	3	5	4	7	12	33
Vaikuttavuus	1	2	4	5	3	10	8	33
Väite 9: Vuonna 2040 julkiset organisaatiot, yhteisöt ja yritykset yhdessä ymmärtävät yläkouluikäisen ja hänen perheensä kokonaisvaltaisen tilanteen ja tarjoavat heidän tarvitsemat ja heille hyödylliset palvelut ennakoivasti.								
Toivottavuus	1	0	0	0	5	9	20	35
Toteutettavuus	4	1	2	3	8	7	10	35
Vaikuttavuus	0	0	0	1	3	14	17	35
Väite 10: Vuonna 2040 koulutusjärjestelmä, talousjärjestelmä ja hyvin pitkälti koko yhteiskunta ovat rakenteiltaan ja palveluiltaan pysyneet yhtä hyvinä kuin vuonna 2020.								
Toivottavuus	1	2	5	4	0	3	15	30
Toteutettavuus	2	2	1	7	5	5	8	30
Vaikuttavuus	2	0	0	9	2	5	12	30

APPENDIX 5 PREFERABLE FUTURES BASED ON THE FUTURE-ORIENTED STATEMENTS

The following descriptions are the 10 images of preferable futures of a human-centric and proactive society in 2040 from the perspective of 13–16-year-olds in basic education, one per future-oriented statement, created by the AuroraAI Vision theme group. The content is in its original language.

Väite 1: Vuonna 2040 yläkouluikäinen tuntee itsensä ja hänellä on kokonaiskuva omasta elämästään sekä kyky elää sitä haluamallaan tavalla ilman vanhempien tai läheisten erillistä ohjausta.

Yläkouluikäinen saa turvallisesti olla oma itsensä, etsiä rohkeasti omaa suuntaansa ja rakentaa itsetuntemustaan kokeillen ja oppien. Hän elää itselleen mielekästä elämää ja hänellä on terve suhde läheisiinsä sekä yhteisöönsä. Hänelle annetaan aikaa ja tilaa kasvaa, ja paine tehdä päätöksiä yhä aiemmin on keventynyt. Yläkouluikäisellä on edellytykset ja mahdollisuudet ottaa vastuuta omasta elämästään ja saada tarvitsemaansa ohjausta, tukea ja turvaa. Läheiset, yhteisö ja teknologia auttavat häntä oman elämänsä näkyväksi tekemisessä ja ymmärtämisessä. Nuori voi hyödyntää itseensä liittyvää tietoa halutessaan yhdessä muiden kanssa.

Teknologia täydentää ihmissuhteita ja yhteisöä ajasta, paikasta, kotioloista ja ihmissuhteiden tilanteesta riippumatta. Teknologia vahvistaa kykyä toimia yhteiskunnassa itsenäisesti ja tarjoaa tukea vaikkei olisi läheisiä, jotka sitä voisivat antaa. Itsenäisyys ei ole yksin pärjäämistä, yksinäisyyttä tai sooloilua. Nuoret kasvavat osana yhteisöä - niin vertaisten kuin aikuistenkin yhteisöä.

Teknologiset ratkaisut tarjoavat tietoa ja hoksautusta omasta tilanteesta, vahvuuksista ja kiinnostuksista sekä miten niitä voi hyödyntää omaksi ja yhteiseksi hyväksi, mahdollisuuksien avaruuden tutkimiseen ennen päätöksentekoa, sekä valistuneiden valintojen tekoon kohti suotuisia ura/hyvinvointipolkuja/kokonaishyvinvointia. Nuori voi löytää polkunsa vaikka ei olisi ketään ihmistä tukena tai vaikka kukaan ihminen ei hoksaisi suositella hänelle hänen piileviin vahvuuksiinsa soveltuvaa polkua. Päätöksiä ei kuitenkaan ulkoisteta koneelle.

Teknologia tarjoaa oikea-aikaisesti ja väsymättömästi tukea ja turvaa, ja tunnistaa tilanteet, joissa nuori tarvitsee ulkopuolista apua. Koko yhteisön paras tietämys on joka hetki nuoren saatavilla ja nuoren tukiverkosto toimii paremmin nuoren eduksi.

Nuoret ovat erilaisia, joten samanlaiset palvelut ja ratkaisut eivät sovi kaikille. Lisäksi pitää huomioida yksilöllinen biologinen kehitys ja murrosikä.

Väite 2: Virtuaalinen henkilökohtainen assistentti tai ihmisen kyvykkyyksiä täydentävä tukiäly on vuonna 2040 yläkouluikäisen yksityinen, luotettu kumppani, joka oppii ja kasvaa käyttäjänsä kanssa koko hänen elämänsä ajan.

Kotimaisilla kielillä vuorovaikuttava virtuaalinen henkilökohtainen assistentti eli tukiäly on vuonna 2040 yläkouluikäisen yksityinen, luottama kumppani, joka oppii ja kasvaa käyttäjänsä kanssa. Tämä virtuaalinen "koutsi/kummi" avaa nuoren puolesta hänen ajatuksiaan eli on avuksi sekä arkisissa puuhissa että elämän suunnan etsimessä. Se auttaa nuorta sanoittamaan omia tunnetilojaan, osaamistaan ja kokemuksiaan. Tukiäly auttaa nuorta hahmottamaan kokonaisuuksia ja ehdottaa vaihtoehtoja, mutta ei korvaa läheisiä. Nuorta ei vaadita eikä edes suositella noudattamaan tukiälyn ehdotuksia, vaan kehotetaan kriittisesti pohtimaan, ovatko sen ehdotukset järkeviä.

Vielä nyt vuonna 2040 tukiäly tarjoaa nuoren kysymyksiin melko suppeaan vastausten kokoelmaan (korpukseen) perustuvia vastauksia. Näin se pystyy edelleen vain vajavaisesti ottamaan huomioon nuoren erikoistilannetta, vaikka se tarjoaa nuoren valittavaksi monia vastaus- tai toimintamahdollisuuksia. Eli nuoret oppivat edelleen kuten 20 vuotta sitten pääasiassa tekemällä, kokeilemalla, reflektoimalla ja matkimalla.

Tukiälystä on ollut paljon apua erityisnuorille, joiden tarpeet ovat olleet erityisen huomion kohteena pääasiassa julkisilla varoilla rahoitetussa tukiälyssä, Toisin kuin kaupalliset virtuaaliset assistentit tukiäly on paitsi tuettavansa luotettu kumppani myös yhteiskunnan ja sen arvojen edustaja. Tukiäly korostaa nuorelle, että hänen valintansa vaikuttavat moniin. Näin tukiäly toimii nuorelle jonkinlaisena omantunnon jatkeena. Se kannustaa nuorta pohtimaan omia arvojaan ja tiedostamaan eritasoiset ja ristiriitaiset arvot. Luotettuna kumppanina se auttaa nuorta luovimaan vastuullisesti arvojen kentässä ja tiedostamaan hänen mahdollisuuksiaan vaikuttaa paitsi lähipiiriinsä myös globaaleihin yhteisiin haasteisiin kuten ilmastonmuutokseen.

Vaikka kehittyvään tekoälyyn perustuva tukiäly oppii itsenäisesti nuoren kanssa vuorovaikutuksessa puhekäyttöliittymänsä ja rajoitetusti näköaistinsa perusteella,

nuorella on paitsi puheellaan myös rajoitetusti tukiälyä suoraan ohjelmoimalla mahdollisuus vaikuttaa sen toimintaan. Erityisesti tämä liittyy tiettyjen tehtävien uskomiseen tukiälyn päätettäväksi. Erityisen tärkeä tehtävä, jonka monet nuoret ovat uskoneet tukiälylleen on nuoren OmaDatan hallinta määriteltyjen sääntöjen puitteissa. Yhteiskunta kuitenkin kontrolloi tukiälyä paitsi antamalla nuorelle sen perusarvoja edustavan tukiälyn, myös rajaten päätöksiä, joita se voi tehdä nuoren puolesta. Esimerkiksi tukiäly ei voi kieltää nuoren OmaDatan viranomaiskäyttöä laissa määrättyihin tarkoituksiin.

Väite 3: Vuonna 2040 yläkouluikäiset ovat täysivaltaisia yhteiskunnan jäseniä. He osallistuvat julkiseen päätöksentekoon kaikilla yhteiskunnan tasoilla omilla ehdoillaan ja tavoillaan, ja heidän kyvykkyyksiään ottaa osaa ja vaikuttaa kehitetään järjestelmällisesti.

Yläasteikäisten vaikuttaminen on niin laajaa, että he muokkaavat aktiivisesti ympäröivää yhteiskuntaa samalla tavoin kuin vanhemmat sukupolvet.

Yläkouluikäinen on aktiivinen yhteiskunnan jäsen, joka pääsee vaikuttamaan erilaisten vaikutusmuotojen kautta. Yläkouluikäisille opetetaan kouluissa äänestämisen ja puoluepolitiikan lisäksi esimerkiksi somevaikuttamista.

Matalan kynnyksen vaikuttamiskeinot kuten nuorisovaltuusto tavoittavat entistä enemmän yläkoululaisia ja mahdollistavat nuorille laajemmat vaikuttamismahdollisuudet. Nuorisovaltuustojen, oppilaskuntien ja muiden nuorten ryhmien toimintaa tuetaan ja niille annetaan selkeä paikka paikallisessa sekä valtakunnallisessa päätöksenteossa.

Nuorten osallistamista on vahvistettu tekemällä päätöksiä äänestysikärajasta. Nuoret ja lapset voivat säilyttää huolettomuuden elämässään, eikä äänestäminen aiheuta esimerkiksi merkittävää stressiä.

Poliittisessa päätöksenteossa pidetään huolta avoimuudesta ja selkeästä viestinnästä. Poliittisessa keskustelussa sekä valtionhallinnossa on päästy eroon poliittisesta liturgiasta ja kapulakielestä.

Väite 4: Vuonna 2040 teknologia toimii yläkouluikäisen puolesta ajaen hänen etujaan, hoitaen hänen asioitaan ja turvaten hänen hyvinvointinsa.

Teknologia toimii erityisesti niiden nuorten puolesta, jotka tarvitsevat eniten apua eli joilla ei muuten ole tukiverkostoa tai jotka ovat tipahtamassa tai tipahtaneet yhteiskunnan tukiverkostojen raoista. Lähtökohtana puolesta toimivalle teknologialle on, että jokainen pelastettu nuori on tärkeä saavutus.

Yhtenä esimerkkinä kun nuori itse ei osallistu yhteishakuun ensinkään, hänet sijoitetaan automaattisesti johonkin hakuihin mukaan, jolloin opiskelupaikka ikään kuin tulee takataskuun ja nuori voi sitten päättää sen vastaanottamisesta itse. Samalla tavalla teknologia auttaa nuoria löytämään kesätöitä. Erityisesti vammaiset nuoret tarvitsevat tällaista heidän puolestaan toimivaa teknologiaa.

Väite 5: Vuonna 2040 yläkouluikäinen kasvaa parhaaksi mahdolliseksi jäseneksi yhteisöönsä yhdessä läheistensä, koulu- ja elinyhteisönsä ja henkilökohtaisen virtuaalisen assistenttinsa kanssa.

Vuonna 2040 yläkouluikäinen elää yhteisössään omaa elämäänsä yhdessä virtuaaliassistenttinsa [VA] kanssa niin, että hän voi luottamuksella keskustella VA:n kanssa ja vastuuttaa se/hänet hoitamaan asioita, joiden hoitamiseen yläkouluikäisen itsensä ei enää ole syytä itse käyttää aikaa. VA tukee yläkouluikäistä tekemään parempia päätöksiä sekä elämään itselleen parasta arkea tavalla, joka myös vahvistaa yläkouluikäisen sitoutumista osaksi yhteisöään ja yhteiskuntaa. Yläkouluikäinen osallistuu aktiivisesti omassa käytössään olevan VA:n kehittämiseen ja hän tietää, miten VA käytännössä toimii ja kuka sen kehittämisestä vastaa.

Väite 6: Vuonna 2040 julkiset ja virtuaaliset tilat suosivat yläkouluikäisen elämää, olla kavereidensa kanssa ja toteuttaa itseään turvallisten aikuisten mahdollistaessa, kannustaessa ja tukiessa toimintaa.

Vuonna 2040 julkiset ja virtuaaliset tilat ovat kehittyneet entistä paremmin vastaamaan nuorten tarpeita. Tilat mahdollistavat nuorten omaehtoisen toiminnan ja toiminta tiloissa on lähtöisin aina nuorista, eikä aikuisista. Julkisissa tiloissa on läsnä turvallinen aikuinen tai muu auktoriteetti, jonka ansiosta tila on turvallinen kaikille nuorille. Häirintään ja ahdisteluun puututaan heti.

Väite 7: Vuonna 2040 opetus valmentaa yläkouluikäisiä heidän tulevaisuuksiinsa, vahvuuksiensa tunnistamiseen ja kehittämiseen, sekä elinikäiseen oppimiseen yksilöllisesti. Samalla opetus on laajentunut koulun ulkopuolelle osaksi yhteisön toimintaa, jossa jokainen nuori käyttää vahvuuksiaan yhteisönsä hyväksi.

Nuoria tuetaan aktiivisesti tunnistamaan vahvuuksiaan ja keskeisiä kehittämiskohteitaan. Tunnistamisessa hyödynnetään dataa (mm. rekisteritiedot, sosiaalisen median tiedot) laaja-alaisesti. Kerättyä dataa analysoidaan tehokkaasti ja monipuolisesti tekoälyä hyödyntäen. Tekoäly tukee yksilöllisesti oppilaiden oppimista, kehittymistä ja urasuunnittelua (oppimis- ja urapolkujen hahmottaminen). Samalla se tukee opettajien työtä eri tilanteissa mahdollistaen nykyistä paremmin heikkojen signaalien havainnoinnin sekä yksilöllisen ohjauksen ja tuen antamisen.

Perustaitoina korostuvat digitaalisten taitojen kyvykkyyksien ohella nk. pehmeiden taitojen (soft skills) kehittäminen (mm. ajanhallinta, verkostoituminen, ryhmätyöskentely, luova ajattelu, vastuullisuus, joustavuus, vuorovaikutustaidot).

Oppimisympäristö kattaa perinteisen koulumaailman ohella harrastustoiminnan ja yhteisöt. Koulumaailman ulkopuolella tapahtuvaa oppimista ja sen tunnistamista ja tunnustamista varten on yhdenmukaiset kansalliset digitaaliset työkalut.

Tekoälyllä tuettu urasuunnittelu mahdollistaa potentiaalisten vaihtoehtojen tunnistamisen huomioimalla nuoren vahvuudet, kyvykkyydet ja alalle soveltuvuuden. Tekoälyllä tuetut digitaaliset urasuunnittelutyökalut mahdollistavat osaamisen kehittämistarpeiden tunnistamisen, erilaisten uravaihtoehtojen tunnistaminen sekä työmarkkinatilanteen tarkastelun (sekä nykytilanne että ennusteet).

Erityistä huomiota tulee kiinnittää siihen, että tekoälyyn tukeutuvat ratkaisut (niiden taustalla olevat algoritmit) eivät lisää epätasa-arvoa, syrjäytymistä ja osattomuuden/huonommuuden tunnetta. Lisäksi tulee huolehtia siitä, että datan pohjalta rakennetut algoritmit ja mallinnukset päivittyvät riittävän usein, jotta tulokset eivät johda harhaan.

Väite 8: Vuonna 2040 opetus ja oppimisen tuki järjestetään pääosin virtuaaliympäristöissä.

Opetuksessa ja oppimisen tuessa hyödynnetään laaja-alaisesti virtuaaliympäristöjä ja tekoälyä. Ohjeistukset, materiaali ja suurin osa tehtävistä on digitaalisissa oppimisympäristöissä tukemassa kokonaisvaltaisesti ja tasa-arvoisesti ajasta ja paikasta

riippumatonta nuoren tietojen ja taitojen kehittymistä. Virtuaaliympäristöt tuovat huippuopettajat/luennoitsijat kaikkien ulottuville. Fyysisessä ”lähiopetuksessa” keskitytään vuorovaikutus- ja empatiataitojen, tiimityöskentelytaitojen sekä luovuuden kehittämiseen. Olennaista on huolehtia virtuaaliympäristössä tapahtuvan oppimisen ja lähiopetuksen välisen suhteen oikeasta tasapainosta. On tarjottava riittävästi aikaa ja mahdollisuuksia ihmisten väliseen aitoon kohtaamiseen ja kontakteihin myös kouluympäristössä.

Väite 9: Vuonna 2040 julkiset organisaatiot, yhteisöt ja yritykset yhdessä ymmärtävät yläkouluikäisen ja hänen perheensä kokonaisvaltaisen tilanteen ja tarjoavat heidän tarvitsemat ja heille hyödylliset palvelut ennakoivasti.

Nuorten ja heidän perheidensä elämä on helpottunut oikea-aikaisesti ja ennakoivasti tarjottujen hyödyllisten palveluiden avulla. Julkisen, yksityisen ja kolmannen sektorin yhteistyö on syventynyt ja eri toimijat tukevat toinen toisiaan teknologian avustaessa, jotta on pystytty vastaamaan erilaisten ihmisten ja tilanteiden tarpeisiin/vaatimuksiin.

Palveluntarjoavat saavat ihmisiltä heidän luvallaan tarvittavat tiedot ennakoivien palveluiden tarjoamiseen ilman pyyntöä. Ihmiset itse määrittävät tuen tarpeensa ja heille suositellaan vaikuttavuusarviointiin perustuen heille hyödyllisiä palveluita ja he itse valitsevat, mitä palveluita käyttävät. Palvelut oppivat käyttäjistään, jotta suosittelut ovat yhä parempia ja kohdennetumpia jatkossa. Lisäksi käytössä olevat palvelut osaavat myös tulkita vaaratilanteita ja hälyttää apua käyttäjän määrittelemän suojelun asteen mukaisesti.

Palveluiden toimintaa ohjaa yhteiset eettiset periaatteet. Yksityisyydensuojalle ja ongelmien ennaltaehkäisylle on määritelty selkeät valvottavat rajat. Lisäksi kaikilla toimijoilla on velvollisuus kertoa ihmiselle itselleen, mitä tietoa hänestä kerätään ja miten sitä käytetään (GDPR).

Väite 10: Vuonna 2040 koulutusjärjestelmä, talousjärjestelmä ja hyvin pitkälti koko yhteiskunta ovat rakenteiltaan ja palveluiltaan pysyneet yhtä hyvinä kuin vuonna 2020.

Vuonna 2040 yhteiskunta on kehittynyt ihmiskeskeisemmäksi huolehtien, että nykyisin hyväksi havaitut rakenteet ja palvelut säilytetään. Erityisen tärkeää on rakentaa

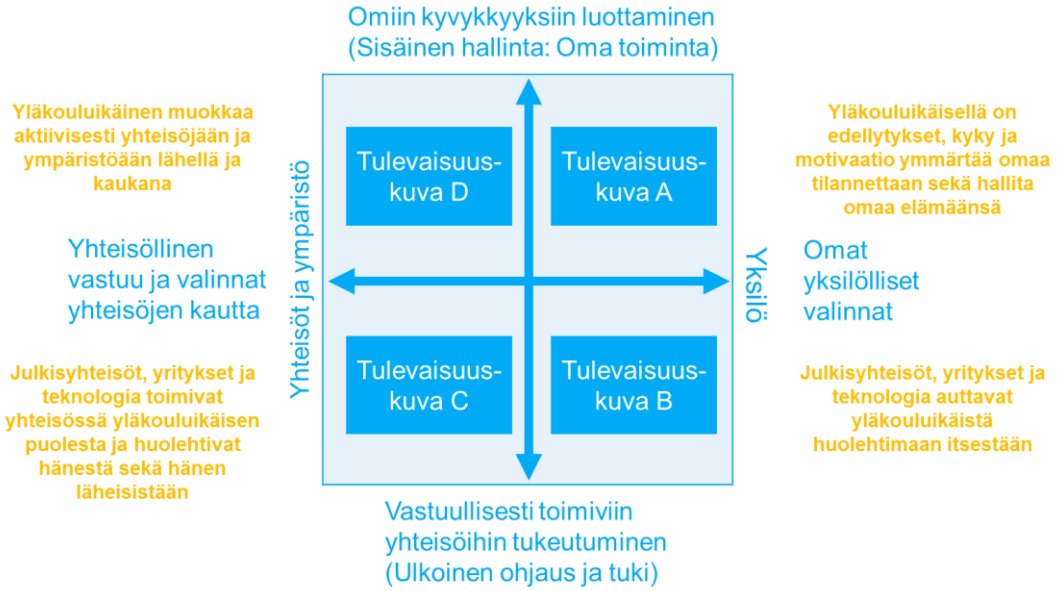
yhteiskuntaa ihmiskeskeiseksi kaikki erilaiset ryhmät huomioiden, ettei rakenneta yhteiskuntaa vain tietyn tyyppinen ihmiskäsitys tai ihmisryhmä mielessä eikä myöskään ainoastaan enemmistön ehdoilla.

Palveluita kehittävät ja tarjoavat yksityisen, julkisen ja kolmannen sektorin organisaatioiden lisäksi yksittäiset ihmiset, mukaan lukien nuoret.

Nopeasti kehittynyt digitalisaatio ja modernit teknologiat ovat mahdollistaneet yksilöllisyyden huomioimisen ja personoidut palvelut. Nuoret ovat aktiivisesti mukana myöskin tulevaisuuden teknisten ratkaisujen kehittämisessä.

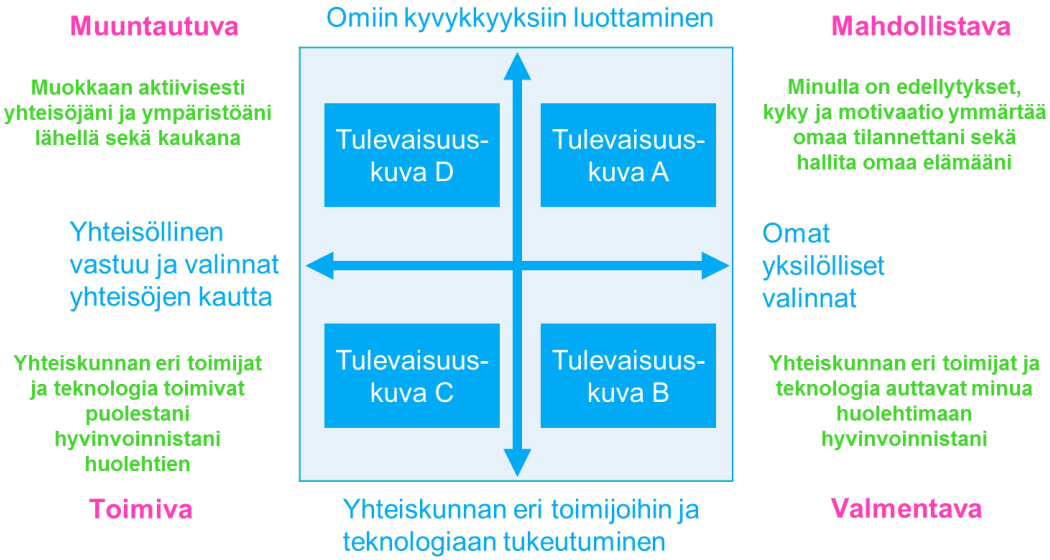
APPENDIX 6 THE INITIAL LOGIC AND DESCRIPTIONS FOR THE PREFERRED IMAGES OF THE FUTURE

The following figure portrays the initial logic and descriptions for the preferred images of the future of a human-centric and proactive society in 2040 from the perspective of 13–16-year-olds in basic education as originally presented in the AuroraAI programme. The content is in its original language.



APPENDIX 7 THE REFINED LOGIC AND DESCRIPTIONS FOR THE PREFERRED IMAGES OF THE FUTURE

The following figure portrays the logic and descriptions for the preferred images of the future of a human-centric and proactive society in 2040 from the perspective of 13–16-year-olds in basic education as originally presented in the AuroraAI programme and to the participants of the general assembly of the Union of Local Youth Councils in Finland. The content is in its original language.



APPENDIX 8 EVALUATION SURVEY

The appendix reports the questions and responses from the survey conducted to evaluate the overview statement of the images of preferred futures, the four preferred futures images and the related narratives. The content is in its original language.

Yläkouluikäiset 2040

Vastaajien kokonaismäärä: 23

1. Maakunta

Vastaajien määrä: 22

Maakunta	n	Prosentti
Uusimaa	11	50%
Varsinais-Suomi	0	0%
Satakunta	0	0%
Kanta-Häme	0	0%
Pirkanmaa	3	13,64%
Päijät-Häme	1	4,54%
Kymenlaakso	0	0%
Etelä-Karjala	0	0%
Etelä-Savo	1	4,54%
Pohjois-Savo	1	4,54%
Pohjois-Karjala	1	4,55%
Keski-Suomi	0	0%
Etelä-Pohjanmaa	1	4,55%
Pohjanmaa	0	0%
Keski-Pohjanmaa	0	0%
Pohjois-Pohjanmaa	2	9,09%
Kainuu	0	0%
Lappi	1	4,55%
Ahvenanmaa	0	0%

2. Vastaisiko kuvauksen kaltainen tulevaisuus sinun toiveitasi yläkouluikäisten elämästä ihmiskeskeisessä yhteiskunnassa?

Yläkouluikäiset vuonna 2040
Ihmiskeskeinen ja ennakoiva yhteiskunta yläkouluikäisten näkökulmasta

Meidän visiossa ihmiskeskeinen yhteiskunta luo kaikille mahdollisuudet kokonaisvaltaiseen hyvinvointiin yksilölliset erot huomioiden ja niitä arvostaen. Meillä on edellytykset, kyky ja motivaatio ymmärtää omaa tilannettamme sekä hallita omaa elämäämme. Läheisemme voivat hyvin, mikä heijastuu hyvinvointiimme. Lisäksi yhteiskunnan eri toimijat ja teknologia yhdessä valmentavat meitä ja auttavat huolehtimaan hyvinvoinnistamme. Kun tilanne sitä vaatii, he toimivat meidän puolesta meidän hyvinvoinnistamme huolehtien. Muutoin, he mahdollistavat meille vapautta automatisoimalla pakollisia velvollisuuksia ja tehtäviä puolestamme. Näin meillä on kyvyt, tuki ja mahdollisuudet muokata aktiivisesti yhteisöjämme ja ympäristöämme lähellä sekä kaukana – osana yhteisöjä, joissa äänemme kuuluu ja jotka muuntautuvat tarpeidemme mukaan.

Vastaajien määrä: 22

Minimiarvo	Maksimiarvo	Keskiarvo	Mediaani	Summa	Keskihajonta
2	10	7,18	8	158	2,15

Liukukytkimen arvon lukumäärä	n	Prosentti
0	0	0%
1	0	0%
2	1	4,54%
3	1	4,55%
4	2	9,09%
5	0	0%
6	2	9,09%
7	2	9,09%
8	8	36,36%

9	5	22,73%
10	1	4,55%

3. Mitä erityisen toivottavaa kuvauksessa on?

Vastaajien määrä: 16

Vastaukset
Kuvaus on hyvin ihmiskeskeinen ja huomioi ihmisen sosiaaliset tarpeet.
On tärkeää, että tulevaisuudessamme huomioidaan nuorten omat ja yksilölliset tarpeet, sekä annamme heille tilaisuuden toteuttaa itseään
Kattava avaus. Tämä olisi siisti juttu jos toteutuisi!
Kaikilla ihmisillä olisi mahdollisuus kokonaisvaltaiseen hyvinvointiin.
Yleinen hyvinvointi
En tiedä
Kyvyt, tuki ja mahdollisuudet muokata aktiivisesti yhteisöjämme ja ympäristöämme lähellä sekä kaukana
Annetaan vapautta ja vastuuta, mutta katsotaan, että kaikki sujuu hyvin.
Toisten erilaisuuksien arvostaminen ja hyväksyminen
Läheisemme voivat hyvin ja se heijastuu hyvinvointiin
Hyvinvointi.
"Meidän visiossa ihmiskeskeinen yhteiskunta luo kaikille mahdollisuudet kokonaisvaltaiseen hyvinvointiin yksilölliset erot huomioiden ja niitä arvostaen." Tämä kuulostaa hyvältä, joskin myös tietyissä asioissa yhteisö on tärkeämpi kuin yksilö.
Sisältää monipuolisesti nuoren elämän osa-alueet.
Automatisoidaan "helpot työt" jotta voidaan paremmin ja kehitetään maailmaa.
Kyky ymmärtää omaa hyvinvointia sekä edellytyksen siitä huolehtimiseen. On todella tärkeää että nuoret, sekä lapset saavat opetusta ja tukea oman hyvinvointinsa tutustumiseen sekä ymmärtämiseen, jotta he osaavat itse toimia ja ottaa vastuuta omasta hyvinvoinnistaan tilanne kohtaisesti.
Yksilöllisten erojen huomiointi. Aktiivinen rooli ja mahdollisuus muokata omaa ympäristöä.

4. Minkä asioiden et haluaisi toteutuvan?

Vastaajien määrä: 13

Vastaukset
Yksilön vastuuta on minimoitu. Hienoa, jos tällainen järjestely toimisi, mutta mielestäni ihmisellä on suurempi vastuu itsestään.
Kaikkia perusvelvollisuuksia ei tule automatisoida, sillä ne opettavat yläkoululaisille vastuunkantoa

hieman pelottaa teknologian ote meistä
Teknologian vaikutus ihmisiin ja ihmisyyteen ei saa olla liian suuri. Meidän on kehitettävä ihmisyyttä ja elämää niin että me emme oli teknologiasta riippuvaisia, sillä en näe sellaista tulevaisuutta kestävänä ajatuksena. "Muutoin, he mahdollistavat meille vapautta automatisoimalla pakollisia velvollisuuksia ja tehtäviä puolestamme." tämä kirjaus herättää mielessäni kysymyksiä? Mihin velvollisuuksin tämä viittaa?
Nopeamuuntautuinen
Automatisointi
-
Automatisointi pelottaa.
Koneiden ylivalta
Luulen, että kaikki asiat voisivat olla hyviä.
Pakollisten velvollisuuksien ja tehtävien automatisointi kuulostaa oudolta. Miksi niin pitäisi tehdä ja mitä seurauksia sillä olisi?
Vastuuta omasta hyvinvoinnista ei ole hyvä ulkoistaa, ennenkuin siihen on todella tarve ja henkilö oikeasti kokee tarvitsevansa tukea hyvinvointinsa ylläpitoon. Jos hyvinvointi on jatkuvasti osittain tai jopa kokonaan ulkoistettu ulkopuolisille toimielimille, on aiheellista kysyä kysymys; kuinka luonnollinen vietti omasta hyvinvoinnista huolehtimiseen pääsee toteutumaan?
" Kun tilanne sitä vaatii, he toimivat meidän puolesta meidän hyvinvoinnistamme huolehtien." Vaikuttaa vähän kyseenalaiselta, en ole varma haluaisinko kenenkään toimivan puolestani.

5. Mitä kuvauksesta puuttuu?

Vastaajien määrä: 14

Vastaukset
Ihmisen valintojen seuraukset, kuinka suuri rooli yhteiskunnalla.
Miten läheistemme hyvinvointi varmistetaan?
-
Ihmiskeskeisessä maailmassa tulee myös vahvasti huomioida suhde ympäristöön ja luontoon, eikä ihmiskeskeisyys voi ohittaa luonnon hyvinvointia. Sillä ilman toimivaa ja puhdasta ympäristöä ja luontoa meillä ei voi olla ihmisyyttä.
Ympäristöasiat
Järki
Kannustava ja omatoimiseen tekemiseen rohkaiseva ilmapiiri
Monikulttuurisuuden ja ympäristön laajempi huomioiminen.

Kuvaus siitä, mitä automatisointi tarkoittaa. Esimerkki siitä että jos ei ole hakenut yhteishaussa mihinkään, saisi automaattisesti muistutuksia siitä tms
Ihmisoikeudet, tasa-arvo ja ilmastonmuutoksen pysäyttäminen.
Ilmastonmuutoksen torjuminen ja yhteiskunnan mahdollinen muuttiminen sekä se, kuinka se on vaikuttanut vuoden 2040 yläkoululaisiin.
Konkretiaa.
Jos hyvinvointi korostuu jatkuvasti ihmisen elämässä joka osa-alueella, ja hyvinvoinnin arvoa painotetaan jatkuvasti, se voi luoda paineita ilmaista oman hyvinvoinnin epäkohtia. On toivottavaa että hyvinvoinnin epäkohdat nostetaan pinnalle ja niistä keskustellaan, jottei synny mielikuvaa siitä että hyvinvoinnin epäkohdat eivät olisi sallittuja tai hyväksyttyjä.
Yksilön toiminnan vaikutus ekologiseen ympäristöön

Neljä toivottavaa tulevaisuuskuvaa

1. Toimiva

Yhteiskunta on rakentunut hyvinvointini ympärille ja luonut kyvykkyyden tunnistaa, auttaa ja tukea ennakoivasti sekä yksilöllisesti minua. Käyttämäni teknologia antaa minulle oikea-aikaisesti tukea ja tarjoaa väsymättömästi turvaa, ja tunnistaa tilanteet, joissa tarvitsen ulkopuolista apua. Näin minä eikä kukaan muukaan apua tarvitseva jää sitä vaille.

Tekoäly on turvallinen ja toimiva osa jokapäiväistä elämääni, koska sitä hyödynnetään aidosti minun parhaaksi ja se myös estää minuun liittyvät väärinkäytökset. Voin luottaa siihen, koska kaikkien palveluiden suunnittelua ja toimintaa ohjaa yhteiset eettiset periaatteet, sekä yksityisyydensuojalle ja ongelmien ennaltaehkäisylle on määritelty selkeät valvottavat rajat. Lisäksi pääsen suoraan käsiksi tietoon, jota minusta on kerätty ja näen, miten sitä on käytetty.

Tekoäly auttaa minua automatisoimaan monia arkisia asioita ja siten saan keskittyä tekemään enemmän asioita mistä nautin. Yhteiskunnassa on kuitenkin yhteisesti sovittu, mitä tekoäly saa ja voi tehdä ihmisten puolesta.

Yhteiskunta on aidosti ihmiskeskeinen – kaikki erilaiset ryhmät on huomioitu. Yhteiskunnan eri toimijoiden välinen yhteistyö on syventynyt ja yhdessä ne pystyvät vastaavat erilaisten ihmisten ja tilanteiden tarpeisiin vastuullisesti. Kaiken kaikkiaan yhteiskunnasta on tullut tasa-arvoisempi ja kaikille parempi paikka.

6. Kuinka toivottavana pidät tätä tulevaisuuskuvaa?

Vastaajien määrä: 20

Minimiarvo	Maksimiarvo	Keskiarvo	Mediaani	Summa	Keskihajonta
1	10	7,05	8	141	2,19

Liukukytkimen arvon lukumäärä	n	Prosentti
0	0	0%
1	1	5%
2	0	0%
3	1	5%
4	1	5%
5	0	0%
6	2	10%
7	4	20%
8	7	35%
9	3	15%
10	1	5%

7. Mitä erityisen toivottavaa tulevaisuuskuvassa on?

Vastaajien määrä: 16

Vastaukset
Tekoäly hoitaa ihmisen asioita, jotka eivät ole tarpeellisia ihmisen itsensä hoitaa.
Se että tekoälylle saataisiin luotua toimivat ja luotettavat eettiset periaatteet, on erityisen tärkeää. Tämän lisäksi myös tulevaisuuden kuvan lopussa esitetty kaikkien ryhmien huomioiminen on erittäin toivottava
Yhteiskunta on ihmiskeskeinen. Se tulee olla päätavoite. "Lisäksi pääsen suoraan käsiksi tietoon, jota minusta on kerätty ja näen, miten sitä on käytetty."
"Tekoäly on turvallinen ja toimiva osa jokapäiväistä elämääni, koska sitä hyödynnetään aidosti minun parhaaksi ja se myös estää minuun liittyvät väärinkäytökset. Voin luottaa siihen, koska kaikkien palveluiden suunnittelua ja toimintaa ohjaa yhteiset eettiset periaatteet, sekä yksityisyydensuojalle ja ongelmien ennaltaehkäisylle on määritelty selkeät valvottavat rajat. " -Tärkeää on että tekoälyyn ja teknologiaan voi luottaa. Kuitenkin mielessäni herää epäilyksiä siitä, miten turvallisuus voidaan oikeasti aidosti taata. Eritysen hyvää tässä on ajatus siitä että näiden asioiden mahdollistamana maailma olisi tasa-arvoisempi ja kaikille parempi.

Ihmiskeskeisyys
Että kaikki ryhmät on hyväksytty
Palvelut toimisivat kaikille
Teknologian hyödyntäminen
Teknologia ja ihmisten läheisyys kulkevat käsikädessä.
Väärinkäytöksien estäminen ja yksityisyydensuojasta huolehtiminen
Tekniikka on oikeasti hyödyksi, mutta ei ota ylivaltaa
Hyvinvointi ja turva
Aidosti ihmiskeskeinen yhteiskunta ja teköälyn eettiset periaatteet ja säädetyt rajat.
Arki helpottuu.
Kaikki erilaiset ryhmät huomioidaan yhteiskunnassa.
Ihmiskeskeisyys ja se, että kaikkien erilaisten ryhmien etu on huomioitu. Tässä tietysti haasteena on se, että lienee mahdotonta huomioida kaikkien ryhmien etu, mutta utopioita pitää toki olla.

8. Minkä asioiden et haluaisi toteutuvan?

Vastaajien määrä: 14

Vastaukset
Tekoäly hoitaa kaiken.
En näe juuri seikkoja, joiden en haluaisi toteutuvan
tämä on hyvä näin
En halua että tekoälyllä on liian suuri rooli. Se on suhteellisen uusi asia, emmekä tiedä vielä mitä kaikkia vaikutuksia sen roolin kasvulla tulisi olemaan.
Nopean teknologisen kehityksen
Tekoäly vaikutaa olevan liian mukava se tuntuu autavan ihmisiä liikaa
Tekoälyn maailman valloitus
Arkisten asioiden täydellinen automatisointi
Liiallista tekoälyn käyttöönottoa.
Kuulostaa, että koko maailma on tekoälyn ympärillä.
Tekoälyn auttaminen arkisten asioiden automatisaatiossa
En halua että joku "ulkopuolinen" sanoo minulle mitä tarvitsen. Yhteiskunnan tehtävä ei ole olla holhoava.
Tekoäly estää kaikki ihmiseen kohdistuvat väärinkäytökset. Jatkuva -keskeisyys elämän kaikilla osa-alueilla.

En ole varma kuinka tarkasta yksityisyydensuojasta kuvauksessa puhutaan, mutta mielestäni valtion pitää päästä käsiksi ihmisten henkilökohtaisiin tietoihin esimerkiksi rikosoikeudellisista syistä (tiedustelulait). Tietysti yksityisyydensuojan pitää olla tiukka, mutta se pitää tarvittaessa voida murtaa.

9. Mitä tulevaisuuskuvasta puuttuu?

Vastaajien määrä: 13

Vastaukset
Mitä ihminen hoitaa itse?
Miten yhteisymmärrys siitä mitä tekoäly saa tehdä, voidaan saada aikaiseksi?
automaation vaikutukset - asian kääntöpuoli
Tekoäly ilmastonmuutoksen vastaisena toimijana olis hyvä ratkaisu.
Virusten torjunta
Kommunismi
Kaikki mitä yhteiskunnalta ajattelee. Teksti ei vastaa mitään tai kerro mitään ja on hyvin mitään sanomaton
Ympäristö ja ihmisten suhteet
Ilmastonmuutos
Tekoäly varmasti tulee osaksi jokapäiväistä elämäämme tulevaisuudessa, mutta pysyvätkö sosiaaliset suhteet yhä tärkeinä vai viettävätkö ihmiset liikaa aikaa puhelimensa parissa?
Miten yhteyskunnasta tulee tasa-arvoisempi?
Täytyy muistaa tasapaino vastuun jakamisessa tekoälylle ja ihmisille. Ihmisten on hyvä saada myös itse kantaa vastuuta elämässään, myös ikävistä asioista. Jos tekoäly mahdollistaa elämän maksimaalisen helppouden ja varmistaa että pystymme nauttimaan elämästä ja meille tärkeistä asioista mahdollisimman paljon -nautinnon ja helppouden arvo laskee. Kun totumme tekoälyn tuomaan mukavuuteen ja helppouteen, arvostuksemme kyseisiä asioita kohtaan sekä osaamisemme käsitellä vaikeita tilanteita ja tunteita laskee.
Se miten yksilö vaikuttaa omaan ympäristöönsä ja osallisuus ylipäänsä

Neljä toivottavaa tulevaisuuskuvaa

2. Valmentava

Minua kuunnellaan ja minulla on yhteisöissäni tilaa kasvaa, eikä minun tarvitse tietää ja osata kaikkea heti. Minulla on elämässäni useita valmentavia apureita, jotka auttavat minua ymmärtämään itseäni ja ympäristöäni, pyrkimään tekemään parempia päätöksiä myös pidemmälle tulevaisuuteeni ja hyvinvointiini liittyen, ja tukevat minua arjessa,

koulussa ja harrastuksissani. Yhteisöni paras tietämys on joka hetki minun saatavilla, ja esimerkiksi maailman huippuopettajat ovat kaikkien ulottuvilla. Kaiken kaikkiaan luotettava tuki ja aidot kohtaamiset ovat korvaamattoman tärkeitä minulle.

Läheisteni ja yhteisöni lisäksi tukiäly on minun yksityinen luotettu kumppani. Se on avuksi sekä arkisissa puuhissa että elämän suunnan etsimisessä ja mahdollisuuksien tunnistamisessa. Se auttaa minua ymmärtämään omia tunteitani, osaamistani ja kokemuksiani. Lisäksi se oppii ja kasvaa kanssani. Minä olen kuitenkin ajajan penkillä ja teen omat valintani. Päätän itse muun muassa, minkälaista tukea haluan ja mihin tarpeeseen, ja valitsen myös, mitä palveluita käytän.

10. Kuinka toivottavana pidät tätä tulevaisuuskuvaa?

Vastaajien määrä: 20

Minimiarvo	Maksimiarvo	Keskiarvo	Mediaani	Summa	Keskihajonta
0	10	7,05	8	141	3,12

Liukukytkimen arvon lukumäärä	n	Prosentti
0	1	5%
1	2	10%
2	0	0%
3	0	0%
4	1	5%
5	0	0%
6	1	5%
7	3	15%
8	3	15%
9	6	30%
10	3	15%

11. Mitä erityisen toivottavaa tulevaisuuskuvassa on?

Vastaajien määrä: 15

Vastaukset
Ihmisellä on apua, mutta hän kuitenkin hallitsee tilanteensa.
Tuen tarjoaminen jokaisen yksilöllisten tarpeiden mukaan

tää on pro, kiva että tietoa olisi tulevaisuudessa helppo saada tietoa ympäristöstä
Tekoäly kulkee rinnalla apurina silloinkun sitä tarvii. On hyvä että korostetaan sitä, että ihminen kuitenkin on se joka elämänsä päätökset tekee. On tilaa kasvaa ja toteuttaa itseään omalla tavallaan siihen tukea yhteiskunnalta saaden.
Ihmisläheisyys
Että minua kuunellaan on kiva
Ihmisten auttaminen
Mahdollisuus saada apua ja opastusta laajalla tasolla
Kuunteleminen ja omien mielipiteiden näkyville saaminen
Tuki ja tietoisuus
Hyvin kiinnostavasti muotoiltu tulevaisuuskuva, joka vaikuttaa hyvältä.
Oppimisen edistäminen ja ihminen tekoälyn kuskina.
Oma vapaus
Ihmisen ei tarvitse olla heti valmis, mutta hänellä on mahdollisuus monipuoliseen tiedonhankintaan ja opetukseen.
Yksilö on selkeästi johdossa ja valitsee mitä tukea haluaa.

12. Minkä asioiden et haluaisi toteutuvan?

Vastaajien määrä: 13

Vastaukset
Tuen saaminen on tärkeää, mutta yksilölle pitää jättää myös tilaa epäonnistua, sillä nämä ovat parhaita paikkoja oppia
tää on hyvä
Monen henkilön tukiverkon
tukiäly kuulostaa tavalta kerätä ihmisitä tietoa
Teko tukiälyn maailman valloitus
Tukiäly kuulostaa huolestuttavalta tietoturvan suhteen
Liiallista valinnanvapautta nuorella iällä vaikeissa tilanteissa
Vaikuttaa Marxilais-leninismiseltä yhteiskunnlta
Luotettavan kumppanini olevan tekoäly
-
En ehkä haluaisi "kumppaniksi" ketään elotonta.
Tekoälyn jatkuva tuki ja henkilökohtaisena"kumppanina" toimiminen.
Ennen viimeistä lausetta kuvaus alkoi vaikuttaa jopa holhoavalta. Loppua kohti kuitenkin parani ja on erinomaista, että huippulaadun palvelut on tarjolla.

13. Mitä tulevaisuuskuvasta puuttuu?

Vastaajien määrä: 10

Vastaukset
Miten toimitaan tilanteessa missä yksilö ei halua hankkia apua vaikka sitä tarvitsisi?
Ehkä yksillisempi valmennus? Nuoren koulutuspolku yms
Suhde ympäristöön ja luontoon.
Vanhemmat
Epämukavuus
Tulevaisuus
Teknologian hyödyntäminen ja ympäristön huomioiminen osana hyvinvointia
Agenda 2030
-
Ihmiselle täytyy antaa tilaa myös omalle ajattelulle, joka voi jäädä vähemmälle jos kaikki tieto ja opetus on aina saatavilla

Neljä toivottavaa tulevaisuuskuvaa

3. Mahdollistava

Etsin rohkeasti suuntaani. Minulla on edellytykset, mahdollisuudet ja kyvyt ottaa vastuuta omasta elämästäni ja hyvinvoinnistani. Samalla minulla on oikeus olla nuori ja kasvaa rauhassa ilman liian suuria paineita yhteiskunnasta. Opin tekemällä, kokeilemalla, matkimalla ja ajattelemalla itsenäisesti – ilman, että joku kertoo minulle miten täytyy toimia. Käytän teknologiaa arjen aikataulujeni, opiskelujeni, harrastuksieni ja ruokavalionikin suunnitteluun omien tarpeideni mukaan. Teknologia auttaa minua tuntemaan itseni sekä ympärilläni olevat asiat ja ihmiset, näin mahdollistuu sujuvampi arki.

Läheiseni voivat hyvin, mikä heijastuu minun hyvinvointiini. Perheeni tai muutkaan seikat eivät rajoita tulevaisuudensuunnitelmiani. Käytän erilaisia palveluita omien arvojeni mukaisesti. Julkiset ja virtuaaliset tilat vastaavat minun ja yhteisöjeni tarpeisiin. Tilat ovat turvallisia kaikille, ja se, mitä teemme, on lähtöisin meistä itsestämme. Olen iloinen ja suhtaudun luottavaisesti tulevaisuuteen.

14. Kuinka toivottavana pidät tätä tulevaisuuskuvaa?

Vastaajien määrä: 20

Minimiarvo	Maksimiarvo	Keskiarvo	Mediaani	Summa	Keskihajonta
1	10	8,55	9	171	2,14

Liukukytkimen arvon lukumäärä	n	Prosentti
0	0	0%
1	1	5%
2	0	0%
3	0	0%
4	0	0%
5	0	0%
6	1	5%
7	1	5%
8	5	25%
9	3	15%
10	9	45%

15. Mitä erityisen toivottavaa tulevaisuuskuvassa on?

Vastaajien määrä: 16

Vastaukset
Mahdollistaa ihmisen itsensä toteuttamisen.
Kokeileminen kasvattaa ja sen mahdollistaminen on tärkeää eritoten yläkouluiän identiteetin etsimisvaiheessa
Rohkea tarttuva ote nuoren elämään. Hyvää työtä!
Pidän tästä opimistisesta ja itsenäisestä tulevaisuuden kuvasta. Ihminen on yksilä joka tekee päätöksensä itse. Yhteiskunta ei painosta tai ohjaa yksilön kasvua liikaa vaan yksilö voi itse vaikuttaa siihen minkälaisia malleja näkee. Kaikki on kuitenkin lähtöisin ihmisestä itsestään.
Ruoantuotanto
Että opiminen on yksilökohtaisempaa
Läheiset voivat hyvin
Itsenäisyys ja joustavuus
Omien arvojen ottaminen huomioon
Juuri sopivasti kaikkea

Huolettomuus
Mitkään seikat eivät estä omaa tulevaisuudensuunnitelmaa
Teknologia helpottaa arkea.
Oppiminen ei ole tietynlaista, vaan jokainen voi oppia omalla tavallaan.
Nuorilla on tilaa olla nuoria, juuri omalla ainutlaatuisella tavallaan. Nuori saa paljon tukea ja hyväksyntää valintoihinsa.
Julkiset ja virtuaaliset tilat, henkilön laajat mahdollisuudet toimia ja myös epäonnistua. Varsinkin epäonnistuminen on tärkeää, näin nuorisovaltuutettuna huomaa monesti, että aikuiset tulevat turhaan sörkkimään paikkoihin, jotka kuuluisivat selkeästi esim. nuvan päätäntävaltaan. Nuorilla pitää olla myös oikeus epäonnistua ja kokeilla asioita.

16. Minkä asioiden et haluaisi toteutuvan?

Vastaajien määrä: 9

Vastaukset
Saavatko kaikki elämäänsä eteenpäin varsinkin nuorena näin rennolla toiminnalla?
Nuoret kaipaavat myös ohjausta sillä maailma on ajoittain hämmentävä paikka, tässä skenaariossa sitä ei olisi riittävästi tarjolla
en halua teknologian auttavan minua tulkitsemaan ihmisiä
Matkimisen
En haluaisi että teknologia autaisi mua tuntemaan ihmisiä
Liiallinen päätäntävalta nuorehkolla iällä.
-
Se, ettei joku kerro jollekulle, että jonkun pitää tehdä jotakin, tuntuu peruskoulun näkökulmasta oudolta..
Tuo vaikuttaa silti, että on hyvinkin riippuvainen teknologiasta. Ei olisi hyvä, jos on liian riippuvainen.

17. Mitä tulevaisuuskuvasta puuttuu?

Vastaajien määrä: 10

Vastaukset
Miten perheen asettamat rajoitukset estetään?
liikkuminen nuorille helpommaksi
Tässäkin tulisi huomioida vaikutukset ympäristöön ja luontoon. Vaikka ihminen olisi kuika vapaa ja itsenäinen tulee olla myös velvollisuus huolehtia maapallon hyvinvoinnista.
Myöhempi ikävaihe
Yksinäiwyys ja
Ympäristön huomioiminen

-
-
Oman tulevaisuuden suunnittelu.
Tämä olisi täydellinen tulevaisuuskuva, jos siinä vielä mainittaisiin, että miten yksilö voi vaikuttaa yhteiskuntaan. Ehkä tulevaisuutta pohtien haluaisin myös jonkunlaisen linkin ekologiseen kestävyyteen, mutta saattaa olla tietty vähän huti.

Neljä toivottavaa tulevaisuuskuvaa

4. Muuntautuva

Yhteiskunnallinen päätöksenteko ja keskustelu on läpinäkyvää, selkeää ja helposti ymmärrettävää meille kaikille. Matalan kynnyksen vaikuttamiskeinot ovat tavoittaneet nuoret ja meitä aidosti kuunnellaan ja arvostetaan.

Minulla on monipuoliset mahdollisuudet vaikuttaa ympäristööni ja yhteisööni. Nuorisovaltuustojen, oppilaskuntien ja muiden nuorten ryhmien toimintaa tuetaan ja niillä on selkeä paikka paikallisessa sekä valtakunnallisessa päätöksenteossa. Olen aktiivisesti mukana kehittämässä yhteisöjäni yhdessä muiden nuorten, julkisen ja kolmannen sektorin sekä yksityisten yritysten kanssa. Osallistun uusien palveluiden, julkisten tilojen, käyttämieni teknologioiden ja erilaisten tulevaisuuden ratkaisujen kehittämiseen.

Lisäksi henkilökohtainen tukiäly auttaa minua tiedostamaan mahdollisuuksiani vaikuttaa paitsi lähipiirini myös globaaleihin yhteisiin haasteisiin kuten ilmastonmuutokseen. Vaikuttamismahdollisuuksien lisäksi vaikuttamistaitojen kehittäminen on tärkeä osa koulutusta. Vaikutuksemme näkyy parhaiten palveluiden nopealla muuntautumiskyvyllä muuttuviin tarpeisiin ja meidän nuorten sekä koko yhteisömme kokonaisvaltaisena hyvinvointina.

18. Kuinka toivottavana pidät tätä tulevaisuuskuvaa?

Vastaajien määrä: 18

Minimiarvo	Maksimiarvo	Keskiarvo	Mediaani	Summa	Keskihajonta
0	10	8,06	9	145	2,39

Liukukytkimen arvon lukumäärä	n	Prosentti

0	1	5,55%
1	0	0%
2	0	0%
3	0	0%
4	0	0%
5	0	0%
6	1	5,56%
7	4	22,22%
8	2	11,11%
9	5	27,78%
10	5	27,78%

19. Mitä erityisen toivottavaa tulevaisuuskuvassa on?

Vastaajien määrä: 15

Vastaukset
Auttaa nuorta olemaan aktiivinen kansalainen?
Ajan ja paikan mukana muutautuminen on erityisen tärkeää, sillä se mahdollistaa meille mahdollisuuden selviytyä monenlaisista tilanteista. Myös nuvien ja muiden vastaavien ryhmien tukeminen on tärkeässä asemassa
äärimmäisen tärkeä. Vaikutustyö nousee hyvin esiin
Tässä on mainittu kaikki oleellinen. Jokaisella yksilöllä tulee olla oikeus vaikuttaa omaan elämäänsä sen eri tasoilla. Eri ihmisryhmiä ei aseteta eri arvoisiin asemiin vaan kaikilla on mahdollisuus vaikuttaa. Tässä on mainittu myös muuttuva ilmasto, jota kaipasin muihin tulevaisuus kuviin. Yhteiskunta on aito ja läpinäkyvä.
Päätöksenteko
Sw että kaikki pystyy vaikutamaan helposti asioihin
Mahdollisuus vaikuttaa
Vaikuttamismahdollisuudet
Ajatellaan kaikkien parasta
Nuorten vaikutus
Ilmastonmuutokseen vaikuttaminen
Nuorison merkittävä asema päätöksenteossa, matala kynnys osallisuuteen ja nuorten mahdollisuuksien laajuus,
Päätöksenteon läpinäkyvyys
Nuorten aktiivinen vaikuttaminen yhteiskunnassa. Nuorten vaikuttamistaitojen kehittäminen.

Vaikutusmahdollisuudet.

20. Minkä asioiden et haluaisi toteutuvan?

Vastaajien määrä: 8

Vastaukset
Ei juuri poistettavaa
ilmastonmuutoksen
Ryhmien
Yksityisten yritysten kanssa yhteistyö kulostaa tyhmältä
Teko tukiäly pois
Tukiäly
Paineet
Se on hyvä, että vaikuttamismahdollisuuksia ja -kykyjä kehitetään ja kynnystä vaikuttaa alennetaan, mutta pitää pitää myös mielessä, että kaikkia henkilöitä ei voi kiinnostaa esimerkiksi politiikka. Politiikan ja kansainvälisen keskustelun ymmärtäminen on kyllä hyödyllistä.

21. Mitä tulevaisuuskuvasta puuttuu?

Vastaajien määrä: 11

Vastaukset
Entä ne, ketkä eivät ole kiinnostunut vaikuttamisesta jne.?
Miten nuvatoiminta ja muu vastaava kehittyy tekoälyn myötä?
vahvemmin viesti järjestelmien kehittämisestä. Esim. koronakeväänä kaiken siirtyminen etäyhteyksiin on muuntautumista
Tässä voisi myös korostaa yksilöllisyyttä. En tiedä mihin kuvaukseen tämä ajatus kannattaisi kirjata mutta laitan sen tähän. Toivoisin, että ihmiskeskeisessä tulevaisuus kuvassa huomioitaisiin se tosi asia, että ihminen on kuitenkin myös eläimen kaltainen, eikä ihmistä tulisi asettaa kaiken muun yläpuolelle ja muut elävät olennot ja niiden hyvinvointi tulisi myös huomioida.
Yksilöllisyys
en osaa sanoa
Koulutuksen merkitys
Tasa-arvo
-
Vaikuttamisen tuoman vastuun ymmärtäminen, ja juuri oman kannan tiedostaminen. Oma kanta täytyy olla selkeä ja vahva, se ei saa sekoittua esimerkiksi oman yhteisön tai lähipiirin ihmisten kantojen kanssa.

Tämän ja edellisen tulevaisuuskuvan yhdistelmä olisi erinomainen.

22. Mikä kuvaus vuoden 2040 yläkouluikäisen elämästä on mielestäsi innostavin?

Vastaajien määrä: 22

Vastaukset	n	Prosentti
Teknologiasta sujuvuutta arkeen	5	22,73%
Vuorovaikutuksellinen automaatio tukee arkirytmiäni	1	4,54%
Lisälaitteet nuoren elämän apuna	1	4,54%
Tukiohjelmat valmentavat nuorta arjen joka tilanteessa	3	13,64%
Tekoäly tukee tulevaisuuden oppimista	5	22,73%
Teknologia mahdollistaa tekoälyllistä sosiaalisuutta	0	0%
Teknologiasta rajattomasti mahdollisuuksia erilaisiin vaikutustapoihin	7	31,82%

23. Mikä tekee kyseisestä kuvauksesta innostavan?

Vastaajien määrä: 15

Vastaukset
Tukee nuoren kasvua oman vastuun huomioiden.
Osallisuus sytyttää aina ja on tärkeää että nuorille tarjotaan mahdollisuus vaikuttaa monilla erilaisilla ja juuri heille sopivilla tavoilla - vain näin saamme rakennettua aidosti nuorten näköisen tulevaisuuden
arvostan sujuvuutta
Se että teknologia voisi mahdollistaa uusia tapoja vaikuttamiseen. Tämä voi lisätä ihmisten mahdollisuutta vaikuttaa elämänsä kulkuun minkä nään hienona asiana.
Läheisten suuri rooli
Koska meillä on jo nytten paljon avulisasta roskaa ehk se on kiinostavampaa
Ihmisen läheisin ratkaisu
Siinä tukeudutaan perinteisiin menetelmiin tekoälyn tukemana
Mahdollistaa nuorten osallisuuden globaaleissakin asioissa
Saa yhteiskunnallisesti äänen kuuluviin
Turva ja tietoisuus
Tekoäly ei ole uhka, jos sille on laadittu pitävät säännöt ja eettiset ja moraaliset ohjeet, ja kaipa siitä voisi olla hyötyä opiskelussakin.
Nuorten mahdollisuudet tehdä muutosta kasvaa. Rajaton on iso luku.
Nuorten tulisi olla vaikuttamassa yhteiskuntamme asioihin paljon vahvemmin kuin nykyään. Näin varmistetaan ihmisten taito vaikuttaa ja vahvistetaan käsitystä yhteiskunnallisista asioista.

Tässä kuvataan selkeästi sitä, että kaikki toiminta lähtee nuoresta, mutta mukana on myös avustin (tekoäly), joka auttaa elämässä. Tulevaisuuskuva on kuitenkin lähtöisin nuoresta itsestään.

Kerronnan puolesta tässä myös käytettiin minä-kertojaa, mikä sopii innostavaan tarinaan paremmin