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TOWARDS TWIN TRANSFORMATIONS AND SPACES

– Convoluted Conversations on the Green and
Digital Futures of Work

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*“Visions make it possible to create a future that is different from the present
although its seeds are in the present.”*

– Eleonora Barbieri Masini, 2006

PREFACE

Futures images and imaginaries are largely created through futures dialogues. Futures dialogues can be engaged in many forms and at various levels in society, ideally by many actors, official and unofficial. One form is to conduct interviews and accordingly invite insights from various experts around a chosen thematic. Interviews can catalyse futures-oriented conversations where sense-making of societal change takes place on the convoluted set of manifold, sometimes even contradictory views. Such rich foresight material can be used for generating futures images, scenarios and narratives. This compilation of interviews provides ample material for subsequently making narratives of futures or work in the *T-Winning Spaces* project.

This eBook is a continuation of compiling a report based on a certain number of interviews made. The first such publication, published as FFRC eBook 1/2023, concentrated on probing resilient urban futures. This second interview publication is focused on green and digital futures of work and spaces. It is made in the spirit of transformative foresight. Futures of work has remained a permanent topic in futures studies ever since its beginnings in the late 1950s. Work has indeed gone through several changes and transitions, in terms of its organizing, industrial context, contents, competencies needed, etc., when we think of, for example, the rise of robotics, microelectronics and the advent of the Internet. Now the very concept, role and manifestations of work are in turmoil and transformation beyond precedence, mainly due to the developments of digitalization and AI, along with the pressure of global challenges, of which the climate change is number one.

I wish to dedicate this publication to Jim Dator – who has talked and written about human/technology interaction and themes related to work throughout his extensive and impressive career in futures studies. Dator celebrated his 90th birthday on 15th August – and gave me an interview (see chapter 2.9) to conclude the series of selected interviews on futures of work for this eBook.

Sirkka Heinonen

At Helsinki hoffice (= home office) in Laajasalo 4th November 2023

ABSTRACT

This publication is a co-created compilation of various conversations concerning our possibilities and pathways towards futures of work. A series of interviews conducted so far within the *T-Winning Spaces 2035* project have been documented here to give food for thinking and discussions concerning transformations of work and spaces. The questions of the interviews were tailor-made to address the expertise of each interviewee, while the core of the interviews touches upon the exuberant topic of futures of work in its all dimensions as well as the issues of forward-looking thinking and action. Within the interviews we also addressed the topics of creeping crises and paradoxes as regards futures of work. Altogether eight interviews were made, many of them during the International Conference organized by Finland Futures Research Centre in Turku in June 2023, plus some interviews conducted after that. The interviews are documented here as entities for readers to grasp the whole interviewing contexts, wherefrom thematic analyses will follow in the next phases of the project to provide narratives of future work and workspaces.

Key words: futures of work, workspaces, work life, green and digital transition, virtuality

RÉSUMÉ

Cette publication est une compilation co-créée de diverses conversations concernant nos possibilités et nos voies vers l'avenir du travail. Une série d'entretiens menés jusqu'à présent dans le cadre du projet *T-Winning Spaces 2035* a été documentée ici pour nourrir la réflexion et les discussions concernant les transformations du travail et des espaces. Les questions des entretiens ont été conçues sur mesure pour répondre à l'expertise de chaque personne interrogée, tandis que le cœur des entretiens aborde le sujet exubérant des futurs du travail dans toutes ses dimensions ainsi que les questions de réflexion et d'action prospectives. Au cours des entretiens, nous avons également abordé les thèmes des crises rampantes et des paradoxes concernant l'avenir du travail. Au total, huit entretiens ont été réalisés, dont la plupart lors de la conférence internationale organisée par le Finland Futures Research Centre à Turku en juin 2023, ainsi que quelques entretiens menés par la suite. Les entretiens sont documentés ici comme des entités permettant aux lecteurs de saisir l'ensemble des contextes d'entretien, à partir desquels des analyses thématiques suivront dans les prochaines phases du projet pour fournir des récits de travail et d'espaces de travail futurs.

Mots clés: futurs du travail, espaces de travail, vie au travail, transition verte et numérique, virtualité



RESUMEN

Esta publicación es una recopilación colaborativa de varias conversaciones sobre nuestras futuras posibilidades y caminos en el trabajo. Se ha documentado aquí una serie de entrevistas realizadas dentro del proyecto *T-Winning Spaces 2035* para generar ideas y debates sobre los cambios en los espacios y formas de trabajo. Las preguntas de las entrevistas se diseñaron a medida para abordar la experiencia de cada entrevistado, mientras que el núcleo de las entrevistas aborda el exuberante tema del futuro en el trabajo en todas sus dimensiones, así como acciones con visión de futuro. En las entrevistas también abordamos los temas de las crisis progresivas y las paradojas en relación con el futuro en el trabajo. En total se realizaron ocho entrevistas, muchas de ellas durante la Conferencia Internacional organizada por el Centro de Investigación de Futuros de Finlandia en Turku en junio de 2023. Las entrevistas se han documentado en esta publicación con el fin de que los lectores comprendan todos los contextos abordados en las entrevistas, a partir de los cuales se realizarán análisis temáticos en las próximas fases del proyecto, proporcionando narrativas de futuros espacios y formas de trabajo.

Palabras clave: futuros en el trabajo, espacios de trabajo, vida laboral, transición verde y digital, realidad virtual

1. INTRODUCTION

This publication is a compilation of eight expert interviews on topics that address the futures of work, covering a wide spectrum of related concepts such as workspaces, cities, crises, governance, deliberation, and emerging new lifestyles and practices. The underlying context is the twin techno-economic and socio-cultural transformations that are currently underway. The first transformation is life in the **hybrid web of physical, virtual, and digital activities** – and **how work is being re-framed** in the process. The second transformation concerns the **nexus of the green and the digital** (European Commission 2022). Both transformations highlight the **roles and relations of humans, nature, and technology**. Our aim is to study the best solutions that we can envision and achieve for future workspaces in a fairly brief timeframe of around 15 years.

The data and results of the Interviews, as presented here, are intended for the use of the following two projects funded by the Research Council of Finland¹: **RESCUE** (Real Estate and Sustainable Crisis Management in Urban Environment, 2021–2023)² and, in particular, **T-Winning Spaces 2035** (Winning spatial solutions for future work, enabling the double twin transition of digital/green and virtual/physical transforming our societies by 2035, 2023–2025)³. Both of these three-year multidisciplinary projects are coordinated by Aalto University, with the Finland Futures Research Centre (FFRC) at the University of Turku serving as their partner, along with Tampere University. *The Millennium Project*⁴ also operates as a collaborating network in these projects, by participating in the projects' advisory boards and by contributing its expertise to the futures cliniques⁵.

The results are presented here in a way that is accessible to a larger audience – companies, cities, public administration, governments, NGOs, and private individuals – to inspire responsible **futures thinking** and **futures empowerment**. The insights on the aforementioned topics serve as food for thought and tools for making sense of future developments. Every actor can use imaginary futures to have an impact on decision-making and on how different futures are created. The interviews have been edited for length and clarity, and their contents, as well as the contents of the concluding chapter, have been reviewed by those who graciously provided their time and thoughts to this publication.

This publication can be read as-is, but if you are interested in deepening your knowledge, you can read our previous compilation of interviews, which concentrated on urban resilience (Heinonen et al.

¹ Formerly known as the Academy of Finland.

² For more information on the RESCUE project, see <https://www.rescue-finland.com/>

³ For more information on the the T-Winning Spaces project, see <https://www.utu.fi/en/university/turku-school-of-economics/finland-futures-research-centre/research/t-winning-spaces-2035>

⁴ The Millennium Project (MP) is a global participatory think tank established in 1996 under the American Council for the United Nations University. After becoming an independent entity in 2009, it has grown to 71 Nodes around the world, connecting futures thinkers who wish to collaborate and improve global foresight. Its mission is to improve how we think about the future, make that thinking available through a variety of media, and build a better future for all. Karl-Heinz Steinmüller, the representative of the MP German Node, is a member of the RESCUE Project's advisory board; Jerome Glenn, CEO of the Millennium Project, is a member of the advisory board for the T-Winning Spaces Project, where Mara di Berardo, Chair of the MP Italian Node, serves as a special expert affiliate. For more information, see <https://www.millennium-project.org/>.

⁵ The futures clinique is an interactive foresight method and process, developed on the basis of futures workshops (Heinonen & Ruotsalainen 2013). Futures cliniques are used as a key insight gathering method in both the RESCUE and T-Winning Spaces project. They are interlinked with our interviews, as many of our interviewees have participated in futures cliniques (either before or after their interviews).

2023a) as part of the *RESCUE* project⁶. These two eBooks form a valuable collection of insights that, together with the results from various futures clinics, provides a basis for futures narratives that will be later introduced to the *T-Winning Spaces* project.

The interviews are presented in conversational form – an intriguing question-based technique popularized in the times of Socrates – aiming at reflections; “ventilating” and de-constructing assumptions and stagnant concepts in need of re-thinking; re-shaping and introducing futures building in new realities. Such questioning has a two-fold objective: gaining insights while also instigating and provoking futures-oriented thinking. Together, they form **futures intelligence**.

Acknowledgements

As the authors of this eBook, we wish to express our gratitude to all those who have kindly contributed their valuable time and profound insights to our work: the experts interviewed for this publication, our RESCUE and T-Winning Spaces research colleagues for their contributions and comments, and every representative from the Millennium Project. We also wish to thank the artist Ivelis Ravaioli for allowing us to use a photo of her painting on the cover of this report, and Anne Arvonen for editing the entire report. This report is based on the funding provided by the Research Council of Finland for our T-Winning Spaces project (decision #353326).

⁶ For more information on the RESCUE project, see <https://www.rescue-finland.com/> and <https://www.utu.fi/en/university/turku-school-of-economics/finland-futures-research-centre/research/rescue>

2. INTERVIEWS ON DIVERSE FUTURES OF WORK

Interviews are themselves conversation, from where the interviewer taps into the insights of the interviewees through questions, while the answers of the interviewees may lead to new questions. The interview becomes an interactive sphere between the discussants, as an autonomous entity.

The interviews in this eBook are mainly conducted during and after the FFRC Conference called *Empowering Futures – Long-Term Governance, Democracy and Futures Research at the Turku School of Economics* 14–16th June 2023. All keynote speakers – Rosa Alegria, Maija Setälä, Elizabeth Strickler, and Erik Øverland – and in addition, Christopher Jones, Marianna Agnes T. Mendoza, Joedel O. Peñar, Jessica Prendergast and Jim Dator were interviewed. The keynote of Jerome Glenn in the *Millennium Project Special Session* at the conference is highlighted in another FFRC eBook reporting the results of that particular session (Heinonen et al. 2023b).

The following matrix comprises information of the interviews. The interviews have been transcribed, edited, and adjusted into a conversational mode. The key ideas have been bolded by the research team to accentuate their significance and bearings from the perspectives of the *T-Winning Spaces* project and partly of the *RESCUE* project as well. At the end of each interview, there are further references of publications raised by the interviewees, accompanied with recommended readings proposed either by the interviewees or the interviewers.

Table 1. The composition of the interviews during and after the FFRC Conference in Turku 2023.

Interviewee	Interviewer	Date	Digital record	Location	Topic
Maija Setälä	Riku Viitamäki	14 June 2023	Audio	Turku	Deliberative democracy and work
Christopher Jones	Riku Viitamäki	11 July 2023	Audio	Virtual: Video call	Postnormal times, anticipatory governance
Marianne Agnes T. Mendoza & Joedel O. Peñar	Burgert Maree	15 June 2023	Audio	Turku	Filipino foresight approach
Rosa Alegria	Sirkka Heinonen & Saija Toivonen	14 June 2023	Video	Turku	Challenges of changing work
Erik F. Øverland	Sirkka Heinonen	15 June 2023	Video	Turku	Workspaces of the future
Jessica Prendergast	Sirkka Heinonen & Saija Toivonen	21 August 2023	Text	Virtual: Email	Workspaces and circular economy
Elizabeth Strickler	Risto Sivonen	10 July 2023	Audio	Virtual: Video call	Virtual worlds
Jim Dator	Sirkka Heinonen	19 August 2023	Text	Virtual: Email	Tsunamis of change and human becomings

2.1 On Deliberation and Future Working Life

Interview with Maija Setälä by Riku Viitamäki

The interview with Professor Maija Setälä was conducted on 14th June 2023 at the FFRC conference *Empowering Futures – Long-Term Governance, Democracy and Futures Research* in Turku. The interviewer was Millennium Project Intern Riku Viitamäki, FFRC Helsinki Office, the University of Turku. He also transcribed the interview from audio to text.

Maija Setälä is the professor in political science at the University of Turku. Setälä specialises in democratic theory, especially theories of deliberative democracy, direct democracy, and democratic innovations. She has led a multi-disciplinary research consortium *Participation in Long-Term Decision-Making (PALO)* (2017–2022), funded by the Strategic Research Council of the Research Council of Finland. She is also a co-editor of the book *Democracy and the Future* (with Michael K. MacKenzie and Simo Kyllönen; MacKenzie et al. 2023a).

The topic of Setälä's keynote speech at the FFRC Conference was *Democratic governance and the future: Tensions and possibilities*. In her keynote, she noted that there is **democratic myopia, which could be remedied by utilizing future-regarding governance**. However, there are several tensions between future-regarding governance and democracy, like tensions between professional knowledge and political contestation, or tensions between popular self-government and future interest. To mitigate these tensions, she proposed more inclusive and informed deliberation, which could be utilized in future-regarding governance. One of her ideas was, in her terms, **future-regarding democracy**. This kind of solution demands deliberation that is more inclusive.

Interview

Q: Firstly, I would be interested to hear what kind of role deliberation could play, specifically in the working life of the future.

A: In the context of working life, deliberative practices within organizations would be very helpful. They have been applied to some extent in certain types of organizations, such as for the development of work methods and organizations. For example, **deliberation procedures**, that I know is being used in hospitals probably in other large organizations as well. I would especially like to use deliberation in connection with organizational changes; it would be really useful to apply it. In this case, different points of view would be better presented, and conflicts would be mediated. Deliberation can take different forms depending on the problem at hand. There are different schools of thought in deliberation. Some emphasize conflict resolution, while others emphasize innovative solutions and their development. **The form of deliberation should be considered in relation to what kind of a problem we have at hand.** I could see that, at least in larger organizations, deliberation would be worthwhile, because people easily get siloed into their own areas and corners, and then the whole context is not covered.

Q: Deliberation would therefore be particularly suitable for larger organizations.

A: Certainly, and even more so, if we think about organized deliberation. If we are talking about smaller organizations, then one could imagine that knowledge and perspectives could be transmitted more informally. In this case, there is no need for separately organized and facilitated situations. However, in some situations an external facilitator can be very essential. Perhaps deliberation should also be thought of in

such a way that it includes many kinds of practices and that it does not always have to be so highly organized.

Q: Another question is related to multi-location work and especially who has access to such multi-location work, for example, remote work opportunities and so on. If the situation is such that different groups have different opportunities to get access to this kind of work style, then can this somehow challenge the possibilities for the realization of democracy; for example, create polarization or something similar?

A: In working life, multi-location and, in general, the fact that people do these things by themselves, includes risks. However, I cannot say whether it polarizes employees, if some have opportunities, and some do not. This can probably be the case. Perhaps there are other risks involved as well, such as a possible increase in general atomization. Perhaps **it is precisely the bonds between the workplace and the employees that weaken in a multi-location working life model**. It has been seen in remote work that information may flow more poorly, and perhaps that is where organizing such organized meetings becomes essential. Because people are in a different place and do not meet at the coffee table.

Q: As a follow-up question to this theme, what kind of view do you have on this from the perspective of wider society? Could the atomization of work and similar themes also have wider social consequences?

A: Maybe so that people's movements do have their influence. After all, of course, such ideas about civil society pass, when thoughts and ideas develop and the need for change is identified – often in groups of like-minded people in the same situations. Workplaces are one such forum, where the line of things can occur. If that disappears, this will also reduce those places of community. Surely such a dynamic also exists. I have been in working life for a while, and it has changed. In the early days there was more of an attachment to institutions, and time was spent on developing work communities. This was not always successful, at least at the university, but attempts were made. I do not necessarily miss the old days, but it was different then.

Q: What about when we begin to formulate and develop solutions for the various forms of future working life, and especially regarding the themes of digitality and greenness, which play a central role in our *T-Winning Spaces* project, how do you see the role deliberation could play? Could deliberation allow everyone's voice to be heard when such solutions are developed?

A: There are probably many different points of view associated with such transitions, and it would probably help, if people were able to bring them to the fore. Their implementation could be easier and more acceptable, if people were committed and understood their meanings and why we move to green solutions. Various perspectives on many levels would help to find methods of operation that are suitable for the community or context that is being discussed at any given time. This is also related to acceptability and readiness to implement them in practice. Such customs definitely exist. However, organizing an organized deliberation requires expertise and facilitation, as well as experts and good interaction. It is probably one possible way – or it may even be absolutely necessary for successfully implementing these things.

Q: Thank you. And then as a final question: You mentioned very well those different generations and the importance of the conversation between them in your recent keynote speech. How would you see the role the conversation between different generations could play in developing the working life of the future.

A: That question is a bit difficult. The working life of the future may move on a somewhat abstract level. I guess it is essential that there are continuity and young people who are eager to adopt different methods

and technologies.⁷ Overall, that kind of interaction is important, but I do not know if it needs to be deliberative. In general, maintaining interaction is essential. In my opinion, **the role of deliberation is in solving problems. The change takes place through other communication.** By some definition it could be deliberation, but I would not consider all communication to be deliberation. Deliberation can be thought of as an effort to solve collective problems and communal problems. The need for it probably arises when there is a conflict situation or a major upheaval.

Q: With digital being the theme, I cannot help but wonder if deliberation is about the implementation of some new system?

A: Yes, if it generates enormously more work for someone. Then, of course, some people's jobs become unnecessary, and they are kicked out of the organization. Of course, deliberation and such good processes can help. However, such fundamental transitions, as the green transition, create a situation, where the people who lose their jobs or their livelihoods are angry, disappointed, frustrated and marginalized. Not much deliberation will necessarily help then. They can understand the whole context, but their own situation requires other support, and then deliberation is by no means enough.

Q: Deliberation does not help in such a situation of extreme disappointment?

A: No, and if the person really loses his or her job, has to reduce his or her work, or will lose subsequent income significantly, then compensations and other support are essential. Of course, deliberation can help a person to understand, why this had to happen, but then other support is needed. In this green transition at the level of society, the situation is that those people, whose livelihoods are threatened, need something else. Of course, in order to formulate and understand its justification, deliberation may be a necessary process, but it is not sufficient.

Q: But it could play a role here?

A: Yes, it can play a role, but you should not think that it solves everything.

Q: This is an extremely good addition to this, when aiming for sensemaking of transitions and looking for aids for it.

A: We also have this one project ongoing related to the green transition. What is to be investigated is how the acceptability of policy measures increases and their importance is understood. It is also possible to take into account the perspectives and boundary conditions by which a major breakthrough occurs. Deliberation can play a role in the fact that, in these kinds of transition contexts, those groups and people whose lives are currently being ruined due to a transition are strongly highlighted. One can bring perspectives and help others to understand what this means for the person in question and also help to think about ways to mitigate the negative effects of the transition. One thing that is forgotten is that deliberation can contribute to intergenerational justice, but also to increase understanding towards people in different situations.

Q: Thank you very much.

A: Thank you very much, it was an interesting discussion.

As a bonus question⁸ Setälä was asked whether she can identify any creeping crisis in society, especially around work life. Setälä answered that in her view, many so-called creeping crises such as climate

⁷ The difference of values between different age cohorts and generations has been studied in the Korean context by Youngsook Park Harmsen and Yongseok Seo (2006). They argue that especially new technologies and their diffusion affect how young people see democracy and what kind of values they emphasize when considering democracy.

⁸ The bonus questions for the interviewees are either ones presented to them right in the end of an interview, or a posteriori as an extra question to be added to the interview results.

change are now becoming concrete and thus coming to the awareness of the general public in a new way. Perhaps the mental health problems and malaise of young people are in some way creeping crises, although there is social discussion going on around these issues already.



Figure 1. Maija Setälä was interviewed by Riku Viitamäki in Turku. Photo: Anne Arvonen.

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2.2 On Postnormal Times, Conflict, Peace and Work

Interview with Christopher Jones by Riku Viitamäki

The interview with Professor Christopher Jones was conducted on 12th July 2023 on a video conference call, as agreed during the FFRC conference *Empowering Futures – Long-Term Governance, Democracy and Futures Research* in Turku. The interviewer was Millennium Project Intern Riku Viitamäki, FFRC Helsinki Office. He also transcribed the interview from video to text.

Christopher Jones mentors PhD students at Walden University's School of Public Policy and Administration (online, since 2009). He graduated from the University of Hawaii futures studies program (MA and PhD in Political Science), was Secretary-General of the World Futures Studies Federation (2001–2005) and taught in the MS Program in Studies of the Future at the University of Houston-Clearlake (2001–2004). He has taught political science and futures studies in the USA state systems of higher education in Hawaii, Oregon, Texas, and Colorado.

He has served on journal editorial boards, non-profit NGO boards, and has published and presented extensively in the futures studies field. His novel *Fire and Ice* (Jones 2005) explored eco-terrorism, alien First Contact, and the collapse of Western civilization. Chris specializes in qualitative futures inquiry, including brainstorming and creativity, horizon scanning and emerging issues analysis, scenario building, visioning, and strategic foresight planning. His subject interests: space development, cyber security, women's futures, indigenous futures, deep/dark ecology, global weirding and accelerating warming, non-Western futures, global consciousness, and high technology.

At the FFRC Conference in Turku, Christopher Jones co-organised a workshop called *Performing Postnormal Times*. In the workshop, participants were invited to live through postnormal times via simulation. In the simulation, the participants assumed the roles of different stakeholders, and at first their main objective was to reduce the water consumption of a city. However, as simulation went on, cities started to face different disruptions like mudslide or mass immigration. These forced participants to rethink their original negotiation positions and to find new solutions to the crises which the cities faced. **The disruptions also demonstrated how new tensions can rise between stakeholders when communities face surprising new crises.** After the simulation, the participants were introduced to postnormal times thinking through postnormal scavenger hunt. This helped to contextualize the whole simulation. After the scavenger hunt, participants got a better understanding of how phenomena of postnormal times affected their city and their decision making during the simulation.⁹

The interview of Professor Christopher Jones included three themes: 1) The twin transition of green and digital, and futures of work, 2) Futures of peace and war, and 3) Crises and anticipatory governance.

⁹ This was an experimental exercise, conducted now for the second time.

Interview

Theme 1: The twin transition of green and digital, and futures of work

Q: The first theme we are going to discuss in this interview is about the twin transition of green and digital, and futures of work. **How do you see postnormal times affecting the way we are going to work in the future?** For example, the workspaces or working from multiple locations?

A: First, I give as a summary what postnormal times (PNT) are, because they are not as themselves a driver for change. They have been described as an era or an age, in the original work by Zia Sardar and John Sweeney (Sardar 2010; Sardar & Sweeney 2016). What they described is a **period of acceleration of change**. Work transformations, which are clearly going on, tend to add to postnormal times, they reflect postnormal times, rather than having an influence on work. Although there is a collaborative or coupled connection or entanglement between postnormal times and the changes in the work environment, the idea basically is a Big Picture about the scope of change as we see it today. It is very similar to what is now described very often in the business and consulting literature, the term VUCA, i.e., volatility, uncertainty, complexity and ambiguity. However, I like postnormal times more because it speaks broadly to the acceleration of change.

Sardar and Sweeney (Sardar 2010; Sardar & Sweeney 2016) identified the underlying forces of change, the four S's: **speed, scope, scale and simultaneous change**. You can see that particularly in the digital space, certainly in climate change as well, but particularly identified in terms of how the digital environment – social media in particular – is impacting how people behave. One of the classic examples that Sardar uses is that of Justine Sacco. This woman, about ten years ago, worked for a PR firm in New York. She was on a trip to South Africa, and she posted on her social media that she was going on Africa and would not get AIDS because she is white. In the twelve or thirteen hours it took her to get to Cape Town, she lost her job, and had tens of thousands of very angry postings on her social media. The point is that the **speed of change is accelerated by our technological connections, by the internet, and the global scope of change**.

On top of that is what Sardar and Sweeney identified as three C's: **complexity, chaos and contradiction**. They align best with VUCA, and the 3 Cs also lead to increased levels of uncertainty and ignorance. That is basically the background or context for workspace and working particularly from multiple locations. We saw a lot of that change because of COVID-19, obviously, but remote working was not new prior to COVID-19. Even before COVID-19 started to spread, I was mentoring students online in Walden University and there were tools like Zoom available. The gig economy had also created a situation where many people were already working in many different locations. So, there was a set of trends already in the digital space towards distance learning.

Postnormal times really do not discuss the future. It is mostly an analysis about what is happening today and the next few years, as opposed to long term changes. However, we are trying **to use the post-normal times to understand the context of change** and some of the trends and why forecasting becomes so difficult. However, there are clearly some obvious trends that are in place that relate to postnormal times. Particularly **the continued erosion of boundaries between work and home**. Students were exposed to that during COVID-19 most clearly because of the need for digital and distance education, as they cannot go to the classroom. There are a number of transitions that distance work has imposed on us

and we have to negotiate these boundary changes. How do we separate personal as opposed to professional time? When is it appropriate to take a break? How do we enable natural encounters with people when we are not in the same space?

The other thing that many futurists note and some environmentalists, too, is that we may not be at the end of our pandemic experience. There are concerns about the bird flu, about resurgence of COVID-19 and other zoonotic events¹⁰. The reason for this is that we have more human interaction and contact with wild animals due to human expansion and development.

There are also interesting dynamics going on post COVID-19 that have not played out. The most obvious one that gets a lot of attention right now is the **doom loop** that has happened in big cities, particularly in New York City. There are large areas of urban retailing and commercial space now empty, which leads people to leave the community – meaning there are fewer places to go out and eat, to dance, for entertainment. This is a process of doom for commercial space, because so many people are still working from home. A number of businesses, organizations and corporations are trying to get people back in the workplace and in offices. However, that has been a real struggle because people actually prefer in some cases to be at home, to be able to take care of their children or their pets or their elderly, and be able to work at the same time.

Postnormal times analysis is not intended to be explicitly positive or negative. Many of these trends, the acceleration of change, produce positive as well as negative impacts. It is very clear in this phenomenon called *the great resignation* when particularly the younger generations, decide to leave a job to do something more rewarding, perhaps, more financially beneficial. Also, the huge transformation of digital space and the potential emergence of **artificial intelligence personal assistants** will lead to changes in terms of how we operate and how we negotiate work, as we have the advice of virtual expert systems constantly available on our phones.

Q: So, working from multiple places or locations is more of an example about postnormal times rather than something they may have an effect on.

A: That is exactly how I would put it.

Q: That is good to know. The next question is: **how would the understanding of postnormal times help us to face possible future challenges when we consider work?** This is something you already mentioned. Could you elaborate a bit more?

A: That is a perfect return to your last point. **Postnormal analysis does not predict, but rather suggests that there will be continued disruption.** An example of social disruption regarding new workplaces is a household of several people working from home. Some new questions are more likely to occur in the home space than the workspace: how to negotiate meals, how to negotiate international business meetings, how to keep things quiet. Prior to COVID-19 there was a lot of discussion on **community workspaces**. This has been more successful in Northern Europe and some parts of the US where you can rent a community center desk so you can get out of the house. Those are likely to be more popular going forward.

Work and education are tightly coupled, as education is, to a great extent, training for working life. However, the new needs of work are not reflected in education, which is still based on industrial models of

¹⁰ Zoonotics are those pandemics or diseases that may emerge from the rainforest, from the other parts of environment as human populations continue to grow and encroach on wild areas and wildlife.

education. Thus, **we have a mismatch between education (K-12 education¹¹) and the kind of training that employers now want and need.** Many organizations and companies are throwing up their hands and say, “We will train you when you are hired”, because many of the skills that current workers need are not learned at school, particularly related to the digital environment. The need for STEM (science, technology, engineering and math) training has become very popular, but is not, however, clear that the skills that students are learning match what employers need, particularly in terms of **creative thinking and critical thinking, the sorts of soft skills** that may not be STEM skills but are critical in the new workplace.

There are some very large transitions going on in education. The United Nations recognizes the importance of the learning environment and a focus on the individual student as opposed to the industrial model where everyone of the same chronological age is in the same classroom. They are trying to understand the differences, the needs, the special needs of people with disabilities and, at the other extreme, of very bright students. **How do you deal with students who are at the cutting edge of their chronology?** They may be nine years old but ready for college already! **How do we deal with tailored education?** The digital world does suggest some possible solutions to dealing with that. I noted the **advent of the AI personal assistant. If every student had their own individual coach, education would be profoundly transformed.**

In addition to positive developments, we have an age cohort of students who are now a year behind in their math skills and language, partly due to adaptation to COVID-19 and online teaching. We may obviously see that impact again if there are continued pandemic-like disruptions. In addition, climate change has made it particularly difficult to reach marginalized communities and communities affected by climate migration. We talk about lives lost but we do not consider the education time lost, the “seat time” lost, especially in conflict areas.

One of the big dynamics going on right now in workplaces and in workspace is the fact that **many people are living longer, longevity means more older workers.** What are the implications of that? Does that mean we are pushing out the younger people or does that mean that older people are sequestering wealth at the expense of younger people who often have to work in the gig economy? That kind of longevity issue trend also contributes to a much broader problem of **intergenerational conflict.** There are many studies now that look at the difference between Millennials, Baby Boomers and Gen X in terms of their attitudes toward work and authority, and those **workplace conflicts will only likely accelerate.** If we recognize that conflict is a problem, maybe we will do more to do **conflict resolution in the workplace.** There are many efforts afoot to do that as in schools, because of bullying, cyber-bullying, there is a greater emphasis now on **conflict resolution, peace and mediation.** That may be a positive outcome of that conflict. Regarding the green transition, **sustainability and resilience are clearly getting much more attention.**

From the PNT perspective, we just **need to expect for more uncertainty and ignorance,** which is ironic. We are **learning more and more about everything and yet, as individuals, we have less capacity to know all the information that is being developed in the world.** This suggests that we need to rely on artificial intelligence at the most basic level, expert systems, not super intelligent conscious AI, but the kind of AI that we use to get directions, to query our phones for information. We will see a lot more of that just to support our education and workplace functions. An essential part of PNT analysis is also that

¹¹ Kindergarten through to 12th grade.

the **contradictions about the mismatch between education, training, work requirements, will continue to grow and government and politics will continue to be the battleground for trying to settle some of those contradictions.**

Q: That is actually a very interesting point that there are also positive effects of postnormal times. It is not all about catastrophes and disruptions but a chance to learn new things and imagine new practices. It is something that is not so much emphasized in the material that I have read.

A: That is right. We do tend to emphasize negative – as in the famous quote in journalism, “if it bleeds, it leads”. **We tend to focus on the disruptions.** However, for example in Silicon Valley, it is argued that there is a lot more tolerance for failure, it is almost expected. Therefore, it is not necessarily seen as a bad thing, but a learning experience. By extrapolation, **postnormal times, disruptions, allow us new opportunities for change, new opportunities for social movements for example.** Greta Thunberg is a great example of a young person who basically came out of nowhere but has had a global impact because of her attitude and ability to capture the global attention of media and young people. Fridays For Future is a good example of a positive outcome if you are an environmentalist. It is a positive because she is **raising awareness.**

Postnormal times are not intrinsically positive or negative, but they are an explanation of why we are likely to see the acceleration of both digital and green changes. Because the changes are often spontaneous and not planned, there are often unintended consequences. For example, with geoengineering, the idea that we can use technology or industrial approaches to try to fix the climate, there are some potential problems because we are not really considering what the potential secondary or tertiary implications may be. The key takeaway from postnormal analysis is that **almost all systems tend to be more chaotic, complex and contradictory and because there are so many trends and variables, they often converge and diverge.** Sometimes they add together, sometimes they push apart, which makes forecasting unpredictable.

Because climate change is such a disruptor, our ability to manage environmental change better could actually mitigate postnormal times, as postnormal times deal particularly with disruptions and instability. One of the things we are trying to achieve with the COP negotiations¹² within the UN system and other negotiations, is trying to reduce the amount of carbon dioxide in the atmosphere, trying to stabilize the system. The green transition, and the technological developments within it, particularly solar energy, could make a very positive contribution to slow down the pace of change. There is a real possibility that **our global village will finally emerge.** We will develop a **sense of globalization of knowledge and even the possible solidarity** of a global brain – global consciousness – about the environment and our need to save species that are disappearing and to try to get things under control.

I always remind everyone to remember the ‘Four Futures’. I was trained by futurist Jim Dator, who talks about four classic alternative futures¹³ that emerge from the literature and popular media and the thing he always reminds us of is that **there is no one future that is likely to emerge.** These are **competing memes or images of the future and any future is possible.** We could continue our growth, we could accelerate growth, it could be more of the same, we could end up with a more authoritarian green society. There are many people who believe that we need to have a **global commons** that is protected – that we

¹² COP, ‘Conference of the Parties’ to the UNFCCC, ‘United Nations Framework Convention on Climate Change’, is an international climate meeting held each year by the United Nations.

¹³ For the four generic futures and futures approach at the Manoa School in Hawaii University see Dator 2009. Also see Dator’s interview in ch 2.9 in this report.

need to protect the environment. On the high-tech side, there are people who believe in singularity and that we will transform ourselves as a species. There are all these competing images of the future and that is what I would remind everyone to remember: the **longer-term future is unknowable but there could be many possible alternatives.**

Q: That is a very important lesson to learn and to remember. So, now we move on to the last question of this theme. **What do you see as the biggest paradox concerning the future of work?**

A: I love this. The idea of paradoxes is really important. It definitely aligns with PNT analysis because of the idea of contradiction and how we have a vast array of variables across sectors, that are almost impossible to predict. We are on a very large trend towards basically automated factories that make everything, and no longer require much or any human interaction. There is a paradox emerging in terms of our enormous power to automate and to make things more efficient and yet how do we keep people employed, how do we provide jobs to people? Moreover, the globalization of consumer culture has created this sense of relative deprivation because now everyone, even in small villages and the developing parts of the world, can see on their phone rich people living lavish lifestyle. There is a big conflict between our materialist aspirations and the deficit in terms of our abilities to satisfy our basic needs as well as our wants.

The mismatch between production and unemployment, particularly long-term systemic unemployment raises some questions – why does anyone have to pay for the products they need? *The shopping cart revolution*, almost twenty years ago, introduced the idea of using shopping carts in so-called ‘big box’ stores to take items without payment. This has led to some shoplifting, but nowadays there is certain tolerance for homeless people, for example, taking things from stores. There is also a paradox between the gig economy assumptions and the traditional social safety nets. In the capitalist economies, like the US, there is a dissolvent safety net, little support for the poor and less support for basic needs. However, there are a lot of experiments going on in the world with the universal basic income (UBI), a lot of experiments in Finland and others about just providing basic needs, which is much more common in Northern Europe and Scandinavia particularly.

There is an elephant in the room. We are increasingly urban, digital and separated from nature. There is emergence of what is called *nature deficit disorder or disease*, the need to reconnect with nature. This has also raised discussion of our food production, movements back to horticulture and growing our own food. However, the big debate now is the wisdom of growing animal protein in industrial facilities, basically cloning and growing animal muscle protein in a factory. The argument is that we are not herding animals, we are not abusing, causing violence to animals, yet it does appear that production of artificial meat costs a lot of money, energy, and a lot of water. Is meat eating in itself a bad idea?

Lastly there is an idea of my mentor, Jim Dator, who has talked a lot with South Koreans about the idea of a leisure society. Maybe we should not have the right to work but the right not to work. Maybe everyone should be able to live in a leisure society because the robots will do everything for us.

Theme 2: Futures of peace and war

Q: Let us now move to the second theme which is futures of peace and war. As a first question I would ask, if we take as a starting point that we are already living in postnormal times, how would you see that these times affect peace and war?

A: This is a more uncomfortable conversation because one of the key ideas of postnormal times analysis is that **these forces of acceleration, chaos, complexity and contradictions inevitably create**

more conflict. Accordingly, one of the things PNT would suggest around the themes of peace and war, is that **we need to be even more careful and cautious about decision making. Postnormal times are seen as a time between paradigms, between epistemes** – what are the **intrinsic values and needs**, and what they will be. However, the **danger really is in the greater risks – uncertainty and, in particular, ignorance.** Uncertainty is very clear right now in discussion about artificial intelligence, about artificial general intelligence (AGI) or artificial super intelligence (ASI), that is artificial intelligence that exceeds human capacities in cognitive ability. But PNT argues that there is the **overall probability of conflict due to this chaos and particularly ignorance and uncertainty that are generated by the digital transition, social media in particularly, and fake news.** It is all very well-known now how conspiracy theories and fake news have had a corrosive effect on truth and our understanding of how things work.

Regarding ignorance, it is ironic that Moore's law¹⁴, the idea that computer chips are twice as small or productive over a two-year period – we are seeing the same thing with information. The number of scientific journals and books that are published now doubles every few years and there is all this information of the universe. However, we are individually more ignorant because we simply cannot know all of those things. The ideal of a "Renaissance man" a few centuries ago – the individual that could read all essential books from the Greeks to the present – is no longer possible. **We are increasingly narrow in our visions**, we as individuals tend to follow social media that reflect our own values and beliefs. That creates generally more ignorance about those around us, especially with different political views.

Q: That is a very universal way to think. It is the same in here Finland. I would argue that people are less receptive to political point of views that are opposite of their own ideals.

A: Let us address the emergence of anti-immigration political parties. Many have argued that a lot of the reason for immigration from North Africa and Pakistan and other parts of the world is because of climate change. How do we manage all of that? There is a tendency to withdraw within and to look at the narrow view. The last point I would make about the introduction to PNT and war and peace, is that **complexity and chaos, manifested by this acceleration of change, amplifies the risk of miscalculation, of human error, especially with the speed at which decisions need to be made in the nuclear era.** It raises some profound existential risks.

Q: Certainly. As a second question, this actually is something you already kind of answered, but maybe you could delve a bit more into it. **How could thinking postnormal times help us to better understand the dynamics of peace? How about the dynamics of war?** Could it make some things more visible?

A: Since we started with negative, let me talk first about the dynamics of war and conflict, then come back to peace. Following Zia Sardar (2010) a critical theorist for many years and who has addressed the decolonization of futures, we should reflect some critical perspectives that exist already in futures studies. **We need to question the basic assumptions, for example about growth, about the European dominance of civilizational culture**, etc. The appealing aspect of the work by Sweeney and Sardar (2016) is this notion that **we need to be honest, we need to be wise about our assumptions, about how we behave in the world collectively and individually but particularly collectively at the organizational and governmental level.** There is a baked-in concern about decolonization whether it is European – lingering political and cultural artefacts of the colonial period – but also about using basic human values of

¹⁴ See e.g., Mollick 2006. For a popularised description see: Moore's law is the observation that the number of transistors in an integrated circuit (IC) doubles about every two years. The observation is named after Gordon Moore. This law has held since 1975. The second Moore's law (also called as Rock's law after Arthur Rock) states that the capital cost of a semiconductor fabrication plant also increases exponentially over time. (Wikipedia)

equity, social justice to inform our analysis. PNT is really about analysis of today, but we also want to look towards the future and make it a better world. Our core values are **belief in equity and in addressing injustice**. Those help to inform our discussions, particularly with clients and groups we work with to **talk more positively about the future**.

Maya Van Leemput and Wendy Schultz¹⁵ stress the idea of **polylogue**. **The idea of bringing in voices of the marginalized, the voices of the unheard, the voices of the ignored**. Women, marginalized people, indigenous people, future generations – how those have been ignored. In terms of the dynamics of peace and PNT, one of the features of postnormal analysis **is trying to understand better dynamics of chaos theory, complexity theory**. One example is the idea in complexity theory of **making small adjustments**. **Although we have very complex systems, that does not mean we have to apply complex solutions**, sometimes only very small adjustments. The idea from complexity theory is a *trim tab*, that very small flap on the rudder of a boat. When you need to turn the boat, sometimes turning the whole rudder creates turbulence, but a trim tab reduces the turbulence and allows the boat to make a turn with less turbulence.

Lastly, in terms of peace, I think that there are great lessons we have learnt about the importance of departments and ministries of peace. I had a chance to work with the Matsunaga Institute for Peace and Conflict Resolution at the University of Hawaii, in part established by Johann Galtung¹⁶, the renowned Norwegian peacemaker, and a lot of emergence is visible now in terms of conflict resolution. As I noted earlier, in the educational system and workplace environments, there are more applications of mediation and other forms of dispute resolution and social movements. The landmine treaty was a social movement. Although we have not seen the emergence of those kinds of **antiwar movements** more recently, maybe except for the green movement and green parties in Europe and elsewhere, which are **possible alternatives, possible models for finding peace**, I think generally in the world, **there is greater philosophical diversity, which in some sense creates potential for conflict, but in some sense more room for understanding and for collaboration and cooperation**.

Q: That is an interesting point that **diversity may be seen as something that creates conflicts but actually can be seen as some kind of bridge building**. Thank you very much for this answer. Next, I would go to more topical questions since we now have thought about more abstract things. From the point of view of postnormal times, **how would you conceptualize the Ukrainian war?** As something of a manifestation of these times we are living in or is it something separate?

A: To my mind, the Ukraine war seems like it is more about a geopolitical phenomenon that is more reflective of the last couple of centuries or more, rather than an intrinsically postnormal manifestation. However, those are not separate, postnormality is the context. The world in which the Ukraine war emerged was very much informed by these drivers of change, Western corporations for example were more and more involved in Russia and its economy. However, it is clear that the war itself has accelerated change. The war has had some undesirable impacts that have accelerated change, for example, greater food scarcity, extensive external and internal displacement of people, and the use of Ukrainian battle area as a

¹⁵ E.g., Leemput and Schultz 2023.

¹⁶ For Johan Galtung's ideas, see a video on the relations of conflict resolution, peace studies, and futures studies. The interview on futures and peace was made during a WFSF Conference in Bucharest 2013: <https://www.youtube.com/watch?v=oKQYNaiwJtE>. The 25th WFSF Conference that is also celebration of the 50th Anniversary of WFSF to be held in Paris in October 2023 will include a futures workshop on 'Transformative Futures of Peace and Work – paradoxes and polycomplexities (organized by researchers of the T-Winning Spaces project).

testing ground for new weapons. The external big picture issues also have an impact, such as the economic embargo against Russia, Chinese economic downturn and the number of nuclear plants in the conflict zone in Ukraine. These trends or factors will continue to have a longer-term effect on postnormal times

Q: There are many aspects to the Ukrainian war when we consider it through the lens of postnormal times. Lastly, **what do you see as the biggest paradox concerning world peace?**

A: I have only one major thought about it, and it is related to this notion of coming back to **threat of nuclear war, and also with the concern about artificial super intelligence. How can we as a species, how can we as humans, find collective awareness and consciousness about our global village in order to survive postnormal times, and hopefully thrive in a future transnormal world?** Zia Sardar describes **transnormal as the new paradigm**. Our planet is becoming very small for the growing number of people – how can we get along? That to me is the biggest paradox that we have in this conflict.

Q: So, you see this as an existential question?

A: Absolutely. I think we tend to see it as a news item. **We have a very fractured news cycle. Things are in little silos, but in the background, there is this elephant in the room.** Somehow, we managed to get through thirty years of superpower conflict, mutually assured destruction, between the Soviet Union and the USA blocs, and we are back there. **How do we negotiate, how do we get along?**

Q: And the whole situation is paradoxical because there was an idea that that time was over in the 1990's, that history is ending and now we are moving towards an all-encompassing democracy but, however, it did not go that way.

A: Samuel Huntington's¹⁷ famous book (1993) and idea that the clash of civilizations is in front of us but we somehow survived, so we will continue to survive. It is a big question.

Theme 3: Crises and anticipatory governance

Q: As a first question of this theme, I would like to ask: can you mention or identify **any creeping crises** in society? By creeping crises, we mean a crisis that already exists in its initial stage but still goes unnoticed.

A: I would agree that there are creeping crises. One that relate to the digital and green transition is a **digital isolation** that seems particularly true for **younger generations**, generations coming up that are digital natives. They have a lot of friends on Facebook, YouTube, TikTok, but how often do they actually hang out with their friends, how often do they spend physical time with them? That may become a growing problem. The increasing digital isolation will be exacerbated by our artificial intelligence, personal assistance, particularly by META, by virtual worlds, by spending more time in 3D virtual environments, which is related to a second potential creeping issue, which is **solipsism**: the idea that you create our own reality. **There is this tendency to have reinforcement within social media space that we created, so it becomes a world of our own imagination.** Adding that on top of digital isolation could be a real problem.

There are enormous changes that seem to have impacted our sense of purpose and a **loss of meaning**, like declining religious participation, a sense of despair and anomie particularly in older generations, drug addiction, teen suicide and depression. Another big concern of mine is actually a contradiction in a

¹⁷ Huntington is best known for his 1993 theory, the *Clash of Civilizations*, of a post Cold War new world order. He argued that future wars would be fought not between countries, but between cultures, and that Islamic extremism would become the biggest threat to Western domination of the world. Huntington is credited with helping to shape American views on civilian-military relations, political development, and comparative government (Wikipedia).

sense because I am a big advocate for feminism, for women's power, and **yet male attitudes, male angst and male identity is increasingly challenged because of the growth of women's power in a patriarchal culture**. As men lose power, they are uncertain what to do and how to behave. Therefore, there must be much more attention for younger men to help them find meaning and identity in ways that do not lead to backlash against women and women's growing power. The last one is **disconnection from nature and nature deficit disorders and disease, as we become more urban and more digital**.

Q: Of course. A very interesting idea about the role young men must assume in the future and how they could be helped to assume this role. Thank you very much. The second question is: what would be the best way to introduce anticipatory governance, for example for urban governance and administration?

A: This is particularly challenging in the US with the presidential form government, but **the anticipatory governance needs to be both bottom up and top down**. I have mentioned social movements. *Anticipatory Democracy* was a book produced by Clement Bezold (1978) forty years ago. There were many examples in the United States, something like *the year 2000* programs in the 1970's and 80's. There were many examples of anticipatory governance that were started but never got that far, sadly. There are also examples of local communities. Hawaii had a Year 2000 program as well. When I arrived in Hawaii it was still active.

In the climate space, at the Turku FFRC conference a few weeks ago, there was a good presentation that showed how climate councils, advisory councils, and groups within governmental contexts – some formal, some informal – help inform government policy, parliaments and governments ministries to consider the climate. They also consider the needs of future generations, seventh generation ministries. The author Kim Stanley Robinson wrote a very popular New York Times best seller, the *Ministry for the Future* (2020), which argued that there should be a Futures Ministry, a high-level organization. There are many ideas about UN level of governance and institutions, both at the formal and informal levels. There are numerous ideas and experimentations, and fortunately innovations, that are moving along. Constitutional reforms could make our systems more parliamentary. The two-year or four-year cycle of elections means that the politicians tend to focus on the very short term and not take into account the needs of future generations.¹⁸

Given that you are also interested in urban dynamic, **some of the best examples of visioning preferred futures have occurred at city and neighborhood level, community level**. Ultimately, it is **communities and cities that will be responsible for dealing with disruptive climate change as an example**. It is my hope that there will be increased interest in funding for and support of urban and neighborhood year 2050 projects that will help us **anticipate the future better on one hand and also plan hopefully the preferred futures of what we really would like**.

Q: The third and final question, before our bonus questions, is this: **What do you see as the most crucial characteristics of futures resilience?** This concept of futures resilience is launched by Sirkka in our *RESCUE* project. It is defined as a capacity to cope with crises, learn from them and to renew one's organization or structure or activities and practices (Heinonen et al. 2022; Heinonen 2022).

¹⁸ Mika Mannerman (Mannerman et al. 2006) identifies this tension between Futures thinking and prevailing representative democracy. Futures thinking tries to understand long range consequences, but democratic thinking usually focuses on the parliamentary cycle.

A: This has been absolutely a key interest within a project we have been working on with Sarajevo Canton and their ministry of education. **Resilience and futures literacy are closely entangled with ethics and our awareness of the world around us.** Joseph Voros¹⁹ and others are working with **Big History**, a very long temporal view, using particularly futures studies and long-term perspectives, like climate perspectives. According to Dator, for every ten years in the future we need to understand hundred years of the past. I would argue that for now **to understand the next three years, we need to understand better the last one hundred or two hundred years.** The point is, we need Big Pictures, **we need to understand time in a much broader, larger, long view sense.** Sirkka Heinonen has pointed out in her work and writing that the importance of adaptability and flexibility is the key. That is why futures studies, not post-normal times analysis, is particularly useful for resilience in terms of understanding our choices, our alternatives to adapt and be flexible. Both looking in the past and anticipating the future.

I mentioned alternative futures and alternative scenarios earlier. One of the lessons from research about children is that they are much more adaptable and resilient if they understand that there is not one future, but alternative possibilities. Particularly the children of Sarajevo, they did not live through it themselves, but their parents, aunts, uncles and grandparents went through the siege of Sarajevo, the massacre of Srebrenica. How would you need to be able to anticipate that there may be disruptions equal to those in the future and how would you cope with that, how would you protect yourself, how would you adapt? **A key to that is also the notion of visioning the preferred futures, visioning better futures, envisioning what you want, not just what you think you will get.** Visioning preferred futures needs to be a part of our toolkit, like other tools to help us heal from trauma. This is because resilience, as I understand it, to a great extent in psychology has to do with traumas – that we experience and can heal from them, as well as from those examples, those learnings of that education can help us to prepare for the future catastrophes and disruptions as well.

Q: Thank you for a very comprehensive answer. Now to the bonus question. **Where do you see hope for humanity exists or manifest itself in our world of polycrises?** We are in the midst of climate change, threats of AI domination and other existential risks.

A: I do believe that process of envisioning preferred futures, considering alternatives futures are key to our resilience and our ability to move forward, particularly in a period of extreme, disruptive, and catastrophic change. The hope I have is that there will emerge a global conscience and awareness. We can come together in a way, perhaps with the assistance of artificial intelligence to come together on our values and agree on solutions moving forward. Environmental movements could potentially help us find global solidarity. I will also throw in a few outliers. As a futurist I would not be a good futurist without talking about some wild ideas. I have always been impressed by stories. In the movie *The day earth stood still* and the book *Childhood's end* by Arthur C. Clarke (1953), which both postulate that aliens arrive and tell us to behave and stop fighting. There are other outliers like the Singularity, as a possibility. Maybe the AI or aliens will put us in human zoos. (thanks Kurt Vonnegut!²⁰). The idea that maybe AI would decide that humans are not worth wiping out and that they might be useful in some point. Another possible Singularity or outlier is genetic engineering. Maybe we will learn the DNA for altruism, or like some previous science

¹⁹ See e.g., Voros 2023.

²⁰ Vonnegut 1969.

fiction stories, we will have some SOMA-like drug that helps us all to get along and be altruistic. There is also some hope for humanity aside from the outliers, the weird ideas. We are becoming closer as a planet and it is undeniable that the use of energy, fossil fuels, has had a huge impact on this experiment we call Gaia, Mother Nature, hopefully we come together and figure out how to get along.

Q: The ideas that hope for humanity could come from outside like true AI or alien lifeform is very interesting even though they are outliers for now. It is kind of accepting the idea that **if we want to come together, it may take more than our willingness to do so**. It takes something extraordinary events.

A: That is the point in futures exercises. Those examples about outliers raise a question: why should we rely on an outside force? We have the power, we have the agency ourselves, to make the change. **What will it take us to make a change?** Some science fiction authors and some futurists have argued that it may require some global disaster to bring us all together. Hopefully not, but we at least need to have the conversation.

Q: Definitely. These are interesting topics. Now, last question: How would you define **deliberative foresight**?

A: I would define deliberative foresight as **more than simply expert or authority decision making**. I spoke earlier about bottom up and top down. Most futures consultancies, major futures work, has occurred in the private sector and in governmental sector at the expert level. Not all of it, but a lot of futures work has neglected what happens at the personal, at the community level. I would define **good deliberative foresight** as that which **involves community and all stakeholders, that is participatory and not top down**. It needs to have engagement with ordinary people, truck drivers, housewives, homeless people, people who are maybe institutionalized, prisoners. All of those people need to be involved in serious and good deliberative foresight.

Q: That is actually something, I was thinking I would answer to this question. The stakeholders are the most important thing about it. We get participants from every aspect of life.

A: I am partly informed by the work of Funtowicz and Ravetz (1993) who argued for postnormal science. Postnormal science is almost a separate discipline now from postnormal times analysis. Postnormal science basically argues that all major scientific decisions should involve all stakeholders, the average people who are affected by it in their communities. We need everyone involved. I think this is classically applied to AI. There is a discussion going on in major futures Listservs²¹ about the new UN initiative to discuss AI and it got 50 top experts (Millennium Project 2023). Many of them are major experts in AI but they are not including people who are actively working in the field because they are so busy. They do not have time – the technicians and engineers, the grassroots of the AI field. They are not being part of the conversation nor are those truck drivers and housewives. That is a problem.

Q: Definitely. If we are trying to figure out AI or make it more efficient it is important that we have people from all walks of life to participate in this.

A: And to regulate it. That is what they are worrying about. But that sounds like another hour and a half.

Q: Definitely. Thank you very much. This was a very interesting interview. Thank you.

A: Thank you!

²¹ Listservs is an application that distributes messages to subscribers on an electronic mailing list.



Figure 2. Christopher Jones was interviewed by Riku Viitamäki. Photo: Anne Arvonen.

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2.3 Futures as the Fruit of One's Hopes, Dreams and Aspirations – Hiraya Manawari

Interview with Marianne Agnes Mendoza and Joedel Peñaranda by Burgert Maree

The interview with Doctor Marianne Agnes T. Mendoza and Director Joedel Peñaranda, both from the Biliran Province State University, Philippines, was conducted on 15th June 2023 at the FFRC conference *Empowering Futures – Long-Term Governance, Democracy and Futures Research* in Turku. The interviewer was Millennium Project Intern Burgert Maree, FFRC Helsinki Office, the University of Turku. He also transcribed the interview from audio to text.

Dr **Marianne Mendoza** is the Vice President for Research, Innovation, and Extension Services at the Biliran Province State University (BiPSU) as well as the Managing Editor of the Journal of Society and Technology.

Joedel Peñaranda is the Director of the Institutional Planning Office at BiPSU, as well as the Executive Assistant to the President at BiPSU. He is also a Former Fellow at HPAIR, The Harvard College Project for Asian and International Relations.

The title of Mendoza's and Peñaranda's presentation at the FFRC Turku Conference was *Hiraya Manawari: Exploring the Preparedness of Philippine Higher Education Institutions (HEIs) on Futures Research*. They have studied the current state of futures research in Philippine HEIs, including the availability of resources, the level of expertise and knowledge, and the degree of interest and engagement in futures research among faculty and students. They highlight the need for higher education institutions to prioritize futures research and enhance their capabilities in this area to better prepare their faculty as well as students for the changing landscape of work and industry.

Interview

Q: A good morning to you both Joedel and Marianne, and welcome to the FFRC in Turku. It is wonderful to have you here at the FFRC Turku Conference in 2023, and I am looking forward to hearing from you about your experiences with futures in the Philippines, and very excited to learn more about it.

J: Thank you for the warm welcome.

Q: First of all, we would like to know your view on futures, and futures research, in the Philippines.

M: Our perspective on Philippine futures research is that it is rooted in strategic thinking and **strategic foresight**, so it is basically an offshoot of trying to further these two fields. Right now, it is growing in momentum, because of the funding that we received from the government in trying to develop futures research as regards the methodologies, the frameworks, the concepts, the themes that we can use. We are also trying to raise awareness of futures research, which is related to the support of the government in terms of policy and the awareness on sustainable development goals (SDGs), and how futures research will play a part in trying to further the SDGs. Accordingly, that is why the field of futures studies in the Philippines right now is gaining momentum. And yet, it is relatively in the early stages, because we only started to appreciate the field during the COVID-19 pandemic. We realized how it plays a part in every stage of a crisis: how to anticipate things that might affect the present, how to put them in a framework to increase the chances of surviving, and how to recover and to thrive again from such situation and start to live again. That is how we started to be engaged in such a field. However, there are even parts in the

Philippines right now that would try to belittle the field by saying, "it is just a fad", "it will not last" or "it is sort of bordering on bogus science" and "there is no data to back it up" or "the field is not based on so much as quantitative research". We know the debate on qualitative and quantitative research nowadays, the depreciation between the researchers and scientists of these two methodological schools has been ongoing since time immemorial. Nevertheless, right now, there is an appreciation that futures research can actually be strengthened. Today, it can be said that futures research banks on data analytics. There is an appreciation growing that the field can bring so much more. The policy and the support of the government have helped a lot in trying to further such field and to increase the interest and really recognize it as a scientific field.

Q: It is also wonderful to know that you can take Finland as an example, as Sirkka Heinonen mentioned yesterday, where even the debate about whether futures studies is an art or a science, played out. This has even up to recently played it out here in Finland, and in some circles, it is still present in conversation. So, it is wonderful to see that it can bravely be established in a country. And yet, there is still this debate going on, which gives one hope that momentum should pick up, at some stage.

M: My personal opinion is that not only is the problem rooting on whether they try to think of futures research seriously, but because not many people understand what it is.

Awareness is needed. This situation resembles the time when – let me just cite something from the past – there was an attempt to associate menstrual cycles with going crazy or that the post-partum depression as a phenomenon was not accepted as a scientific phenomenon before, even though we know right now that is a real mental disease. Parallely, I am thinking that people do not really appreciate futures research, because there is not a lot of awareness about the field. Knowledge is missing on how scientific it can be, and how it banks on informatics and data analytics, and all the frameworks and processes in management and governments and democracy, and a lot of concepts in science. Therefore, I think that **it is our job in the futures research field to educate people about it**. This should be done in order for people to gain more understanding and appreciation of how we can help as part of a multi-disciplinary team or environment, or how we can combine scientific fields in furthering the results and make it more societal-friendly. Attention should be directed more into societal development because the problem with science right now is that we have a lot of technology, we have a lot of models and theories, but we have missed the part on how this fits in when solving the problems of the poorest of the poor, or the societies that have lost touch of appreciation for family. Our problems are very scientific in nature, addressing them can affect how our society works and, in fact, I would say that traditional scientists have really, lost touch of the role that the family plays in society, and of values per se. Futures research tries to harmonize the hardcore sciences and the social sciences that bring together or try to solve the grassroots problems of society.

Q: That is wonderful, I think you have nailed this, you put your thumb on that issue, that was very well. Coming back to your presentation here at the FFRC Turku Conference where you mentioned the **Hiraya Manawari concept**. Could you give us an explanation and, perhaps, just a history – if there is a history involved – in the concept, for our futures community?

J: Yes, of course. Before, *Hiraya Manawari* was actually a show on the television. People did not know about the word because it is an ancient Tagalog word – an ancient Philippine word. It gained recent traction when the Philippine Futures Thinking Society²², especially with Professor Shermon Cruz and Doctor Lizan

²² Sirkka Heinonen is an invited member in the Philippine Future Thinking Society. See <https://phfutures.com/>.

Perante-Calina, started using the phrase in the way they cascaded futures thinking in Philippine organisations, particularly in the public sector. The word basically means, according to Cruz and Kahn-Parreño (2022), ***the fruit of one's hopes, dreams and aspirations***. It is an attempt of Filipino forerunners in foresight and futures thinking to indigenize this concept of futures thinking that originated in the West, if I am not mistaken, and package it in a way that Filipinos could relate into, just like how future *Hiraya Manawari* is contextualised into communities. In the Philippines we have, what we call as, "*kapwa, pari pan kapwa*", which is a unique aspect among Filipinos to go together to solve certain problems of the future and of the present. Professor Cruz, in one of his lectures, specifically said this is one way to decolonize a concept and make it our own.

Q: That is wonderful, and I am sure that the futures community will definitely look into that, and I do encourage them to do that. What are your goals for integrating futures thinking into education? You have also touched on the whole education component.

J: What the Philippine government is doing right now is actually strategic. It can be tough, to cascade a foreign concept in the bureaucracy, particularly in among professionals. What they did was to target, specifically, higher education institutions (HEIs) – that is why a 2-million-peso funding for all state universities was strategic. The goal basically is what we call as *AmBisyon Natin 2040*²³. It is a long-term development plan of the Filipinos (and) the government, that by 2040, the lives of the Filipinos are "*Matatag, Maginhawa, at Panatag na Buhay*". When translated into English, it means Filipinos are "*strongly rooted, comfortable and secure*". The more awesome thing was that these concepts of this law – because it was through an executive order – were signed even before *Hiraya Manawari* started in the Philippines. It jointly became a goal of the Philippine government to integrate futures thinking, because of this long-term plan, and eventually integrating it to course syllabi, among faculty. This is because the way it is structured in the Philippines: it starts with the national plan, that cascades into 17 regions in the Philippines, and in each region, we have our own development plan, and from regional development plan we still have our own provincial development plan. So, to go back, one goal of the Philippine government is really to integrate foresight, because these things will not just be aided with strategic planning, but with a long-term plan, and one that is science-backed, and one that is already proven in other countries, such as Finland and the US, to be effective in bureaucracy.

M: In our university, among the goals of trying to really integrate futures research into our processes and plans and programmes and activities, because we are an academia, the first task would be to develop methodologies in futures research. We have actually a center for that, it is called SIKLAB, that stands for...

J: ...Strategic, Innovation, and Knowledge Laboratories.

M: Joedel is actually the director of SIKLAB. The goal is to try to develop models so we can be able to share it with our stakeholders, and they can use them to further processes they might have, such as in local government units. Consequently, the research that we conduct on futures research, or the methodologies that we develop, or the knowledge that we contribute to, is intended to be used by our stakeholders. They arrive at decisions that are based on data or science or trajectories into the future which might impact the outcomes. Our stakeholders can plan accordingly and better prepare for any untoward challenges or obstacles using multi-disciplinary approaches.

²³ https://2040.neda.gov.ph/wp-content/uploads/2022/02/2162022_A-Long-Term-Vision-for-the-Philippines.pdf.

J: We currently have three futures research niches or focus areas. One is on **local government**, especially on the full devolution of local government units, which is the research we are working on. The second is on **turmeric**. It is curcumin, a spice plant.

M: It is a rhizome rich in curcuminoids, which have anti-inflammatory properties. There are a lot of this plant growing in our region, so that is why we delved into such initiative, and we have a proposal on that for funding. The third would be trying to further our **tourism, most specifically eco-tourism**. This is because most of the tourism industries right now, in the Philippines are mostly considered destructive tourism. In Philippines, they develop a place for tourists to go in but destroy the original properties of a place, such as putting, for instance, restrooms in boardwalks. That would be destructive to nature, so we would like to have the constructive and sustainable type of tourism.

That is why we would use such an area in futures research. Other universities of the 103 State Colleges and Universities (SUCs), also have their own niche in futures research. One university, for instance, also in our region in the Visayas, which specializes in agriculture, is trying to find ways of bringing root crops like sweet potato or camote, a staple food just like rice in the Philippines, to Mars. They have caught on with the movement of inhabiting other planets such as the *Bringing people to Mars*. Other universities are also trying to have their niche in futures research, which is the purpose actually of the 2 million [peso] grant mentioned before. So, basically, for SUCs, I would safely say that the goal actually is to use futures research methodologies, and frameworks, and models, and furthering whatever niche or thrust that we have in our particular university.

J: Before, practically speaking, when we do research on sweet potatoes, turmeric, eco-tourism, what we do is only short-term research. Such a futures horizon is a planning model which only lasts for three to five years, i.e., the typical strategic planning. However, when futures research and foresight arrived at the Biliran Province State University, we were able to use methodologies such as the four scenarios method²⁴, forecasting, backcasting, and we were mind-blown that we could do fifty-year trajectory of these areas where currently we are already working on and improving on.

M: At first, we really found it very difficult, because we would always take the mindset of trying to fit the budget into the research, though that would just go far as two or three years, because that is how long the budget would last. So, when the futures research methodology was introduced to us, we really found it difficult in trying to think back, as far back as 50 years, what we would want to do in terms of research and development, and innovation. As far back as 50, 100 years, so the first workshop that we did, we did not have very good outputs, to tell you honestly.

J: There were birthing pains.

M: We asked: how do we do this? How about the budget? What if the time changes? We were told that *"yes, you have to factor in everything, including the four futures – the disowned, the preferred, etc. – so, the faculty would already have a grasp of really thinking far back into the future"*. From the onset, the goal was really to make people aware and just use these methodologies in trying to anticipate as far back, using scientific process, and not just trying to think what you want in the future, but actually do it the scientific way, trying to factor in data, or literature review, or even lessons from the past. Have you heard about Typhoon Haiyan, which in 2013 was the biggest devastation that the Philippines experienced? The problem with that is that we were not prepared. This was because they said it was not a tsunami, and when they informed the public, they used the term *storm surge*, and the public, or most of the citizens, did not

²⁴ Referring to Jim Dator's (1981) four futures archetypes. See also Bezold (2009).

equate *storm surge* to a tsunami. Therefore, when they were told to actually leave their homes and evacuate to a safer place, they did not listen, because according to them they weathered several storms in the past and their livelihood would be left behind, their properties and the like. But when, after the typhoon happened, and they looked back as far as 100 years, they found out it already has happened before.

J: If the local government had used this as a disowned future, they could have better planned for storm surges which, did not happen before, or happened but they did not identify them. They will also potentially happen more because of global warming.

M: **Futures research is not just about looking in the future, but it also involves looking back**, as far back, into the past. This is because there is a trend for history to repeat his/her story. When you look at the future, you also have to look as far back into the past and, although we were already trained to backtrack into the past, we were not trained to really think forward far into the future. It is a bit comforting to hear many of our faculty saying that *"I would try to tweak my syllabus to this, because what if the students will be replaced by robots?"* They are trying to integrate concepts of futures research and using it in the academia, in the work that they do. I would say that we are now at a place where we can integrate more of the hard-core futures research, because there is a certain level of awareness in state universities and colleges, and that is a good place to be. I would say that the government made really a right call in bringing it to state universities and colleges.

J: Yes, definitely.

M: **We are the producers and breeders of the future workforce.** If you have that, it is like multiplying the teachings of futures research to the whole of the community. If we teach elementary and high school teachers, then they would also already have a grasp of futures research.

Q: I am very excited to see that your vision is very long-term and also embedded in education, and it is also very encouraging because both of you are at the university. So, that is probably very true to your hearts as well.

M: We know that would come with a lot of challenges and obstacles – that would be an exciting part of the work that we do.

Q: Then the last question: what are the special challenges that the Philippines are facing when trying to promote futures thinking in society? What would be some of those challenges?

J: I think if we go back to the specific resistance, to anything that is new and foreign to their ears, this is where HEIs, or colleges and universities, come in. When researchers start talking about this, start organizing conferences, presenting research outputs, publishing them, communities eventually start to realize that these are not fads at all – these are real concepts, something that can be used. Not necessarily in your professional capacity, but in your personal life. I think that is the **specific challenge – the resistance to something new**.

M: There is actually a scientific or social phenomenon to that. It was also mentioned yesterday, the cognitive dissonance by Leon Festinger²⁵, that when someone is introduced with something new, the first goal of the person is trying to get back that sort-of normalcy to, or homeostasis, to their thoughts, when you are presented with something different from what you know. But there is also a lot of challenges as well, such as how the public views futures research, and the funding that you need. We know that when

²⁵ Leon Festinger (8 May 1919 – 11 February 1989) was an American social psychologist who originated the theory of cognitive dissonance.

you initiate something that is new, and you want to disseminate or try to conduct activities, programmes etc., you really need funding.

J: Maybe just to institutionalize and sustain the funding, because this is really the lifeblood of futures research. Our legislatures should start contemplating on making this as a law, instead of having to depend on funding through congressional insertions or congressional favours. That could be through a republic act.

M: The last challenge, we also mentioned this in our study, is trying to have networks. Therefore, we are really glad to be here, because what we have in our networks are just from the Philippines. We have tried to interact with futures researchers in other countries. We are really envious of what you have here in Finland – it would be good if we reach the point that you are right now.

J: It is our preferred future!

M: We would like to have more interaction with your organization, and with other organizations that are into and passionate about futures research. That was our goal in coming here. It is really not something that would immediately gain support – we really had to lobby to come here. We thank our institution BiPSU and of course, the Philippine government for supporting our initiatives.

Q: We are so excited to have you here, and everybody has a little bit of a buzz around about what is happening in the Philippines and in futures, so we are hoping that also anybody reading this interview will get in touch with you to build networks. This is because we know that from networks a lot of beautiful things can happen. Thank you so much for this interview, we really appreciate it and look forward to seeing you in the future again!

M and J: Thank you so much!

As a bonus question we asked Marianne and Joedel:

Q: Can you mention/identify any **creeping crisis in society** (or as related to future of work in particular)?

A: We think it would be **the rise of disinformation exacerbated by the influx of generative AI**. We trace this alarming and growing societal concern to the first Filipino 2021 Nobel Peace Prize winner, Maria Ressa “for their efforts to safeguard freedom of expression, which is a precondition for democracy and lasting peace.” This global crisis, tempered with giant and capitalist social media companies, affects democracies, public discourse, and generally, civilization's safe and holistic progress.

Particularly now with AIs such as ChatGPT, there has been little to no response for safety nets as to the threats they pose against nation-states and democracies. This area is a fertile ground for futures research in anticipating scenarios and tracing historical trends with the end goal of providing inputs to institutions and governments.



Figure 3. Marianne Agnes T. Mendoza and Joedel O. Peñaranda interviewed by Burgert Maree in Turku.

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2.4 On Moving from Self-Slavery Towards Ubiquitous Self-Actualisation

Interview with Rosa Alegria by Sirkka Heinonen and Saija Toivonen

The interview of Director Rosa Alegria was conducted on 15th June 2023 at the FFRC conference *Empowering Futures – Long-Term Governance, Democracy and Futures Research* in Turku. The interviewers are Professor Emerita Sirkka Heinonen, Finland Futures Research Centre, University of Turku, and Associate Professor Saija Toivonen, Aalto University, the co-ordinator of the *RESCUE* and *T-Winning Spaces* projects. The transcription of the interview from video to text was provided by Millennium Project Intern Risto Sivonen, FFRC Helsinki Office, the University of Turku, and the video was recorded by Doctoral Researcher Lassi Tähtinen from Aalto University.

Futurist Rosa Alegria is Director of the Millennium Project and Teach the Future in Brazil, and she has been a professional futurist for the last 21 years. Prior to that she worked as a business communication executive in large companies for 20 years. She is a pioneer in strategic foresight in Brazil, an international consultant and a lecturer. Rosa Alegria is recognized as one of the most influential women futurists in Latin America. Rosa Alegria has a bachelor of arts degree in Language and Literature at University of São Paulo, Brazil, and a master's degree in Futures Studies at University of Houston Clear Lake, U.S.. She has special expertise in sustainability and post-development at Schumacher College (UK), in Global Management and Diversity at Morehouse College, Atlanta, U.S., and in Creativity at CCL Center for Creative Leadership, California, U.S. Rosa Alegria is CEO of Perspektiva, trends, scenarios and strategies consulting. She is co-founder of futures research group at São Paulo Catholic University; co-founder of the startup Pangera – a startup that promotes intergenerational dialogue; member of the executive board of the World Federation of Futures Studies (WFSF); and professional member of the Association of Professional Futurists (APF).

The topic of Alegria's Keynote at FFRC Conference was *Transetarian Revolution: the Power of Ageless Futures*. She pointed out that this is the first time in human history that six generations live together in homes, on streets, in schools, at work, in the social media, and everywhere. She indicated that there are productivity losses caused by intergenerational conflicts. Impacts of age segregation give rise to ageism, make it harder to develop sense of solidarity across society, and deny old and young crucial opportunities to learn from and to help one another. Therefore, we should have intergenerational imperative. This would mean an ideal ageless world, where we can choose mutual respect and intergenerational cooperation, everyone can be seen and heard and valued, we are tribes floating in time, and technology is no longer a divide between generations. She also gave an example of age sensing where a centennial claimed, "at work I feel forty years old", and emphasized the need to look at the exponential creativity that comes from intergenerational synergy? To unite generations, we should call on organizations that serve the young to collaborate with those that serve the old. In essence, we should have collective visions of the future.

Interview

Q: We are now in Turku at the FFRC conference on Empowering Futures, and we have the pleasure of having here as a keynote speaker Rosa Alegria. You are chairing the Brazilian node of the Millennium Project, so it is a great pleasure to have you for an interview for us. We are doing this interview with Saija Toivonen, who is the director of the *RESCUE* project and the *T-Winning Spaces* project, for which we are

interested in asking some questions from you. We would like to start tackling, of course, this very typical question on the futures of work. How do you see, what are the biggest challenges for the futures of work? In the Millennium Project, we had the scenarios for the Work and Technology 2050 (Glenn and the Millennium project Team 2019), so there is a lot of material there. But personally, how do you see, what are the biggest challenges for the futures of work?

A: There are many challenges, it is difficult to us to choose one, but I would pick one from my personal perspective, as you suggest. I think that the **biggest challenge right now is the detachment of the self-slavery process**. Work has been representing a self-slavery attachment. People are more engaged with work than with living. Generally speaking, and not talking about the lower income classes, because they have another reality, but in general, I think work has occupied an immense space in our lives. So, in the Middle Ages, people who worked were considered less than the people who did not work. Now it is the contrary. If you have nothing to do, if you have free time, you just are not very well appreciated. Therefore, I think that this **self-slavery has cultural roots that are difficult to change** – for me it is that challenge. **The asymmetrical dedication to professional and personal lives no longer makes sense, given our inability to compete with the productivity of machines, the precariousness of working conditions, and the free time available to live a full life.**

Q: Thank you for that answer and that is actually related to what I would like to ask you about the concept of work, how it is changing. If these are the challenges, how do you see the concept of work? How is work defined in the future, will it no longer be a salary work or paid work??

A: Well, putting a little bit of utopia in my answer from life gaining to bread winning, we are going towards a **purposeful work process concept**. People, for instance, the new generations are coming now to the front. My grandchildren, for example, will for sure not be in any kind of work just for money. With a crisis, with the multiplicity of challenges that the world has, people will certainly be more interested in working with purposeful tasks, with something that has meaning. It is coming, it is now, it is currently happening – this is a new concept, but it will grow to be more and more. In my view, companies' workplaces will be empty, if they do not have or offer meaningful reasons, meaningful connections between the company's purpose and the personal purpose. There should be a link. People will ask more and more the question, for what I am going here in this particular job. Why am I waking up so early? What is the meaning of being working in this company?

Q: Excellent, so it is all about meaningful activity, and also related to the Millennium Project scenario on self-actualizing economy. As long as companies realize that they have to provide this kind of meaningful activity for the workers.

A: And in this context, **we should transform the metrics, the indicators, because we still have industrial indicators, like productivity and competition**. We are still living in the industrial age, and we are not in this phase of a new model, we are only moving towards it.

Q: Exactly, there is discrepancy. The paradigm has to change. Saija will now continue asking some more questions for our project.

Q: Yes, COVID-19 pandemic made a significant change for teleworking and remote working, phenomenally changing the whole nature of work, and we started to work immediately almost from our home. How do you see in the future, what are the **ideal places, where you want to work, where you should work, and where you would feel good to work?**

A: Ideally, it is the hybrid. It just is now something that is really becoming obvious. People who have gone through online work only, radical online activities, are getting tired, and there is a limit for the screens.

And there is a limit for loneliness. **We are gregarian, we are socialized people**, human species are socialized, so we need a half and half. I do not think that we will be back totally to presential work, because this COVID-19 experience has showed us with evidence that it was not a happy environment for people. People do not want to go back. This is because we see that **the online home office is putting pressure on people**: you have multiple activities, we need connection, we need to have fun in exchanging, and creativity needs exchange in the presential, because there is energy that does not appear in the zoom work process. Yet the human energy that we get from other people, who are in front of you, is important. You feel the people much better, so creative process can come from these exchanges of energies that are not very rational. They are intuitive, they are suprarational, so we need that touch side of this process. I do not believe in only one way, but I believe in the hybrid, the picture of both. Finally, we can choose. I think in the future **we will be able to choose the way we want to work, and the place where we want to work**.

Q: That would be ideal to have the right to choose, because we usually do not have that option.

A: Yes, and there will be the disruption in the employers' mindsets. I think that one of the main, or maybe the **main challenge and attribute, for a leader is confidence and trust**. However, trust should be revealed gradually, as people are not prepared to be trustful yet. So, at the beginning there should be trust in this process of incorporating trust into the relationship of work.

Q: It kind of includes physical aspects, so the physical working setting, whether it is at home or at the office or third places, but also this **social connectedness**, and when we think about, for example, the responsibility of employers or workplace management strategies, but also employees. Who do you see is responsible for taking care of all these different aspects?

A: It is this **consciousness that is the most important** – I trust you, because I decided to trust you. It is up to you to be accepted by my trust. Accordingly, I think that it is a kind of a decision, I trust you or I do not trust you. So, this is just a kind of an individual deal that I have to take into consideration. This is just something very human, and it has to do with changing my mindset and my behavior, and my connection with **new imperatives in the workplace like the expansion of creativity that will be increasingly necessary. Expanded creativity is not possible with control and distrust**.

Q: Perhaps we can still ask, what is your favorite workspace, where do you feel most happy yourself, or have this kind of a flow?

A: I am very mobile, you know. I flow depending on my day, depending on my emotion, my feeling. I love integrating work with leisure, in a healthy way, not trying to sacrifice one of the sides. I think that nowhere is the best place, to be nowhere, to be everywhere, so this is the future I see for myself, for my grandchildren, for the future.

Q: It is like changing according to your needs.

A: To be everywhere, ubiquitous.

Q: Ubiquitous and I would like to add omnipotent. Thank you very much, Rosa Alegria, for this interesting interview.

A: Thank you very much, it was a pleasure.

As a bonus question we asked Rosa:

Q: Can you mention/identify any **creeping crisis in society** (or as related to future of work in particular)?

A: We are facing different potential crises for humanity and the planet, from climate to the backlash of dictatorships, global epidemics, biotech and AI threats, and so on. These and others are part of the upper

top of an iceberg, i.e., the visible part that corresponds to the tangible crises and threats. Society is becoming more and more aware of them. However, we are less aware of the lower part of the iceberg, the **intangible dimensions of human nature and culture** that are the underlying cause of tangible crises. I would like to talk about them, but to make it short for this interview, one of them is more work-related. It is what I call the **imagination atrophy**. We are **losing the imaginative capacity that in the history of humanity has been able to find creative solutions to the challenges civilization faced in the course of time**. Our imaginative capacity is decreasing perhaps due to delegating too many essentially human attributes to technologies. This makes us lose our power to imagine possible futures, also shortens time horizons, connects us only with dystopias, and makes us self-slaves to an unsustainable work system.

The 20th was a century of dystopias, and the 21st century is the same. We need utopias to help us find ways out of all crises. If we think only of dystopias, we become a Frightened Society. Fear paralyzes society, generates apathy and, also violence. According to the sociologist Fred Polak (1973) in his masterful work *The Image of the Future*, societies that do not nurture positive images of the future tend to disappear.



Figure 4. Rosa Alegria being interviewed by Sirkka Heinonen and Saija Toivonen.

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2.5 More Fantasies Needed to Imagine Workspaces for the Future

Interview with Erik Øverland by Sirkka Heinonen and Saija Toivonen

This interview with Dr. Erik Øverland was held on 15 June 2023 in Turku, Finland, at the FFRC conference *Empowering Futures – Long-Term Governance, Democracy and Futures Research*. The interview was conducted by Professor Emerita Sirkka Heinonen, FFRC (University of Turku), and Associate Professor Saija Toivonen, Aalto University, co-ordinator of the *RESCUE* and *T-Winning Spaces* projects. The transcription of the interview from video to text was provided by Millennium Project Intern Riku Viitamäki, and the video was recorded by Project Researcher Amos Taylor, both from the FFRC's Helsinki Office.

Dr. Erik F. Øverland is the President of the World Futures Studies Federation (WFSF) (2017–2025). He also serves as Counsellor and Special Envoy for Education and Research at the Norwegian Embassy in Berlin. Until recently, he was a policy advisor to the Minister of Education and Research in Norway, and a guest lecturer at the Free University in Berlin and University in Stavanger on foresight management issues. Dr. Øverland has published several books and scientific articles on futures studies, and he is one of the most experienced foresight practitioners in Norway. Dr. Øverland was the project manager of the Norwegian Government's Norway2030 project (1998–2001), and he has also instructed agencies and business enterprises on futures studies, both in Norway and abroad.

The title of Dr. Øverland's keynote was *Sustainability and futures – Moving beyond 'The Natural' and 'the Artificial'*. His keynote delved into philosophical questions and introduced new ways of thinking about the separation between humanity and nature. The keynote started from the notion that **it has become more and more difficult to differ between what is artificial and that what is natural** due to various technological developments, such as nanotechnology, artificial intelligence, and bioengineering. According to Dr. Øverland, this change has had a great impact on how we think and see the relationship between nature and artificiality. He also argued that this kind of change affects how we understand the concepts of sustainability or the anthropocene. Even though the lines have become blurred, Dr. Øverland suggests a new way of approaching this question: we should make the distinction between humanity and nature more tangible on the basis of universal perspectivism, which argues that we should conceptualize something as being part of nature when it is considered natural through the production and reproduction of expectations. In philosophical terms, nature is understood as a conceptually defined undefined. Here, nature is seen as something opposite to humanity, and humans can construct themselves through what they are not – for example, nature or technology. However, as we can see, this opens the concept of nature to wider interpretations.

Interview

Q: We are here in Turku at the FFRC conference on empowering futures. Our guest today is Dr. Erik Øverland, the president of the World Futures Studies Federation. The federation celebrates its 50th anniversary this year. It is a great pleasure and honor to have you here with me for this discussion and interview.

A: It is an honor and pleasure for me as well.

Q: You are an expert in many areas of futures research, and the future of work happens to be one of them. We are very interested in the futures of work and workspaces, as we have a new project called *T-Winning Spaces*, funded by the Research Council of Finland, where we study how work is changing and what

kind of workspaces there are within the twin transitions to green and digital. It is a huge challenge, but also an interesting one. To start off, I would like to ask what kinds of challenges to the futures of work do you see occurring, let's say, in the next fifteen years?

A: Well, I think the workspace is most likely one of the things that is going to change a lot in the next fifteen years, or even in a shorter period of time. The question is how? There are a lot of uncertainties regarding the future of workspaces. Because I have been dealing with these kinds of issues on different occasions, and I have been seeing a lot of discussion going on, it must be stated that they lack a bit of fantasy, in my opinion. Particularly in regard to the discussion about open space and closed offices, and that has been going on for twenty years. A lot of work researchers still seem hesitant to go beyond that. Just a couple of months ago, ChatGPT was launched, and you have incredible revolutions regarding content production for a lot of different occupations. That means we have certain consequences for those who work, and whether you go to the workplace or not. That is maybe not even the main question, because I think that **the most important thing is what you are actually doing when you work**. Think of a lawyer who can use artificial intelligence, but cannot rely on it? You need to develop competences, **you need education, and even more the education that you had before**. Therefore, it is not that those kinds of developments make education obsolete. **You need to recreate education as a part of this development**. The same applies to digitalization. 25 years ago, I wrote a scenario with a wild card about hologram technologies, in which you sit in a room with your colleagues, but they are represented by holograms. That was quite a wild card at the time, but now there is technology that can actually do that. This means that you have to rethink the interface, or the balance, between physical travel and digital travel, which is a term I like to use. **You need to come up with a lot of fantasies to imagine the workspaces of the future**.

Q: Exactly. I like your idea very much, the need for going beyond. We cannot really even imagine the new possibilities and ramifications of digitalization and other such phenomena. But then going back to the concept of work, which has to change because the world is changing. What is **one element in the new concept of work that you would like to bring to the table?** Because I think that work is no longer the number one priority, even though it is a means of subsistence and income. But it is much more. It is something related to meaningful activity. You may not necessarily have work, but if you have meaningful activity in society, you feel that you have a place in society. What are your thoughts on these kinds of meanings of work?

A: To put it briefly, I think that we are moving into a phase of improving the meaning of work. **People can be more flexible, and they can engage in activities that they find more meaningful**. There is one thing that I think is very difficult to judge and think through, which is the balance achieved through salaries as wage levers, in the sense that you are getting paid, engaged by a company, paid your wage, and so on. That is the conventional way of being part of the labor market or a workspace. However, if there is new technology, there is also cultural development, and political instruments are changing in the sense that they could support unconditional payments, which is a current topic of debate. If this is going to take off, then people can afford being more pragmatic and flexible, engaging in activities that they really love. That is one scenario. You can see this developing into a labor market that is better suited to you as a person and individual.

Q: That makes it more motivating for the individual. Now, going back to workspaces – physical workspaces, whether you have digital equipment or not. What would be an ideal workspace in the future? Of course, you cannot generalize, but please tell us some elements.

A: Speaking personally, I think that you have a physical dimension that you need to consider. Then you must consider the digital dimension and virtual dimension – and find a good balance. I do not believe

in either or. **It is both at all times.** You must find a way to balance a physical meeting place with other persons, because I still believe in physical encounters between people. **If you think digitalization means that you do not need it anymore, you are on the wrong planet.**

Q: I also believe in that kind of balance. But I also think that balance should be tailor-made timewise – for example, a person's situation may change, or the balance may consist of different elements in a different timeframe.

A: One other thing, I have been watching a lot of YouTube videos about people who say they are going off-grid. They are coming from urban areas, big cities, and mainly from somewhere in the western part of the world. Then they buy a cabin in the Alps or a on a mountain in the northern part of Italy. They work a lot to renovate those places, and you get the impression that they are going back to nature. But if you look at what they are actually doing, they earn money by creating videos for their viewers on YouTube. And they earn a lot of money so that they can finance that setting. So, you see a kind of very strange and spectacular combination of the romantic idea of going back to nature, which is not nature, and being part of a different kind of labor market. Of course, they are really producing things and advertising for other companies. A single video may gain two to three hundred thousand viewers, which makes them very attractive to businesses.

Q: Then you touched upon the issue of not having either/or solutions. Do you think that instead of these kinds of dichotomies, we are approaching an era of convolutions, i.e. a fusion of elements, actors, spaces, whatever? As a hypothesis, if we are moving to an era of convolution, how do you think that people will react? Will there be a tipping point where they will become confused – with human elements, artificial elements, digital elements – or will they be able to cope with that combination?

A: That is exactly what I am going to discuss in my keynote. But I can recapitulate: I think that **we are moving into a sociopolitical development that puts pressure on our expectations of what is natural and what is artificial.** That is not just about our reality, as it also has a lot to do with our ability to perceptualize things that we can do. This means that **our perceptions of naturality and artificiality are changing rapidly.** That is the reason why you really have to think through those dilemmas – what is really going on? Otherwise, you may become lost in space and existential despair, because you do not know how to orient yourself. Think about science fiction movies, like Blade Runner or Avatar, where you really do not know if the person sitting in front of you is a machine or human being. How are you supposed to know that? Therefore, you need research, you need to create new devices.

Q: Education and training as well?

A: Yes, **you need help to identify that.**

Q: So, a critical skill is the ability to identify the difference. We can cope with them all if we can just identify them and make those distinctions. The concepts of place and space, as well as the concept of time, are so fascinating to us futures researchers. Furthermore, both place and space are interesting, and also changing as you mentioned, when we think about digitalization, virtualization, and so on. But where would you place the future? In one of the presentations at the FFRC conference yesterday, it was said that **the future is lost in between the past and the present.** So, where would you place the future? We are now moving towards philosophical or metaphorical landscapes.

A: That is a very good and interesting question, because I think that **you cannot separate the past and the present from the future, since your worldview is constituted through all these three dimensions** – you have to think of the past, present, and future at the same time. Otherwise, you will not be able to identify yourself in the world. That is my transcendental-philosophical point that I am also going to make

afterwards. This is because, otherwise, those three dimensions are not necessarily given to you. Historically, they have not always been there either. This could be an evolutionary product of the involvement of human consciousness.

Q: Yes, constantly evolving, and, actually, they are not separate units. They are a dynamic continuum and intertwining and parallel and simultaneous, and so on. But, before we conclude our interview, I have a bonus question to you concerning our other endeavor, the *RESCUE* project, where we study and promote futures resilience for cities. What do you see, or can you identify a creeping crisis that is not yet visible in society or that has not yet been realized? A creeping crisis is a crisis that will grow and grow before finally turning into a disruption or some really dramatic transformation. Can you think of a creeping crisis that is related to the future of work or society at large? Any **creeping crisis** that you might want us to reflect on?

A: The easiest and most obvious, which is a crisis that many of us are already aware of, is the **centralization towards decentralization**. It is an issue of sustainable thinking, sustainability, approaches toward creating urban infrastructure, and so forward. There is a dilemma here, because I see a lot of interesting developments trying to counter this kind of development – but not fast enough. I have been seen some very spectacular plans for cities, for urban development, that will blow your mind. One example is “The Line” in Saudi Arabia. We can discuss its realism, of course, but at least it contains some visionary aspects. You also have the Chinese building cities in space. In other words, they are trying to make their mark in space. They are creating totally different concepts of what it means to live together in urban surroundings.

Q: Exactly. It is not a dilemma of just the old dichotomy of centralization/decentralization. We should think of other solutions as well. However, it can also be questionable to have a very spectacular urban plan for a city in the middle of nowhere, on top of nothing. There are cultural and social aspects that should also be integrated, so this kind of PESTEC approach is quintessential in that sense. Do you agree?

A: Yes, I absolutely agree on that. There are new challenges. Nevertheless, that is also related to not only technology, or how you consume, or what urbanism is, and how buildings are constructed, but also to the financial mechanisms used in the budgetary systems of different governments. Because I see that the term “innovation policy” has its origin in Finland. And I think that is very interesting, because you can invest in the long term here in different areas. In Norway, for example, where I come from, you do not have that in the same sense. Although, of course, they do that too, but it is not acknowledged like that – it is always a struggle. We have this big oil fund, and they invest its funds according to conventional financial market criteria instead of buying, for example, Oxford University. They could do that. It would be fantastic if they could do that or buy a share in it. Yet, they buy houses in Times Square or elsewhere, just to increase a sum of money you cannot use. This is because you are not allowed to use it due to some kind of criteria.

Q: So, in summary, you believe that we need both. We need investments and finances, but we also need governance, good governance, and anticipatory governance. That makes for a good innovation policy. You mentioned centralization and decentralization. Maybe we should come up with some kind of third way. A balance between those within a system. That would perhaps be a solution.

A: And **we should think in terms how to balance physical presence with the digital**. We can play around with different models and bring more imaginative approaches.

Q: And also put more emphasis on immaterial things or one’s thoughts. Thank you so much for this interview. You have your keynote coming soon, but thank you for sharing your time and insights.

A: Thank you, it has been a pleasure.



Figure 5. Dr. Erik Øverland in an interview at the FFRC's Turku office, conducted by Sirkka Heinonen and Saija Toivonen.

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2.6 On Futures of Work in the Circular Economy

Interview with Jessica Prendergast by Sirkka Heinonen and Saija Toivonen

The interview of Foresight Consultant Jessica Prendergast was conducted on 21st August 2023 by email. The interviewers were Professor Emerita Sirkka Heinonen, FFRC, University of Turku, and Associate Professor Saija Toivonen, Aalto University, the co-ordinator of the *RESCUE* and *T-Winning Spaces* projects. They also provided the transcription from email correspondence for this publication.

Jessica Prendergast is a senior foresight consultant at *Future Impacts*. Over the past decade, she has delivered foresight projects for the public and private sector across a range of disciplines and industries, both in Europe and Asia-Pacific.

Many of her recent projects focus on the Twin Transition and what impacts it may have on future jobs, skills, and livelihoods. e.g., for clients such as the *European Agency for Safety and Health at Work*, and *Eurofound*, among others.

She is also affiliated with the German Node of the Millennium Project, and a colleague of Cornelia Daheim.



Figure 6. Jessica Prendergast

Interview

Q: At the *T-Winning Spaces* project we are exploring futures of work, work environments and spaces, and best solutions by 2035 within the twin transitions of green and digital, and of physical and virtual. You have extensively studied the interconnections of circular economy to the safety and health at workplaces. What are the key insights of that research that you wish to share with us?

A: We identified a **diversity of possible applications of the circular economy concept and important uncertainties regarding its environmental and economic impacts, and what the impacts on the future of jobs and skills will be**. In the EU (and beyond), **there is a need to integrate occupational safety and health considerations as early as possible into relevant circular economy and industrial policies** to safely anticipate future changes in the world of work from the circular economy. **(Re-)education opportunities including integration, skilling, & job safety programs must be tailored to social situations** (i.e., temporal resources, capacities, motivation). In parallel, increased funding will be necessary for supervision and control measures focusing on individual workplace situations.

Q: About the impacts and expectations towards the green and digital transition, what do you consider the most **promising aspect** when we think of working environments?

A: The biggest potential is in the **automation of repetitive and routine tasks, as well as of the most hazardous tasks**. Enabling **remote work and flexible work arrangements** (primarily for knowledge workers) is also a promising feature.

Q: What is the biggest **challenge from working from several places** (or combining working in office and teleworking, i.e., combining physical and virtual work)?

A: The biggest challenge for multilocality is **to maintain a sense of team culture and connectedness** (i.e., psychosocial risk of lone-wolf syndrome).

Q: How do you see the **role and obligations of the employer** in the future concerning working spaces? How should employers be prepared to cater for good working environments and where their attention should be drawn?

A: There is a growing necessity to ensure the safety and viability of both the work location but also the home office (i.e., ergonomic furniture, subsidies for internet and energy bills, etc.). Key focus should be on ensuring **strong managerial skills – especially communication and flexibility**.

Q: What kind of a **division of roles and duties** will there be in the future working space? What are the **responsibilities** for an employer and for an employee to ensure a safe and appropriate working environment?

A: Without regulatory interventions, we can expect to see occupational safety and health responsibilities increasingly pushed on to the employee (i.e., continued rise in non-standard forms of employment such as zero hours contracts, gig economy, etc.).

Q: What is the most important feature of element concerning workspaces that adds to employees' wellbeing?

A: It is all about **autonomy: Ability for employees to make their own choices regarding, e.g., time, place, and tasks**.

Q: Where will the future offices be located? This is a concrete question that especially real estate investors are interested in. Are they in city centres, suburbs, traffic hubs, co-working spaces in rural, recreational areas or where? Does the transition in future work life mean decrease or increase in the office space? What about offices that include some other activities as well?

A: Future offices will be situated in **city centres and other urban areas serviced by strong public transport links and close to service providers** (i.e., hospitality, retail, gyms, wellness, etc.). Office space still remains as a necessity, but with potentially reduced square footage. We will likely see more of a sharing of office space amongst multiple employers, rather than combining office facilities with other activities.

Q: Can you mention some **emerging issue(s) or requirement(s) that you see relevant for future working spaces?**

A: There is a need to be extremely **agile and flexible with working times and place**, i.e., allowing employees to work from the office or home at extremely short notice (especially due to, e.g., weather events such as heat waves, storms, etc., or transport strikes or other unforeseen events)

Q: What do you consider the biggest **paradox** concerning the futures of work?

A: It is a paradox to think that hybrid work automatically equals stress reduction. This is because it can indeed have the opposite effect.

As a bonus question we asked Jessica:

Q: Can you mention/identify any **creeping crisis in society at large** – or especially related to futures of work?

A: Potentially, there is the possibility of a **large-scale skills mismatch** in coming years as many education systems are not set-up to cater to future job requirements.

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2.7 On Virtual Worlds and Their Potential

Interview with Elizabeth Strickler by Risto Sivonen

The interview with Director Elizabeth Strickler was conducted on 11th July 2023 on a video conference call, as agreed during the FFRC conference *Empowering Futures – Long-Term Governance, Democracy and Futures Research* in Turku. The interviewer was Millennium Project Intern Risto Sivonen, FFRC Helsinki Office, the University of Turku. He also transcribed the interview from video to text.

Elizabeth Strickler is the Director of Media Entrepreneurship and Innovation at the Creative Media Industries Institute at Georgia State University. She teaches media innovation to undergraduate and graduate students and works with major labels and cultural icons to build Web 3.0, blockchain technology, and virtual production strategies. Her April 2021 TEDx talk is considered canonical viewing for those entering the non-fungible token (NFT) and the Metaverse space, and she presents regularly on the topic. Elizabeth Strickler holds academic positions in both the Business School and the College of Arts and Sciences, where she has received multiple grants to research innovation and extended reality (XR) in higher education. Her goal is to help others start businesses, tell immersive stories, and build a stronger cultural economy. She believes that most people can learn most things and have fun while doing so. Her eclectic interests can be seen in her academic credentials, holding a BA in Philosophy, BS in Computer Science, and an MFA in Digital Filmmaking and Art.



Figure 7. Elizabeth Strickler giving her keynote at the FFRC Conference in Turku. Photo: Anne Arvonen.

At the FFRC Conference in Turku Strickler gave a keynote on *The Virtual is Real, But How Do We Make It Right?* In the keynote, she reviewed the status of the technologies utilized in virtual worlds, or the Metaverse, and how she teaches students to become responsible future creators, who understand the parallels of the physical and digital realities. While the virtual worlds already are more important to a part of the youth than the physical world, she invites us all to consider ourselves and the wider society in the virtual and the hybrid realities. As her core message she tells us that everything that we see around us will be increasingly virtual, but in the end, the virtual worlds will be created by us all. The empowerment of individual users is better supported by the technology becoming more decentralized in the Web 3.0 era. The Open Metaverse will potentially be like a new town square, allowing us control over our own data rather than limiting virtual activities by platforms of large technology firms. Artificial intelligence (AI) will affect the coming development, in which the future worlds, be they utopian, dystopian or protopian, can eventually be products of creative collaboration with shared values and insights. Elizabet Strickler provided a number of current day examples of the Metaverse and virtual elements within it. The industrial metaverse with solutions of digital twinning and the social metaverse including video gaming are well established. However, the enterprise metaverse solutions for virtual working environments have not yet developed far. As a starting point for this interview, we were left wondering that if the Metaverse or the virtual worlds are not fully developed yet, how will they develop, and how will the development change the futures of everyday lives and the future of work? She also had a discussion concluding the conference with Sirkka Heinen who hosted it. The discussion on *Empowering Futures* is presented in the following chapter.

Interview

Q: Just to get some background information, could you briefly tell, for example, what kind of work history you have, and what kind of experiences you have on working environments? You discussed during the keynote, the education and the teaching you do at the university, and also the film projects and virtual reality related projects you do. But, if you think about your work history, **what kind of working environments do you see relevant now and in the future?**

A: My career journey began with social work in Boston, where I worked in a halfway house for adolescent girls. This experience sparked my interest in teaching, leading me to pursue a degree in computer science with a focus on artificial intelligence, alongside my initial philosophy and math background. My transition from social work to technology, particularly in system administration and later in film special effects, allowed me to witness the evolution of nascent technologies like the internet and digital film editing.

My work at a startup and in the film industry, particularly in the realm of special effects, provided me with firsthand experience in the intersection of the physical and virtual worlds. It was a glimpse into how virtual reality could shape our future – from transforming education and entertainment to redefining our understanding of human interactions. These experiences underscore **the profound impact virtual environments will have on us as humans**, especially in terms of how we learn, communicate, and perceive reality. They highlight the potential of VR in creating immersive, transformative experiences that can significantly influence our approach to future studies and societal development.

Q: Interesting history, thank you. You discussed during the keynote three types of uses of virtual worlds, namely the **industrial, social, and enterprise Metaverse**. How would you describe **the differences?**

A: **The industrial metaverse would be more like traditional digital twinning.** If you create a car engine, typically you create it first in a CAD drawing. Then you will create the physical thing, but as software gets better, you can create the 3D engine and make it simulate all the functions of the engine in a 3D virtual

environment, and then use it to test different hypothesis. The industrial metaverse would be very much like twinning a single item, which is incredibly insightful and practical, but very specialized and mostly for engineers and city planners. The way I sometimes explain this type of metaverse is as if you take data that is typically stuck in a database and visualize it by turning it into three dimensional, live objects and then acting it. **The industrial metaverse is definitely here.** People are using 3d visualizations – even in government decision making – just simulations and re-creations of hard things. The industrial metaverse uses technologies such as digital twins, internet of things, artificial intelligence, cloud and edge computing, blockchain, and extended reality to create a powerful interface between the real and digital world.

The social metaverse would be what we already see everybody doing as far as gaming goes. **Anything that is gaming in a 3D world:** Roblox, Minecraft, Grand Theft Auto, World of Warcraft. Those are **social virtual worlds that people believe in, love, play in, and socialize in.** Those are definitely happening.

I think **people have not really discovered what to do: How do we collaborate, work, and learn together in a virtual space?** There are lots of experiments going on in that space. I have done a lot of experimenting in teaching in these virtual worlds, and it is very hard to work, create and think together. I mean, this interview is better than two avatars talking to each other in an awkward 3D space where we can't really read each other's faces, right? So, that is what we are working towards right now. **I think we can learn from the social and industrial metaverse,** but the technology is yet not good enough for live peer-to-peer collaboration.

Q: When we talk about the future work, we need to work with digital twins or things alike. We may also experience similar kinds of worlds as with the social virtual worlds – game type of interfaces, but all kinds of instruments that are typical of social virtual worlds. These most probably will be a part of also the enterprise type of situations, at least of the future work. I understand the difference you mean.²⁶

A: Most companies have been playing around with, Slack and Discord, and online chat platforms, just to get away from the single email, back and forth. We are all trying to figure out, how to collaborate and communicate with each other in ways that are not only a text chat, but we have not even discovered multimodal communication that well, in my opinion.

Q: Yes, I would agree. What we are trying to understand, is how the virtuality will change the way we do work, but also **how everything that will be virtual would change the requirements we have for the physical space we do the work in.** Can you think of anything regarding that?

A: **We have the physical world mapped out in so many different ways.** Online you can find a lot of data and a map of any place in the world. But, **the virtual world is really mapping of the mind.** It is a long hard process, but we are starting to figure out **how to map knowledge, and to immerse ourselves in knowledge, and work with that.**

I was just at the beach with some friends who have young children. When we were not in the water, they were on their iPads. Even the TV did not matter to them. The iPad was where everything was for them, because it was social (two-way). Most of the time they were playing some kind of game that was either between the three of them, or them with other friends somewhere else. They are there at the beach but are totally invested in these online worlds! I often wonder – you are interviewing me, but perhaps you

²⁶ Even though the enterprise virtual worlds are considered the 'future of work' type of virtual worlds, the industrial (e.g., engineers, teaching) and the social (e.g., user interfaces, problem solving solutions) virtuality are also already a part of the work to some of us. Hence, when we think about the futures of work, it is necessary to consider the Metaverse in all forms of it.

should **be interviewing the 10-year-olds, they are very comfortable in those worlds.** They navigate those worlds, their histories and meanings, and **their memories will be in those worlds.** As the technology develops, the 10-year-olds will have different memories than the 5-year-old. **The younger you are, the more accustomed you are to dealing with these different virtual environments.** They matter tremendously to people.

Q: You are making an interesting point, by the way: The difference of the 5-year-old and the 10-year-old.²⁷ When kids grow up, they have memories of different kinds of virtual worlds than their kids then again. I am wondering, if people will attach to those virtual worlds that they get to know, or if they will learn new virtual worlds as they grow?

A: My son is 20 years old. He already does not recognize what we think of as the youth. The 20-year-old has very little concept of what the 10-year-old is doing. The consistency is change.

Q: You are suggesting, that the virtual worlds relieve us from the physical space, so that we are not forced to be in a single space? **Can you see such futures, where you need to have certain types of physical spaces to be able to work, considering that virtual worlds will develop and be a part of our working lives, too?**

A: When I was coming to the futures conference, they asked me to do a virtual presentation from Georgia on a Friday. I replied, what if I come to Finland? The difference between me doing the online conference vs. being in there is a massive difference.

The **physical world completely matters, and that is not going to go away.** But how can we figure out, **how to maximize the impact of when we get together,** and why we get together, and **why we go to a physical space vs. when we can do things virtually.** Like this interview, we can each take an hour of our time, as opposed to, how many days it would take in real life (IRL). There is tremendous benefit in both, obviously. It is necessary really to try to understand, what the real impact and benefit is of each and how they can enhance each other. I love to think about **digital twinning**, not literal twinning, but the recreating the impact of an **experience such as a conference or a college class or cocktail party virtually.** It is just very interesting and something that we are going to be delving into for decades to come.

Q: You showed us a lot of pictures and video also from your classes. You have a special environment for teaching and filming, so do you think that working places will need to be different, because they will be more virtual and hybrid in the future? What kind of developments do you know about?

A: The move towards virtual and hybrid workspaces is increasingly evident, and we're seeing a lot of experimentation in this area. My experience with online teaching platforms like Discord has shown me the potential for dynamic, interactive communication, far beyond traditional methods. Students engage more collaboratively, posting questions and interacting in a way that simulates a physical classroom environment.

In the last few years, my teaching has been almost entirely online, where we've successfully established vibrant class cultures. Tools like breakout rooms and Miro, an expansive online whiteboarding tool, have been instrumental. These tools foster not just academic collaboration but also interpersonal connections in a digital space. For instance, at the Millennium Project conference, we effectively utilized these virtual tools for workshops. This approach can easily translate to professional settings. I've seen avant-

²⁷ Path dependence gets new meaning, since people will not have as comparable pasts as before, and generations will divide perhaps also more than before.

garde projects where tools like Miro are used for creating films and designing experiences, showcasing the versatility of these platforms.

In my course 'Self and Community in the Metaverse,' which I've taught both online and in-person, students use various platforms like Spatial.io, VRChat, and Hyperfy to build and explore virtual worlds. This hands-on approach is vital for all companies to understand and leverage these technologies. Even if an experiment fails, it's a learning opportunity, much like in science. **Embracing these technologies helps us understand what works and what doesn't**, rather than making blanket assumptions about their efficacy.

Q: You are talking about tools that are online mostly, but are there specific requirements for built space, like rooms, work offices, and buildings?

A: We should learn how people use different spaces. Like the quantified self, which self-tracks every step we take, every food we eat, and every minute of sleep we get, but **in the house or in the office – we should be tracking where is everybody going**. Then you realize no-one goes to the third floor. Why are we having the third floor? Everyone goes to a certain place all the time, or at this particular time. So, really use data analytics, instead of building the way it has been done. You have the classroom, and you have all the office spaces, where space usage could be tracked.

At my university, the offices are empty 95% of the time. You need data on that to see, when people are coming, what are the high traffic times, and the reality based on that. For example, this year will be different than five years from now – so, how do you create more flexible space that adapts to changes. The room I am in right now is a garage. We built this house a couple of years ago, before the pandemic. Now the garage is my office. It is also big open space, where we do all of our workouts, because we do not go to the gym anymore. This is where I do all my virtual reality headset work²⁸, which requires a big open space. This garage that was meant for a car, has now become the most important room in the house, for what I am concerned, besides the kitchen and the bathroom.

Q: You mentioned during your keynote, how there are virtual spaces, where you may not be willing to go anymore, you mentioned X (former Twitter). If you want to leave X, you may not have another kind of platform to go to. If the virtual spaces or virtual worlds are becoming more common in free time and working life then – I think professor emerita Sirkka Heinonen asked a question about the power of space – who actually decides what spaces we can use and what not?²⁹ Can you see other kind of developments? You discussed different stages of the platforms, the typology ranged from Web 1.0 to 3.0, and that the Web 3.0 may be more democratic and allows individuals more freedom and opportunity. **Can you see in the future different empowerment, democracy, or individualistic choice, what comes to choosing the space we live or work in?**

A: The farthest end of that would be the ideas of Balaji Srinivasan in The Network State (2022). He says: “A network state is a highly aligned online community with a capacity for collective action that crowd-funds territory around the world and eventually gains diplomatic recognition from pre-existing states.”³⁰ That is super far-fetched, but X, Instagram, Facebook, are platforms for billions of people. **We could also think of those as states, because in the virtual world they are states, close to “nation states” in the**

²⁸ This refers to using a headset when you go to a virtual reality-based environment. You need a lot of open physical space around you, in order to not hit yourself to things around you.

²⁹ See the next chapter.

³⁰ Srinivasan 2022, p. 9.

way that they are “company states”. When you are on that platform, you create the content, and if the company doesn't like you or your content, they can get you banned from the platform. **That is completely controlled by a company. And that's Web 2.0.**

Probably the biggest step towards Web 3.0 is that as Facebook/Meta started their competitor to X last Wednesday, called Threads, they are considering using a Web 3.0 decentralized approach to that content. Stating this means that Meta understands that their end users value their own data and want to share it freely without being completely capitalized and stolen. **Owning your own data and then giving it out the way that you see fit, is where I think we are going to go with this whole Web 3.0 thing – really trying to understand, what is data, what is private, what is personal, what is open source, what is shared.**

I would love this idea of free and open communication – let us all share everything and learn together. **We are all sharing ideas, and open source is beautiful, but at some point of time you have to get paid.** That is what is really sad – that we have to protect our IP more, because we have to make a living. I think we would probably be more free-wheeling with what we give away, if we were sure that we would survive and be looked after also in the future.

Q: We have discussed virtuality, physical space, and it is perhaps the way to go – that people will have more say in how they act or are treated online in the virtual space. You mentioned the word **adaptability** at the end of the keynote. Can you briefly share or tell us, why you chose that word, **what kind of adaptability will be needed from us all in the future?**

A: From my own experience: **the only consistency is change.** The minute you learn a tool, the minute you learn a trade, you come to realize that specific tool or trade will probably change. You will learn from your previous experience, and apply it to new contexts. This will repeat again, and again. What's important is to recognize the patterns and keep leveling up. With the increasing number of virtual platforms, you just have to learn that stuff and adapt. You do not throw away the past but take all the fantastic experience you have, and apply it to the new thing. Being able to adapt to what is new, but with deep thought and understanding, and trend and pattern recognition, is important.

Q: You mentioned in your keynote that we will become new species in a way. The evolution will be so fast that you will become these species, because we go from one world to another, and learn to behave differently in different kinds of spaces that change all the time.

A: Compared to a hundred years ago, as a human, I can know everything about the whole world. I can zoom in, zoom out, and talk to a person in another country just at a snap of a finger. AI has access to all this information and it is smarter than us now, already. So, **we are not the smartest entity anymore.** As we start to embed AI or all of the world's knowledge in us, or rely on that more, we are going to change. I also think that as we augment our own bodies with LASIK surgery, hearing aids, it is like **we are struggling from with what is considered “natural” to what we can change to make our lives better. I think that we are pushing further and further into augmenting the body, the mind, the species.**

Q: Does this then not affect our worldviews also and beliefs?

A: Totally, now the worldviews and beliefs are affected, because of artificial intelligence, and seeing what is human, what is conscious, and what is intelligence. **I love the renewed interest in the humanities.** We have been so technologically focused, but now we need to focus on **what does it mean to have a good life, what does it mean to be human, what does it mean to raise a good child, or a good AI.**

Q: You spoke a lot about youth in your keynote. But, how to get the other generations involved? You describe children of different ages have grown in different kinds of virtual worlds. There might be generations that have different experiences of what the world is, going back to worldviews and beliefs, too. Is

there development towards the direction that people grow into different kinds of hybrid or virtual generations?

A: I really think education is doing a lot more of **rethinking education**, now with the artificial intelligence. Obviously one 5th grader is not the same as another 5th grader, they are sort of clumped together because of the industrial model of education. **Technology is enabling people to have very specific ways to learn and grow**, depending on where they are, who they are, and what are their past experiences. **We need to incorporate into the learnings the understanding of change, the understanding of technology, its positive and negative potential implications, and how to change and adapt.** That should be a part of the learning canon. Also, the idea that we are going to get large groups of people to align in concepts and beliefs might be an idea of the past. **It might be that we break into smaller kinds of cults and cultures, and that maybe large groups of people aligned might not be a thing anymore.**

I just wanted to mention a book called *The ancient city: A study on the religion, laws, and institutions of Greece and Rome*³¹. It supposedly talks about how during that age things were really like cult based, and you lived and died by your cult. There was no individuality, a kind of idea, but it was these belief systems. However, we see this happening right now. I am not a fan of all these horrible culture wars that are going on, but I do wonder, if it is going to get worse as opposed to get better and what to get worse means.

Q: Talking about the worse, I think that the development, especially from the tech point of view is quite often described as incremental and continuous, and somehow exponential maybe, but continuous anyway, without disturbance. **Can you think of any discontinuities, risks or crises?** What kind of uncertainties do you see here that could cut the development that we are talking about and change it to different kind of directions?

A: Right now, huge disasters happen, but not in massive places of power. However, **when the disaster hits to a place of power, it creates discontinuity**, like when New York City was bombed, or the COVID-19 pandemic. We probably and possibly are going to have more of those kinds of things. The unexpected that I can imagine include a loss of trust in banks or a particular currency. Deepfakes to the point, where you don't know and can't verify if you are speaking or writing to the person you think you are. The internet being taken over by rogue actors. Real estate crisis, where no one wants to get together with a crowd or the general public ever. Fractionalizing of communities into smaller belief groups with no centralized organizations at all (we are all cults). Virtual simulations and gameplay³² could offer a way to imagine and act upon such events. I liked what we did at the workshop during the Millennium Project session: Work of what-if, what would happen if, what would we do if, even gameplay. I think that the gameplay, Skyrim and World of Warcraft, those are simulations of people imagining. That is why storytelling is so important to me, because we are starting to imagine future possibilities. People refer to Black Mirror all the time; they ask, what would happen, if all of our babies were robots. So, you kind of get to at least experiment with envisioned thoughts, which helps the idea of change.

Artificial intelligence is all knowledge, with no single perspective, right? So, all AI is perfect, all knowledge, and then **all that we are is completely flawed with one single perspective, and that is what the human experience is.** There might be other types of experiences, which might be multiple

³¹ Coulanges, 1901.

³² Gameplay = "The features of a video game, such as its plot and the way it is played, as distinct from the graphics and sound effects." (Oxford dictionary.)

experiences, multi-dimensional, or multi-time experiences, but we are not experiencing that. The story, my story, is everything. **That is all I have, and all you have is your story.** Every gray hair on your beard that you have and every single thing that makes us individual is how we experience life. That is very interesting. This is why I think that the children are playing video games, that is their story. It helps them formulate their world view, and we cannot just discount it as naughty little children wasting their time on video games or as “unnatural” or “artificial”.

Q: Can you think of any changes that there will be in the way we work, or in the spaces, if they will be different in the future physically too? Can you think of any changes there other than what you mentioned already?

A: The obvious stuff, like the individual office that is never going to change, the room that has got your name on it and never changes but is empty so often, seems pretty archaic to me. With my class, we were trying to build a virtual campus where we were trying to imagine, whether the experiences, not the spaces, are important when creating spaces for good learning, whether it is a one-on-one-meeting with your professor, or a research collaboration. We should think about the desired outcomes and then create the spaces to achieve them. The adaptability of the space is also important, as with our studio in Georgia.

Q: You mentioned greater connectivity during the keynote. Can you elaborate, what you mean by that?

A: One of the things in the entertainment space, is that instead of having fans that are super removed from the influencer or from the celebrity, we are seeing influencers and content that has direct connection to the fans that are following. We are seeing a shift towards TikTok and YouTube – it is where people have direct access to the people they admire. Whether it is like Balaji Srinivasan, who is a great intellect in my opinion, I can DM him in Twitter. The same is if you wanted to follow Paris Hilton. Technology is enabling that, and you do not need as much intermediary. That is the creative economy that we are seeing. Again, going back to like Kevin Kelly's idea of thousand true fans. If you get away from a mass – the whole idea of mass state, mass education, mass entertainment – **we are definitely getting into much more local or small group or niche-oriented ideology, communities, fandoms, and that sort of thing.** This idea of mass media and mass everything seems to be disintegrating into sort of more decentralized and localized.

Q: This also means a larger amount of connections and signals?

A: The tools that we are using in the creative economy are AI. When I want to imagine something, to create a 3D world, I can get Blockade Labs, and describe the 3D world and just create it. That is just uncanny. That has all happened during the past year. What will happen, path beyond that, working alongside artificial intelligence is definitely changing work.

Q: You mentioned also the *anatomy of sneaker*, to describe the importance of the virtual to youth. Physical sneakers that are important among the youth were complemented first by digital sneakers, and at a later time *phygital* sneakers, i.e., the combos of physical and digital sneakers, came on the market. To a part of the youth the virtual worlds are already more important than the physical worlds. This was an interesting part of your presentation. What do you think, **will the virtual be more important also in working life?**

A: Yes, LinkedIn as a professional platform to connect locally, nationally, and internationally to share ideas and communities is more real than a lot of things that people call the real world.

Q: Regarding uncertainties, risks, and crises, you mentioned the kind of discontinuities that are sudden and surprising, but can you see creeping crises, that are evolving and hidden, that we notice only after it is too late? Can you see anything like that what comes to the developments we are discussing right now?

A: The obvious one is artificial intelligence taking over the world. I, however, do not think it is going to kill us all, if we are not aligned in our values. A creeping crisis might be that these major companies have access to all the knowledge and data in the world. They are then able to control the mind. Another huge one is thought management: our thoughts being read and manipulated. **We need to protect our brains and our private thoughts**, the idea of the brain as the final fortress³³ of humanity. Further, **we could also have too much information or could be entertaining ourselves to death**, like getting on TikTok and never being able get off of it – situations, where we give up on the physical world. There are people who just do not feel connected enough to their real world to care anymore. Lack of caring, a lack of meaning.³⁴

Q: I will continue with terms we like and love. Can you think of any big or maybe even the **biggest paradox in these developments**? What kind of paradoxical events and developments are there?

A: I see a **huge discrepancy**. I feel like the **gap between the haves and the have nots, the rich and the poor, is getting exacerbated**. You see people in Silicon Valley, who are trying to extend the longevity through all sorts of telomere extending pills, cryogenics, and all sorts of crazy stuff. Meanwhile, **obesity, heart problems, and lack of health knowledge and understanding is increasing**. This gap is a paradox. We do not want to talk about the masses, but at the same time people are just falling through the cracks. I feel like **humans are sort of the most precious resource in the world (to a human)**. We honor the human and the human experience in all humans, but in other times we just treat them like this disposable trash.

Q: Then, what would be **your metaphor for the work in the future**? It can be a word, sentence, or phrase.

A: I guess the thing that I always say, which is **“the virtual is real”**. Everything in the real world will be recreated in the virtual world, but that does not have to mean only visually, but **experientially**.

Q: I like that. One more question: **If we want to say that we need to be adaptable, and also spaces need to be built so that they are adaptable, what and where should we keep learning to keep up with the pace of development?** And thinking about the future of work now?

A: While I love the humanities, and in my opinion, **we should constantly be thinking about what is human, and what is a good human experience**, I also think that **we should be always thinking computationally**. What can we learn, when we turn everything around us into data and then analyze the data? This is sort of referring to Stephen Wolfram from MATLAB. He has some great philosophical approaches. If you're feeling tired, for example, you might try to adapt and change that by going to bed earlier and not drinking caffeine. I wonder why we do not know more about our own bodies with real time monitoring of each bodily function. **We have a lot of capability to control ourselves, if we have the information. But you have to learn that information, and the same goes for the way we work**. At work, understanding the processes you are doing, and how you can change them and adjust them, is important. The best way to do that is getting it down to computational components, figuring out how to break things down into smaller and smaller parts that have our number or data to them, and then analyzing, the same way as analyzing where everybody goes at the daytime. Not like a big brother – “you need to get back on track” – but more **“what motivates us as humans”**. I mean both work and play, like I loved the workshop at the Millennium Project session. That can inform, engage, and you feel like you are working with other people.

³³ See Farahany 2023.

³⁴ Disconnectivity from REAL exists already without virtuality, and where this is true, virtual disconnectivity is close to the same normal.

You are sort of continuously decentralizing, with flat hierarchy. In addition, **people want to have meaning.** When the work that you are doing is losing meaning, how can you redirect to give it more meaning? **You have to enable the employees to constantly change and redirect.** We see these experiments going on all the time in some of the more impressive companies.

Q: Are there any specific trends that we should follow, or specific outlets or people?

A: I have a whole list of people. I read every AI philosophy book that I can that is coming out. Books from people, like David Chalmers³⁵. He believes that ones and zeros came before the atoms. He believes in full simulation all the time. I love Lex Fridman podcasts, his statement is: Put more love in the world. It aligns with Mo Gawdat, who is saying, **Als are watching and learning just like children watch and learn from their parents.** So, we had all better to straighten our act quickly, because it is learning from us.

Q: To conclude, I would like to ask, if you have any other ideas, thoughts, or considerations that you have in your mind, before or during this discussion, that you have not had a chance to say?

A: As we venture further into **the exploration of outer space**, our understanding and interaction with it are being profoundly transformed by the advancements in virtual and augmented reality, alongside AI. Outer space, traditionally perceived as a distant, physical frontier, is increasingly becoming a multidimensional concept, where the lines between physical, virtual, and augmented realities blur.

Imagine a future where virtual reality allows us to explore the cosmos as though we are physically there, while augmented reality overlays our physical world with a wealth of information about the universe. In this intertwined reality, the very notion of personal and physical space evolves. **Shared virtual environments could redefine our sense of community and interaction**, extending beyond earthly confines to the vastness of space.

These technologies are not just tools for exploration; they are gateways to a deeper understanding of our universe. Through advanced simulations, we could gain unprecedented insights into cosmic phenomena, predicting and modeling the unknown with greater precision. This convergence of technologies heralds a new era in space exploration, one where we are not just passive observers but active participants in a universe that is ever-expanding, both physically and conceptually.

As we push these boundaries, our perception of reality itself transforms. The exploration of outer space thus becomes more than a physical journey; it becomes a journey into the very essence of reality, existence, and our place within the cosmos.

Q: Thank you.

As a bonus question, we asked Elizabeth after the interview the following:

Q: During the interview, you mentioned *outer space* but there was no time to elaborate. What kind of comment would you make regarding outer space?

A: Space may be seen more as a multidimensional environment including physical, virtual, and augmented realities. It seems that advancements in VR technology along with AI may allow us to explore virtual spaces as if they're physical and hybrid spaces could combine elements of physical and virtual, altering our perception of reality. For example, the boundaries between physical and digital spaces could become more blurred due to ubiquitous computing. And the definition of *personal space* may change with the advent of shared virtual environments. As we create and navigate virtual spaces greater, we will gain greater understanding of our physical space. And as applied to outer space, improved simulation technologies could allow us to model and predict space-related phenomena more accurately. Augmented reality

³⁵ E.g., Chalmers 2022.

could allow us to overlay additional information onto our physical spaces, changing how we interact with them.

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2.8 Discussion with Elizabeth Strickler and Sirkka Heinonen

This chapter features the discussion in the end of the FFRC Conference in 2023, hosted virtually by Sirkka Heinonen, on 16th June, which was the third day of the conference. She had conversation with Elizabeth Strickler, right after Strickler's keynote.



Figure 8. Elizabeth Strickler (Turku) engaged in conversation virtually with Sirkka Heinonen (Helsinki). Photo: Anne Arvonen.

Q: It is a great pleasure to be here again, now virtually after these two days of physical conference. Before closing of the conference, I have been invited to host the conversation with Elizabeth Strickler. We just heard an amazing keynote presentation and now we can start this conversation part.

When we think about the main topic of this conference, “Empowering Futures”, I would like to ask you all – in your mind, to concentrate on the **concept of empowering futures**. What does it really mean? This reflection is relevant because it is fully packed with meanings, which may be different to different people, carrying different interpretations?

In my view, empowering futures signifies giving power to individuals, companies, organizations, cities, governments through long-term thinking systematic and critical futures thinking, and futures literacy. It means the power to think differently, in alternatives, in situations, where the current systems and institutions are becoming obsolete, but are very resistant to change. This power also means that we can have an impact on the futures to be created. Therefore, this concept of empowering futures is a concept that

leads us directly thinking seriously, who holds the power in the future, whose futures are we talking about, and who has really the power in these futures. Whether they are scenarios, futures images or futures imaginaries. So, it is **all about power and agency**, in my mind.

When we think about the current geopolitical conflicts and war, they are an increasing threat to us. We are already living in a **crisis society**. Therefore, we need to develop **futures resilience**, which is something more than futures literacy. We need, of course, futures literacy, i.e., the capacity to use futures in the present moment, to have an impact on how the futures are enfolding. That is empowering. However, this is not enough – we need more, we need futures resilience. It helps us to cope in polycrises, to learn from them, and renew our activities, organizations, our systems, and not just to cope in crisis, but to renew ourselves. At the same time, futures resilience means looking for a **polyopportunities**, as pointed out by Jerome Glenn, the CEO of the Millennium Project, in our special Millennium Project session yesterday at the conference.

So, Elizabeth, I would like to ask you to put in a nutshell now again the following. You have presented widely on the metaverse and these kind of nexus of physical and virtual worlds – but the concept of empowering futures, how do you see it from your own perspective?

A: I think **the ability to create worlds, or situations, or scenarios in a virtual setting that is non-threatening and non-harmful, but still gives you the sense of experiencing something like that, is one of the major potentials for virtual worlds**. So, instead of saying, a pretender in a pandemic, you can put someone in a situation, where everyone has on masks, and everyone is not talking to you, or everyone is keeping a certain distance, **simulations** of that sort – what would it be like, if you only lived with a certain number of people? So, that is one potential. In my view, getting more people in the room, we can do that by Zoom, but if we can get **more people in the room collaborating in these scenarios or in these virtual settings**, is another kind of possibility. That is why I am not talking about super high-tech stuff, even though I am in the telling of the stories. So, that is still another potential. I do think telling good stories is powerful. One of the things I put at the very beginning is envisioning science fiction, and new ways of life. **How we might see us living in new ways through storytelling, and science fiction is another potential.**

Q: Thank you, exactly so, and now that you mentioned visualization, I really think that visualization is a powerful tool for developing one's futures thinking. It is becoming almost categorically imperative. We need to have lots of scenarios and narratives, but also in a visual mode. Furthermore, like empowering futures, empowerment means that **you are not working alone, but very much in participatory mode**. Then, I would like to ask you about **places and spaces**. Whether they are physical or virtual, or digital. You so elegantly called for a **balance between human and virtual communities and spaces** – if it is in a positive way a balanced state, it is possible, but by no means, it is self-evident. How do you see the position of the power question here? I mean as regards the spatial dimension, and elements, is it actually so, that **who can provide the most attractive, safe, and sustainable spaces, has the power?** What do you think about that kind of thinking?

A: I think that we're seeing this kind of thing in a quasi-virtual space, like X (former Twitter), where it is not seen as a safe and stable space. We are seeing people kind of move off from there, by choosing their agency. But there is no place to go at the moment. Blue Sky is the name of one of the competitors, so aptly named – but I think that again **the more educated the digital citizen is, the more they can make those kinds of choices that are empowering and not turning themselves into the product or to having less agency.**

Q: Thank you, and then in your presentation actually you had a quite nice prompt: AI can create anything. If AI can create anything, it cannot yet create humans. It can create human-like beings and entities, but there may be a point somewhere that this kind of fusion and meta-fusion will happen in metaverse. People fused with technology and digitalization. But at this moment I see this kind of **Bermuda Triangle between people, technology, and nature**. Do you agree that we have to **think more seriously about what it means to be a human, what it means to be nature or natural, what it means to be technological?** This is because it is no more three separate entities, but more and more a combination of all these. And we cannot leave nature out. Perhaps it is a preposterous future, but we can have a future, where nature has the highest power, and humans and technology will be pushed down. It is not at this moment happening, but that is also one possibility. So, what do you think about this kind of combination of people, technology, and nature?

A: Erik talked a lot about what is natural and artificial. **There is no distinction between nature and human**. I do think that **we are emerging into a new species**, and in my view, it will be a mixture of nature and technology, with people. However, we might not be the main, the most conscious, or the smartest, or the most capable beings at some point. We are not there yet, right, but we need to prepare for that kind of thinking. I think we already augment ourselves with technology, but where nature kind of fits into this is really complicated. Some people believe in the simulation hypothesis, and I know that is a really simple way to state things, but some people think that ones and zeros came before atoms. That is a really interesting concept. What is natural, maybe ones and zeros are more natural than the atom? I am not really sure, but I think we need to be thinking it in that way. I have no idea, what the answer is, but I think that with a billion people thinking about it we might figure it out.

Q: Exactly, I myself am very much interested in the philosophy of technology. I think we are entering a new level. We have to pose new questions about these things. But then, when we think about the metaverse and its emerging and developing all the time, **what is going to be beyond metaverse**, have you any ideas, in which direction it may evolve, and what might be there behind metaverse, when it is mature? This is a tough question.

A: That is definitely a tough question, but I love it. My mind is not quite as expansive as that. Although, I think the rendered environment, and the metaverse right now, we are sort of thinking of them as sort of very digital and very not real. But when we think of it as real, like haptics. I talked very briefly about the fact that you can feel like my watch dinging on me – its vibration or wearing haptic suits. But then when we integrate the feelings of being hit by the embodiment with the real and the virtual. I am not really sure, but there's definitely something very interesting about being embodied versus not. Right now, we are not embodied, I am seeing you as a 2D person and we are not embodied. So, that place of being very embodied is interesting to me.

Q: This kind of need for embodiment, it is something that we need to feel all the senses we have, and we do have more senses than we realize that we have. This is actually nothing new, because in France already 40 years ago they had this experiment with the information society and communications via Minitel³⁶ in households and offices. They had research projects, and actual experiments, where, like now we see each other through the screen, but there were scents like from flowers such as roses. You could have that kind of sensing to complement with the image that you see. I think it did not go further than that.

³⁶ The Minitel was a videotex online service accessible through telephone lines, and was the world's most successful online service prior to the World Wide Web. (Wikipedia)

However, there was already then the realization that we would need to have all senses involved, when having interaction with human beings, and when we are trying to explore future images.

A: I wanted to add one more thing about a single observer. **Right now, we are single observers that only experience the world from one single perspective**, our eyes and our body. Stephen Wolfram, who started MATLAB³⁷, really believes in computational thinking, having multiple points of view for your own feeding into your own thinking. This might be a really interesting “beyond-metaverse”.

Q: Thank you for that. Then, I would like to move on now reflecting this kind of question: Into which spatial directions futures will go in your mind? I mean, in research and interests in futures, not only in the field of future studies, but interest in general in research and innovation, we have, on the other hand, the micro level, genetic manipulation, synthetic biology, AI/ human machine integration, where we can go really to the micro level and have their new sphere of things. Or, on the other hand, we can move towards the macro level that means space exploration and exploring parallel universes even. So, there are really these two levels going more and more extreme, from each other. Obviously, we need both, but do you have any ideas about that kind of levels of exploration?

A: Many of us are very interested in microbiology, and other people are really interested in the study of space. So, I think that **as we evolve, we are going to be a multi-faceted species that might be able to think in both directions**, but are we going to, I do not know. Will we maybe become disembodied? Sometimes **I wonder if we will be disembodied, and the robots will be embodied**. Then we will live only virtually in our heads, and then the robots will be the bodied entities. As far as which direction we're going, micro or macro, I don't know, but I love the question.

Q: Thank you, and I love this kind of paradoxes, you mentioned the paradox of maybe robots becoming more embodied and we are releasing ourselves as avatars. When we think about the topics within the field of future studies, **futures of work and futures of cities are like permanent topics**. This is because they are so close to us humans, and there are all kinds of developments for both of them. We are now entering a new level there, because of AI, digitalization, and smart cities, but it is not enough. We have to have this kind of socio-cultural approaches attached to both of them. When we think about future work, of course telework became very popular and even obligatory during the pandemic. We have had decades of teleworking, but it has been voluntary. During the pandemic, it became obligatory. You could not go to the office. After the pandemic, some people fancied telework so much that they stayed working at home, or co-working spaces, or cafeterias – with the result of offices maybe becoming empty. On the other hand, cities: What is a city? Also, the concept of a city has to change obviously, when we are entering in new kind of developments in technology. Moreover, in social terms, there are threats from polarization and people, of course, have serious problems. So, we have to have as a mission to have inclusive and meaningful places and spaces. I think you also mentioned that. So, that is our goal, but how to reach it? **Are you positive or optimistic in that we have actually now more tools, and more elements, and more insights, to go towards that goal of having inclusive and meaningful spaces, both in workplaces and in cities in general?**

A: I definitely do not know the answers, and I think it is, actually, the harder questions that are the *right-now*-questions. It is really easy to postulate about all the crazy things, and I like all that, but what is

³⁷ MATLAB (an abbreviation of *MATrix LABoratory*) is a proprietary multi-paradigm programming language and numeric computing environment developed by MathWorks. It allows matrix manipulations, plotting of functions and data, implementation of algorithms, creation of user interfaces, and interfacing with programs written in other languages. As of 2020, MATLAB has more than 4 million users worldwide. (Wikipedia)

the situation like right now, that is hard to say. Rosa Alegria was talking about the transtarianism and all generations. But basically, youth may lead the way. I do not really know too much about the history, and how youth has impacted the future developments. However, right now, **youth do spend a lot of time virtually, building virtual communities**. They use Discord, and they use all kinds of tools that many older people do not have a lived experience with. So, I think **they might bring with them to the workplace new ways of engaging with each other and collaborating with each other, certainly creating culture and meaning**. Definitely that is already happening. We do this too, but youth have more of a lived experience in that. This is one place, where I have a lot of hope, because they have dealt with trolls, and they have dealt with getting kicked off, and they have dealt with trying to collaborate with their friend in another country, to try to combat the enemy, maybe they can bring tools to us.

Q: Exactly, youth may help us de-learn, because learning new things and lifelong learning is necessary and important, but it is also important to de-learn from old habits that are no more relevant, that is of crucial importance. We are now coming to the closure of this conversation, but I would still like to raise a question of **hybrid spaces**, as you talk about physical, virtual, and digital spaces. Just add there all these elements from PESTEC: Political dimensions, economic, social, technological, environmental, and cultural. Essentially, it is an entity. Yesterday Erik Øverland asked a question of what the key word will be for the next 50 years from now, because the past 50 years the buzzword has been sustainability. The whole concept of sustainability is of course idealistic, but it is also sometimes empty because it means everything, and because we do not define or interpret it the same way. It has been the dominating buzzword. For my part, I would suggest this kind of **resilient hybridity** for the next 50 years, but I am very curious and interested in knowing, **what would you suggest as the buzzword, keyword, umbrella term for the next 50 years for us?**

A: Well, what comes to mind right away, was something like **adaptability**, because **we might be morphing and so adapting to really new and strange things**. This might be really important. On the other hand, sometimes that word might sound submissive, as close to lack of agency, but that is the word that is coming to my mind, adaptability.

Q: I like that very much and actually I can see that it is related to hybridity, because **hybridity** has several elements as a fusion, so it **is a potential for adaptability** as well. Wendy Schultz's key word for the next 50 years will be transformation and that is actually also related to what Elizabeth Strickler said, adaptability, and I said resilient hybridity – transformation is where both these are critical elements. I wish to thank Elizabeth very much for this interesting conversation. I wish you all good futures!



Figure 9. Buzzwords of our transformational futures.

2.9 On Tsunamis of Change and Human Becomings

Interview with Jim Dator by Sirkka Heinonen

The interview of Jim Dator was conducted on 19th August 2023 by email. The interview was made by Professor Emerita Sirkka Heinonen, FFRC, University of Turku, who also transcribed the text from email correspondence for this publication. The interview was made to celebrate Jim Dator's 90th birthday.

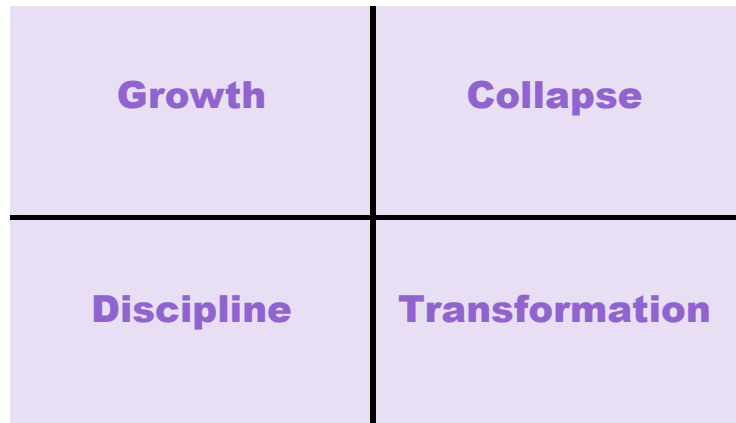


Figure 10. *Jim Dator is a pioneer of alternative futures – and of four archetype futures (Dator 2009;2022).*

Jim Dator is one of the founding fathers and classics of modern futures studies. He was a professor at the University of Hawaii and the Director of the Hawaii Research Centre for Futures Studies. Numerous acknowledged futures researchers have come out from that school into this field. He was President of the World Futures Studies Federation (WFSF) in the years 1990–1993. After that Pentti Malaska became President of WFSF for the years 1993–1997. Jim Dator has kept close relations to Finland, especially to the Finnish Society for Futures Studies and the Finland Futures Research Centre. He has been invited to visit Finland several times. In 1993, he was in Turku at the WFSF Conference on “Chaos & Complexity”. In 2016, he gave a keynote in Otavan Opisto, Mikkeli at a seminar organized by the Finnish Society for Futures Studies to commemorate the memory of Mika Mannermaa. He was awarded an Honorary Doctor's degree at the Turku School of Economics in 2017.

Dator is famous as a futures researcher, owing to his four generic futures or archetypes. He claims that there are four possible futures for the world to evolve into. Growth (or continuation of the same), Discipline (or sustainable), Collapse (or destruction), and Transformation (radical regeneration). This classification can be used for making futures images or scenarios. The last of the four futures proposed by Jim Dator – transformation – represents radical transformation of the system, not necessarily due to natural catastrophes or lack of resources, since transformation can also be based on enhanced global consciousness and awareness of a better life, where nature and society are in harmony. This would require different power structures, where production and money do not feature as ultimate goals. Dator is also a fan of preposterous futures. Dator's well known Second Law of the Future claims that “any useful idea about the

future should appear ridiculous". In other words, an idea is not novel enough, unless it seems impossible at first sight. Useful ideas are usually found only after we jump out-of-the-box. Dator's first law "The future cannot be predicted because the future does not exist" equals Amara's first principle of futures studies stating that you cannot predict the future. Dator's third Law "We shape our tools and thereafter our tools shape us" resembles Amara's third principle "You can have an impact on the future".



Figure 11. Jim Dator interviewed by Sirkka Heinonen in Helsinki 2012 on ubiquitous society.³⁸
Photo: Juho Ruotsalainen.

Interview

Q: You have long experience and profound insights in the field of futures studies. You have also said that the main aim of futures studies is to make social change happen towards better futures. What are the key insights and your advice for making that change happen? Especially when we think of societal transformation (thorough, systemic changes) that would be needed to make the world a better place.

³⁸ This interview with Jim Dator by Sirkka Heinonen was conducted on the Futures of the Information Society, Ubiquitous Technology, Privacy, and Indocollectivity, Helsinki, Finland 15th August, 2012. It is available for viewing at: <https://www.youtube.com/watch?v=Wpj5r4AY1pk>. Another interview with Jim Dator was made by Sirkka Heinonen and Sofi Kurki on Futures Studies, 14th August 2012 at Design Factory, Aalto University, viewable at: <https://www.youtube.com/watch?v=l1d7F8xISQM>.

A: Change is happening! We do not need to cause more. One of the slogans I used very early on was “change is changing faster than it ever changed before”. That is even more the case now than then. The metaphor I have long used to express our abilities and obligations towards the future is to “surf the tsunami of change”. We cannot prevent the waves of change rushing towards us.³⁹ Though humans caused them, irresponsibly and ignorantly, we now should study them, ask other surfers how best to surf them, and then plunge in and enjoy a good ride before we wipe out. I have warned of the currently-engulfing tsunami for decades, but essentially no communities and certainly no nations prepared for them effectively. Most people denied them, turned their backs to them, made them worse by their actions, and now are literally drowning or burning in them. But the waves keep coming and new waves are rising, which young people should identify and surf enthusiastically.

Q: How will the concept of work change? Regarding organizing, skills need, occupations, locations, meanings?

A: The futures of work is one of the tsunamis I have been talking, writing, teaching and consulting about since I began futures work in the 1960s. My message then was to point out the absence of “work” during the millennia humans lived as hunters and gathers with “subsistence affluence”; trace the evolution of work from the rise of agriculture and killing governance, and its dominance during industrialism. Now we live in a society foolishly obsessed with work even though developments in automation, artificial intelligence and artificial life render the only sensible, achievable goal is a society of “**full unemployment**”. In the meantime, climate change – another tsunami I have been harping about for decades – is no longer “in the future”. It is here, and will become more challenging, so that “work” for both humans and AI should be addressing the consequences of humanity’s emergence into the Anthropocene Epoch – not producing more life-destroying widgets.

Q: What do you consider the biggest paradox concerning the futures of work?

A: That as work has become less and less necessary, we have become more and more hysterical about the decline, instead of turning our attention to designing peaceful, meaningful societies based on full unemployment and on the transition from “now” to such a society in the near future.

Q: About the impacts and expectations towards the twin transition of the green and digital, what do you consider the most promising aspect when we think of futures of working environments?

A: I am not sure what “green” and “digital” mean to you, but **the future will be increasingly and eventually largely artificial** (with many living, biological designed components) and not “natural” – nature has been dying for decades and exists now mainly as a “garden” on its way, perhaps, to becoming an iron lung if we don’t turn out attention to this tsunami soon and well.

Q: What avenues do you foresee for the interaction between humans and machines (especially AI/AGI)?

A: **Life, as it is lived now, is already impossible without our machines**, whether they are a plow or a robot, and cooperation with robots is rapidly replacing handling plows.

Q: What do you think of human efforts for space race – trying to invade and colonise the outer space (after having “contaminated” the planet Earth)?

³⁹ Alvin Toffler (1970) identified the future shock to derive from the accelerating pace of change of the world around us.

A: Well, I certainly do not like “invading” and “colonizing” space which, if we do so, will mean humans from one part of Earth attacking and killing humans in space from other parts of Earth. But I do very much favor the continuing evolution of human and other life and postlife throughout the cosmos.

Q: Can you mention or identify any creeping crisis in society at large – or especially related to futures of work? (i.e., a crisis that already exists in its initial stage, though unnoticed).

A: Full unemployment will be achieved sooner or later either peacefully and fairly, or violently and inequitably. We should strive to make the transition as peaceful and fair as possible and stop ignoring or denying it.

Q: Where do you see hope for future generations? And what is your message to young futures studies students, thinking especially our master’s and doctoral programme students at FFRC, University of Turku, but largely as well?

A: Of course, I have hope in future generations! My biggest reason for hope is “all new people”. Death is one of the best things about current versions of life, but unfortunately too many people are living too long now, thwarting the visions of new generations, like I am doing!

To conclude, Jim Dator invites anyone interested in more details on his answers, to read his latest book. Its title is: *Beyond Identities: Human Becomings in Weirding Worlds*, and it is published by Springer Nature in the Anticipation Series 2022. He goes on to describe its ethos: Homosapiens-sapiens are now and have always been dynamic “human becomings” and not fixed “human beings.” I open with stories of people, such as myself though far more courageous, who embrace identities they feel more appropriate for themselves instead of the identities others ascribe to them – woman, man, queer, straight, black, white, hispanic, trans or postgender/sexual/ethnic/human. Others reject identities of disability, incarceration, immigrant, refugee.

But there is much more to it than this. Humans have always been cyborgs – organisms that modify themselves prosthetically, physically, chemically and genetically for their own purposes. It is not something new, unnatural, abnormal or weird. No part of the human body, inside or out, has avoided voluntary modification or involuntary mutilation, and our ability to craft selves to our liking increases, for better and for worse. At the same time, humans have profoundly modified the environment of Earth, into which we evolved (the Holocene Epoch). We are in a new epoch – the precarious, human-driven Anthropocene Epoch. What was adaptive 15 000 years ago – or 500 or even 100 – may be suicidal now.

Although I normally insist that we should think of the futures as plural – as alternative futures – in this book I paint one possible future emerging from these current processes. This future is no glorious utopia, but it can be a challenging eutopia and not the terminal dystopia that many now foresee as we begin to recognize and create intelligence beyond that of humans. So, we should thank those pioneers, who are learning, how to live in new futures by testing new ways of becoming, welcoming our continuing evolution from homosapiens, sapiens, into many varieties of intelligences in machines, animals, plants, and fungi on Earth and throughout the cosmos.

To facilitate these transitions, we should invent and celebrate forward-looking rites of passage. Instead of continuing to indoctrinate youth into the fears, foibles, fashions and fables of some past, we need ceremonies that encourage each human to sally forth, perhaps with other seekers, on an endless journey of exploration and discovery of ever-novel ways of becoming, with new friends and old everywhere.

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3. CONCLUSIVE REMARKS AND REFLECTIONS

The environments we live in are under change, especially with the pressure of global challenges and the transition for more green and digital societies. This guides us to examine our relationship to our environments and each other, but also the work we do. To formulate and develop solutions for future work, workplaces and working life we need to recognize and understand the needs of both individuals, communities and future developments. For this purpose, we gathered insights from several experts to address these issues via interviews. In the following, conclusive remarks and reflections are presented.

The recurring theme on the background of all interviews was technological change, including the development of automated processes, learning technologies, and artificial intelligence (AI) that will change our role at work and in life in general. **Elizabeth Strickler** described the change to digital by illustrating that the world will be increasingly virtual. This will require adaptability, both regarding people and spaces. In addition, as **Erik Øverland** and **Jim Dator** highlighted, we alter our environments and ourselves also physically in such ways that our relationship with what is considered “natural” is changing. Further, on a global scale, the physical environment requires attention, which forces us to rethink the ways we live and support the transition towards greener ways of being. Sustainability issues strongly affect the futures of work. The ongoing change can be experienced differently by generations, as it affects our working roles and the locus of the meaning and well-being, and as it adds the requirement to adapt and be flexible. In the attempt to see alternative futures of work, it is necessary to pay attention to, in addition to the already seen development, to the possibly hidden and creeping crises and paradoxes that may show coming paths for change.

Some of the interviewees were asked to identify different paradoxes, seemingly illogical statements that are packed with contradictory ideas, when considering future of work. For example, **Christopher Jones** named five different paradoxes considering this theme. First one was the tension between automation and how to keep people employed. This subject was also of interest to others, as Jim Dator also delved into this theme. Dator thought that the paradox is that we are not adapting to the reality that work is becoming less and less important part of life. He claimed that instead of worrying about this development we should focus on thinking how to create more meaningful life outside of work. This idea was fortified in another answer by Jones where he wondered whether we should live in leisure society and talk about the right not to work rather than the right to work⁴⁰. What is common in these paradoxes is that they all criticize predominant paradigms considering work. Some interviewees saw that work in itself may be losing meaning as we know it and some saw that somewhat common way to do work that has been widely applied and seen as resource for the employee may actually do more harm than good.

Other paradoxes that Jones mentioned were relative deprivation we feel because we see lavish lifestyles via our computer or cellphone screens but are unable to attain these lifestyles and tension between ever growing urbanization and digitalization and our relationship with nature. Lastly, he noted that there is a mismatch between entrepreneurial capitalism that satisfies our needs when it comes to new things, but the basic needs of the people are still unattainable. This idea relates to the notion of Elizabeth Strickler,

⁴⁰ This idea was based on Jim Dator’s thinking.

who claimed that one of the paradoxes is that there is a large gap between have and have nots, meaning the unequal distribution of access to benefits of development. This paradox can be seen especially in the situation where rich and powerful develop and utilize new kinds of health products and innovations which increase longevity of life, but other people (have nots) suffer from a wide variety of different ailments. There is also a paradoxical element that on the one hand humans can be seen as the most precious resource in the world and we appreciate every human life, while on the other hand people are sometimes treated as expendables.

In several interviews, the idea of a growing need for meaningfulness of work came up. This theme arises in particular from the growth of automation and how machines will make some works obsolete. Because of this, work may not be such an essential part of people's lives. **Rosa Alegria** noted that people's dedication to their work is not symmetrical when we consider other aspects of life. This was something Christopher Jones thought during his interview as well. This makes us wonder how we can keep everyone employed in the face of automation. On the other hand, Jim Dator argued that maybe we should not even worry about this but rather embrace "full unemployment" and start to think how society where people do not have to work anymore looks like.

Rosa Alegria noted in her interview that if companies want to keep their employees, the work they do should be more meaningful. This means that companies' purposes should align with personal purposes of employees. The same idea was stated during Erik Øverland's interview. He claimed that we are moving into a phase where improving the meaning of work becomes vital aspect of work. This means that work can be more flexible, and people can engage in activities that they find meaningful. According to Øverland we can already see these kinds of changes in labor market. People are earning their salary by moving outdoors or into cabins where they record their daily businesses and by this create content for different platforms. In Elizabeth Strickler's interview, meaningfulness of work also came up. She claimed that work could be meaningful if employees are able to redirect, which gives work more meaning. Based on these interviews, it cannot be overstated that meaning of work is vital part of working life now and in the future. Such meaningfulness can be achieved in multiple ways. Companies can try to align work with employees' personal interests or offer more flexibility etc.

Some more reflections on the flexibility were given by **Jessica Prendergast**. She argued that when we consider future of working spaces the need to be agile and flexible is utmost important. This means flexible in both time and place. However, this flexibility can be seen also as a paradox. She argued that we cannot think that hybrid work will reduce stress automatically because it may actually have the opposite effect on employees. In our questions addressed to Jessica Prendergast the concept of autonomy also emerged as a strong factor for employee's wellbeing: autonomy – the ability to make their own choices regarding, e.g., time, place and tasks. Rosa Alegria also emphasized that as employees value new kind of autonomy, the main attribute for leadership should be confidence and trust. Prendergast added that strong managerial skills, especially communication and flexibility, are needed, as more and more work is done in different locations.

Christopher Jones identified in his interview that different generations may clash in work life, especially nowadays that older generations are working longer, and younger generations have difficulties of finding stable positions and are working more and more in the so-called gig economy. This kind of situation may create intergenerational conflicts in workplaces and in work life in general. Moreover, Jones stated that these conflicts may intensify because of different attitudes that generations have towards work. On the other hand, **Maija Setälä** noted that both older and younger generations are vital for any workplace and

for work life in general. This is because older generations bring continuity to the workplace, and as Elizabeth Strickler also highlighted, the younger generations are more willing to experiment as well as to adopt new methods and technologies. In sum, generations can learn from each other. Rosa Alegria highlighted in her keynote speech, as described in the introduction to her interview, how solidarity is necessary and opportunities to co-operate should not be lost. Setälä noted that there are ways to deal with workplace conflicts in general. One of the ways could be organized deliberation. By deliberation, different viewpoints can be understood and possible silos inside organizations could be broken down. Jones also noted that if we live times that are prone to conflicts, maybe mediation and conflict resolution should be more emphasized in organizations and in society at large. However, Setälä notes that intergenerational differences are continuous in nature: there will always be differences, though the root causes for them change. As Strickler describes, generations grow now in different realities: our experience of both the virtual and physical realities vary. According to Setälä, all communication does not need to be deliberation in the meaning of solving problems. Noting the continuity of change, the differences of generations may not need to be problematized. Perhaps it could be argued that intergenerational conflicts in workplaces are not inevitable. There are tendencies towards it, but the risk of conflicts can be managed by communication and right tools. Not all mediation is deliberation, but deliberation can certainly play a role, where problems become evident.

Another clash was mentioned by Jessica Prendergast who described a large-scale skills mismatch as the education system is not set-up to cater to future job requirements. Maija Setälä pointed out that fundamental transitions create situations where people lose their jobs. On the other hand, digital transition generates enormous workloads for the employees because of the new systems and skills you must learn. **Marianne Agnes Mendoza** and **Joedel Peñaranda** encouraged the framework of hopes, dreams and aspirations as relevant futures-orientation, even in demanding circumstances. They saw the role of educators, and futures educators in particular, as important being producers and breeders of the future workforce. In this context, one has to bear in mind that the learning process for skills takes place not only in educational institutes but continues at workplaces. Paradoxically, the last mentioned learning environment is not open to those who do not even get a chance to enter it.

New skills are also required to meet the challenges of the twin transition of digital and green. Several interviewees recognized that the linkage between climate change and futures of work is manifold. On one hand, climate change is a global challenge number one, and however we sketch the futures of work they should take into consideration the requirements for combatting climate change, such as transition towards fossil-free age and biodiversity preservation where we might be able to utilize the potential of digitalization as well. This will also mean new competencies and jobs to deliver that goal. On the other hand, there remains an unknown territory how the new industries play out as regards their ecological footprint.⁴¹

Interviewees identified a wide variety of different kind of creeping crises – crises that already exist in their initial stage but still go unnoticed. Youth mental health problems were mentioned as well as climate change that is just becoming reality. These crises were identified by Maija Setälä. However, others were also named. Christopher Jones actually named five different creeping crises. He mentioned digital isolation, solipsism, which comes through spending time in the digital world, the general loss of meaning, angst that young men feel in the changing world, and nature deficit. As we can see, digitalization and technology are one of the key drivers at least in some of the named crises. Other downsides of technology were also

⁴¹ The organizing of work and skills needed will be impacted by the fourth industrial revolution and smart manufacturing (Industry 4.0). See e.g., Philbeck and Davis 2018.

mentioned in an answer where the rise of disinformation exacerbated by the influx of generative AI was named as a creeping crisis. This creeping crisis was observed by Agnes Mendoza and Joedel Peñaranda. From the different point of view, it was argued by Rosa Alegria that imagination atrophy is one of the greatest silent challenges that we face in our time and in the future. This leads to a situation where we cannot imagine utopias anymore but rather focus on dystopias. Technology played a role in this crisis also because one of the causes of this atrophy was the technology that we utilize. As a more general crisis linked to build environment, Erik Øverland mentioned centralization towards decentralization. From the point of view of working life, Jessica Prendergast emphasized that the large-scale skill mismatch will grow into a central creeping crisis. Elizabeth Strickler saw the centralization of power as one of the creeping crises, by which she meant that all the knowledge and data in the world would be owned by only 2 to 5 large companies. Furthermore, she claimed that one of the challenges of our time is that people do not care about real world anymore because they can entertain themselves to death.

What is striking in these answers is that many interviewees saw technology as the cause of different creeping crises. It was especially clear in the answers that emphasized digital isolation, solipsism, disinformation exacerbation and imagination atrophy. Furthermore, it could be argued that a situation where a few companies own all the data in the world is the consequence of technological and economic developments that have become new normal in today's world. Too much digitalization and urbanization can also be seen as a reason for a nature deficit that was mentioned. Some interviewees delved into the future of work when they thought about the creeping crises. However, their points of view were rather opposite to one another. Jessica Prendergast claimed that the problem is going to be that there is no more able working force in the future. Jim Dator, on the other hand, claimed that the whole meaning of work will change, and we are inevitably heading towards the full unemployment, which can happen peacefully or violently and unfairly, reflecting the possibility of it becoming a creeping crisis. It could be argued that these different points of view stem from the same source. Both see that work life is going to change so fundamentally that there are no jobs available for people. However, this can be seen as a challenge that must be addressed and more as a problem of education or as an inevitable development that must be embraced rather than shunned.

In discussions on the creeping crises and how to prepare for them, interviewees also highlighted the need for anticipatory governance. Maija Setälä mentioned democratic myopia, political short-termism, and how there are tensions between future-regarding governance and democracy. Christopher Jones talked about postnormal times (PNT), an era or period of acceleration of change, where we need to expect for more uncertainty and ignorance. Significant changes are currently taking place, particularly in the areas of technological connectivity and work. Jones described PNT as a time between paradigms and between epistemes, where we need to be even more careful and cautious about decision making. Setälä and Jones both saw that in preparing for a more complex future, more inclusive and informed deliberative foresight, that involves community and all stakeholders, is an essential part of anticipatory governance. Øverland and Strickler highlighted the importance of imagining future work, citing wild cards, simulations, gaming, fantasies and science fiction as examples of methods and tools.

The interviewees all believed that despite the rise of the virtual future, the physical world will not disappear and will continue to matter. Prendergast and Strickler saw that the biggest challenge for the future multilocal work is to maintain a sense of team culture and connectedness that are traditionally created in physical workplaces. Marianne Agnes Mendoza and Joedel Peñaranda stated that the attention should be directed more into societal development because the problem with science right now is that we focus

mainly on technology. Mendoza and Peñaranda are working with indigenizing the concept of futures thinking that originated in the West, to decolonize the concept and make it their own. Polylogue, the idea of bringing voices of the marginalized and unheard, was seen as bridge building both in peace processes and in the work places. Strickler also wondered that in the future we might break into smaller kinds of cults and cultures. Jones, on the other hand, believed that there is a real possibility that a global village will finally emerge. In other words, people and their experiences are constantly changing and evolving, which means that working life and workplaces are also in a constant state of flux. We should therefore constantly reflect on what a human being is and what a good human experience is. However, as digital spaces and virtuality increases, some interviewees saw that we are moving towards a greater separation from "nature" and towards an augmented body and mind. Strickler noted that we should always think not only in terms of human experience but also computationally, not only because we are not the smartest entity anymore, but because we are emerging into a new species.

In exploring futures of work and various uses and organizing of future workspaces – whether home, office, or third places, we conclude by highlighting three approaches: anticipate black swans and their impacts, delving into creeping crisis that may go unnoticed, and addressing and making sense of various paradoxes of futures of work. All these together may help us anticipate disruptions in society that may lead to radical changes in society, i.e., transformation and a new paradigm of work. These lead us to the next step for our study where we will elaborate the insights from these interviews as valuable factors. The very concept of work is going through a deep transformation which will result in a new paradigm of work. One kind of new paradigm of work was already introduced by Jim Dator in his interview. He pondered how we are still obsessed with work even though automation, AI and all kinds of technological innovation make work more and more a non-issue in human life. Furthermore, he stated that work, whether it is done by humans or AI, should take into account how it affects the planet as whole. This kind of new thinking is only one of the examples how our understanding of work may or even should change in the future. We should not also forget imagination when it comes to exploring futures of work as Rosa Alegria said. According to her, our asymmetrical dedication to professional and personal lives no longer makes sense. Detachment from self-slavery would in her view be the next step needed. For the new paradigm of work, we turn our radar towards a wide range of alternatives even if we may not yet have indicators to measure them. We will also reflect these insights in the light of the three scenarios of work presented in a report by the Millennium project (Glenn and the Millennium project Team 2019) where the self-actualizing economy scenario is profiled as a preferred future.

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