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CONSTRUCTIVE CONVERSATIONS ON RESILIENT URBAN FUTURES

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ABSTRACT

This publication is a co-created compilation of various conversations concerning our possibilities and pathways towards resilient *urban futures*. A series of interviews conducted so far within the Real Estate and Sustainable Crisis Management in Urban Environments (RESCUE) project on several occasions – such as conferences, research visit – have been documented here to give food for thinking and discussions concerning resilience. The questions of the interviews have been tailor-made to address the expertise of each interviewee, while the core of interviews touches upon the topic of urban resilience in its all dimensions as well as the issues of forward-looking thinking and action.

Another type of anticipatory method, as a conversational tool we wish to experiment with, is a narrative. The researchers of the RESCUE project chose an actual case area for reviewing its crisis resilience as well as potential for wellbeing of its residents and the preservation of the environment. The related conversations were used to construct a narrative of the area in 2050 and test an imagined pathway towards resilience. The narrative is a work in progress – meant to be used for reflections, elaborations, discussions and further narratives among its readers, stakeholders to the area and the topic at hand as well those interested in designing and constructing resilient urban futures.

Key words: resilient urban futures, futures studies, foresight, interviews, narrative, research communication, crises preparation

RESUME

Cette publication est une compilation co-créée de conversations diverses concernant nos possibilités et nos voies vers des *avenirs urbains résilients*. Une série d'entrevues menées jusqu'à présent dans le cadre du projet RESCUE (L'immobilier dans la gestion durable de crise en milieu urbain) à plusieurs occasions - telles que des conférences, des visites de recherche – est documentées ici pour nourrir la pensée et améliorer la compréhension de la résilience. Les questions des entretiens ont été adaptées pour répondre à l'expertise de chaque expert. Les entretiens posent avant tout des questions sur la résilience urbaine, ses nombreuses dimensions ainsi que la réflexion prospective au service de l'action.

Un autre outil conversationnel de l'anticipation que nous souhaitons expérimenter est le récit ('narrative'). Les chercheurs du projet RESCUE ont choisi une zone d'étude pour l'examiner sa résilience face aux crises, sa contribution au bien-être des résidents et à la préservation de l'environnement. Les débats tenus sur les questions soulevées ont été transformé en un récit de la région en 2050 et tester sa voie imaginée vers la résilience. Le récit lui-même est un travail en cours - destiné à être utilisé par ses lecteurs et les parties prenantes pour réfléchir, élaborer, discuter et créer de nouveaux récits. Enfin, le récit s'adresse à tous ceux qui s'intéressent à la conception et à la construction d'avenirs urbains résilients.

Mots clés: futurs urbains résilients, études prospectives, prospective, entretiens, narration, communication de la recherche, préparation aux crises

RESUMEN

Esta publicación, creada conjuntamente dentro del proyecto RESCUE (Inmobiliario y gestión sostenible de crisis en entornos urbanos), consiste en una compilación de entrevistas llevadas a cabo en conferencias y visitas de investigación sobre nuestras posibilidades para conseguir futuros entornos urbano resiliente, proporcionando elementos para reflexión y debate. Las entrevistas consistieron en dos tipos de preguntas, por un lado, diseñadas en base a la experiencia de cada entrevistado para cubrir aspectos particulares. Por otro lado, el núcleo de las entrevistas abordaba el tema de la resiliencia urbana en todas sus dimensiones, así como el pensamiento y la acción con visión de futuro.

Otro método de diálogo y representación del futuro empleado en este estudio es la narrativa. En primer lugar, los investigadores del proyecto RESCUE eligieron un área de estudio para analizar su capacidad de resiliencia a diferentes crisis y su potencial para proporcionar bienestar de los residentes, a la vez que se preserva el medio ambiente. En segundo lugar, se construyó una narrativa del caso de estudio en 2050 explicando la evolución (imaginada) del contexto para promover resiliencia. La narrativa en sí es un trabajo en progreso, utilizado como base para reflexiones, elaboraciones, debates y diferentes narrativas entre sus lectores y las partes interesadas, así como aquellos interesados en diseñar y construir futuros urbanos resilientes.

Palabras clave: futuros entornos urbano resiliente, estudios del futuro, previsión, prospectiva, entrevistas, narrativa, comunicación de investigación, preparación para crisis

1. INTRODUCTION

The motto of this science communication publication in Cicero's words is '*Vivere cogitare est*' – living is thinking, from his writings about philosophical conversations that occurred in his villa in Tusculaneum in Ancient Rome. As living beings, one of our characteristics is the capacity to think and reflect about things, ideas, impressions, people, places and properties, and about temporal dimensions. Descartes also summed up this as an essential existential feature – 'Cogito – ergo sum'. Human beings are also essentially futures-orientated – they think about futures. From the position of futures studies we see this cognitive capacity as a source for further emerging from the plateau of futures thinking to the interactive level of discussing and debating futures – having conversations with each other. Conversations are about the exchange and sharing of views, visions, assumptions, value propositions, goals and strategies. Such conversations and futures dialogues – rather than nowhere-leading grid-locked debates and disputes – can provide us with a launchpad for action, after consensus of a shared vision and objectives for preferred futures.

Conversations can be labelled constructive when they lead to goal-setting, policy-making and required action. The attribute 'constructive' is here a play with words, since it also refers to constructing built environments and cities – and consequently to constructing futures. Futures do not merely arrive upon us – according to Amara's (1981) third principle 'they can be affected', i.e. they are constructed through our thinking, intentions, plans and goals leading to action and measures towards aspired futures. The consensus and the context for such meaningful conversations are positioned here toward resilient futures of the built environment, or of society and the world at large. We need to build resilience so that we will have pathways towards sustainable, inclusive, green and digital futures.

In our conceptual analysis concerning crisis-related phenomena, we considered resilience to have a specific aspect that relates to futures (Heinonen et al. 2022). We defined futures resilience as a capacity that assists in surviving emerging challenges, obstacles, risks and crises, to come out from them relatively unharmed, even learning from them, as well as both re-thinking and renewing the existing structures and activities as needed (ibid.). In other words, an integral element of resilience involves a capacity to withstand and live with uncertainties, and an understanding that they are a part of life, society and development. A somewhat similar idea is conveyed by Karjalainen et al. (2022) who explain that in recent times, more and more phenomena are intertwining with one another, as hybrids that human beings initially struggle to understand and make sense of, and have to cope with them regardless. In some ways, in the lives of all of us, lie unexpected events. Specifically, with respect to urban futures, a question resulting from the mentioned definition is 'how can urban areas become more futures resilient, that is, survive and thrive amidst unexpected developments that may bear both positive and harmful dimensions?' One seeming response is to build institutional resilience, that is, ensure that our social, economic and political systems are equipped to deal with events or times of disruptions, and the resulting uncertainty from such periods.

Resilience is closely related to the notions of security and antifragility. The idea of security is intuitively familiar to most of us, as a state of being free from danger of threat. There may be measures to ensure that this remains the case, and in the event of insecurity, actions that can be taken to restore security. Antifragility, in turn, is a property of systems in which they increase in capability to thrive as a result of stressors, shocks, volatility, noise, mistakes, faults, attacks, or failures (Taleb 2012). Antifragility allows dealing with the unknown, endorses randomness and uncertainty, even if at first sight they may seem as somewhat uncomfortable ideas. Historically, it has been documented how cities have faced many kinds of turbulences. They have been destroyed and re-built, faced deadly diseases as well as witnessed technological innovations that have shaped and transformed the lifestyles of its inhabitants. Urban scholars are interested in cities that flourish, and of resilience as an element of sustainability (Bautista-Puig et al. 2022). Urban areas can gain resilience from multiple domains: it is not merely an issue of engineering, and of how technical systems are able to function or recover under unforeseen circumstances. Overall, urban resilience is a much broader concept that relates to the characteristics and features of cities that has ecological,

socio-economic, and even cultural components. Certainly, as a minimum criterion, under durable stress, it must be ensured that at least critical infrastructures, as the backbone of society, are able to function (Labaka et al. 2016).

Moreover, resilient cities is a concept affiliated with another important urban concept – that of regenerative cities. In recent years there have been many initiatives for urban regeneration in shrinking, run-down cities of industrialised countries. The aim is to restore the urban fabric – the 'intra-urban' environment. Some have also been committed to improving 'peri-urban' areas, turning brownfield sites into landscape parks or housing areas. These can become focal attractions and demonstrations where experimental approaches can be applied to showcase regenerative city features (e.g. Dream Park in South Korea[1]). These offer not only a glimpse of what is possible, but they attempt to undo harms made by the waning industrial footprint and to offer prosperity again for often abandoned areas.

Girardet (2015) claims that the idea of creating regenerative cities goes even further, linking comprehensive measures for improving the conditions of city life with measures for creating an environmentally enhanced, restorative relationship (between humans and the natural world). He points out that regenerative cities have to be created from the inside out. People need pleasant spaces for life, work and play – urban milieus free from pollution as well as accumulated waste. People need to benefit from bringing urban energy systems and economies 'back home'. Girardet further considers it important that people need to live in the certainty that their daily lives are not detrimental to the eco-systems on whose health their cities are dependant on. In the same vein, as described earlier, people need to live in cities that are resilient against external shocks and crises, and at the same time the cities' own internal 'eco-social system' should not undermine overall resilience.

Existing regenerative fields, such as regenerative development differ from prevailing approaches to sustainability in that they move beyond harm mitigation as an aspirational objective, and instead seek to achieve net positive benefits for integrated natural and social systems. Within futures studies, a niche of regenerative futures research provides eight principles for thinking and practice. Futures and strategic foresight methods can deepen regenerative approaches both conceptually and in practice. Camrass (2022) has used qualitive research methods that have explored regenerative futures concepts, including Causal Layered Analysis (CLA)[2], as a post-structural method, case studies and semi-structured interviews. She proposes her principles as a framework for transformation.

In the following Figure 1, we see this framework by Camrass and can identify two steps in particular – 'story of place' and 'shared future metaphor' – as relevant for our approach of addressing expertise within a futures dialogue. Therefore, these two steps are present here in our piece of research, as a compilation of interviews and a narrative. The interviews and conversations shed light on research on cities and any chosen case area. We illustrate why it is useful to make stories of places, acknowledging their identity and hidden potential. Such stories may become tools that assist in making places both resilient and regenerative.

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[1] https://www.korea.net/NewsFocus/HonoraryReporters/view?articleId=208235

https://www.kocis.go.kr/eng/webzine/202106/sub02.html

[2] The CLA method (inayatullah et al. 2022) has been applied within the RESCUE project on several occasions, notably for three urban cases being tested as regards their resilience in a total electric outage (document forthcoming).
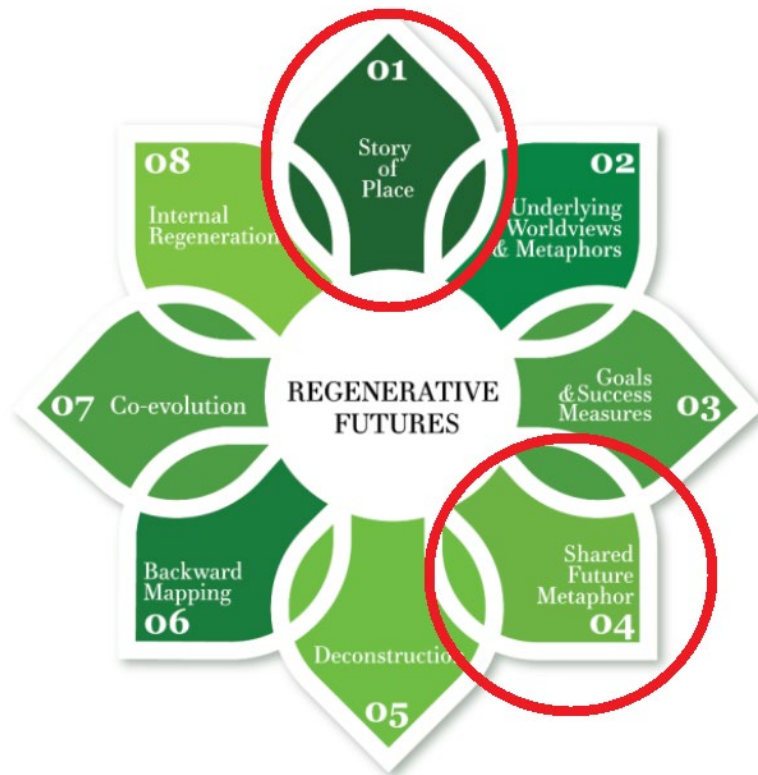
Figure 1. Framework of eight elements of regenerative futures (Camrass 2022).

In Chapter 3 we present a RESCUE story of place – that of a housing exhibition area as reflected into 2050. What then could be our shared metaphor for resilient urban futures? Elements for that can be found embedded in the insights from the expert interviews as documented here in Chapter 2, and provided as food for thought for the readers to come up with a proper metaphor that helps in turning ideas into action. Whatever the elements of a broad definition of urban resilience may cover, the key characteristics are surprisingly social by nature – adaptability, learning, trust, diversity, communality. Resilience is more than robustness (Brunnermeier 2021). Besides paying attention to protecting key critical physical infrastructures in society such as energy, water, transport and communication, it is worth investing in social infrastructures of knowledge and learning. In our preparation for crises, we should constantly **look beyond crises** – not just prepare for similar crises that have occurred – as important as it is to learn from them – but proactively anticipate also dissimilar, unexpected ones.

2. INSIGHTS FROM RESCUE INTERVIEWS

'Cities have the capability of providing something for everybody,
only because, and only when, they are created by everybody.'

– Jane Jacobs

'By working collaboratively for positive change, whether in the area of climate change,
alternative energy, humanitarian causes, health, economics, or transforming education,
we can create a critical mass for creating positive futures.'

– Jennifer Gidley

Interviews are a conversation form where the interviewer taps into the insights of the interviewees through questions, while the answers of the interviewees may lead to new questions. This way, an interview becomes an interactive sphere between the discussants, as an autonomous entity. This section consists of seven interviews that were conducted in the Real Estate and Sustainable Crisis Management in Urban Environments (RESCUE) project (https://www.rescue-finland.com/) during the period of 2021–2022.[3] The interviews have been tailored to address the expertise of the interviewees, while they all address the key topic of urban resilience in all its dimensions as well as forward-looking thinking and action.

Accordingly, the interviews have been planned and designed to serve the research purposes of the research project at hand. The questions for the interviews have been made co-creatively and collectively. The interviews were conducted in-situ in various conferences or during research visits. The first two interviews took place during the International Futures Conference on "Planetary Futures of Health and Wellbeing" in Turku, June 2022, organised by Finland Futures Research Centre (FFRC). The next three interviews were organised in Milan and Florence, Italy, during the research exchange programme of the RESCUE project. The last two interviews were recorded in Silicon Valley, California during a research visit of the project, focusing on the Millennium Project representatives.

We need to build resilience so that we will have better preparation and proactive approach to crises as well as to improve our capacity to re-think, and where necessary to re-shape, the current systems and present regimes, as the status quo, to have crises-aware, liveable and sustainable urban milieus that can flourish with a view to the green and digital twin transition.

The following thematic interviews have been documented. At the end of each interview, there are references of publications raised by the interviews, accompanied by recommended readings – proposed either by the interviewee or the interviewer(s).

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[3] These interviews have been planned and conducted under the lead of work package 5 (WP5) in collaboration with the work package 1 (WP1) of the RESCUE project. One of the interviews (ch 2.4) was conducted in the main charge of work package 1.

The seven (7) interviews made within the RESCUE project in 2022 are the following:

1. "On Resilient and Healthy Cities" by **Billie Giles-Corti**;

2. "On Urban Policies, Power of Positive Images, and Foresight for Resilient Cities" by **Andy Hines**;

3. "On Post-Covid Ways of Working, Innovative Workplaces, Vertical Farming, and Hybrid Spaces in Cities" by **Chiara Tagliaro**;

4. "On Crisis Preparedness and Resilience of the Companies and Real Estate" by **Carlo Capra**;

5. "On the Seneca Effect, Crises, Resilience and 21st Century Paradigm" by **Ugo Bardi**;

6. "On Silicon Valley, Innovations, Crises, Anticipatory Governance, and the Purpose of Cities" by **Brock Hinzmann**; and

7. "On Silicon Valley, Foresight Methodologies, Crises, Transformation and Global Governance" by **Paul Saffo**.

2.1   On Resilient and Healthy Cities by Billie Giles-Corti

This interview of Professor **Billie Giles-Corti**[4], RMIT University, Melbourne, Australia on Resilient and Healthy Cities was conducted by Professor Emerita **Sirkka Heinonen**, Finland Futures Research Centre (FFRC), University of Turku and Assistant Professor Saija Toivonen, Aalto University

Camera: **Amos Taylor**, Project Researcher, Finland Futures Research Centre, University of Turku

Transcription: Dr **Anahita Rashidfarokhi**, Postdoctoral Researcher, Project Coordinator, Aalto University

The venue for the interview was the FFRC Conference on "Planetary Futures of Health and Wellbeing", Turku, Finland, 16th June 2022.

Figure 2. Billie Giles-Corti gave a keynote at FFRC Conference in Turku where this interview also took place.

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[4] Professor Billie Giles-Corti is a Distinguished Professor and a Vice Chancellor's Professorial Fellow at RMIT University and leads the Healthy Liveable Cities Lab in the Centre for Urban Research. For over two decades, she and a multi-disciplinary research team have been studying the impact of the built environment on health and wellbeing. Between 2014 and 2020 she led an NHMRC Centre of Research Excellence in Healthy Liveable Communities; between 2017-2020 she was RMIT's Urban Futures Enabling Capability Development Platform Director and between 2007-2011 she was Foundation Director of UWA's Centre for the Built Environment. She is a Technical Advisor of the Victorian Office of the Government Architect's Design Review Panel, a member of the Victorian Planning Authority's Precinct Structure Plan Review Committee, a member of Melbourne Water's Liveability Panel and an Honorary Fellow of both the Planning Institute of Australia and the Public Health Association. She has published over 400 articles, book chapters and reports, and by citations, has been ranked in the top 1% of researchers in her field globally. She is a Fulbright Scholar and in 2016, was awarded an NHMRC Elizabeth Blackburn Fellowship as the top ranked female NHMRC public health fellow.

Interviewers: Professor Billie Giles-Corti, you are from the RMIT University in Melbourne, Australia, and with Assistant Professor Saija Toivonen, we welcome you to this interview. You are also a member of our Advisory Board for the RESCUE Project. We will be bombarding you with questions because you just gave an excellent presentation on healthy and liveable cities here in Turku, at the FFRC Conference on Planetary Futures of Health and Wellbeing. Your work is on healthy, liveable and sustainable cities. Our interest in the RESCUE project is focused on resilient cities.

Question: What is the most threatening crisis impacting future cities and the built environment? We had a housing crisis, a financial crisis, here is the pandemic crisis, and now the Ukrainian War. More crises are coming up. **Can you anticipate some really serious threatening crises for future cities that we should be prepared for?**

Answer: My experience suggests that there will be **'more of the same'**. With climate change and its impacts on the ecosystem, it is likely that we are going to have more pandemics and we have learned from this one that we cannot afford to be complacent. It has been such a major impact on our cities. We would expect from climate change [that] there is going to be pressure on water supplies. There are predictions there will be water wars because water shortages are becoming such a crisis. Food is also likely to be affected. And there are also likely to be energy crises in cities, which is what we are seeing as a result of the war in Ukraine. We talking about transitioning to electric vehicles, but what will be the impact if we had power blackouts? So, I think that the sorts of crises that **we are seeing now could be amplified in the future.** The pandemic has our cities are not resilient to these sorts of crises, so we need to prepare.

Q: Yes, we are vulnerable and in your studies, you have shown us that we really need to transform urban governance and there are not even policy frameworks enough for healthy and sustainable cities, let alone resilient cities. **What kind of policies will be needed for resilient cities?**

A: I am concerned about health, and I think that the C40, Cities Climate Leadership Group, is talking about creating "15-minute cities". This will be a much healthier and more resilient approach to city planning. In our recent Lancet Global Health series, our framework has emphasized the importance of **integrated governance across sectors.** It is important to get all relevant policies (eg. transport, land use, housing, employment, economic development, social infrastructure, public open space, nature-based solutions) working together to deliver 15-minute cities. To me, this is not only healthy city planning, it is more sustainable, but it would also produce more resilient cities in the event of something happening. If people can get around by walking, cycling, or maybe public transport within 15 minutes, that is a much more resilient city structure than building urban sprawl, with people and everyone spread out. It is a way of delivering reduced energy consumption as well.

Q: Yes, it is very interesting that you mentioned electronic blackout because in the RESCUE project, we are trying to test the future by taking the case of a total electric blackout. You mentioned electric vehicles, but there are so many other gadgets and devices that we are so dependent on them.

A: We had the major bush fires in Australia in the summer of 2019-2020. It is hard to describe just how you feel when you come back from your holidays, and you had this lovely holiday, and yet so much of Australia was on fire, and you saw we lost so much biodiversity, with billions of animals killed, and houses were under threat. People were killed because of fire storms that flipped their vehicles up. It was just horrifying. What was interesting given we are talking about resilience, was that in some coastal areas, there was only one road in and out, so people were stuck there. The only way they could get out was by ship. So they had to send a ship in to take people out, which is not a resilient design.

And, what was also alarming was that people had no energy either. They could not use the automatic teller machines to get money out, and even if they had money, they could not get fuel because **everything relied on electricity. This is is not a resilient way of building our cities and regional communities**. It was a **wake-up call to how the future could be like, if we are not thinking seriously that these things are real and they could (and do) happen**. We need to plan for that.

Q: You said that transportation and walkability are very important factors. But what would you say: who are the most important actors in [consideration of] the built environment to build resilience against future crises?

A: My feeling is that what we have to have is integrated planning across all of those urban systems that must work together to create healthy, sustainable and resilient cities. So it needs to be the government, working across the government, to deliver this. We have identified eleven (11) different policies that need to work together to create eleven transport and urban planning interventions to deliver the cities that we say we need and want. Now, you need leadership in all of those areas to achieve this ambition, but you also need vertical integration between different levels of government and also the private sector and the community. We need leadership on all of those levels. We need leadership in the community. People do not want to change. They fight it and we need vocal voices to bring the community along with us in the transformation required. We need people at barbecues and dinner parties talking about these things so that we get the community on board, we need the private sector to show leadership to commit to first do no harm.

> **'Anyone who builds cities should sign a Hippocratic oath'**
>
> – Billie Giles-Corti

I think **anyone who builds cities should sign a Hippocratic oath.** We see a lot of harm being produced with inappropriate apartment buildings being built e.g., building an oversupply of single-bedroom apartment for investors. These are fine, if you are a student for a period of time, but it is not a resilient way of building our cities' housing stock. If families want to live in the city, we need to build housing that is suitable for families as well. So, my view is this is a **whole-of-society approach and we need leadership on all levels across government between government**, **the private sector and the community to produce the results that we need**. And I think [that] this is a crisis. This is not a dress rehearsal. This is happening on our watch, and what we need to do is to get people to take this seriously and to get on board to see how we can actually deliver a better result for our cities.

Q: And exactly for that reason, we need not only insights, but clear instructions, on what to do, how to do, how to make cities resilient. Do you think we also need instructions on what not to do? **So, what is in your opinion actually the biggest mistake, if we are preparing for a future crisis in the built environment context** because there may be something we are eager to review on what not to do?

A: I really worry when I see everyone getting excited about the technological solutions. You know, for example, electric vehicles that are going to solve everything. But electric vehicles are not going to solve congestion, nor will automated vehicles, which could actually exacerbate urban sprawl. And these are not the solution, **we have to change our behaviour, we need to reduce our consumption** and as Al Gore talked about this inconvenient truth, **we do need to change**. There were some good things about downsizing our lives and not being as expansive as it was in the past. We need to change and that requires a discussion, and it is difficult.

I think in terms of what we should do, first, we do not want to do anything that exacerbates urban sprawl. So, it is really funny how the conversation goes 'oh we have got a crisis as a result of the pandemic. Everyone wants to live in the suburbs'. But everyone *does not* want to live in the suburbs. They want to have enough space to be able to live. I live in an apartment in the city, and it was fine living in the city. This is because of its size. Also, all the amenities I needed during the pandemic were nearby including public open space. Unfortunately, not everyone is wealthy enough to have a big apartment: what can we do about this? I was very, very fortunate, but not everyone lives in an apartment like that and I think we need to tackle housing affordability, it is something that we need to look at.

How do we ensure that more people could live in established areas with access to social and affordable housing? What about workers who work in those areas that cannot afford to live there because the housing prices are too high? How do we focus on ensuring that people who need to be there can actually afford to live there? So, I think **housing affordability is a big issue**. I do not know what the solution is, but I do think that it must be part of the conversation. Focusing only on technological solutions is throwing the baby out with the bathwater, as people say. As is saying, "oh well, we have a crisis, we need to all go and live in the suburbs now". I do not think that is the solution to housing people in a crisis.

I also think **we need to think about regional cities**. What the Covid-19 [pandemic] has shown us that a lot of people did go and live in regional cities because now people can work from home. This may be

part of a solution to the future, where we do not have to live in big mega-cities because people can still earn a good income and live in regional cities.

Yet that also means that we need to think about how we support the people who were living in those regional cities before all the wealthy people with white collar jobs [chose to] go and live there. As a result, they are now displaced. How do we ensure that those people still have access to affordable housing and amenity, making sure that there are also enough amenities like schools, for example? A major reason why people move to the city is that the quality of the schools is better. So how do we ensure that the schools in those regional cities are of high quality to enable people continue to live there?

But importantly, how do we ensure that lower-income families do not get displaced? We need to be addressing this through policies such as inclusionary zoning. Inclusionary zoning means that when new developments are built, we ensure that there is some socially affordable housing included in there and not just dog boxes, or small apartments, but housing that can accommodate families because **families want to live in cities as well**.

Q: Exactly, and they have a right to because that is where the amenity is. And, one final question. So, you talked about the recent health crisis, Covid-19, and how it affected our societies. **Did you find out any other elements that could support any lesson learned concerning the built environment? What kind of environment should we have to be more resilient against any new, future pandemics?**

A: I think the idea of the future is ideal when everyone has access to all the amenities they need within a 15-minute walk or cycle and that includes public open spaces, shops, and services. To me, that is a more resilient way, which will help us in future crises. That might be as a war where we see now with Ukraine, we are having restrictions and our energy prices are going up. If you have a very long commute that is costing you a lot of money. So, we need to have local and regional employment across cities that will reduce commuting distances.

We need to be thinking about the sorts of city designs that enable people to live more locally. I think that is a much more resilient way of building our cities and it is not relying on people always driving. This also involves thinking about our housing. I do not know, if it is the same in Finland, but assumptions had been made in Australia that people who live in apartments, will live in the public realm. Well, we learned from the pandemic that sometimes it is not possible to live in the public realm, you need to live inside your apartment. So, we need apartment housing stock that enables people to do this [live in the public realm].

In terms of future crises, we cannot just assume that everyone is going to live "somewhere else". I have heard some really good examples where high-density housing has been put in some shared areas so that there is shared office space in the building, so that residents can go and work outside their apartment but [remain] in their building. These are the sorts of things that can make it possible to live through an experience like a pandemic where you have got multiple people in a household working or learning from home, so that one can go and have some space outside of the apartment. **We need to be thinking about these things and mandating the way we build our apartment buildings, so that they are healthy and sustainable with flexible space within the apartment, and in communal areas in the building**.

Q: Professor Billie Giles-Corti, thank you very cordially for this excellent interview.

A: Thank you, I enjoyed it.

Figure 3. *Walkable city is not only pleasant to citizens but also provides resilience.* (photo: Sirkka Heinonen)

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2.2 On Urban Policies, Power of Positive Images, and Foresight for Resilient Cities by Andy Hines

This interview of Dr **Andy Hines**, University of Houston, Texas on Urban Policies, Power of Positive Images and Foresight for Resilient Cities was conducted by Professor Emerita **Sirkka Heinonen**.

Camera: **Amos Taylor**, Project Researcher, Finland Futures Research Centre, University of Turku

The venue for the interview was the FFRC Conference on "Planetary Futures of Health and Wellbeing", 16th June 2022, Turku, Finland.

Figure 4. Andy Hines conducted a session at FFRC Conference where he was also interviewed (photo: Tolga Karayel).

Interviewer: Dr Andy Hines, you are Head of Graduate Studies at University of Houston, welcome to this interview in Turku during our FFRC Conference on Planetary Futures of Health and Wellbeing.

Question: For the RESCUE Project that we are conducting, we would be very much interested in hearing from you how government and especially anticipatory governance could help in making cities more resilient and crisis-proof – so to say. What are your thoughts on that?

Answer: Well, we had an opportunity – a programme to do some research for state government and state institute looking at individual communities. We tried to identify for a twenty-year future what are some pilot projects that we could start funding in the present that could lead us towards the future we wanted. It was very interesting to me that we could take a long-term view but I can tell you that twenty years was very uncomfortable to them. We [then] specified that what we wanted to come out with was **a vision** – we wanted to identify pilot projects and experiments for what that future might look like so that we could implement them immediately, and I think that relaxed them a little bit.

Q: I can very well understand this situation: a strong vision is needed but it is not enough. You need to show with examples and pilots what the future may look like. How about your experiments and pilots you recommended – were the results successful overall? Or [was it] so that some of them failed while some succeeded?

A: Definitely some of them failed, some were successful. **Sometimes, when you create a grand vision of the future, it is overwhelming**. This is so different from where we are – how can we start small, just try something? There's so much power in having motion towards the future, we are not waiting to do something, we are doing it. It is in process – let us try it, there is a lot of courage in that. If you do it in small enough a scale and it doesn't work, it is quite ok. You learn something!

Q: On the other hand, if you take too small steps, it is not enough, you have to have the courage to proceed. Then, moving on to concrete policies and action. Policies can deal with any subject, such as security and safety. What kind of urban policies are most needed or in need of renewal?

A: One of my favourite ones, and also what is to the clients relevant, is especially the **circular economy**. While we think it is a bit further out into the future, it certainly is, at the same time, the kind of idea that you can pilot. You do not have to convert the whole system at once. We do not have to turn our economy to [become] circular overnight. To my mind that **is a way to get a wide range of stakeholders involved.** And that is a key idea when we are doing these pilots to get some **visibility so that people can see it, feel it and touch it and be involved, and that creates a momentum.** So, in urban environment it is a good way to start [to use pilots and create visibility].

> *'People are most creative when they have a focus – and regulations can help provide that'*
>
> – Andy Hines

Q: Do you think that this kind of a combination of incentives and strong regulation is an ideal approach? Not just to have regulations as such but [supplemented] with incentives?

A: I believe in incentives and disincentives over mandates. Mandates to me should be a last resort. Rather, let people choose. How do we create the conditions that enable people to do what they want to do? Regulations can set the table – [help] setting it up, setting foundations, setting the common base. They play a terrific role but they can also be too prescriptive. We know that people are most creative when they have a focus. Regulations can help provide that focus or target, and then let us see what emerges in response.

Q: My last question concerns your stance in futures studies where you have been active for a long time, and you are especially experienced in strategic foresight. Is there something new that interests you particularly – a topic, issue, question or challenge that really interests and inspires you to dig deeper in, something you want to bring to the table?

A: Absolutely. I started getting interested in "futures" when reading the book by [Fred] Polak on 'The Image of the Future' and thinking about the big needs for long-term, positive images that you could work for. We heard some good ideas here, at the [futures] conference, about carbon-neutrality, but I do not think we have fully imagined, in fifty (50) years since the start of futures studies, what is needed - the whole package of the future so that anyone could say "I want to go there". I want to **present positive images of the future**, put them up to the wall, and [then] let's see what happens.

Q: Excellent, we have not yet fully grasped the potential of positive futures. Thank you for this interview!

A: It was a pleasure!

Figure 5. *Visions and positive images of the future are needed – and ideally co-created (photo: Sirkka Heinonen).*

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2.3 On Post-Covid Ways of Working, Innovative Workplaces, Vertical Farming, and Hybrid Spaces in Cities by Chiara Tagliaro

This interview of Professor **Chiara Tagliaro** on Post-Covid Ways of Working, Innovative Workplaces, Vertical Farming, and Hybrid Spaces in Cities was conducted by Professor Emerita **Sirkka Heinonen**, Finland Futures Research Centre, University of Turku and Assistant Professor **Saija Toivonen**, Aalto University

Camera: **Lassi Tähtinen**, Doctoral Candidate, Aalto University

Transcription: Dr **Anahita Rashidfarokhi**, Postdoctoral Researcher, Project Coordinator, Aalto University

Venue: Politecnico di Milano, Italy, 14th September 2022.

Figure 6. *Dr Chiara Tagliaro was interviewed during the RESCUE research visit at Politecnico di Milano. (photo: Lassi Tähtinen)*

Interviewers: Dr Chiara Tagliaro – thank you very much for receiving us for a visit at Politecnico di Milano with Assistant Professor Saija Toivonen from the RESCUE Project. Welcome to this interview! You are conducting much research on workplaces, new ways of working, as you call it, 'Covid working', and their impacts on people and their built environments. With a view to your expertise in workplace management and corporate real estate, we would like to ask you a few questions. You are also a member of the advisory board of our RESCUE Project.

Question: **Flexibility and adaptability of places and workplaces** in particular are critically important, especially in times of crises. We saw this during the [Covid-19] pandemic when it led to lockdowns and absence from the workplace. When trying to further develop such flexibility, what are your ideas of possible, innovative ways of working in cities?

Answer: That is a very good question. First of all, I am happy that you are here, and we can share ideas with you and the rest of the RESCUE project. I think there are nowadays a lot of companies that we call *prop-tech* companies that are trying to integrate digital technologies into the built environment processes, and this can be one of the keys to developing innovative ways of working in cities. These technologies can be applied to the construction as well as to the design phase of the building life-cycle. So, for instance small startups are coming up with partitions that can be adjusted and re-adjusted multiple times a day without any effort and that can even move through robotic systems. Such systems can easily adapt

themselves just with input from a machine and no human workforce is needed. But obviously, **in order to be able to adopt such technologies, we also need to have buildings that are available to host these kinds of applications**.

If you consider Italy, however, we have a very old building stock and office buildings are most of the time very inflexible to answer the need of flexible organizations. Therefore, **thinking beforehand of flexibility is the actually the first step that we need to take for the building to be adaptable**. Also, I do not think that technology should be the only safe parachute that we have because we are relying a lot on technology, but this is not the only way we have. Technology itself cannot do anything without proper strategies. And creating strategies is what we should do first and foremost, which is something that really belongs to a human capacity. So, the things that you are dealing with in the RESCUE project are super-important because we need to think about what will happen ahead of time and get ready for a wide variety of potential happenings.

> *'Hybrid buildings are becoming a 'connector' that allows the whole neighbourhood to change and interact with the building itself'*
>
> – Chiara Tagliaro

Regarding working specifically in our cities, what we have been doing with our cross-disciplinary COST Action project in particular, called the 'Geography of New Working Spaces and Impact on the Periphery' (CA18214), is looking at how to **re-balance the core areas of the city where people go to work with peripheral and rural areas**. The idea is that proximity – according to the X-min **city model** – is a good way to enhance flexibility, accessibility, adaptability and resiliency. So basically, we do not want to have long commuting times that people have to face every day to go to work. But we want to foster the creation of smaller self-sufficient and multi-functional hubs that are distributed around the cities and neighbourhoods, and can help retain people in territories that at the moment only functioning as "dormitory areas", hosting people that commute to other parts of the city every day.

Q: Yesterday, you took us to see the hybrid space of STECCA 3. So, if we think a bit deeper into the concept of hybrid spaces where working is co-habiting with housing and the daily life of families, so home as a hybrid of teleworking hubs and living is, of course, an opportunity. But it may also turn into a detrimental mode for people. So in what ways could the built environment create hubs where creativity and efficient working mode is provided, while the privacy of citizens is also secured?

A: This is another very interesting question. I think we have seen work invading a lot of our private lives and there is a problem with preserving some time that is dedicated only to private life issues and not to work. So it is very important to be able **to keep these two spheres kind of separated or at least be able to switch off one part when we want to be focused on the other**. This kind of hybrid space that we saw the other day is a nice way to integrate work with life and with a bunch of other activities that happen in the neighbourhoods and also to bring together people that otherwise would have no contact.

Referring to the ability to keep our private sphere protected, something that we are seeing in new residential development is the creation small to medium-sized rooms within condominiums that are shared among the residents – and can be dedicated to working as well as rented out for other activities. This is an example of hybrid spaces that are somewhat different from the so called "third-places" that we can find around in the city. These are spaces that can be found in our own residential building and still help us isolate the different spheres of our lives. These are not very common nowadays, but we have in Italy a lot of ground floor space that in residential buildings is sometimes empty or under-utilized. And this, in many cases, could be re-functionalized and host these kinds of new functions for instance.

I have heard already of some real estate developers who are interested in this kind of building renewal and the implementation of similar kinds of spaces in new buildings.

Q: Okay, thank you. And, I think we can now turn to the topic of vertical farming because it is another trend in urban planning now in many countries and not just for workplaces, but also for all buildings. We also had the chance to visit Bosco Verticale yesterday in Milan. It aims at bringing greenery to the city

centre, and not just plants, but has real trees on balconies. So what is your opinion on vertical farming? Can it [this kind of vertical farming] be used to boost both well-being of workers and residents? For example, here in university we saw trees on the ground-level, but you could have even lecture halls and rooms filled with greenery! And also, could it increase resilience in times of crisis, or do you [perhaps] see any risks in using vertical farms?

A: I have mixed feelings. I think it is something that is **aesthetically very pleasant and [consequently] that enriches our cities**. It has **social value** because this kind of vertical farming can also translate into a **collaborative practice** of farming, and growing plants and trees that can be used for eating and consumption in families or offices, perhaps. So, there are a lot of advantages to this practice. Italy would be a great country to implement these kinds of facilities because of course we have a climate that allows plants to grow without much effort thanks to a favourable climate.

On the other hand, several issues should be taken into account, as was also debated with the Vertical Forest [Bosco Verticale in Milan] by Boeri. This kind of construction consumes a lot of energy upfront because you need to increase the construction materials. After all, you need a much more resistant and solid construction. And, then you need an infrastructure for the irrigation to get water up there until the top of the building. You need **a lot of maintenance**. We heard yesterday of these flying gardeners that are maintaining all this greenery in the "vertical forest", which is not easy to have in terms of manpower and monetary expenses. So, there are multiple risks that are relevant, not environmental risks, but more **socio-economic risks**, including the fact that due to high costs such kind of buildings might become elitist instead of something that allows for sharing.

But in principle, it is a very nice idea, and I think that resembling projects such as 'energy communities' that people have recently started to create, with solar panels and other sustainable energy resources, could be something very nice to focus on in terms of urban planning for the next years.

Q: And perhaps this Bosco Verticale has also inspired other construction sites resembling it, right?

A: Yes, here in Milan I am not sure, but many are exporting this concept and making it something of a worldwide trend. I am aware that the same Boeri studio recently developed a low-cost Bosco Verticale [vertical forest] in Eindhoven, the Netherlands, in an attempt to demonstrate that the model can be for everyone, not only exclusive.

Q: Yes, exactly. Then, how about the concept of biomimicry when buildings are constructed to simulate nature's pattern, shape, function, et cetera. Modelling nature in general. Do you have any examples of biomimic buildings here in Milan? Or what are your thoughts about this approach?

A: So here in Milan, unfortunately, I do not have any examples. I saw very interesting examples showed by Rachel Armstrong, Professor of Regenerative Architecture, KU Leuven in a presentation at the new European Bauhaus Festival that was hosted in Brussels in June 2022. They talked specifically about biomimicry. The interesting thing is that biomimicry should not be limited only to the aesthetics or the appearance of buildings, but it can be embedded into the way buildings function. For instance, Armstrong and her team were experimenting with the chemical processes of bacteria. The interactions of bacteria actually can produce electricity and they were trying to understand how these sorts of small ecosystems, e.g. small aquariums of bacteria in some parts of the building, could help produce electricity and serve the purpose of supplying the building occupants with the electricity needed.

I think that this kind of experiment is very promising and probably we need more of that. For instance, as you said before, **buildings can become places for hosting wildlife, animals, and plants to increase also the biodiversity in our cities**. Another thing that emerged during the European Bauhaus Festival and related events is that our cities are most of the time breaking, interrupting the biodiversity of territories because there is not that much nature inside. And of course, these generate disturbance to animals. If we can better integrate nature inside our cities, this is probably a way to avoid this interruption of ecosystems that is very bad for the environment.

Q: Exactly, we need that and also more experiments to have reliable results. If we still talk about the future and how to develop and create enjoyable workplaces in cities, so that they are at the same time healthy, safe, sustainable and resilient, what do you see as the most urgent challenge?

A: I think that the challenges are multiple. First of all, there is this balance between the city and the periphery that we already touched upon. This is something that we really need to work on. Probably we are not fully understanding how people will readjust to this balance after Covid-19. There have been major disruptions. This exogenous event changed our needs and the perception of our needs with probably long-term effects in the future. This [resulting push] – also depending a lot on the different parts of the world where we are looking at this problem. In the United States, for instance, there is a real escape from big cities while in Europe and Italy, the fleet is less significant.

The second issue, is our dependence on technology, as I told you. I think that we increasingly need to be **careful with how much we depend on and our built environment in general relies on the availability of technology**. Think of an electrical breakdown – we could suddenly be totally unable to open windows, to open doors, we might get locked into buildings just because everything is technological and digitalized. We need to have a backup plan that works without digitalization and electricity, for sure.

Furthermore, on the "soft" and less tangible side of the medal, I see the **problem of individualism**. And the idea that probably also with Covid, we realized that there is a concrete **risk of remaining isolated** in the work environment and at the same time, we need not to divide the individual and collaborative spheres too strictly. Now we have observed many companies trying to isolate the collaborative and the individual activities, and pushing toward a strict divide between the two, according to which individual activities should be done at home or in other places and instead you come to the office only for the collaborative activities. This is the topic of a paper that I presented at the TWR2022 conference.

There is one specific case that came to us – of this telecommunication company reducing the office space for individual activities from 72% of the footprint to 12% or even less, 10 percent. So, this is a very radical change, while all the rest of the space would be dedicated to co-creation, collaboration and other interactive activities. I thought about this with a friend of mine who is a philosopher. We commented that this strong segmentation of the activities and the places where we are supposed to carry them out might create an opposite effect, and a detrimental effect on individuals, as it might force them to do individual work at home, and collaborative work in the office rather than enabling them to choose where to perform different kind of work activities.

So, if the premise is that we want people to choose freely where to work and decide on their own which place is the most comfortable to them, this does not happen, if at the end the office becomes only a collaborative space. And, as we observed also with Covid, it is not that all people really have the possibility to work comfortably from home, even if only for individual activities. We really need to think of this problem as a holistic problem with a holistic approach.

Q: In futures studies, we are paying growing attention to the role of actors. So, what actors or actor groups do you consider crucial or key actors when increasing resilience for workplace management?

A: That is a good question. I worked a bit on this with my PhD researcher 4 to 5 years ago. Basically, I mapped 10 different workplace users. They can be divided between users that are acting as managers of the building and those that are more passive utilizers.

The first group has the function of inhabiting the building but also making the whole "workplace system" functioning, including corporate real estate managers, facility managers and all these managerial roles, such as human resources managers, ICT managers, etc.

On the other hand, there is the more passive side, let us say, so all the users that just utilize the space and that do not have much agency in what things can be changed. In this latter category, one important stakeholder that emerged is the category of temporary users. We are used to thinking of office buildings just as the place where employees work. But in reality, **office buildings also host visitor people** that are there as consultants or interns. But also other types of visitors, all the maintenance workers and all these

occasional support people that come to the office for technical reasons. In addition, many companies that host occasional tours from schools and universities, etc.

If buildings and office buildings are becoming increasingly hybrid, I think that the panel of actors and stakeholders is becoming very messy to some extent, but in a beautiful way.

Q: Exactly, That is a very good point because we have to listen to the users. I think there are a lot of potential ideas from both different types of users including temporary users.

A: I agree! And now these hybrid buildings are becoming like a "connector" that allows **the whole neighbourhood or the surrounding area to change and to interact with the building itself**. We have nice examples here in Italy of office buildings that also host public events and are open to the public. This means that also the people that live in the neighbourhood should be involved as powerful users because **they can really add value and perhaps utilize the building in a resilience perspective for multiple purposes**. It is important to consult them and understand what their needs are and whether the building somehow can support them.

Q: Exactly. And to conclude, in the RESCUE project, we are interested in not only identifying crises but analysing them, and their combinations. We are also paying attention to so-called creeping crises. There may be things or phenomena that are not so visible at the moment, but they are maybe strengthening and then they will turn into a crisis. Can you identify any creeping crises for the built environment?

A: Related to what we were saying before, I think one creeping crisis could come from this increasing diversity that I am starting to study also with my colleagues. Diversity needs to be understood from a very broad perspective. Diversity relates to gender and to sexuality, which is a very trendy topic lately. Diversity relates to abilities and disabilities which is maybe the most classic interpretation of diversity. But other angles of diversity are increasingly relevant. Think of **cultural diversity**, for instance. So nowadays that we are mixing and mingling in office buildings, with a more international environment, people have different customs, different habits coming from a variety of cultures. So just eating and, simply, spending time together can be very different for different cultures and so this **needs to be taken into account**.

Moreover, **neurodiversity and all the sphere of psychological characteristics have been gaining attention**. We know for instance that the population is split in half and half, between extroverts and introverts. In addition, aging population. Elderly people are still in the workforce. Nowadays, especially in this part of the world, we are living longer. This is also very significant in the workspaces but in the built environment more in general. So, I think that all this diversity brings additional levels of complexity, which we have not fully understood yet and that we are probably underestimating.

Q: As you mentioned, diversity has pros and cons. It is a richness in a cultural sense but it may create obstacles, and also there may be some elements that increase ambiguity and fuzziness, and which does not help decision-making, and for policymakers may become confusing. We thank you very much for these insights and we are happy to have this interview for the RESCUE project.

A: Thank you, it was a pleasure.

Figure 7. *STECCA 3 as an urban co-creation atelier and Bosco verticale provide examples of hybrid spaces. (photos: Sirkka Heinonen)*

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2.4 On Crisis Preparedness and Resilience of the Companies and Real Estate by Carlo Capra

This interview was made of **Carlo Capra** on private sector perspective to crisis preparedness and resilience building especially from the real estate point of view. Carlo Capra works as an urban development officer at Assolombarda – the largest territorial association of the entire entrepreneurial system in Italy, operating in the Metropolitan City of Milan and in the provinces of Lodi, Monza, Brianza, and Pavia.

The interview was conducted by Assistant Professor **Saija Toivonen** (Aalto University), Assistant Professor **Chiara Tagliaro** (Politecnico di Milano) and Doctoral Researcher **Lassi Tähtinen** (Aalto University).

Transcription: **Lassi Tähtinen**, Doctoral Researcher, Aalto University

Venue: Assolombarda Headquarters, Milan, Italy, 26th October 2022.

Figure 8. *Companies are moving towards more flexible office spaces. (photo: Sirkka Heinonen)*

Q: First of all, thank you for having us and for introducing yourself and the organization. Based on your experience, do you see that there are crisis management or resilience teams or units or responsible persons in the member organizations in general? What kind of responsibilities they may have if there are?

A: It is not that I do not want to give you a straight answer, but I think there is not a straight answer. It really **depends on the on the size and what may be the origin of the company**. So multinational or more international companies are more structured and of course they may have a better crisis management team. But to consider that many companies must – according to the Italian law – have a role which is a person responsible for safety, prevention, and protection sort of. It **can also be an external person to the company so often it is a consultant, so it does not have to be an employee of the company**.

Also, the other side of the coin is that it might not be really the over-the-top matter. So, it can dictate some organizational arrangement or physical safety arrangement, but it is not in the board of the company. **What I feel is that usually there is a bit of a lack of an integrated team that looks from a different perspective**. So, the physical, human resources, and the IT for instance. As further consideration, in the Italian business sector there is a lot of family-owned companies where the role of the entrepreneur is still very important (in organizational structure and responsibilities).

Q: Related to space use, planning and management, and real estate: how do you see organizations in general consider resilience and how does it connect to their space use, planning or management or real estate management? You can think about different aspects for example physical resilience, organizational resilience - how do they protect their critical operations or infrastructure or wellbeing and health aspect of the employees?

A: Well, I have to say that this is a bit more of a general feeling that that I have. First **we must consider the sector of the company**. There are of course companies especially manufacturing or heavy manufacturing or chemical energy sector, which must be, i.e. it is also mandatory for them to be more prepared to different kind of risks, from crisis related to incidents happening within the plants. And also impacts of external factors, **especially in strategic sectors, energy or pharmaceutical and chemical plants can be really exposed (vulnerable) and there are other strategic sectors to be considered. So, I consider them to be more prepared to have a sort of resilience**. Maybe it is not called resilience *per se*, but under different names, such as crisis management or preparedness to incidents. **On the other side, smaller manufacturing firms may be able to respond to crisis but without having – let us say, a global and integrated resilience strategy in place**. They are more flexible.

I also think that nowadays some risks are felt because of the direct impact that is happening, and I think two of them. Of course, they are **the supply chain, meaning energy commodities prices first of all, and but also raw materials.** This is moving towards that there is **a strategy which is shortening supply chain or changing suppliers.** And the other one is more about **social aspect, the lack of human resources, adequate human resources.** So, me and my colleagues that deal with this topic receive a lot of inputs from companies that they are looking for human resources, but cannot find the right ones. Therefore, coming from this point of view, companies are really understanding that there is, let us say, a big shift in the supply of labour especially. And accordingly, we are providing them this missing ring to connect them to with the training and education sector.

Q: What about, have you noticed, or do you think that there is something more specifically related to space planning or real estate? For example, with companies whether they have changed their office or production layout or even in asset management considering real estate if they had diversified or if anything comes to your mind?

A: I will exclude the manufacturing etc., because this is really linked to where the plant has been for years and it is something that we cannot, it is within very long-term strategies. So, plants tend to stay where they are. But looking for the service sector, I think there are maybe three trends. **First, there is a shift slowly, that companies that were in the suburbs, many of them especially technological IT, are trying to move towards the city.** This has to do with the following two aspects. The first one is the space they had, it was probably more than abundant what was required in the eighties and the nineties. **Now requirements are different for space.** They can optimize the space and are also maybe moving to more expensive locations but also because in Milan there have been a lot of developments within the city. **The other aspects are more related to the workforce**, especially if you want to hire young people. Skilled labour is difficult to convince to move to work outside the city where you might need to buy yourself a car. This is the cost, there is also a hidden environmental cost of being in a less dense area. There are different reasons, but I think this is one is a clear trend. **The second one is the move towards let us say more flexible office spaces, so adapting depending on whether they need more or less space**. Then finally, but this has more to do with some large companies that have their own real estate assets – they are the owners or have a strong control of the real estate asset. **In some cases the possibility to diffuse a bit the workforce on the territory. So, when they have already assets around the metropolitan area, they are trying to make use of them**.

I was thinking about this smart alliance initiative I think was related to Covid. Unfortunately, in one of the provinces – not far from Milan – was the first outbreak in Europe. That was in the few municipalities where there were the first lockdowns and **immediately we had to look at what we must do, what we can do, to protect.** I think **one of the most critical assets is the business continuity – the ability to reopen as soon as possible when the crisis is over**. In other words without too much damage. The business continuity related to strategic sectors, food supply, energy, etc, and to maybe also non-strategic sectors. But that plants or offices, or it can be a server or anything that needs constant maintenance or to be open when in pressure. The first reaction was I think in the service sector, so what we can put online, we do online, but also in the manufacturing sector. There was the need to produce, something very expensive. But I think it worked well **in an agreement within the government, the local authorities, and us as a representative of companies' trade unions to design a protocol that would allow companies to continue to operate or to reopen as soon as possible on one way protecting the health of workers and the business continuity of operations.**

Maybe during the Covid, there was a shift or transition phase from more reactive to a more proactive sort of crisis management in general. I think it happened. This was something so big, impacting

> *'During the Covid there was a shift or transition phase from more reactive to be more proactive sort of crisis management in general'*
>
> – Carlo Capra

everything. With any company and any family, there really was learning. However, the reaction was different from company to company. But I think that it was clear that this really was something that impacted all these silos. So perhaps it was about safety, human resources management and in the end, about the organization of work.

Q: Then based on your experience, what do you see as the biggest challenges or obstacles in crisis management and building resilience in a more holistic or integrated, comprehensive manner? And even if you come up with how to address these issues?

A: Well, I think first of all, is to ask you to **consider being more critical in organizational preparedness.** So having more, let us say integrated teams. Or if teams are not enough or cannot be implemented in an organization, then having external organization maybe like ours, who can be anybody as they do similar work really. **Having someone to rely on and to be on your side.**

And the other side in my view is the critical points within the company. So, **what really needs to be protected?** It might be a server or maybe the warehouse. Maybe the building itself is becoming – I do not want to say less – relevant, but think it is something that can be maybe sacrificed in the short term. As we saw during Covid, it is that we could shut down temporarily our buildings and still manage the crisis. And yet, it is also clear that we **need to protect critical infrastructure within companies and outside companies**, which is then owned by other companies, like telecommunication infrastructure. So even if the threat happens somewhere else and it is not your responsibility, it can be even more impactful than something happening in your building.

We should also have all the time some kind of training on safety related to the building evacuation plans, safety plans, but it is something organization can control. I think **the critical aspect is also considering a bit more holistically, what is external, (but) impacting the business itself**. So, this is a critical aspect that any resilience plan must be addressed, so for example flooding (in Italy). Probably it is more relevant somewhere else in Italy, somewhere else in the world that disrupts the supply chain that is then flowed to Milan. Maybe this is impacting a limited area, but you have interruptions. Maybe the company is not located there, but you know, some state power substation is. This is something that needs to be really investigated and understood by companies and of course, by the public sector. **This is because at the end of the day (we are) together. Everything is interconnected**. If something happens, reactive actions are going on.

Figure 9. *There is a growing need to protect critical infrastructure both within companies and outside companies (photos: Saija Toivonen)*

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2.5   On the Seneca Effect, Crises, Resilience and 21st Century Paradigm by Ugo Bardi

This interview of Professor **Ugo Bardi**, Member of the Club of Rome, University of Florence on the Seneca Effect, Crises, Resilience and 21st Century Paradigm was conducted by Professor Emerita **Sirkka Heinonen**, Member of the Club of Rome.

Venue: Florence, Italy, 15th September 2022.

Figure 10. *Ugo Bardi opens up the characteristics of the 21st century paradigm.*

Interviewer: Prof Ugo Bardi, welcome to this interview! You are Professor in Physical Chemistry at the University of Florence, and you have written several books and articles on the subject of mineral sources and their depletion, as well as a report to the Club of Rome entitled "Extracted" (2014) and "The Limits to Growth Revisited" (2011). Your work focuses on promoting sustainable transition to renewable energy (RE), on the basis of quantitative energy yield analysis.

Your blog that you write is titled "Cassandra's legacy". You examine in your blog among other things the Seneca Effect. Of course, I am very interested in this concept because of my own doctoral dissertation concerning Seneca's texts, philosophy and teachings. If I understood correctly, it is a biophysical interpretation of the collapse of complex systems. Now, with a view to your expertise in systems thinking, and foresight and futures studies, I would like to ask you a few questions. I have to mention with pleasure that you also visited Finland a few years ago in one of our Finland Futures Research Centre (FFRC) international conferences and gave a keynote on the futures of energy. We hope to hear your insights especially for our Academy of Finland funded project called RESCUE.

It is exactly now 50 years since the Club of Rome published the famous report "Limits to Growth". Hardly any book has been more misinterpreted. It was not a fatalistic prediction of doom, but through various scenarios it showed, as an early warning, what will happen if the growth continued on a finite planet with finite resources. You have co-edited and co-authored this new book to the Club of Rome "Limits and Beyond" (2022).

Question: Reflecting on what we learned from the original book, what we did not learn, and what to do next, I would like to ask you about crises and learning from crises. We are living in a chaotic world today – crisis after another is hitting us: financial, pandemic, war, and now a very imminent energy crisis. In your view, how could we learn from these crises?

Answer: One of the things that you can learn from history is that **people never learn from history**. That is what we can start with. But anyway, if you are <u>really</u> interested in history, you can learn from history. Over the span of fifty years, we started with this book that Sirkka mentioned. I think we can learn a lot, if we are willing to reflect, study, and to understand – to frame this book, its ideas, its calculations and models into a strange century i.e. the 20th century. It should be [seen as] one very special century.

I think the book and what the book is about – the Limits to Growth – was probably the most important, the most pervasive, and the most effective in understanding what the 20th century was about. The 20th century was about exploitation, consumption, growth, expansion in general. It was the paradigm, no problem. These calculations really caught the growth of human population, gross domestic product, production, extraction, pollution. You cannot produce anything without polluting.

Now, **we have been moving well into the 21st century which is completely different**. As you surely know because you are studying the same field, using rather different methods and models, though. We are all interested in the future. The future changes, the future surprises you, the future is always different, the future sometimes is a little bit nasty. It happens right now – the future does not look like such a beautiful figure, you do not like to be there. It is like being on the train, you have to go where the train takes you. So what is that doing now? It is a big change. The 21st century will be completely different in my opinion. It is the **age of stabilization**. In economy it means **controlling**, you cannot just say any more "growth is the best thing, please grow, go into the world my children and grow'.

This was good in the time of the Bible – "grow and multiply". Now, we have to understand that it is "stop growing and stabilize".

Q: We need governance as shared responsibility, and shared decisions to combat climate change and to protect the earth's ecosystems. You have talked about a very interesting concept, 'the miracle of governance' in this new book, published in 2022. If we could have a well-managed governance system, it would be similar to a 'holobiont'. Can you please open up that concept, what does it mean?

A: First of all – Sirkka, let me tell you that you are wonderful because you studied that concept, and I think you understood it. **Holobiont is the 21st century paradigm.** Because, again, let me see how does the world work now?

It is like fireworks. Suppose you are making fireworks – you decide that you light the fusers and you go ahead with all the fireworks that you have, and then 'bang, bang', they go off – there is no control. But now we need to change that. Change means that we **need to establish a kind of network which is essentially horizontal**. We **need to locally control the resources we use**. Because, if we use this wide-ranging networked system we have now, we are only saying to an economic agent, economic operator that "exploit the resources as much as you can". You fish, you dig, you cultivate, you manufacture – [you] do it as much as you can. And, the faster you do it, the happier we are. Except that at some moment, the government says "wait a moment, we told you to fish as fast as you could, but you are depleting the stocks now. Wait, wait – we have to set up quotas". People say "we do not want quotas, we want to grow, we want to fish". But you need quotas. **Government cannot really control what people do. People can control what people do.** This is the greatest discovery of the 20th century by Elinor Ostrom, the first Nobel Prize Winner in Economics who was a woman. She was absolutely one of the greatest minds in the world. Another was Donella Meadows[5] – the inventor of the model presented in [the book] Limits to Growth. She developed systems thinking. Lynn Margulis developed the concept of holobiont. Ostrom developed the

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[5] Between 1972 and her death in 2001, Donella Meadows wrote or co-wrote numerous books, as well as many articles and papers and over seven hundred newspaper columns. Her writings remain valuable resources on topics from systems thinking to community resilience. They are as relevant and inspiring today as they were when first published.

concept of local holobiont control. She never used that term, though. She said **local control can optimise economic exploitation while stabilizing the economy**.

That was an excellent idea, and they gave her the Nobel Prize.

Q: That kind of concept can be disseminated, if we have concrete examples how it is done.

A: She was not a theorist. She went to the field and said "what are you doing people, why and how you are doing that" et cetera. It is fantastic. It is like **people discussing with each other**. We have a fishery, you have your boat, and I have mine. If we rely on the government, we are in competition. I try to fish so much that I leave nothing to you. Then I am in perfect, economic, comparative edge. But, if we talk to each other at the same level, if you ask why are you fishing so much, I say you are right. I will slow down, I will leave something to you.

Q: Yes, these kind of horizon partnerships and peer-to-peer activities…

A: Exactly, peer-to-peer activities are the essence of holobiont.

Q: Thank you, that clarifies a lot, and touches upon an interesting topic in our RESCUE project, which is urban resilience. How can cities' resilience be increased? Obviously, what you mentioned about holobiont is one way.

A: We have a few miracles. I do not know if for humans there is a God or Goddess, but we are seeing now a few miracles. One is that **human population is not growing so fast any more** – that is a miracle. In the 1970s we thought we are growing exponentially – we will have ten billion, hundred billion people. Then, it stopped.

Q: Another miracle could be, do you think, these good signs of energy transition towards renewable energy because fossil fuel is the culprit?

A: It was always a bad idea, but we have to keep them as long as we live because we cannot stop it right now. Or fossils could be forced to be stopped, but that would not be painless. The point is – and it is the point that I am working on right now – so you are the first in the world to know about this. You may be interested in this: the other miracle is **renewable energy**.

Not so much because it is efficient. It is much more efficient than fossil fuel. But **because it is self-regulating**. You do not consume a stock with renewable energy. The stock is up there – it is the sun. According to a model that I am developing, this will not just stabilize the energy production – it will **stabilize the whole economy**. If you move from a system that offers you diminishing returns, initially you start growing, then very soon you start stabilizing because you do not have space for all the appliances.

In my opinion, according to my model it will stabilize the financial system – of course I could also be wrong. Money is nothing but entropy production. Entropy production is related to energy production. **Since renewable energy stabilizes the energy production, it will stabilize money supply. That is resilience**!

Q: European Union has this mission of Green and Digital Transition, but it is so much in the abstract [sphere]. We really need means how to push the renewable energy transition. You mention the self-regulatory character of renewable energy, and also I think the [issue of] decentralization is relevant here.

A: I give lectures and talks, and you give lectures and talks and we have this big problem of climate change. For years, there has been a need to know what we should do? That is a good question. We hear 'Professor, what can we do to stop this?' You say double-pane windows, you turn off the lights when they are not needed, use public transportation. That does not work. It is marginal, nothing is happening.

Then there is still the problem that was found by Mr. Jevons long ago. It is called **the Jevons paradox**. If I save something, let us say I save lights, do not use gasoline, then Sirkka can use it. People have a big

problem such as climate change, and ask you what should we do? Then you tell them to install renewable energy panels. Oh yes, I have a roof and they say, I can do it. And people do it!

Q: Yes, this works if they get concrete advice, and if they see it meaningful. On the other hand, I think we need a mindshift, a radical and fundamental shift of people thinking in longer term, wider perspective, and also of what is emerging, and what is ethically in order.

A: But you can [only] be ethical, when you are not hungry.

Q: Yes, you have to have the basic needs covered. Now about the Seneca effect. You have launched this Senecan idea that growth is slow but the ruin is fast.

A: Do you want me to say that in Latin? '…*incrementa lente exeunt, festinatur in damnum*' (Seneca, Ep 91.6).

Q: There are a lot of interesting ideas in what ancient philosophers said.

A: There was an idea some years ago that European Union should have adopted Latin as a lingua franca, but they did not do that.

Q: Why do people and decision-makers seem not to realise this? They do not understand the Seneca effect. For example, in building cities, it is obvious, but it is also visible in nature. It takes a long time to grow a tree, but a lightning can strike it down in a second.

What do you think is the biggest mistake for us humans? Is it the ignorance of systems thinking, ignorance of complexity thinking, interconnectedness of everything, or lack of long-termism, or not realizing that humans are part of nature, or what?

A: I can tell you my impression. **I think people do understand**. It does not take a large effort to convince them, if you tell them the truth. You want energy, you can have energy, you just have to install panels, you have to pay, you have to invest. In the summer, I went to visit a town in the mountains, some 6 000 inhabitants. I have friends there and everybody said we are going to install renewable energy panels on our roofs, and [make] do without the national grid. They are not intellectuals, they are people working for the forest. But they understand this. The same here in Florence. People say we want to do that, but the **city government forbids them** to do it. They, the government, are afraid that people like you come to Florence, see the panels on the roofs, do not like them and never come back.

Q: I was just visiting Milan, Politecnico di Milano, and I asked 'why there are so few electric vehicles on the streets?' The answer was that there is not enough of a network for charging the vehicles.

A: Again, **it is because of the vertical structure of government, or governance**. On top, there are people who make money from certain technologies and they do not want to change. But 'bottom people' want change, they need it. But at the top – they use propaganda, they use advertising, they seed doubt, they say it is dangerous, it may explode et cetera. A lot of legends. So, in my opinion, **the top of the system is the [actual] block**, not the bottom level.

Q: Then, I would like to ask you about limits thinking which is exactly the message of the Club of Rome. There can be many kinds of limits. How do you see the limits changing in the future? Are there some new limits arising that you see formulating? To economic growth, but some new kind of limits, too?

A: I think the **limit is something you decide**. Before Galileo and Newton, people might have asked 'Is the Moon intelligent?' And perhaps they expected the moon to answer 'I am following the orbit around the Earth because I like to follow that orbit. It is not a limit, I like it, it is the right way to go around the Earth.' I think it is the same for us. As soon as we have a certain environment, a certain network – networks made of people, and then **we set our own limits – and we stabilize**. This is the beauty of the new technology that will allow us to stabilize.

We can never stabilize a system based on non-renewables like oil. It goes up and down, and then collapses as the Seneca effect describes. It is unavoidable. People did not understand it. Now, they start to understand that maybe there is some problem with fossil fuels. There is a problem. Politics, war, et

cetera prevail. If the fossil fuels would be abundant, we would not be in the mess we are at right now. Perhaps I should write a book about that.

Q: Then there is the book called "No Limits to Learning"[6] to the Club or Rome.

A: It is fine, but it is a slogan. You have to flesh it in some way. People like to learn new things, but people also like to eat, have a job, enjoy being at home, and things like that. You cannot make an economy by reading books.

Q: But you can learn, and raise the awareness and this kind of forward-looking approach among the decision-makers?

A: Eventually, we will learn. But there are things that appear without anyone wanting them. **The future society will be not unlike the peasant society** we had long ago. **Peasants** are the limit. They did not like war. They **were very resilient**. They resisted. But, of course, life for a peasant was very hard. If we base our economy on renewable energy that is much better than tilling the soil.

Energy comes free.

Q: [At the moment] we have an energy crisis and probably we will have a food crisis [too]. There are different crises, and there is one category called creeping crises i.e. crises that are not yet fully blown, but lurking in the urban milieu. So, thinking about cities, any European city or Florence, can you identify any creeping crisis that you see emerging from any direction?

A: Well, it is a moving target. Let us concentrate on Florence. This city has a lot of problems. It is a bad case of overshoot. The economy of Florence is dependent on tourism. There is nothing wrong about that but **if you exaggerate, you overshoot the system**.

In essence, when the city was built, it was for 50 000 – 100 000 people. Now, it is for 500 000 people – plus at any specific moment has another 100 000 – 200 000 tourists, which the city cannot sustain. It does not mean that you should not come to visit Florence. We are happy that you visit us. It is called gentrification.

At the same time, if you live in Florence and are a Florentine, as I was born in Florence, if you still can recognize the places where people connect and form what can be called a **social holobiont**. And, still be part of one important part of the city, which is called the whites, which is one of the colours of the four quarters of the city, the others are blue, red, and green. They are in a mock competition, we have soccer games etc.

Q: I have to learn about that. Thank you very much for this interview.

A: I hope you enjoy your stay here, and I think you will!

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[6] This book reconsiders global problems such as energy and the arms race, as well as issues like cultural identity, communications and information. Attention is focused on human problems and potential rather than on material constraints to growth. The analysis highlights new forms of learning and education, for individuals, and especially for society, as indispensable for laying the groundwork to tackle global issues. They are necessary for bridging the gap between the complexity and risks of current global issues, and our presently inadequately developed capacity to face them. This is the first Report to the Club of Rome, which was written by authors from socialist, Third World countries as well as from the West.
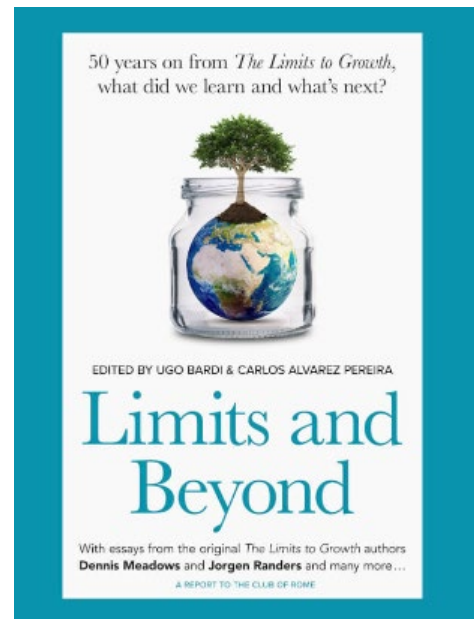
Figure 11. *We have to think globally but control the use of resources locally – renewable energies will stabilize the whole economy. (photo: Sirkka Heinonen)*

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2.6 On Silicon Valley, Innovations, Crises, Anticipatory Governance, and the Purpose of Cities by Brock Hintzmann

This interview of **Brock Hinzmann**, Chair of the Silicon Valley Node of the Millennium Project on Silicon Valley, Innovations, Crises, Anticipatory Governance, and the Purpose of Cities was conducted by Professor Emerita **Sirkka Heinonen**, Member of the Club of Rome, Co-Chair of the Helsinki Node of the Millennium Project.

Venue: Silicon Valley Node Office of the Millennium Project, California, 4th October 2022.

Figure 12. *The Silicon Valley Node of the Millennium Project is chaired by Brock Hinzmann.*

Interviewer: Brock Hinzmann – welcome to this interview! We are now at Silicon Valley, at your office above an art gallery. You are chairing the Silicon Valley Node of the Millennium Project (MP). I am very eager to hear your ideas and insights, especially for our Academy of Finland funded research project called RESCUE.

Question: First of all, please tell me a little bit about yourself, and how you became involved in the Millennium Project.

Answer: I first heard of the Millennium Project when I was working at SRI International, which is a non-profit research institution developing new technologies like computer models, computer interface technologies and robotic surgery, and Siri is an example what most people know of.

I was working on a futures research side. So we were trying long-range planning research and consultancy mainly with large corporations worldwide, and with some government agencies as well. So when the Millennium Project started we were active in this field. I heard about the MP and I met Jerome Glenn, but we did not have a node in Silicon Valley. When I retired about ten years ago, I said to Jerry "I have a little more time now, can I help out?" So, he said "why don't you become the Chair of the Silicon Valley Node?" I said "I don't know that is a bit ambitious". We were somewhat disorganized at that time because the guy who started this node, Douglas Engelbart had passed away. People were still interested, but no one was working together. Everyone had their own individual projects.

So, I am kind of the chair of the mailing list for people who are interested in the future.

Q: That is an excellent idea that you can continue and use your experience. Is the SRI directly affiliated to Stanford University?

A: It was at one time, originally. Then, in 1971, it separated, because it was doing a lot of defense contracts, and the faculty at Stanford did not like that. Officially, they separated then, and no longer directly connected.

Q: The famous SRI Logics for scenario construction – we still use it a lot.

A: Yes, Peter Schwartz (1996) and Ian Wilson were doing scenarios back in the 1970s and horizon scanning. Horizon scanning is where I started there, doing scanning of developments. They were working with these methods and developing them.

Q: Then I would like to ask about innovation policies. Innovations and technology matter in society, but they are not automatic processes. We need anticipatory governance to manage technological developments into directions that are heading towards sustainable and responsible futures, especially now that we are living in a crisis society – i.e. crisis followed by another. What do you think: what kind of innovation policies should we have, in order to develop cities towards crisis resilience? In terms of education, technology and investment? What kind of innovation policies could we push forward more?

A: I think a lot of people have an assumption about the USA that there at least is an innovation policy. And there isn't, really. Government invests in some technologies, for those military applications and things that government needs technically. And, if there is a commercial application, then it is allowed to go to the marketplace and businesses. Which technologies they think that can be commercialized they do; and then they do not develop others. So **there is not really a direction from technology standpoint**, at least historically.

Most countries are curious about this. I used to answer questions from the Japanese government and from other government agencies: 'What is the plan?' I have to explain, there is no plan. We have presidential initiatives, like going to the Moon or the Nanotechnology initiative in the 1990s. There are some medical targets for government research, but the rest of it is more of a recognition that there is a need for something. But, it is more or less left to the industry to fill that need, as it can.

Q: That is surprising, I did not know that. Do you think we should have an overall technology/innovation plan?

A: Certainly a lot of people believe that **especially in the energy and climate change area we should have a plan of which technologies should we develop**. That again becomes a very complex and political issue. Which technologies, which companies? However, especially concerning climate change, it is becoming more urgent and this long process has taken too long.

Now, there is the urgency that many people are feeling 'yes we should have a plan' but there are also a lot of differing arguments 'how'.

Q: California is famous for its environmentalism inside the USA. Back in the 1960s, triggered by poor air quality and pollution, some environmental legislation was enacted. How about now? Is there any recent new initiative to push the state towards carbon-neutrality? I saw a lot of Teslas and electric vehicles here, but is there an example you would like to share with me?

A: The current one is being debated. California wants to have all new vehicle sales electric by a certain date. There are many environmental laws that, when passed by California, because of the size of population and importance of industry, other states will automatically pass the same or similar laws. Now **the political debate is that California is dictating the rest of the country**.

What the new laws will be, what the new requirements will be, e.g. concerning electric vehicles, or electrification of the energy system, and what does that mean? Which technologies again? There are a lot of other technologies. So do you stick with solar? Or do you also encourage nuclear, or do you encourage fuel cells, hydrogen economy et cetera. There are other technologies that also need to be developed in order to be economic, and truly, environmentally sustainable. **There are complex interactions between these technologies and the social policies and whether or not they have a real impact on the environment**.

Most corporations worldwide, their boards of directors, really do not have training in these kinds of sustainability or SDG [Sustainable Development Goal] issues. So they rely on ratings of others, outsiders

on how they rank and then accept that as fulfillment of their responsibility, without really knowing how they impact the lives or wellbeing of the people that are their customers living in society. They are told that they are doing the right thing, so they think they are doing the right thing; when they are not doing the right thing and someone tells them that.

Q: I would like to see the state of California not as dictating but as pioneering these things. Now that we are in Silicon Valley and you have been living and working here long, can you identify some trends or some emerging ideas in these business eco-systems, the so-called 'social mood' of technological companies based here? Big or small companies – can you sense some kind of trend emerging?

A: I guess there are always a lot of different sorts of trends. For example, one thing that we are observing is that there is more corporate venture capital coming in and making strategic investments to address the kinds of things we were just discussing. I think one is the '**democratisation of business and start-up companies**'.

> *'What is the real purpose of a city? What does it mean to be a citizen?' Are you a citizen of a city, a state, a country or of the world?'*
>
> – Brock Hinzmann

There are many technologies that enable small businesses to use advanced technologies to start new businesses and to operate efficiently. That allows people to invest in the stock market. Sometimes we get these trendy things happen up and down. The democratization of business is what I would call it, for small businesses and start-up companies. These different kinds of services evolving.

Q: I find that idea very attractive because it enables small companies to rise up to the network.

A: It also concerns the **issue of governance**. What is the role of government in these initiatives and these plans? Is the government sort of dictating and establishing the policies from the top down? Or is industry enabling the small companies to form and to address the things that government normally does? And do a better job? More efficiently and in a way that employs people!

Q: That would be an ideal situation. Then, let us move to the topic of crisis. We should not be panicked by crises, we should try to manage and embrace them, because there will be crises. California obviously faces many threats from natural catastrophes such as flooding, fires, earthquakes, et cetera. Do you see any other type of major crises threatening cities – other than natural catastrophes?

A: Obviously we are seeing **urbanisation of the human population worldwide**. I see a lot of discussions particularly here because so many people are working in hi-tech and able to work from home – so **what is the real purpose of a city**? Do you have to live in a city? Or can you work remotely and do your work? People that do get left behind are homeless people and people who are not paid very much. People in hi-tech instead are paid well and can live anywhere they want, they are not tied to a place. So this raises the question of what the purpose of the city is.

What does it mean to be a citizen? Are you a citizen of a city, a state, a country or of the world? People talk about being global citizens. Technology enables people to have different goals and ideals about what they are citizens of. I think this will **change the values of people and the norms of what people expect out of life, what makes you happy, what makes a fulfilled life.** Is it just acquiring wealth, or are there other things that will occupy our time when people gravitate more towards those things? I do not see that much change in the discussion of values. We are all assuming the old norms, values – people want a job, they want to make a lot of money, to buy a house, have a family.

Norms are changing but we are not really discussing that.

Q: Crises mean that we should stop and re-think things. In futures studies, it is important to question traditional concepts. Like you mentioned the concept of city: what is a city? Also, the concept of work, the concept of home, and the concept of wellbeing may need re-thinking.

A: There is a whole concept of city as **'smart city'**, but it is **usually very technology-orientated**. We will electrify the city, make the smart grid, control the water system or flooding, or whatever the issue is.

We are not really good at measuring whether the wellbeing of people that are living in that smart city has been positively improved.

Q: We should include to the concept of a smart city '**social smartness**'?

A: Yes.

Q: Among the crises there is one certain category called 'creeping crisis'. It is something that is looming already in society, not so visible or we do not pay attention. Can you identify any of those?

A: I think the most obvious [area] where people are looking is around **climate change issues**. Sealevel rise. Most big cities are situated at the edge of the sea. They all face this crisis. Climate change affects all the workings, storms, things that happen. We are making assumptions that we have managed the crisis [in question], but **we are seeing with each new storm [that] we are not prepared**. This is in conflict with the role of government in preparing [for them]. Even, if we see the change is coming, we have not changed the way we deal with it.

So, whether it is local government, governance or global governance, **there is a conflict between our responsibility locally and globally**. We have not dealt with it. The UN [United Nations] has not been effective. Then, there is the question what are we going to do with **space**? No agreement exists on who owns what, whether it is commercial or national. That **is another creeping issue**. Also, it is about how we monitor the Earth. There is still another possible creeping crisis. It is about all the satellites, communication, going to Mars. It is being discussed now.

Q: We are in **the crisis of not being prepared**. How can we learn from crises? We try to be resilient but can we really learn from crises?

A: Unfortunately, I have a bad feeling about this. **We never learn and we only learn bad things and revert to old things. Perhaps we can learn that we do not learn**. When we have been through enough of these crises, historical memory should help us realise and change the course.

I'm kind of fond of the Russian Kondratieff's theory of long-wave cycles. There are lots of little waves in between, but every 60 years or so there will be a bigger wave. All of these coming together, it is happening now. We should be able to predict that. To say, OK, we see these things are related, and in the past we did not deal with it very well. We had world wars and international crises of different kinds. We would fix the system a little bit, just to get by. So that the inequalities of the previous would be lessened. But we really never dealt with this, long waves, and the basic problems there.

Maybe if we get Global Consciousness and "augmentation technology", using AI-based technology to improve the human/technology interface, to augment it, that might help us talk to each other to improve the situation. Maybe we can learn from this.

Q: You put it nicely that the first step for learning from crises is acknowledging that we have not learned. The last question I would like to ask you to conclude is about the role of **Culture and Art**. This is symbolic and at the same time very concrete because we are now here in Silicon Valley, at your office, which is physically above an art gallery. What is your personal relation to art and culture? Do you see their contribution to resilience and coping with crises?

A: Like you, I have been doing futures studies for forty years now. There are lots of reports published, documents, texts, and books. That does not communicate very well. Art is a different way of expressing how people are feeling about the future. Some people say, in fact, that **all artists are futurists**. Because if you were not futurist, you would not be making anything, there would not be any point. The point is you make something, you express yourself, then someone sees it, and that will have an effect on the viewer. **Art has that communicative aspect. I think we can do a much better job in incorporating art into futures analyses and studies, and communicating with people.** This goes down to the basics of different emotional content. That communicates with people in a way, when our past efforts failed. Decision-makers do not read the reports.

Q: In futures studies, we can use quantitative and qualitative methods. I am really excited, if you can integrate more art into futures studies. For example, scenarios could be presented through narratives but embedded into visual art expressions as well.

A: Right. And it works not just with intellectuals but with small children, indigenous population that may not speak the same language or use the written language. We can communicate with people in a very different way and they can communicate with the people who can do something with the bigger issues.

Q: Art as means of communication can have a direct and strong impact on anyone.

A: Some of the artists are doing a very good job incorporating statistical information to present in a graphical form but also embedded in an art form that communicates something else, emotionally letting people understand how things are changing and allowing them to communicate back. There are various kinds of possibilities for this, like a photo of a glacier and a line drawn where the glacier used to be, but it could be anything that communicates the emotion of how the environment is changing that is not in a purely statistical form.

Q: That sounds like related to the topic of hybridisation that I'm now studying.

A: We need to incorporate more of that in our futures workshops and scenario design.

Q: Thank you very much for this interview, Brock Hinzmann.
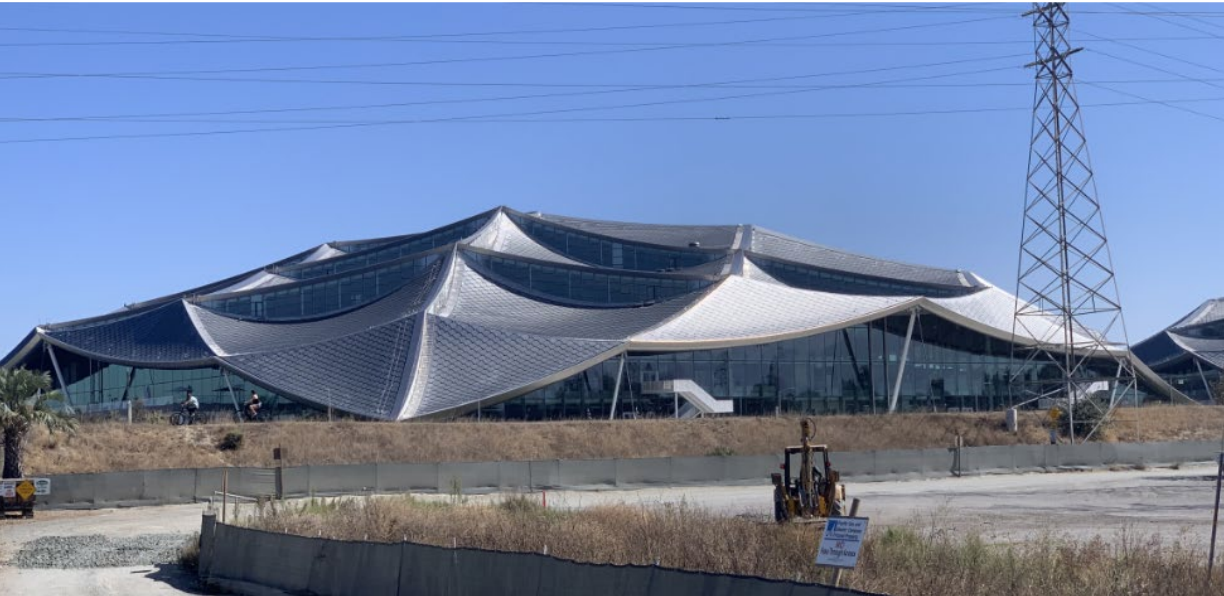
A: Thank you, it was good to see you.

Figure 13. Smart cities should incorporate social smartness and cultural activities. (photos: Sirkka Heinonen)

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[7] Brock Hinzmann notes that despite its title, this book by Sax is about how to balance virtual and physical worlds. About all the things we thought we would enjoy or, at least, find useful in the virtual ("digital") world that we were forced to do during the Covid pandemic, but that we actually did not like, because it lacked human touch (non-digital or "analog"). This book has a good bibliography and examples of how suppliers of virtual services are trying to redesign to put back in the human part.

2.7 On Silicon Valley, Foresight Methodologies, Crises, Transformation and Global Governance by Paul Saffo

This interview of Professor **Paul Saffo**, Stanford University, Silicon Valley Node of the Millennium Project on Silicon Valley, Foresight Methodologies, Crises, Transformation and Global Governance was conducted by Professor Emerita **Sirkka Heinonen**, Member of the Club of Rome, Co-Chair of the Helsinki Node of the Millennium Project.

Venue: Silicon Valley, California, 6th October 2022.

Figure 14. *Paul Saffo perceives transformation as adaptation to change – as a phase change (metaphor of chemical process).*

Interviewer: Professor Paul Saffo – welcome to this interview! We are living in a world of change, turbulences, crises, uncertainties. We are in a societal transformation.

Answer: Those terms are spot on, but individually incomplete as we both know that from a futurist's perspective none of them entirely captures the magnitude of what is afoot. In general everyone tends to overstate the magnitude of the moment they live in, but this really does seem to be a truly protean moment when so much more is up for grabs.

Q: Do you prefer the term 'metamorphosis' then?

A: Metamorphosis feels incomplete because it implies a direction – think caterpillar into butterfly. I think we need to be careful about attempting to discern a direction before we fully understand the changes afoot. Transformation is good, but perhaps '**Phase change**' is closer because it is not directional. It also implies that a small input can have a disproportionate catalytic effect. And **in our ever more deeply interconnected world, this is definitely a moment when tiny overlooked inputs can launch vast effects,** like that last snowflake landing on a cornice and triggering an avalanche.

Every generation is inclined to believe they live in a moment of vast change. Our moment is unique because the level of systems complexity has never been greater – and possibly the underlying velocity of cross-impacts is equally unprecedented. This is a moment when countless systems are poised on the edge of a major shift, and a small nudge either way can have vast unpredictable consequences.

Against this backdrop, I think the main task of a forecaster is not to predict a directional outcome, but rather to identify the linkages where events might go one way or another. These are what Donella Meadows brilliantly identified as 'leverage points' several decades ago. Forget the siren call of trying to predict outcomes and instead seek out the leverage points, those moments when a small, carefully considered act can nudge outcomes in a desired direction.

Q: Then how about when we are thinking about futures orientation - some people are calling it futures consciousness or futures literacy. How we are approaching the future is interesting. It is not irrelevant who will make these scenarios in the present because they are having an impact on peoples and companies' minds. Who do you think are defining futures?

A: Well stated! Any statement about the future if spread widely enough, will have an influence on shaping future outcomes. Which of course is why as futurists we develop and offer forecasts – to affect outcomes, whether to help avoid a catastrophe, or to amplify a potential positive outcome.

What is really interesting to me is that there are more people out there than ever who call themselves futurists. Yet in contrast to futurists decades ago, they are not the people defining the future. Quite simply, futurists have become victims of their success in promoting futures thinking. In the 1960s, there was a comparatively small handful of prominent futurists and they were looked to for insights because foresight was assumed to be an arcane art, not a broad skill. By contrast, futures thinking today is (and should be) a skill that everyone can adopt in their work. A few decades ago, futurists were looked to for answers; today everyone who wishes can find the answer for themselves. The downside is that as futures thinking diffuse, people have ever less need for futurists. So this is a terrific time to learn foresight, but a dubious time to pursue foresight as a primary career. When students ask me about this, I advise them to hone their futurist skills as an extra dimension on top of mastering another discipline. Do not become a futurist – rather become a savvy and sophisticated user of foresight thinking.

Q: So you knew Roy Amara? We are still referring to his ideas.

A: I owe a debt of gratitude to Roy that I do my best to repay as a faculty member teaching foresight at Stanford. Roy hired me at IFTF (Institute for the Future) and I learned my foundational methodological skills from him as well as my overall perspective as a futurist. He taught me the importance of formal methods, and in particular how to balance formal quantitative methods with qualitative processes. His contribution to the field was to bring a systems engineering perspective to foresight. And I am where I am because of him.

Futures studies as a field has long had a complicated and at times, uneasy, relationship with quantitative methods. Personally, I cannot imagine how anyone can be an effective forecaster without a grasp of basic concepts like Bayesian. But the trend in the last few decades has been ever greater reliance on 'qualitative' (i.e. non-mathematical) methods. Given what is afoot in machine learning and AI at the moment, I think some futurists are going to get caught by surprise by what is ahead.

I also think the term 'method' has been used with increasing carelessness in the field. Too often it is invoked as marketing hocus-pocus or just a high falutin' label dressing up a common sense heuristic.

Effective foresight lives at the ragged boundary between qualitative and quantitative. The art comes in balancing the two in the service of one's forecast. A purely qualitative math-based approach is rarely enough to carry a forecast in highly uncertain environments, but a purely qualitative approach will often leave a forecast utterly unmoored from what actually unfolds. Though largely overlooked today, a systems thinking perspective is an effective way to keep the two in balance. Of course, noting that you are a member of the Club of Rome, this is hardly news to you!

Q: When I was at VTT almost 40 years ago my task was to contact and benchmark futures studies institutes all over the world, so I received replies to my inquiries from the Institute for the Future, among others.

A: I started my professional career in foresight in 1984 and had the good fortune to join IFTF at a critical moment when its formal methodological roots were still very much part of its practice, while at the same time, the presence of economists like Gregory Schmid and social scientists like Bob Johansen meant that it was striking out into deeper qualitative waters. When originally founded in 1967, IFTF was envisioned to be a methodological think-tank on a model not dissimilar from what Olaf Helmer and Ted Gordon envisioned two decades earlier at RAND. The late 1960s were an especially optimistic period for futures research because early foresight successes at RAND and elsewhere hinted at the possibility that new methodologies augmented by ever more powerful information technology could actually yield dramatically better forecasts. IFTF was going to be the place that built the tools.

Of course it did not turn out that way. Reality fell short of the grand vision and IFTF downsized, moved to the west coast, and focused in on a more realistic goal of developing tools in concert with doing studies for governmental and corporate clients. Which if you think of it was actually closer to RAND's approach than the original vision. Roy is the person who guided IFTF

> *'The level of systems complexity has never been greater – and possibly the underlying velocity of cross-impacts is equally unprecedented'*
>
> – Paul Saffo

through this transition and but for his leadership, IFTF would never have survived.

The shift to the West Cast was fortuitous as it dropped IFTF right into the middle of the swirl of early Silicon Valley, giving IFTF's researchers a front-row view of the emerging technologies and entrepreneurial processes that put Silicon Valley on the map. Our office was up at the top of Sand Hill Rd, surrounded by venture capitalists, giving us an especially privileged view of what was afoot. Keep in mind that while we had email and personal computers, cyberspace, the World Wide Web and the dot.com bubble lay more than a decade in the future, and thus information about what was happening in the Valley was actually hard to acquire unless one was based locally. This meant that a big part of IFTF'S client appeal was the ability to explain what was happening in tech and offer long-range forecasts of its implications for business and society. In effect, IFTF was an information watering hole where global players could come to learn about Silicon Valley innovation.

This model worked quite well until the Web arrived. Almost overnight, information that was hard to acquire and diffuse became abundant and easily accessible to anyone with an Internet connection. A case in point was Global Business Network's Worldview program. Worldview was an annual program offering access to 'remarkable people' (prominent thinkers and visionaries) and an annual meeting and set of carefully developed scenarios. It was a tremendously valuable program and also a terrific value. As GBN used to say, it cost about the same as half the salary of a junior researcher at the client's company. The sales pitch was that if you could get a better result from having an employee work half-time on foresight, then you should not buy into Worldview. Well, once the Web began its growth and the 1990's dot.com revolution got well underway, would-be clients could match or exceed what Worldview offered with a tenth of a researcher's time.

This meant that the business model that companies like GBN and IFTF built between the mid-1980s and mid-1990s began to erode and all but completely fell apart soon after 2000. GBN went through several acquisitions and eventually disappeared. IFTF survived only because it was a non-profit foundation and thus had a lower operating cost basis, and it had retained enough of Roy Amara's organizational vision that it could weather the transition to become something quite different from what it had been.

I cannot over-emphasize the importance of Roy's original organizational vision. IFTF was originally imagined as something that would scale up on the model of a RAND or large R&D organization. When Roy took over, he believed that IFTF had to stay small and flexible in order to weather the inevitable downturns as futurism fell in and out of fashion. For example, when I joined in 1984, it was the depths of the Reagan and Thatcher administrations and the political mood was that futurists were California flakes not to be taken seriously. Roy made sure we survived that Futurist Winter and his successors Ian Morrison and bob Johansen made sure the lesson was carried forward in IFTF's institutional memory. And by the way, it is a lesson would-be futures practitioners should keep in mind today.

Q: We have also The Futures School in Finland[8] really helping schools to adopt futures thinking and futures literacy. Peter Bishop is focused on this approach. It is important you start something and launch the futures learning capacity further for others.

A: Stanford aside, the most futures-oriented organization that I am involved with is The Long Now Foundation.[9] LNF is celebrating its 25th anniversary this year and if you look at our board, you will see more than a fee familiar futurist names: Stewart Brand, Peter Schwartz, Kevin Kelly[10], Danny Hillis and myself. Long Now was founded by Stewart and Danny around Danny's vision that we a means to get people to take the long-term seriously. Brain Eno suggested the name "Long Now" as an antidote to the "Big Here" thinking that was defining the late 1990s. And I think it was Peter Schwartz who first suggested that our time horizon should be 10,000 years. Ten thousand years is an interesting number because it was approximately 10,000 years ago the transition from hunter gatherer to settled agriculture began in earnest. Ten thousand years is also interesting because it is more or less the largest number that makes sense in terms of Human culture, but also the lower edge of time scales that earth scientists think in terms of. **Ten thousand years is about where geology meets human culture.** And above all, **the number suggests that maybe humanity has another 10,000 years to run before some other unimaginable transition occurs.** Remember how the notion of 'the end of history' was popularized in the late 1990s? Well, the mood at Long Now was very much one that perhaps (as I think Brian Eno was the first to observe) **humanity today is neither at the end of its history, nor at its beginning, but somewhere in the middle.**

LNF's original project was to build a 10,000 year clock as an antidote to short term thinking. It is meant to be **a means to make the long-term palpably real and thus foster a sense of long-term responsibility.** The Clock is nearly finished, and of course the idea of long-term responsibility has gained traction in popular culture, particularly around Jonas Salk's famous 1970s observation that **we all need to learn to become 'good ancestors'**. I think LNF deserves more than a little credit for getting this idea into the mainstream.

I think of LNF as an applied futures organization. It does not forecast; it inspires and it creates. For example, LNF's Rosetta Project was started byt the vision of creating a contemporary version of the Rosetta Stone, an assemblage of parallel texts of all the world's languages micro-etched on an archival nickel disk in optically readable form. The disks have a multi-thousand year lifetime and can be produced in volume at comparatively low cost, thus ensuring the survival of languages in danger of disappearing. The first disk was carried aboard the Rosetta spacecraft which rendezvoused with Comet 67P/Churyumov-Gerasimenko in 2014 and later hard-landed on the comet's surface. The disk is now a cometary passenger, ensuring in theory that even if we extinguish humanity and the Earth we live on, our collective words will survive somewhere out in the depths of space.

Another project, Revive and Restore, is aimed at helping ensure that we do not extinguish life on Earth. It was originally incubated at LNF and now is an independent nonprofit working to enhance biodiversity through cloning endangered and recently extinct species.

Q: What is the difference between the Long Now Foundation, longtermism and the regular long-term thinking in futures studies?

As noted above, I think of Long Now's work as an example of applied futures thinking, which makes it both an intellectual heir and logical extension of the modern futures field. The point of foresight is to understand what the future might hold in order to make better decisions in the present. Futures thinking provides the context and efforts like Long Now provide the actions in the present.

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8 Futures School in Finland https://www.nuori.fi/en/

9 The non-profit Long Now Foundation fosters long-term thinking and encourages imagination at the time-scale of civilization – the next and last 10,000 years. This timespan the LNF calls the *long now.*

10 In November 2014, Kelly gave a SALT talk (Seminars About Long-term Thinking) for the Long Now Foundation titled "Technium Unbound", where he explained and expanded upon the ideas from his books What Technology Wants and Out of Control. (Wikipedia).

'Longtermism' is tricker because the term is new in its present use (it was only coined in 2017), and the meaning is shifting rapidly. Wikipedia describes it as an 'ethical stance which gives priority to improving the long-term future.' And honestly, the term makes me uneasy because it implies something quite different from Salk's 'good ancestor.' Being a good ancestor means acting responsibly in the present. That includes **making sure we act in a way that leaves a better world for our descendants, but it also very much encompasses making life better for everyone living today.**

Longtermism seems increasingly to be associated with the unfortunate notion of benefitting the future at the cost of those living in the present. This is a very strange and surprising development, as it could well trigger public hostility to futures thinking as just another attempt by the super-haves to have ever more at the expense of the most vulnerable on the planet. But one should never underestimate the human tendency to take a good idea and invert it into a perversion of itself.

This shifting meaning also is alarming because it echoes certain religious traditions such as the Christian notion of a coming paradise. Life may be horrible in the present, but the faithful endure it, comforted by the promise that something better is awaiting after death. And in fact, we might just be seeing the early precursors to a new religion offering an anodyne longtermist mirage to the vulnerable. If this seems outlandish, one only need note the near-religious undertones in the beliefs of the extropian and transhumanist communities.

What worries me is that this all might be leading to another futures winter like the mid-1980s, except this time long-term thinking is irreversibly tainted by associations with naive super-rich whose words and actions at moments remind one of Marie Antoinette's apocryphal observation to, 'let them eat cake'. The collapse of FTX and Sam Bankman-Fried's association with the notion of effective altrusim is contributing to this. And the discovery of Nick Bostrom's racially-tinged comments in the 1990s is no help. Add in associations with Peter Theil, Elon Musk's and other unappealling tech entrepreneurs, and you have a recipe for backlash.

I think this is an area where the foresight community could play a productive role by distancing futures thinking from Longtermism, and emphasizing that wise future-oriented action must also facilitate making life equitable and just in the present. This of course does not preclude investment in the future. Consider taking out a loan to buy a house. The loan is potentially an impairment on present-tense pleasure (I have to forget my trip to Tahiti in order to pay my mortgage), but assuming the debt also provides a present benefit in the form of a stable place to live while also delivering a long-term benefit in the form of home equity and value growth.

Q: On the other hand, the methodologies not just help beyond uncertainties, but they should be opening up your mind. They are useful if you want to have innovations as an ultimate goal for a company.

A: Absolutely! I think **one of the biggest hazards in forecasting is the failure to fully comprehend the possible**. Jim Dator's observation that any useful idea about the future should appear ridiculous is helpful here. Also Arthur Clarke's earlier observation that '... only if what I tell you sounds absolutely unbelievable will we have any chance of visualizing the future as it will really happen'.

A good methodology – or just plain old heuristic – if it is worth its salt should function to open the aperture of what appears to be possible.

Q: My last question is about crisis society. There are crises after crisis – financial crisis, pandemic, now the Ukrainian war. There are also different kind of crises. There are obvious crises emerging but **can you identify any creeping crises that can come from any sector of society?** Creeping crisis is a crisis that is so slowly evolving that you can't prevent it any more from coming.

A: 'Creeping crisis' is a marvelous term. A good forecaster should always be slightly out of step with the present mood. This means **looking behind current events to deeper causes and above all, noticing the unnoticed - and at moments, the unnoticeable.** Your term, creeping crisis, is a reminder to **always be on the lookout for indicators of something over the horizon that might otherwise surprise.**

In that spirit, I think our deepest crisis today is a **crisis of global governance and global order**. Finding solutions to very last crisis today from climate change to the appalling Russian attack on Ukraine

is frustrated by the contradictions inherent in our current nation-state centric geopolitical order. We have globalization without a coherent global governance system. The very nature of nation-states makes them ineffective actors when it comes to solving global problems. And worse yet, this ineffectiveness has allowed corporations to exploit the governance vacuum for their own narrow gains.

There of course is no easy or even obvious grand solution. Creating a global government is unrealistic and in any case, very likely a bad idea. This makes the issue perfectly suited for futurists to work on by widening the aperture of possible solutions and hopefully help foster a process to move towards a new form of geopolitical order better suited to meeting our pressing global challenges.

Q: How could we learn from crises? Have we learned from crises?

A: We certainly can – and we certainly should. But it is easy to sink into despair when one considers how little humanity seems to have learned from the parade of crises over the last few decades. This presents an urgent opportunity for the futurist community to explore how to change this.
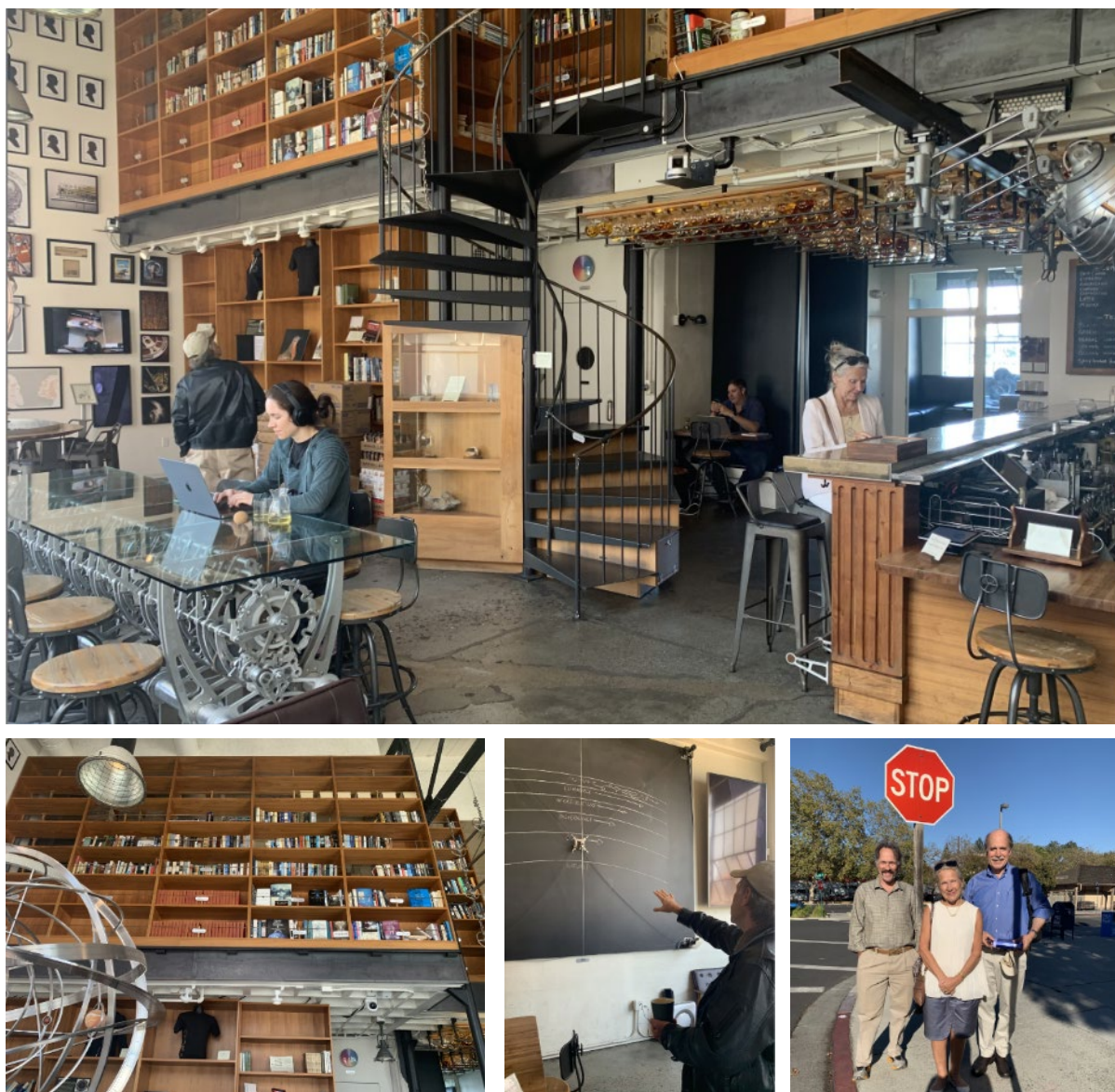
Figure 15. *The offices of Long Now Foundation are situated in San Francisco. (photos: Sirkka Heinonen)*

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3. THE SUN ALSO SHINES – A NARRATIVE OF GREEN, DIGITAL AND INCLUSIVE ENVIRONMENT FOR SOUTHWEST WIND 2050

'Participation as a characteristic of futures studies is related to the values of democracy and the participation of citizens in decision-making and the building of their own futures whatever the culture.'

– Eleonora Masini

'It's the little things citizens do. That's what will make the difference. My little thing is planting trees.'

– Wangari Maathai, Nobel Peace Laureate

This section transforms conversations to a narrative format. Narrative foresight is a niche inside futures studies (Milojević & Inayatullah 2015). It is about communicating ideas, images, views and futures. They are like pastiches of future worlds described in action. Narratives are most typically written, sometimes visualized or mixed-modal stories of future worlds and societies. Narrative is a tool, it is a descriptive story. This narrative is called The Sun Also Shines in Southwest Wind in 2050 – Beacon for Green, Digital and Inclusive Environment Revisited. It is a joint Narrative from the RESCUE research project.

To the Reader:

The following narrative is an example of telling a story of a future situation where a residential area and the built environment are resilient, displaying green and digital elements features and other solutions in an inclusive way, as is expected by the proposition of the European Union (EU)'s twin transition of the Green and Digital. A narrative is neither a scenario, nor a utopia, but a story of one specific description of future life and activities on a given date. Here the RESCUE project researchers, after visiting a national housing fair and reviewing its resilience, decided to write a narrative of the area in the year 2050 – and how it could develop towards improved resilience. The narrative was made to reflect 'why' the present situation (2022) did not fully meet the needs of comprehensive resilience and to illustrate 'how' the given area could manifest itself in 2050. Immersing oneself into a narrative is very revealing – one can immediately find aspects that could be better organized and get an impression of whether an area seems both resilient and liveable. **A narrative is intended to provoke discussion on planning and design principles**. It can also be used to 'rehearse' futures – to test whether an envisioned future, as a mental construction, is crisis-proof and wellbeing-proof – or not.

The metaphoric title of the narrative is inspired by Ernest Hemingway's book 'The Sun Also Rises' which implies that a so-called lost generation is not so 'lost' after all. The analogy here is that we should not give up hope in succeeding i.e. designing and constructing resilient and liveable cities. And, a lot of the future life in this narrative is powered by solar energy. The narrative was originally written within the work package 5 of the RESCUE project, oriented at the future, but essentially it is co-created with the whole group of project researchers taking part in producing the story. Besides the authors of this eBook we wish to acknowledge the contributions to the narrative especially by the following RESCUE researchers (in alphabetical order): Laura Arpiainen, Raul Castanado de la Rosa, Heini Järventausta, Katja Maununaho, Sofie Pelsmakers, Johanna Lilius, Jyrki Tarpio and Ira Verma. The narrative was elaborated in an internal workshop based on a preliminary text and then through several rounds of comments.

The narrative reflects the preliminary findings from the project, and can inform guidelines for crisis-preparedness, multi-locality, hybrid spaces, nature-based solutions, and adaptable housing. The narrative includes 'prototype' actors positioned in the role of residents, planners, designers, policy-makers, developers, real estate investors and service providers. Even if the area and its residents are imagined to survive crises and prove to be resilient in 2050, a futures studies point of view implies that further crises are coming. This way, the reader can test the 'futures' lens and reflect upon what impacts a crisis would have. What if the area faced social upheaval, for example, from the friction between flow of incoming visitors and the residents? Or if some invasive species of plants were to attack all the greenery and suffocate endogenous ones in the ecosystem? What if the whole area were cut off from all logistics due to a sudden outbreak of conflict, piracy or war around it?

Or, what if...?

***Figure 16**. A narrative invites the reader to immerse in an imagined future. (photo: Sirkka Heinonen, art 'Aurora umbra' part of a triptych by Gerardo Dottori 1884-1977, Museo del Novecento Milano)*

3.1   The Sun also Shines

Southwest Wind in 2050 – Beacon for Green, Digital and Inclusive Environment Revisited – a Narrative from the RESCUE research project

Finally transformational policies have paid off. The Southwest Wind, as a built environment, is by 2050 not only a green and graceful but also a decent and digital neighbourhood. Originally designed for a Housing Exhibition almost 30 years ago, it underwent a radical transformation in the sunny Naantali, on the wonderful island of Luonnonmaa, right next to the Moomin Island. The area named Lounatuuli - Southwest Wind – was planned as a cosy, maritime and nature-friendly residential area, built on top of solid rocks with the idea of respecting the nature of the archipelago. However, this ideal failed to realise in practice, as old nature and its historical traces, were lost in the process. In addition to a narrow conceptualisation of nature, other issues were overlooked and missing.

The design of the buildings and planning of the whole area and its diverse spaces had not been ambitious, inclusive or restorative enough. Furthermore, the area had not comprehensively prepared for pending crises.

Figure 17. *Aerial view of the housing exhibition area. (photo: Asuntomessut)*

Now in 2050, the whole region can boast of a reputation of crisis resilience that is truly comprehensive. This is a story of how they got here. Accessibility, adaptability, self-sufficiency, as well as crisis-preparation are the guiding stars, alongside nature-positivity, as a vision for a world living in harmony with nature.

3.2 Resilient spaces of the mid-21st Century

At the drawing boards of architects and planners, the aim was to design safe and abundant physical connections to nearby nature. The windowed spaces were made large and guaranteed access to the sun. However, there were unforeseen events, were a few catastrophes had occurred. These led to the realisation of the limitations of the building approach and paved the way for a new transformed approach. Firstly, the design and spacing of the homes that had evoked feelings of loss of privacy and control, were noticed by the residents. *Rita and Ron the Residents* were unhappy of the feeling of being exposed to neighbours and other passers-by's. They also could not open or close the windows to change at-will the conditions inside. These problematic windows were replaced with 'pop-out', 'pop-in' or 'set back' windows. This improved the sense of privacy, allowed long, directional views and connection to the outside while giving access to solar gains and retaining daylight, in support of well-being. When this was not possible, greenery was layered for privacy. There were also manually controllable or responsively adaptive external window screens, acting as energy and thermally efficient smart screens that could be dimmed according to their need, while still retaining sufficient daylight. In some cases, transparent television with holograms were embedded in the panes.

As a form of creeping crisis, due to ubiquitous technology and abundantly available resident services provided by *Eve and Ernest the Entrepreneurs*, some people almost stopped daily exercise. Mental health was already under a strain, and fears of an international conflict started to occupy the minds of many. In the coming years, the residents' helplessness grew, when extreme weather started to damage their houses' facades and windows, especially for the buildings that were erected higher up. To top it all, an explosion onboard a ship transporting hazardous chemicals in the archipelago smashed windows, injuring people who were inside their houses and walking outside at the time. In response, all the windows were changed to safety windows, no matter the cost. Building pantries, that were initially very trendy for storing food supplies, were augmented so that every home had a bomb-shelter, and a communal safety shelter for people was created in case of lengthy crises. In peace times, it is freely used as a common gathering space or for exercise, yoga and even indoor agriculture. During heavy storms, it operates as a storm shelter; during heatwaves as a cooling hub; and in the event of power outages in winters as a warm shelter. Heavy rains and storms called for new, nature-based flood management systems. The restorative aspect of water, the surrounding hills and biodiversity, as ecosystems and a habitat for people, had to be better conceived, as was argued by *Doris and David the Designers* who patiently showed and taught the community.

3.3 Inclusive habitats

Diversity of accessible green infrastructure where non-humans, nature and humans all are equally included in built environments, is based on the principle of radical inclusivity. This did not happen automatically. A group of biophilic activists longed for more meaningful human-environment daily encounters, and started to challenge conventional ideas about roads, open spaces and gardens. Instead, they demanded comprehensive green attention to preserve non-humans. The habitats were called upon to support local biodiversity and ensure the scenery was proofed for a changing climate. Their uncompromising advocacy resulted in legislation for ecosystem restoration, strict regulations against tree and natural landscape demolition, and policies that included work obligations that protect the breeding seasons of different species that included threats of sanctions. Unlike in the past, roadsides are no longer mowed short. Nature has been allowed to run wild, so that wildflowers and weeds have taken over previously flat-cut lawns, turning roadsides into urban wildflower meadows. Local residents, *Tom and Tina the Tinkerers*, have built insect hotels in their gardens and in public space.

Figure 18. *People, bees and wild greenery in public spaces. (photo: Saija Toivonen)*

As a result, rare butterflies and migrating birds have increased ten-fold. Certain areas are kept free from human access. The night-time light pollution and noise have been considerably reduced. As a joint effort, the community co-constructed a bird watching shelter, which local schools and tourists visit to learn about the fauna and flora of the area. Rooftop farming is abundant and saves the ground for wild plants, which grow there naturally. Part of protein and vegetable intake is expected from this. All buildings are covered by drought-resistant vertical greenery, as a biodiversity haven, to buffer from strong winds, extreme temperatures, protecting the facades. Fungi, bacteria, yeasts, actinomycetes, and algae are used to make food, generate energy and treat waste in households and in communal areas. These co-created 'edible commons' strengthen community ties. Pets other than the conventional dogs and cats include hens, lambs, gene-manipulated mini-cows and mountain goats. As some dairy and milk are still consumed, they contribute to the self-sufficiency in food.

3.4   Seasonal buildings

Summers feel almost Mediterranean in Naantali region, and the weather can feel unpleasant not only for the older adults and vulnerable groups. Even more heat is expected for the end of the century. When the wind breezes, increased cross-ventilation openings allow the air to flow freely through the houses. All the buildings in the area are regulated to collect and store water. This is not just for recreation, but to prepare for periods of drought, due to the exacerbating effects of climate change. Water from household bathrooms, washing machines (i.e. grey water) and kitchens is purified and recycled by bacteria and microorganisms through vegetation and soil, and used to water the surrounding vegetation when needed. Similarly, rain water cleans and provides freshness to the built environment running through waterways and fountains, and is collected in retention tanks. Instead of the issue of snow, increased winter period rainfall and a higher risk of flooding have increased attention to stormwater management.

Infiltration basins, or detention or retention ponds retain rainwater and manage excess rainfall during rains. In the drier seasons they offer a green oasis for leisure and recreation. In their yards, residents have rain gardens, also known as bio-filtration basins, which store and absorb runoff water better than conventional gardens. Bioswales along the major roads in the area reduce the risk of flooding during or after heavy rainfall. Bioswales absorb, store and transport surface runoff and remove pollutants and sediments. In this rocky landscape, rocks are used as filters to prevent clogging. They are a haven for local insects, biodiversity, and support human well-being by greening the built environment. All hard asphalt surfaces in the area have been replaced with permeable paving materials such as vegetated pavements or as porous asphalt as *Frida and Fred the Facility Managers* early on have demanded – as the bio-smart management thing to do.

Figure 19. Buildings as protectors against climate change hazards. (photo: Saija Toivonen)

3.5   Natural walks in energy-flexible districts

To reduce air and noise pollution and to create safe, walkable streets that are shared with non-humans, the community at Southwest Wind invested in solar electric bikes for all, and invested in shared mobility through an intelligent, self-driving car sharing scheme. 'Virtual walking meetings' to the sound of birds have replaced 'sitting alone behind a screen', so people feel less lonely, static and have less pains. The negative side effects of remote work have eased, and new policies support multilocal lives. Multilocal policies are sensitive to gender, cultural and global diversity, meaningfully mixing work, leisure and caring, ownership and rental, as well as permanent and temporary living, emerging as hybrid havens. The idea of Second homes for temporary use were found to be a wasteful idea, and they were transformed to serve multilocal lifestyles.

The number of solar panels that turn the sun's energy into electricity is now ten times higher, thanks to innovative, flexible and sprayable solar panels everywhere on facades and roofs; also working well on green roofs. This is how an ice cream kiosk refrigerates its goodies in summer. In addition to community electric batteries, shared electric cars act as local storage batteries. Energy is stored during the day and released during the evening and morning hours, when more electricity is needed. In this way the residents can also operate the whole area in off-grid mode. When a total national electrical blackout hit, it was easily overcome. To be on the safe side, all buildings are also connected to a heating back-up system by connection to an innovative sand battery.

Only in exceptional circumstances, or when all other systems fail, wood heating is used in the community spaces, because burning of wood causes local and global pollution and jeopardises human health from breathing in indoor particles. An innovative biomass burner captures most of its pollution at the chimney and uses waste wood collected and processed by the community, as part of the community's preparation for crises. When the trend of firepits became 'over the top' and failed to follow fire safety guides, health and environmental regulations had to be made stricter. Burning is allowed only extremely rarely and in ideal weather conditions to protect nature and human health with the hope that ultimately burning would be replaced with composting. With a little push from regulation, *Paula and Pete the Policymakers* succeeded in turning the trend towards elaborate digital fireplaces where the sense of authentic fire is experienced.

When new waves of aggressive pandemics swept in, the sense of communality was ensured through the use of digitally operated 'personal bubbles' with new bacteria/virus-free thin material, where people could safely meet. Surfaces and furniture inside homes were kept safe and clean with touch-free voice-operated solutions and self-cleaning surfaces. Overall, more attention was paid to efficient and adjustable ventilation systems and indoor air quality. The community looked after each other during these times, while communal spaces as well as basic public services, were accessible through easy-to-use digital interfaces (e.g., booking systems). Social wellbeing is restored with a sense of communality based on individual rights and responsibilities. The community also bonds through the co-creation of an even more resilient environment. Aging or sick inhabitants are monitored via smart sensors in the beds and floor surfaces, and neighbours regularly check on everyone's health and well-being. In addition, a mobile health unit converted from a shipping container is brought to the area when needed, to support health services or as an isolation room or as an educational unit.

3.6   New actors enter the real estate scene

As the result of summer heat and a severe drought, a terrible wildfire has affected the area, burning some of the houses. Thankfully, most houses were spared because of the stored grey water and rainwater, which reduced the risk posed by the extensive parched ground surfaces to catch and spread fire. When the affected residents wanted to rebuild, the land was now considered high risk, resulting in that they could no longer get insurance. They decided to fundraise themselves. The community collects monthly fees into a fund to self-insure, and campaign for a national insurance reform. Inspired by the German model of Baugruppen, where a collective of residents fundraise to develop their own affordable and high-quality housing, bypassing conventional developers, they form a national association. After certain residents did not return to the affected area, in the rebuild, their homes were converted for rentals, for refugees and vulnerable people. The newly-built homes use light-weight local timber and can be adapted in many ways. The dwellings have multi-functional rooms, adjacent units can be combined or divided, and even the whole building can be dismantled. In the future, a whole building can be moved, rebuilt or its components, including their foundations, reused for other purposes. Publicity from such actions results in one resident being elected into Parliament, where she begins to advocate for more systemic solutions nationally.

The real estate investor changes her role. A pioneering investor assumes environmental and social governance (ESG) seriously and begins to invest in private housing. A new eco-social investment model begins to emerge and shape the real estate business, driven by policy-makers concerned by inequalities and the lack of sustainability in conventional, old-fashioned models. For example, *Dian and Don the Real Estate Developers* build a Rock Spa, with and for the local community, as a shared tranquillity site. This shows the private sector how it can have responsibility to contribute to public areas designed for everyone that touches lightly on the planet. Such a pilot, combining public and private interests and wellbeing of residents and the environment, gains much attraction even from abroad. The first one among them gaining notoriety are *Ines and Ian the Real Estate Investors.*

Figure 20. Rock spa for the health of the mind, body and the whole community. (photo: Sirkka Heinonen)

3.7   Empathic 'solar-rock' culture

A rugged archipelago design started to spark a distinctive, nature-loving culture where fun, playfulness and music flourish. The area's design leaned on the influence of universal design, creating a suitable living environment for all, considered the specific needs of both children and the older adults, without neglecting any other group of inhabitants or wildlife. Empathy and care help combat loneliness and the community to thrive even during dark winters. Some older adults live together in a communal house. Social events take place both in planned and spontaneous shared spaces and make use of other social infrastructure, such as food growing areas, porches, canopies and seating areas along walking routes and pavements, bird watching areas, communal services, and saunas.

A unique 'solar-rock' culture is co-created in this urban village. Life in these environments allows people to use all of their senses, as a play of warm light, shade and sounds. In addition to fully-adaptable building components, building materials are durable, recyclable, and reusable. Carbon-neutrality and zero waste are accompanied with growth-neutrality and zero-loneliness. The area also endorses the smart city concept and uses various data collection, monitoring and evaluation methods that improve living comfort, sustainability of residents as well as to identify natural hazards and crises in advance. In the event of the potential threat of global sea level actually suddenly rising, Southwest Wind would be cut off from the mainland. A planetary mindset soothes the community in spite of such an existential risk. In far off strategies to avoid such sea rise, radical geoengineering plans have been proposed to dam the open seas between Norway and Sweden and parts of Northern Europe, and further to artificially cool the Antarctic Ice shelf. But such grand plans are associated with risks. Savvy locals do not rely on external engineering to eliminate the risk, they actively make their own local informed concrete strategies.

Multilocality, which allows people to live, work and move in multiple locations, and hybridization, as waves of novelties that merge with one another, making the sense of change feel constant, have been learned to be meaningful phenomena. Carefully planning for a changing world and acknowledging uncertainties help prepare for crises, and any problems or looming threats are scanned for early in advance. Those who are vulnerable are always addressed first. Land is used responsibly. Nature is not merely a starting point in planning – it has become an overarching vista, as a sanctuary for non-humans and humans, where built environments are located.

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4. CONCLUSIVE REMARKS AND REFLECTIONS

'The city is built politics'

– Aristotle

*'Both perpetrators and victims, cities have a preeminent role to play for recreating
a dynamic balance between the quantity and quality of development and
a harmonious symbiosis among nature, humans and artefacts*.'

– Voula P. Mega

We are living in the crisis society (Heinonen et al. 2022b), but besides that it can be described as the world of polycrisis (UNDP 2022) [11] or at least the world of dual crises (Pot et al. 2022). Zakaria (2020) claims that we are essentially living an 'epistemic crisis' – the crisis of knowledge. Epistemology is about knowledge and how we come to know things, about knowledge creation. This has become difficult due to misinformation and disinformation. If people are incapable of learning or knowing the same things, accordingly, they are incapable of acting together in a coherent manner. According to Zakaria, the pandemic widened social divisions, because the Covid divide is also a class divide. For example, those who could not work from home were hurt most. Therefore, in building resilience for cities, special attention has to be given to make it happen in a just way. A prerequisite for that is that we should learn from crises (Karjalainen et al. 2022). However, a polycrisis can also be seen as a 'polyopportunity'.[12] For example, higher energy prices create clear incentives to accelerate the green transition. In order to take advantage of this opportunity, we need to enable companies and governments to respond to these incentives and invest. To make it extreme, we are said to be living in a 'permacrisis'[13] i.e. in conditions where the occurrence and threats of crises are permanent. This term embodies the sense of facing one unprecedented event after another, simultaneously pondering in anticipation what might be the next calamity.

Understanding arises from conversations and dialogues. This publication is meant to arouse thinking about ways and roads towards urban resilience. Knowledge and understanding can be accumulated through conversations and learing from expertise, experiments and from experiences. People should listen to the experts and the experts should listen to the people (Zakaria 2020), besides that experts should listen to other experts. Governments then should listen to everybody. In this complex social maze of knowledge creation, invested interests, hidden assumptions and agenda, there is more need for strategic foresight than ever, and especially as a platform for listening, discussing, and learning. Lustig (2015) calls for a shared understanding of the potential futures and of the preferred futures. This becomes a Strategic Foresight Culture for organisations which at best embodies a continuing cycle of renewal as they recognise

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[11] See these links for 'polycrisis':

https://www.undp.org/asia-pacific/publications/polycrisis-and-long-term-thinking-reimagining-development-asia-and-pacific-foresight-brief

https://onlinelibrary.wiley.com/doi/10.1111/padm.12872

https://adamtooze.substack.com/p/chartbook-165-polycrisis-thinking

[12] The World Economic Forum in Davos in 2023 was focused on the current polycrisis and discussions on needed investments (claimed esp. by the European Investment Bank). https://www.eib.org/en/stories/polycrisis-investment-davos

[13] For example, in the 2022 Espas (the European Strategy and Policy Analysis System) Conference on the 'Challenges of a New Era: European Security in the 21st Century' (on 17th November), Maroš Šefčovič, Vice-President for Inter-institutional Relations and Foresight, European Commission, opened up his panel talk using this concept of permacrisis. The term was chosen as the word of the year for 2022 by the Collins Dictionary's. https://espas.eu/conference2022.html

their external environment rapidly changing and adapt quickly to that (Ibid.). Foresight is needed for anticipating future events, disruptions and new paradigms. It is also needed to include in the continuous futures dialogue all stakeholders and citizens for setting principles and guidelines for promoting resilient urban areas (Eraydin & Tasan-Kok 2013). Furthermore, Masini (1993) reminds us that complexity is not necessarily a limitation, but can also be a positive quality. She claims that if we consider learning to live in complexity as part of the process of learning, both individually and at the level of whole society, then we might better understand what society is in relation to each human being. Thus we can distinguish the individual, while at the same time perceive a society as more than just the sum of the individuals who compose it. Such understanding may, in fact, represent the learning element required for true and comprehensive resilience as claimed in our introduction.

From the section of the interviews (ch 2) with rich insights of the experts interviewed, we raise here a few core ideas that reflect the prism of urban resilience. **Billie Giles-Corti** claims that the sorts of crises that we are seeing now could be amplified in the future so it could be 'more of the same': with climate change and its impacts on the ecosystem, it is likely that we are going to have more pandemics and we have learned from this one that we cannot afford to be complacent. It has had such a major impact on our cities. She calls for an integrated planning system across sections. It is important to get all relevant policies (eg. transport, land use, housing, employment, economic development, social infrastructure, public open space, nature-based solutions) working together to deliver 15-minute cities. She further assertss that anyone who builds cities should sign a Hippocratic oath. According to her, we do need to change and that requires discussion which is difficult. Therefore, we need to be thinking about these things and mandating the way we build our apartment buildings so that they are healthy and sustainable with flexible space within the apartment and in communal areas in the building.

When speaking of strategic foresight for various stakeholders, **Andy Hines** wants to present positive images of the future, but he also recognises that when you create a grand vision of the futures, it is overwhelming. Among the urban policies that are now most needed he picks up the circular economy. In his view, that is a way to get a wide range of stakeholders involved. And that's a key idea when we are doing these pilots to get some visibility – so that people can see it, feel it and touch it and be involved – and that creates a momentum. He also believes in incentives and disincentives over mandates. He exhorts us to think how do we create the conditions that enables people to do what they want to do? Regulations can set the table – setting it up, setting foundations, setting the common base, they play a major role but they can also be too prescriptive. We know that people are most creative when they have a focus. Regulations can help provide that focus or target, and then let us see what emerges in response.

Chiara Tagliaro brings forth the role of prop-tech companies which integrate digital technologies into the built environment process as one of the keys to to developing innovative ways of working in cities. She reminds us that in order to be able to adopt such technologies, we also need to have buildings that are available to host these kinds of applications. Therefore, thinking beforehand of flexibility is the actually the first step that we need to take for the building to be adaptable. She also proposes the need for 'city of promixity' – we need to rebalance the core areas of city where people go to work. In order to keep these two spheres (work and private life) kind of separated or at least be able to switch off one part when we want to be focused on the other. The hybrid space of STECCA 3 is a nice way to integrate work with life and with a bunch of other activities that happen in the neighbourhoods and also to bring together people that otherwise would have no contact. Concerning vertical farming, she mixed feelings. They are aesthetically very pleasant, enriching our cities. They have social value, too, because vertical farming can also translate into a collaborative practice of farming and growing plants and trees that can be used for eating and consumption in families or offices perhaps. So, there are a lot of advantages to this practice and increases to biodiversity. However, there are a lot of maintenance costs and perhaps some socio-economic risks involved as well. As a problem she perceives the reliance of technology in the built environment on the availability of technology, bearing in mind e.g. electric breakdowns. There remains also the problem of individualism and the risk of remaining isolated, and the needs of the ageing population. Chiara also refers to cultural diversity – just eating and, simply, spending time together can be very different for different cultures and so this needs to be taken into account. Moreover, neurodiversity and all the sphere of psychological characteristics have been gaining attention for activities in urban milieu.

According to **Carlo Capra**, strategic sectors such as energy companies are in general more prepared for crises, but smaller firms have the crucial attribute of flexibility to adapt to changing circumstances. He emphasised that Covid-19 pandemic accelerated the shift from reactive to more proactive crisis management. Furthermore, Capra noted that real estate needs to adaptable to the changing short- and long-term requirements such as the need for space and attractiveness for skilled workforce. As he brought forth, it is most important to identify what needs to be protected, what are the critical physical or non-physical assets to secure the business continuity and wellbeing of the employees. In Capra's view, there is a need for more integrated and holistic preparedness and resilience-building in the private sector, seeing what is happening also outside one's own sector.

Ugo Bardi draws our attention to what the 21st century paradigm will be. While the 20th century was about exploitation, consumption, growth, expansion, the 21st century will be totally different – it will the age of stabilization. Its symbol will be the 'holobiont'. This means we have to establish a kind of network which is essentially horizontal. We need to locally control the resources we use. Local holobiont control means that government cannot really control what people do. People can control what they do. Unfortunately, people never learn from history so we may not be prepared enough against forthcoming crises. But local control can optimise economic exploitation while stabilizing the economy. Peer-to-peer activities are the essence of holobiant – people discussing with each other. We have good news – human population is not growing so fast any more. The other miracle is renewable energy – because it is self-regulating it will stabilize the whole economy. Furthermore, since renewable energy stabilizes the energy production it will stabilize the money supply. That Bardi considers as resilience. Sometimes, city government, though, forbids the citizens do what they know should be done (e.g. in installing PVs on roofs in Florence). Limits thinking is important to realise that limitless growth is not possible on a planet with limited resources. However, Bardi states that limit is something you decide – we set our own limits and then we stabilize in an ideal case. If you exaggerate you simply overshoot the system. Systems thinking sees cities as eco-systems but the next level is social holobiont which you can create if you can recognise the places where people connect. That is connected to the identity of place, narratives and metaphors of that place, and their meanings to people.

In Silicon Valley, **Brock Hinzmann** claims that especially in the energy and climate change field we should have a plan for which technologies we should develop. A strong trend that he sees happening, in spite of the lacking innovation policies, in Silicon Valley is 'democratisation of business and startup companies'. Many technologies enable small businesses to use advanced technologies to start new businesses and to operate efficiently. He furthermore highlights the issue of governance and asks what is the role of government in these plans? Is government dictating and establishing the policies from the top down? Or is industry enabling the small companies to form and to address the things that government normally does? We are anyway witnessing urbanisation of the human population worldwide. Hinzmann sees a lot of discussions taking place particularly here because so many people are working in hi-tech and able to work from home – so he asks what is the real purpose of a city? Do you have to live in a city? Or can you work remotely and do your work? Moreover, he asks what does it mean to be a citizen - of a city, a state, a country or of the world? People talk about being global citizens. Technology enables people to have different goals and ideals about what they are citizens of. According to Hinzmann this will the change the values of people and the norms of what people expect out of life, what makes them happy, what makes a fulfilled life. He pays attention to the 'smart city' which is usually very technology-orientated. We will electrify the city, make the smart grid, control the water system or flooding, or whatever the issue is. We are not really good at measuring whether the wellbeing of people that are living in that smart city has been positively improved – it should also be socially smart. As a creeping crisis Hinzmann perceives a conflict between our responsibility locally and globally. Another creeping crisis is what we are going to do with space – human habitats on earth are no longer the only question of urban futures. Ultimately, we are living the crisis of not being prepared. Caricature-like, we only learn bad things and revert to old things. Urban resilience seems to require global consciousness and improved human/technology interface. Culture and art might help here. In Hinzmann's view, all artists are futurists, art has a definite communicative aspect that should be integrated into futures studies.

Paul Saffo wishes to describe the current societal transformation as phase change, implying how a small input can have a disproportionate catalytic effect. In our deeply interconnected world, this is definitely a moment when tiny overlooked inputs can launch vast effects. He emphasizes that our moment is unique because the level of systems complexity has never been greater – and possibly the underlying velocity of cross-impacts is equally unprecedented. Countless systems are poised on the edge of a major shift, and a small nudge either way can have vast unpredictable consequences. Therefore, Saffo perceives the main task of a forecaster to be not to predict a directional outcome, but rather to identify the linkages where events might go one way or another. The Long Now Foundation that he represents sees that ten thousand years is about where geology meets human culture, suggesting that maybe humanity has another 10,000 years to run before some other unimaginable transition occurs – humanity today is neither at the end of its history, nor at its beginning, but somewhere in the middle. According to Saffo, our deepest crisis today is a crisis of global governance and global order. We should be looking behind current events to deeper causes and above all, noticing the unnoticed – and at moments, the unnoticeable. We should always be on the lookout for indicators of something over the horizon that might otherwise surprise us.

What can we then conclude on our **narrative**? Bridging the big picture of how a future could be, discipline-based understanding on specific solutions, and human perspectives of how environments actually feel like, is far from easy or evident. A resident, as a citizen, may fail to see the benefits of high-level national or European level policy goals, unless they can be translated into meaningful action, initiatives, proposals and solutions. The presented narrative of Southwest Wind until the year 2050 unites approaches, design principles, concepts, ideas, and models, and depicts one possible future, and explores the transformations that would be required to achieve such a future. As mentioned in our report, the narrative casts a chosen case area into the future. A narrative allows multi-disciplinary insights to be compiled into one. It is not an end-point to reasoning on preferred urban futures of a particular area. It captures pertinent issues, and allows futures to be shaped further by resulting dialogues as well as for individual, single-discipline solutions to be further developed, and how they should be, look and feel like.

There is some difference in the issues raised by the interviewees, from their international background, and those noticed by the researchers of the RESCUE research project, with a view to the chosen case area in Finland. As specialists to their own research areas, the interviewees provide context to global development, trends and their patterns, while also sharing contemporary insights. As a contrast, the narrative makes it clear how a nature-based approach that considers futures explicitly, as a promising framework, has so far been quite marginal in urban planning.

The narrative follows many temporal and social schemas, or constructed scenes that convey the complexities involved in future setting crisis. Rather than a grand policy imaginary, a vision or set of future scenarios, the narratives specifically establish the scene. A kind of *mise-en-scène* where specific elements come together to form the whole, setting the stage to display the issues that the RESCUE project researchers have been addressing. The narrative depicts a future built environment (based on a real place) where actors are involved in pioneering measures to be resilient to varieties of crises, as well as the evolving needs of such a developing community. And it is important to note here that the narrative follows a causal process of events and efforts, external shocks and moves ever toward futures. Some of the developments are in cultural form like the 'solar-rock' culture and social encounters, where others are more structural and technical.

Urban resilience is reflected in the notion and power of diversity, in Jane Jacobs' idea of the best city being a mosaic "the idea that each piece of the mosaic helps compose the overall picture, but each piece nevertheless has an identity of its own" (Greed 2016). We hope that this collection of interviews and a narrative provides the readers with a mosaic where each contribution can arouse interest and further discussion, while together they may add elements for a new futures mindshift and decision-making towards urban resilience.

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CONSTRUCTIVE CONVERSATIONS
ON RESILIENT URBAN FUTURES

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