

Producing and Using Model-Assisted Policy Advice

Ahti Salo

Systems Analysis Laboratory
Department of Mathematics and Systems Analysis
Aalto University School of Science, FINLAND
<http://sal.aalto.fi/ahti>
ahti.salo@aalto.fi



Government report on the future

Ministries' joint foresight
activities

National foresight cooperation

Government Foresight Group

National foresight network

Government Foresight Group

The Government Foresight Group lends support to national foresight work, joint foresight processes and the development of national foresight activities. Its key objective is to help foresight activities and foresight-based information forge a connection with decision-making processes. A Secretariat assigned to the Prime Minister's Office performs preparatory work and aids the Government Foresight Group's work.

The composition of the Government Foresight Group 2020–2023

Secretary Henrik Haapajärvi, Prime Minister's Office, chairman

Chief Senior Specialist Jaana Tapanainen-Thiess, Prime Minister's Office, Secretary General

Professor Toni Ahlqvist, Finland Futures Research Centre, University of Turku

University Lecturer Jenni Airaksinen, Faculty of Management, Tampere university

Committee Counsel Olli Hietanen, Committee for the Future, Parliament of Finland

Academy Secretary Jaakko Kuosmanen, Finnish Academy of Science and Letters

~~Development Director Petri Räsänen, Ministry of Economic Affairs and Employment~~

Professor Ahti Salo, Aalto University

Head of EU Affairs Leena Sarvaranta, VTT Technical Research Centre of Finland

Secretary General Vesa Valtonen, Secretariat of the Security Committee

Director Katri Vataja, Sitra

Permanent expert:

Kaisa Oksanen, Senior Adviser, Prime Minister's Office

On 8 April 2020, the Prime Minister's Office appointed a working group tasked with preparing a plan for Finland's way out of the COVID-19 crisis and deciding on measures to deal with its aftermath.

Government Communications Department © 11.4.2020 11:11 | Published in English on 14.4.2020 at 17:43
PRESS RELEASE 242/2020



With regard to the first task of the mandate, the preparation group will report by 1 May on measures to limit the economic and social damage in the immediate crisis stage and on how to move away from the measures now decided in a timely manner.

With regard to the second task, the preparation group will report by 31 May on the post-crisis measures and how to prepare for their introduction in the various

sectors of society.

The preparation group consists of the Permanent Secretaries of the ministries, with Martti Hetemäki from the Ministry of Finance as Chair and Kirsi Varhila from the Ministry of Social Affairs and Health as Vice-Chair. The group is supported by a secretariat whose members are appointed by the ministries.

To support the preparation group, a scientific panel will be set up consisting of researchers/experts from different fields of expertise, such as social policy, education policy and economic policy as well as the environmental and climate sciences. The proposal for the experts to be invited to the panel will be prepared by representatives from the scientific community (Universities Finland UNIFI, the Consortium of State Research Institutions Tulanet and the Finnish Academy of Science and Letters). During its work, the preparation group will consult with representatives of the business community, municipalities, civil society organisations and environmental organisations on a broad basis.

[Releases](#)

[Blogs](#)

[Materials](#)

[Newsletter](#)

[Good question podcast](#)

[COVID-19 study review](#)

COVID-19 study review



The COVID-19 research review brings together the latest research results from the world and Finland related to the coronary crisis in a close and informative manner for the use of preparers and decision-makers.

The aim of the review is to strengthen the transmission of current research information to decision-makers and to create a perspective on the

latest research.

The research review is divided into eleven areas, from which about five significant new studies and research results are brought to the review:

1. COVID-19 infection,
2. Impact of restrictive measures on the spread of the epidemic,
3. The effects of the pandemic on the well-being of the population,
4. Economy and business,
5. Inequality,
6. Education and learning,
7. Technology and innovation,
8. Environment and sustainable development,
9. International relations, EU and security,
10. People and behavior as well
11. Resilience and anticipation.

<https://tietokayttoon.fi/covid-19-tutkimuskatsaukset>

The Society for Risk Analysis – European Conference 2021, June 14-16 in Espoo, Finland

The Discipline(s) of Risk Science



The conference received contributions from all areas of risk analysis and science, including risk assessment, risk characterization, risk perception, risk communication, risk management, risk governance and policy, relating to risks which are of concern to individuals, organizations in the public and private sector, or to society at local, regional, national, or global levels.

The conference was hosted and co-sponsored by Aalto University in cooperation with the University of Helsinki, Technical Research Centre of Finland, VTT and Radiation and Nuclear Safety Authority.

For more information on the Society for Risk Analysis – Europe and its conferences, please go to: www.sraeurope.eu

Society for Risk Analysis



- Frederic Boudier, Chair (University of Stavanger)
- Martti Hetemäki (Helsinki Graduate School of Economics)
- Anna Olofsson (Mid Sweden University)
- Nick Pidgeon (Cardiff University)
- Ortwin Renn (IASS Potsdam)
- Ahti Salo (Aalto University)

Monday, June 14 at 12:45-14:15

Panel I – COVID-19 – Lessons in Emergence

(See recording [here](#))

The COVID-19 pandemic has been a historic event, causing human suffering, societal disruptions, and economic damage around the globe. Yet, as humanity has struggled to overcome it, this pandemic has also led to surges in the adoption of digital technologies, sparked new modes of innovation, and reshaped many of the ways in which communities and societies will function for years to come.

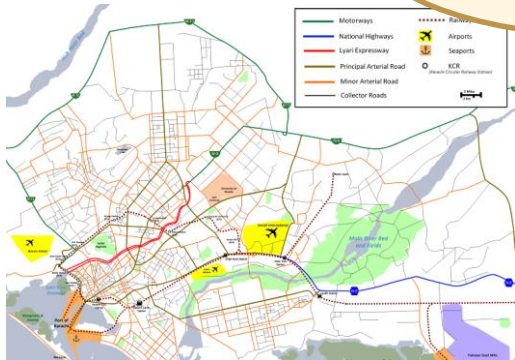
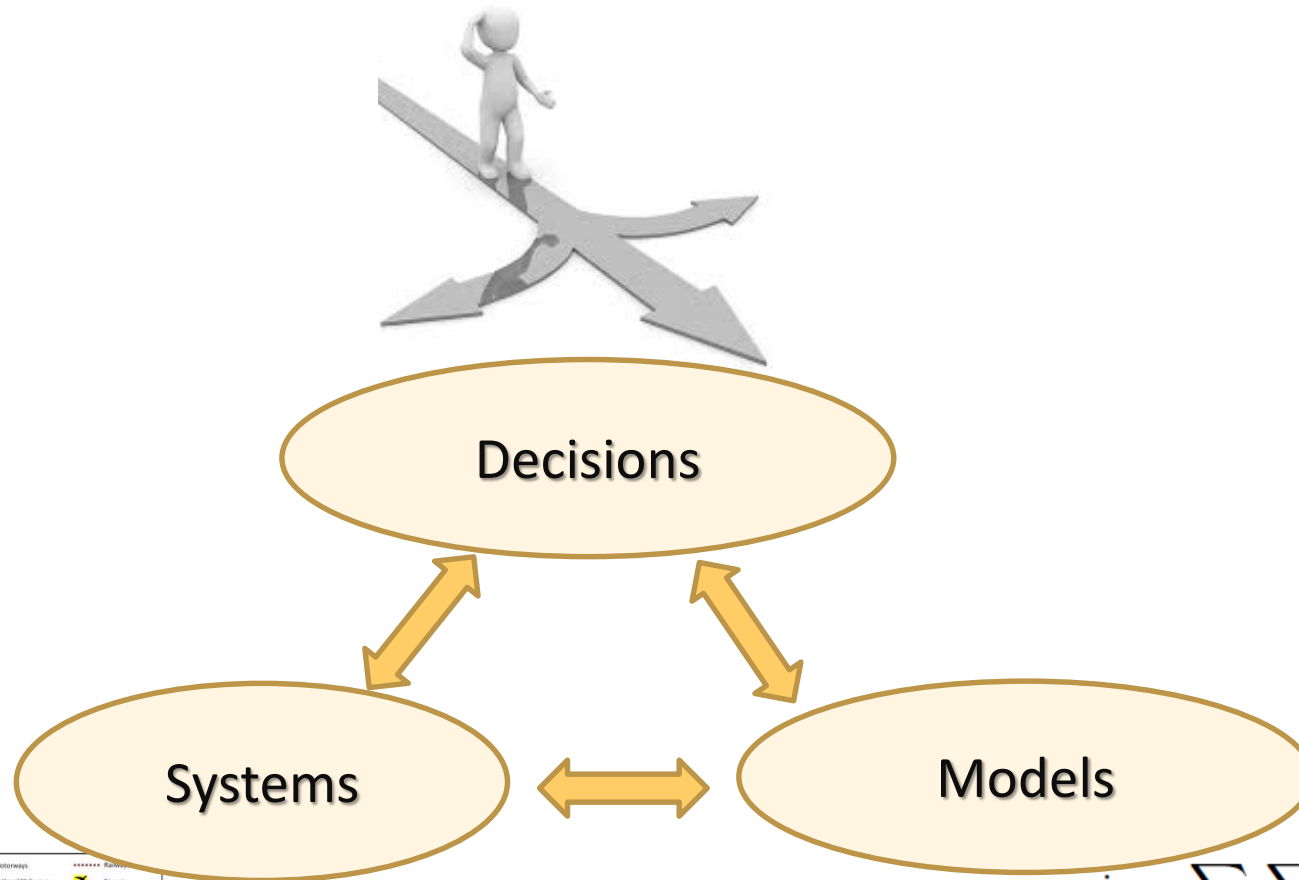
Although the pandemic is not yet over, it is pertinent to pause and reflect on the lessons that can be inferred at this stage. What insights can be derived from the experiences of informing policymakers who have sought to curtail the pandemic through unprecedented measures? What are some of the notable successes and failures in the implementation of risk management actions and risk communication? And should the risk analysis community, too, be prepared to reshape itself as a result of COVID-19?



Observations after a year of pandemic

- There has been an unprecedented surge of advanced modelling activity
- Some studies have had immense policy impacts
- But good governance is crucial – some countries with strong analytical capabilities have not fared well
- Every one is a decision maker → behavioural considerations are crucial
- Results from elsewhere need to be interpreted with care, not to be adopted as such

Pillars of systems and operations research



$$\begin{aligned} \min \quad & \sum_{i \in \mathcal{R}} \sum_{j \in D_i} c_{ij} x_{ij} + \sum_{k \in R} M y_k \\ \text{s.t.} \quad & \sum_{i \in \mathcal{R}_k} \sum_{j \in D_i} x_{ij} + y_k = 1, \\ & \sum_{i \in \mathcal{R}} x_{ij} \leq 1, \end{aligned}$$

Challenges for model-assisted policy advice



Decisions

Will people obey restrictions?

Which model is to be trusted?

How to address trade-offs between sectors?

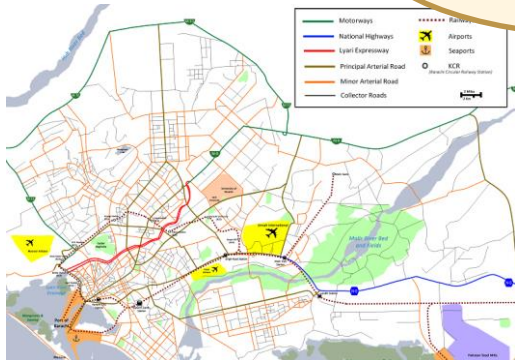
What impacts are there beyond the model scope?

System

Models

How does the virus spread?

What properties do new variants have?



$$\begin{aligned}
 &\min \sum_{i \in \mathcal{R}} \sum_{j \in D_i} c_{ij} x_{ij} + \sum_{k \in R} M y_k \\
 &\text{s.t.} \quad \sum_{i \in \mathcal{R}_k} \sum_{j \in D_i} x_{ij} + y_k = 1, \\
 &\quad \sum_{i \in \mathcal{R}} x_{ij} \leq 1,
 \end{aligned}$$

Challenges for model-assisted policy advice



Decisions

Will people obey restrictions?

Which model is to be trusted?

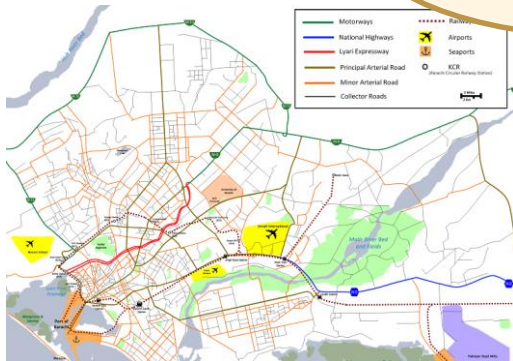
How to address trade-offs
between sectors

What impacts are there
beyond model scope?

There is a space for
collaborative risk management

How does the virus spread?

What properties do
new variants have?



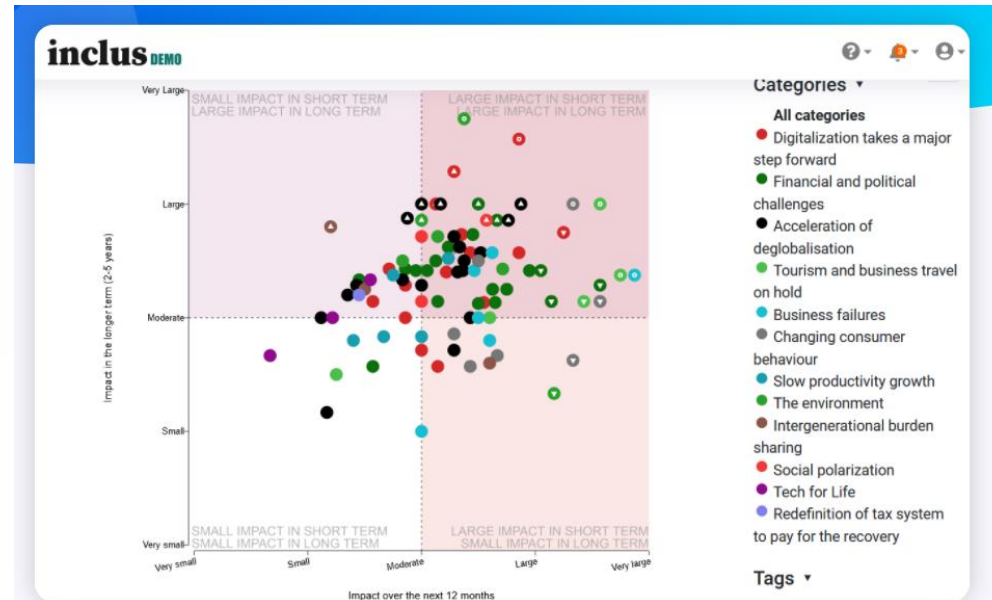
$$\begin{aligned}
 \min \quad & \sum_{i \in \mathcal{R}} \sum_{j \in D_i} c_{ij} x_{ij} + \sum_{k \in \mathcal{R}} M y_k \\
 \text{s.t.} \quad & \sum_{i \in \mathcal{R}_k} \sum_{j \in D_i} x_{ij} + y_k = 1, \\
 & \sum_{i \in \mathcal{R}} x_{ij} \leq 1,
 \end{aligned}$$

Identifying risks is one of the most challenging steps of risk management. Once you have collaboratively identified and assessed key risks, only then is it possible to effectively manage them and respond.

Inclus originated from complex and sensitive peace mediation processes conducted by Nobel Peace Prize laureate and President Martti Ahtisaari's Crisis Management Initiative (CMI).

Working across several countries and different actors, a reliable platform was needed to identify and analyze shared interests, threats, and uncertainties in order to move forward in the peace process.

<https://www.inclus.fi/>



<https://aaltodoc.aalto.fi/handle/123456789/4803>



Ville Brummer
Programme Director

ville.brummer(a)cmi.fi



PARTICIPATORY APPROACHES TO FORESIGHT AND PRIORITY-SETTING IN INNOVATION NETWORKS

Ville Brummer

Dissertation for the degree of Doctor of Science in Technology to be presented with due permission of the Faculty of Information and Natural Sciences for public examination and debate in Auditorium E at Aalto University School of Science and Technology (Espoo, Finland) on the 23rd of June, 2010, at 12 noon.

See <https://doi.org/10.1111/deci.12448>

NEWS RELEASE 20-APR-2020

New decision model shapes strategies for dealing with public health emergencies

The timely results of a long-term project helps health experts with the allocation of healthcare resources

AALTO UNIVERSITY



SHARE

 PRINT

 E-MAIL

Decision scientists have developed models to help governments and policymakers allocate limited healthcare resources. The decision model developed by Aalto researchers accounts for differences between population segments and shows that segment-specific strategies for tests and treatments are crucial for attaining positive health outcomes, especially when there is limited capacity for treatments. 'When we were revising the paper just a few months ago, we never thought how soon the framework would become so relevant' says Professor Ahti Salo Director of the Systems Analysis Laboratory at Aalto University.

Media Contact

Eeva Vilkkumaa
eeva.vilkkumaa@aalto.fi
358-503-098-630

 [@aaltouniversity](https://twitter.com/aaltouniversity)

<http://www.aalto.fi/en/> 

More on this News Release

New decision model shapes strategies for dealing with public health emergencies

AALTO UNIVERSITY

JOURNAL

Decision Sciences

Special Issue |  Open Access |  

Operationalization of Utilitarian and Egalitarian Objectives for Optimal Allocation of Health Care Resources

Yrjänä Hynninen , Eeva Vilkkumaa , Ahti Salo 

First published: 13 April 2020 | <https://doi.org/10.1111/deci.12448> | Citations: 1

[ViewIt@Aalto](#)



<https://doi.org/10.1111/deci.12448>

Reflections

- There is an ever-present need for methodological advances
- There are exciting frontiers at the interfaces between
① decision and policy makers ② systems ③ models
- Yet people, too, need to remain part of the equation!
- Behavioural considerations must be accounted for in
producing and using policy advice
- The adoption of novel methods may call for champions as
well as changes in organizational practices, too