TURKU COMPLEX SYSTEMS INSTITUTE

TCSI

BY

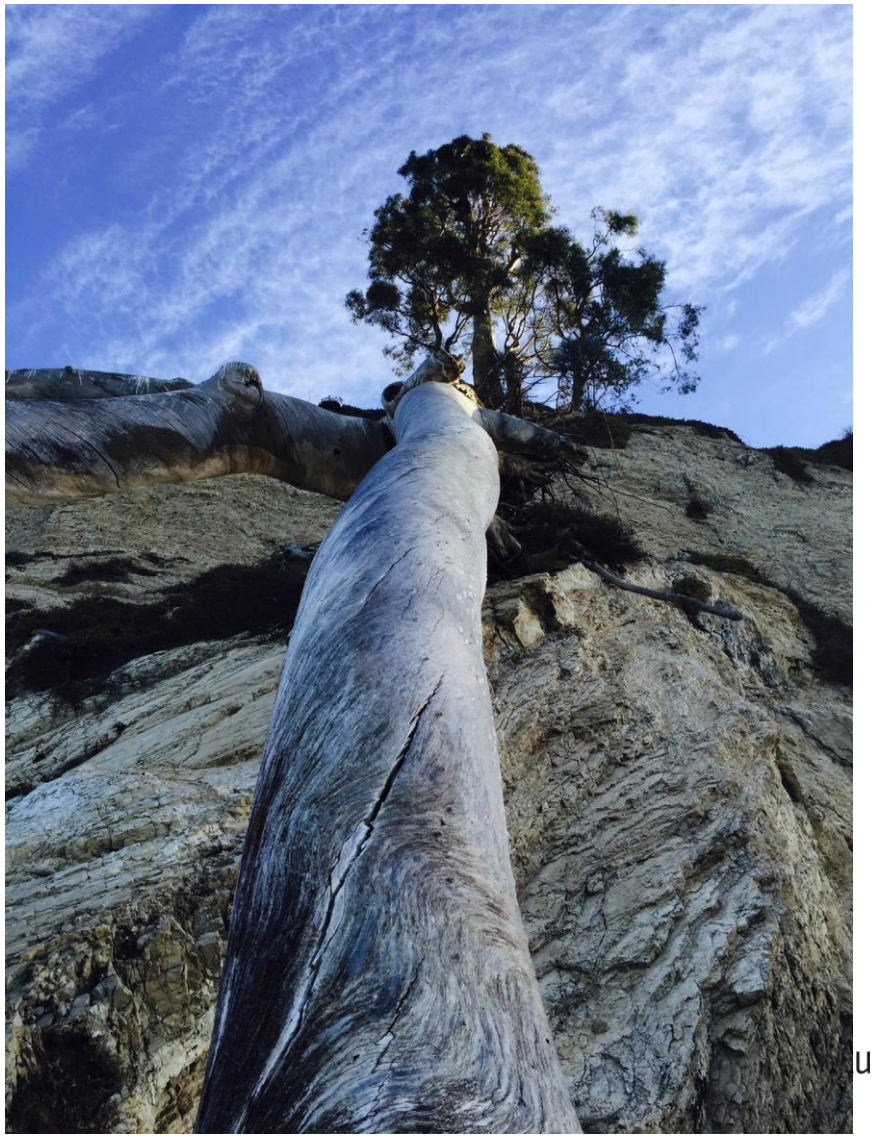
UNIVERSITY OF TURKU

Turku Complex Systems Institute (TCSI) is focused on:

- Developing methods and frameworks to tackle complex future challenges in systems way
- Working together with trans-disciplinary teams at universities, companies and organizations across the globe, TCSI insights will hopefully lead to new interesting questions while moving us closer to developing solutions to some of the most pressing issues we face.
- The Institute is hosted at the University of Turku but, from the outset, will be highly internationalized, with foreseeable activities in Finland, Canada, US and worldwide.

Turku Complex Systems Institute (TCSI) is:

- Focusing systems level problems
- Interdisciplinary and transatlantic institute (Turku-Vancouver)
- First major project: Future of Cities and Communities
- The first pilot city: Turku
- Operational as of January 2016



Where is Turku?

Turku, Finland's oldest city, is located in Southwest Finland. Turku was the first capital city of Finland, established in 1229.

Turku has been an important gate to the west throughout history.

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Chiming in the city of Turku

1. Identify & map key concerns

2. Observe weak signals and emerging issues

3. Anticipate conflicting interests

3.Building a simulation model

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Transport and well-being: new shared models or old ways?

Sister exercise in Vancouver, UBC Campus

Turku and UBC as laboratories –a better understanding of the common goals and concerns of cities and their citizens.

- Features and assumptions will be reviewed and revised as necessary based on the results of a multidisciplinary survey of current best practices and efforts to model, simulate and analyze cities.
- Further revisions will be made based on the results of initial modelling exercise focused on shared economic models for transportation in Turku. We will simultaneously conduct a study of the performance and various emissions, energy and public health related outcomes of shared economic models for transportation currently in place in Vancouver.
- To gain better practical understanding of the various activities related to the acquisition storage and analysis of data in real world setting, we will conduct a survey and participate in these activities in partnership with the UBC LivingLab. For all practical purposes the UBC campus acts as a proxy for small city.

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Leveraging data to build a comprehensive, discipline independent, multiscale modelling framework

This modelling framework will be used:

- To define and build models of specific cities and communities and their relevant subsystems.
- To simulate and analyze various scenarios relevant to the development of these communities.
- To better understand the global consequences of changes made to different city systems or operations.

To influence a living system, you will have to differ between static and dynamic information:

- By static information we understand almost all research data, factual information, survey and management systems outcome and the combination of all these.
- Dynamic information tells us about the life of a complex systems, its intentions and its purpose and where we need to put our effort to transform

Forces and the city as a dynamic system

Dynamic information can only be understood and interpreted dynamically. (and never statically)

FCC: simulating the future

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Intentions in this spirit

- The intention is to support further work on integrative systems approach utilizing dynamic modelling of complex urban systems while maintaining a human-centred perspective.
- Understanding the future of complex urban systems should be seen as a participatory problem-solving process which includes both quantitative and qualitative work and judgement.