Building and managing hierarchical rural transportation networks

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Technology is not the problem

Much attention is paid to technologies like Mobility-as-a-Service (MaaS) platforms

- The focus is usually on various functions packaged together plus integration to legacy systems.
- These platforms are perfected in the laboratory **so perhaps the software is not the bottleneck**.
- MaaS has not been installed because there is no agent coordinating the parties.

The problem is fragmented services and lack of cooperation

- Need to integrate fragmented services by improving cooperation among funders of medical trips, disabled-eligible trips, service routes for the elderly and the young, people who cannot or do not want to drive, etc.

- And a lot more services that need to be created

- MaaS is the practical enabler by managing connections within a multimodal itinerary, identifying and charging the correct fares, and reconciling the revenues and costs through pre-programmed formulas.

Some experience from Finland

I assume you are familiar with the concept of Mobility as a Service (MaaS)

- There are some successful nationwide combined rural and disabled-eligible services such as *FlexDanmark* created without the help of a MaaS platform.
- In 2011, *Onnibus* created formidable competition using double decker buses, wifi, and promotional fares. Incumbents already had mostly marginal business.
- Finland has a very competitive telecommunications sector. MaaS was seen to be a logical extension that could help.
- Results for consumer-based MaaS operators to date indicate **a reluctance by public agencies to share commissions** with them.

Matkahuolto is a consortium of intercity bus operators that provide service the full length of Finland including sparsely populated Lapland.

- It has an indoor multi-platform station in the basement of *Kamppi*, in downtown Helsinki.
- It shares other facilities with local transit and taxis.

Matkahuolto has been sending, carrying, storing, and even delivering parcels.

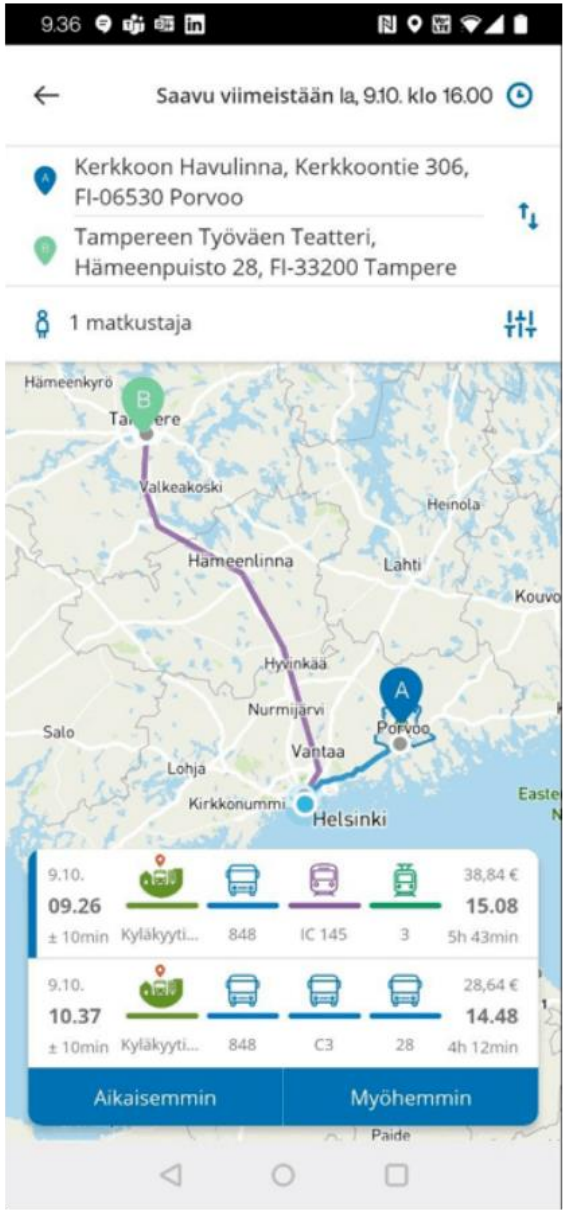
- It already provides 1200 pickup and drop-off points across Finland.
- It sends out 20,000 parcels from *Kamppi* every weekday.

Freight transfers to and from rural intercity buses

- Incoming parcels from the hinterlands picked up at your neighborhood store.
- Urgent parcels can be delivered all the way.
- Multiple logistical firms use the same stores.
- No packages blocking sidewalks.
- Boosts profitability of bus operators and delivers urgent pharmaceuticals, vehicle parts, etc.

And, some success at consolidating non-urgent medical trips by cooperation between regional hospitals and taxi companies. That is another story.

Contact me for the poster from the TRB 2019 Demand Responsive Transit conference.



The *Matkahuolto* Mobility as a Service app

- All intercity bus companies connected
- Local transit and taxi companies are being added
- The very latest is the connection of the Finnish Railways, *VR*, to the bus network.
- It took several years because the European Commission and right-wing governments promote competition between modes instead of networks.
- Parcels not connected yet, but it will come.

So, what is coming next in Europe?

Current events have us on pins and needles

- Parliament of France passed law blocking airline flights from Paris to cities on the *TGV* lines. They have thrown down the gauntlet to the European Commission (EC).

- EC opposes subsidies for flights even to cities off the rail lines, even if it means major population and job losses.

- *Campaign for Better Transport* in the UK is calling for a ban on intercity flights from London to major airports on the rail lines and for fare reductions.

Creativity, research support and dissemination needed

- Intercity bus operators have diminished because of lower demand combined with deregulation
- Long headways -- ways to spend time if connections are missed.
- Providing the means to bring persons out to main roads in any kind of weather is a promising use of AVs and electric bikes.
- Less glamorous concepts such as enlisting of volunteer drivers and building shelters at connection points.

Translation to the U.S. scene

Existing sources of funds

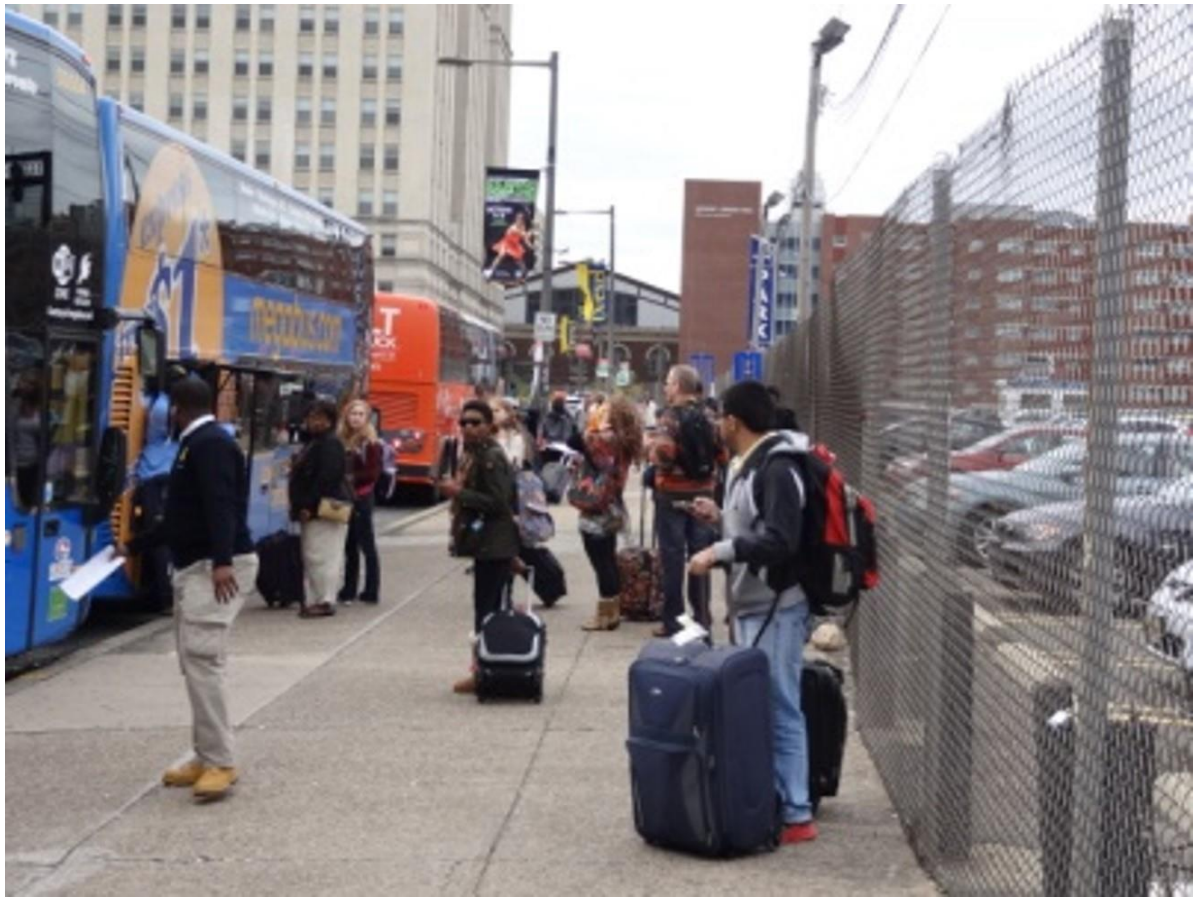
- Medical insurers, enabling clients to reach institutions
- ADA providers
- Taxi operators
- Rural transit operators
- State-wide transit systems (Vermont, Colorado, New Jersey)
- Small Federal assistance allocations

MaaS, scheduling, and operations software availability

- At my company in responding to RFPs, I hardly ever found any service that could not be readily connected.
- Responders are asked for evidence of successful implementations. But small companies do not want to do it without a formal commitment.
- On the other hand, clients do not ask for what has already been done.

Translation to the U.S. scene

- Even longer headways than in rural Europe **or no service at all**
- Stigmatized facilities at the major terminals **or no terminals at all** (to save money and avoid stigma)
- Even the suburbs of the large cities usually have poor transit and taxi services. They can be allies with rural communities.
- Subsidized auto driving is a double whammy: lower cost of driving and less funding available for other public services.



The U.S. funding scene

Major new funding if both the Infrastructure Bill and the Reconciliation Bill pass

- "Essential Rural Transport Service" similar to the Essential Air Service at the Federal level.

  <u>This one deserves special attention</u>.
- Expanded Amtrak and Thruway bus connections
- "Reconnecting Communities" funds
- Greener vehicle purchase assistance
- Safety assistance funding can be used for better waiting areas and access
- Plus, other ideas...

Warning: If only the Infrastructure Bill passes, expect a new wave of highway widening.

Why not “Essential Bus Service” or “Essential Rural Transport Service”?

After all, we already have “Essential Air Service"

Most answers revolve around the “dual economy,” historically evident but intensified in recent decades:

- Essential Air Service funded with a totally different funding stream at the Federal level serves the needs of some of the top 20 percent of the population suffering from deregulation of 1977.
- Depopulation of rural areas is not of much concern to national policy makers.
- Gutting of small towns through big box stores not of much concern either.
- Even in urban areas, only capital federal funds for the bottom 80 percent.

(Case in point: Amtrak NE Corridor fares are amongst the highest in the world)

Why has there not been more regional and state support for an essential network?

- Federal government has a sovereign currency; states and local governments must balance budgets.
- Even today, wildly different attitudes between adjacent state governments. But travel demand does not respect political boundaries.
- Most state governments have failed to do anything much for decades, even if well intentioned. Why now?
- Without tight restriction on new federal funding, it may not be used to improve rural transportation.

(Cases in point: Alabama wants to use its unused CARE act funds for three new prisons instead of transit and disaster evacuation needs. New Jersey Transit is a state-wide system, but southern NJ still has minimal rural transit.)

Green New Deal

Might finally be a mechanism for funding

- Natural allies in non-transport environmental related sectors
- Restoration of smaller farms
- Restoration of smaller towns with walkable centers
- Protection and reversal of use of greenfields for industry
- Cities that have seen their industry migrate (autos, airliners)

Amtrak expansion

An enhanced spine for connections

A network can be built on a three-level hierarchy:

1. Local/regional services where vehicles return to their transfer point or terminal.
2. Intercity transport modes with connections to intermediate transfer points at smaller towns.
3. Long distance services with large cities at their terminals.

Features of this hierarchy

1. Mode selection process instead of silos

- Equity including affordability of fares
- Area coverage
- Regional development and business retention
- Emergency response times
- Trip times including connection possibilities

Features of this hierarchy

2. Use available technologies to simplify management – daily operations

- Bus and transit scheduling software that integrates fixed route, demand- responsive, disabled services to the maximum extent possible is often blocked by transit management silos.
- Existing taxi software can also integrate disabled services to lower costs and improve mainstream.
- Make sure there are taxis on standby 24/7 for non car owners.

Features of this hierarchy

3. Concentration on easing connections

Service to the public using MaaS

- Devise joint fares that are competitive to cars and convenient
- Find some solutions to missed connections under long headways

  Better waiting facilities

  Tourist venues for a few hours

  Business innovation using day hotels?
- Keep lobbying for more services to keep reducing headways.

More on this topic

Chapters 5 and 6 in

Sustainable Infrastructure Investment: Towards a More Equitable Future

Forthcoming from Routledge

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