THREE CASES OF CORRIDOR AS A SERVICE (CaaS)

A talk with Lasse Nykänen, project director at digital logistics service provider Vediafi, LivingLabs #1, #2, #3[1]

One of the schisms that run through the FEDeRATED project is the divide between public and private sector. Within this context, Lasse Nykänen clearly the business perspective. One can already tell by the smart way he dresses, and his use of words like 'agile'. At the same time, he is convinced of the importance for businesses to partner up with public authorities, in order to make transport and logistics futureproof. Public-private partnership is the name of his game, and Lasse seems to be good at it, despite his overall business perspective on things. Besides that, Lasse also has a typically Finnish perspective.

Finland functions as a European Gateway to the East, with a rich history of rail and road transport to and from Russia, and nowadays far beyond, along the Belt & Road, all the way to and from China. Or as a hub for air freight to the Far East. Both Finnair and the Finnish railroad transporters have built their strategy on this corridor-function to Asia. But recently the flow of goods pretty much stopped, because Vladimir Poetin started his war in Ukraine. Yet another interruption, after 2 years of Covid. But hey, Lasse keeps energetically working on his pilots and his trust building and collaboration network. He is determined to find 'the new diamond' for Finnish logistics. At the same time, his colleague Miika Nordström works on his applications, technical solutions and makes preparations for the IATA-hackaton.

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[1] *Interview Minne Buwalda*

CaaS

At Vediafi, the company Lasse and Miika works for, they concentrate on 3 specifically Finnish transport and logistics corridors. For all three corridors, a Corridor as a Service (CaaS) is being developed, in collaboration with authorities, and in the FEDeRATED context, as a Living Lab. The CaaS-concept wants to bring different worlds together on its corridors: the world of smart infrastructure, the world of digital logistics, and the world of state and municipal traffic management and customs clearing. For these worlds a FEDeRATED digital layer will be developed. Furthermore, CO_2-reduction is going to be incorporated into the CaaS-concept.

About the corridors:

1. There is the Asia corridor, worked out in Living Lab#1: CaaS Asia Gateway for Perishables. Its pilots are concerned with the transport of fresh salmon from the fishing trawlers of Norway to Japanese sushi tables, within a timespan of 36 hours. That trip includes road transport, air freight and customs. Lasse: "In the LL#1-pilots we share several data with customs, also about cargo, potential detours or unnecessary stops being taken by the truck, driver changes etcetera, in order for customs to have more visibility, so they can better focus their attention on risky transports. That way the carrier can pass through customs quicker, without unnecessary paper inspections at the border." He continues: "But they share only one type of data with us: 'port open' or 'port closed'. Hopefully we will get more data from the Finnair cargo side, based on the upcoming IATA One Record Hackaton in Amsterdam. That could speed things up, especially when we are able to include the consignee side to the supply chain."

2. There is the Baltic corridor, worked out in LL#2: CaaS Technology North Sea – Baltic Corridor. It aims at consolidating data from 'the road', including ferry crossings, mainly thanks to IoT sensors/gateways and register plate data, thereby creating more supply chain visibility. Lasse: "The two ferry operators we work with in Living Lab #2 do not actually have data on the cargo they are carrying. They only have the register plates of the trucks that are on the ferry. So, here we have data on real world trucks, but we do not work with real world deliveries yet." And: "The information from the hub's smart infrastructure will be included in this data sharing environment, but this work is still on pilot mode."

3. There is the Scandinavian corridor, worked out in LL#3: CaaS Brick & Mortar to Home Delivery via the Scandinavian-Mediterranean Corridor. It deals mainly with cargo tracking on consumer home deliveries from shops in Finland along the Scandinavian corridor to customers in Europe. Lasse: "Here we provide ETA-information for the fleet management of courier service GLS and we seek new options on how to improve transparency of deliveries, also for the end customer. In addition, LL#3 also focusses on carbon footprint monitoring."

Tracking technology

Basic data all three CaaS's work with are timestamps and location data, which generate a foundation for event tracking. The location data are mostly brought in by way of IoT-technology. Lasse "At

Vediafi we do not have our own fleet of trucks, like Codognotto (LL#16) or Ahola (LL#23). They have good tracking developed, but often only for themselves or on the level of the vehicle, and not on the level of the cargo."
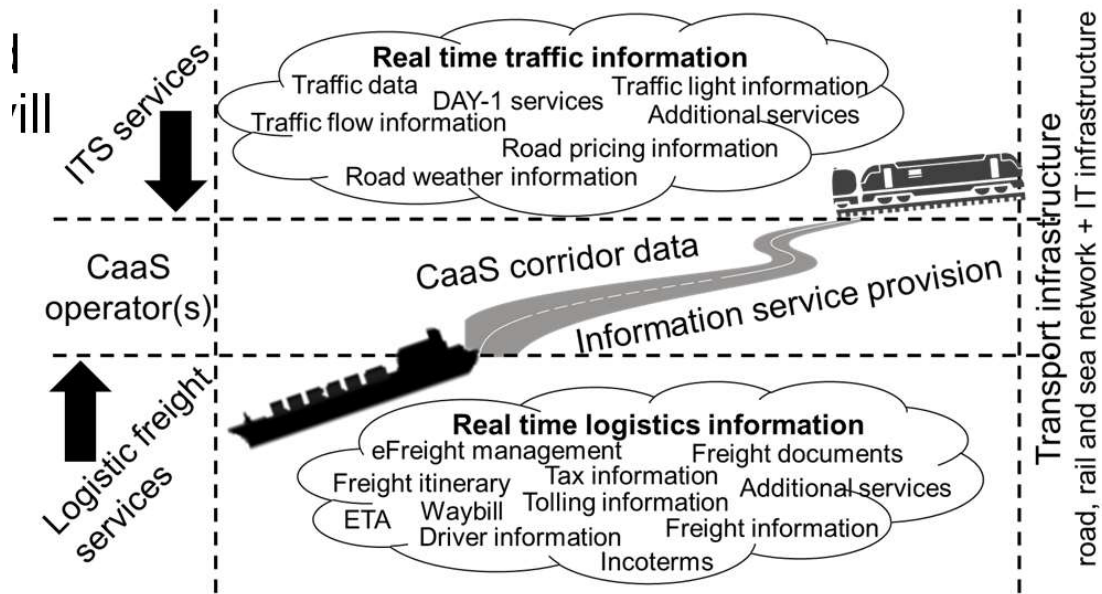
Vediafi, although being 'just' an SME logistics service provider, does have a trump card up its sleeve though. The company is closely affiliated with Indagon, an 18 years old Nokia spinoff that specializes in communication gateways and navigation and positioning technology, which can lead to all kinds of location-based and tracking services and end-to-end solutions from devices to back-end.

In the context of LL#3, which is dealing with home delivery of packages, Lasse also points at future solutions that are being developed in the field of transport tracking: "Take smart tags on packages which are recognized by iPhones or Androids, where each phone acts like a beacon. When such smart tags are near the phone, this is registered. When you can use such data, you can even see a package being moved within a warehouse, for many people carry an iPhone or Android these days. These technologies promise huge data transparency."

PPP: building trust

Trust is social capital, and Lasse is very aware of its value. Both trust among businesses and trust between business and authorities are crucial in the process of digitizing transport and logistics. Before the FEDeRATED project started, Vediafi was already talking to the Finnish Customs at Helsinki airport, which resulted in the present-day pilots within FEDeRATED LL#1, involving the development of an automated border crossing. Lasse: "Finnish customs has been very interested and open to new solutions. But since we are talking about transportation across EU-borders, these actions do not happen overnight." Therefore, the actual realization of B2A-A2B cooperation in LL#1 is rather slow, and Lasse cannot wait till these pilots are turned into real life automated customs.

The lines between Vediafi and the Finnish authorities are short. Meanwhile Lasse is also building a

trust network with authorities in the Baltic states. He says: "We build collaboration with Estonian and Lithuanian ministries and municipalities, amongst others. In order to make LL#2 work, it is crucial for us to build these public-private partnerships in the Baltic corridor." Smiling, Lasse says: "Maybe this is the 'logistics diamond' we are looking for."

What is helpful here, is that the Baltics are pretty advanced and enthusiastic in terms of digitalization, so a basic trust in technological solutions is already there. Lasse calls the Baltics "a fruitful environment for a technological approach to transport and logistics".

From the point of view of companies, trust is also being built by using proven and well governed European standards: companies are persuaded to share their data by European guarantees concerning, for example, data sovereignty and safety in digital logistics. Another reason why Lasse and his colleagues put a lot of effort in the FEDeRATED cooperation.

Cybersecurity and data sovereignty

As already mentioned, Lasse represents the business perspective in FEDeRATED. This means that his focus is on a creating digital service solutions for businesses, including their dealings with authorities, and making these work according to the FEDeRATED guidelines and principles. Concerning cyber security and the principle of data sovereignty at source, special attention goes to the Asia corridor. Lasse: "We are always focused on cybersecurity here in Finland. We have the National Emergency Supply Agency (NESA), which secures there is enough energy and food etcetera, and which seeks guarantees that our systems are robust. One of their hot topics at the moment is cybersecurity in logistics. Vediafi did a study for NESA with respect to digitalization of logistics, the EU eFTI regulation and the consequences of that."

Concerning data sovereignty at source, he says: "The European GDPR-regulation states that European data have to stay within the EU, but we have a joint border with Russia and historical deals with the Russian companies that exploits the railway line from Finland all the way to China. If we can build this digital layer, securing EU sovereignty standards for this corridor, and business can go on, they are happy and authorities over here are happy." After a short silence: "But of course, now all these actions and plans must be revised for the new future, whatever that means."

Lasse continues: "For us, these EU-principles are tightly linked to specific business cases. Besides complying with these principles, we also need to show specific business operators the benefits of our services. So, we focus on a specific corridor and try to fix the problem there. The EU wants it a certain way, forwarding agencies, hub operators, logistics companies and infrastructure providers want it a certain way, and we are linking those demands through our Corridor as a Service. Corridors are a good approach in this sense."

Interoperability and data sources

When asking about the FEDeRATED interoperability of the 3 CaaS's, Lasse says: "That has to do with how we combine our Living Labs and make them interoperable with One Record. We start with IATA One Record and apply that in our solutions. We are building a One Record semantics world." And: "One Record is a kind of foundation for our Living Labs, a kind of cookbook for our solutions. When our Living Labs utilize One Record semantics, we can ensure that we are able to understand each other. It is a kind of socket to the Internet of Logistics. But what we are still seeking is the expansion of One Record models to other modes of transport."

Asking about the ETA's from the Maritime Single Window, he says: "In Finland we have public Portnet systems, a port operating system owned by the Finnish state, which is updated according to the guidelines of the MSW. Concerning ETA's, and within the CaaS ecosystem, we also work with this Finnish player called Awake.AI, which provides such data for each Finnish port for free, because they want to have a kickstart within digitalization and attract traffic to those ports." Talking about yet another data source: "And Fintraffic is a new state-owned actor in Finland. Their role is to arrange transport and traffic management for all modalities, and they have public, open API's for several basic data." For Vediafi, Fintraffic not only is a data source, but also a potential user of data.

Lasse tries to connect the dots: "The challenge is that these sources do not tell anything about the cargo. Now we can create this transparency, we have to link the data on the cargo to these data on the traffic situation and 'events'." And: "When eCMR solutions really become available, this is how we can link data: we have this eCMR number, we have the identity of the trailer or the tracker, so we can follow the trailer, and we know the eCMR number is linked to specific cargo… The ID might change case by case. E.g when working with customs, like in LL#1, it is the Movement Reference Number (MRN) we are using."

FEDeRATED sustainability

Lasse gets enthusiastic when the topic 'sustainability' comes up: "We know that sustainability in

logistics and transport is an issue that will rise the coming years, and that therefore has to be incorporated into the CaaS-concept. To get this done one needs checkpoint information on the location of cargo, i.e. traceability of logistics events. The information should be linked to a specific vessel or vehicle, which can be done via the register plates, e.g. automated number plate recognition (ANPR) or suitable On-Board-Units. Hence, access to the vehicle's specific data can be enabled with help of the smart infrastructure layer, and then served to the digital logistics layers. On the specific shipment level you can then start combining the data for sustainability purposes."

He continues: "There has been talk about sustainability for more than ten years now, but since a couple of years there has been actual change in this field. Take the European Green Deal and EU Taxonomy for Sustainable Activities. This forces big companies that want to get loans, or executives who seek their bonuses etc. to show their sustainability score, ideally with real figures that are audited. Now they work with a sustainability factor for certain products, for example bananas, but these do not differentiate between a banana being sold in Peru or in Finland, so these are just rough averages. This way, one does not count the impact of the supply chain, while the European focus on CO_2-emissions is growing. That is why European authorities are seeking more accurate data on supply chains. And I hope this pushes the digitalization of logistics forward."

Miika Nordström

Identity and Access

When the topics of Identity and Access, two of the functionalities within the FEDeRATED concept, come to the table, Lasse says: "We see a lot of benefits in iSHARE and are investigating if we can implement that as our identity solution. And because of that, the Finnish Cyber Security Center has also pointed out its interest in how iSHARE could be applied in Finland."

Talking about the functionality Access, Lasse immediately starts talking about 'the governmental issue' within FEDeRATED. "How to provide and regulate access. We still miss this kind of governance model. In iSHARE they have such a governance structure." He continues: "We also made a benchmark with PEPPOL, a data sharing solution from the electronic billing world, which also uses an interesting governance structure and monitoring of access. Most countries have a PEPPOL access point or node. Where they do not have it, there is an international node that can be used."

Coming back to the baseline of access provision in the FEDeRATED-context: "Of course, when

talking about B2B data sharing, the access rights are arranged in the contract between the parties. But for an EU-wide approach to B2A-A2B data sharing, we need some kind of FEDeRATED layer that is taking care of that. The governance body should set the minimum requirements for the access and technical solutions. In addition, there needs to be a body which monitors the actors who are able to pull and push data from the network. A possible solution could be that all the FEDeRATED stakeholders together form some kind of FEDeRATED node providing access to this FEDeRATED world. Or maybe DTLF experts could play such a role."

Moving ahead

Asking if the CaaS's his company develops in cooperation with authorities could be used as generic solutions for other European corridors, Lasse gets dreamy: "That is of course our target and aim. Because we do not have our own fleet, we have to be quite open and easy to integrate into third party solutions. We want to have a greater reach than Finland alone in the future and seek solutions that are agile." And these 'agile solutions' are very explicitly sought within the EU-domain.

So, how to move ahead with FEDeRATED? Lasse: "For us, the eFTI implementation offers all kinds of opportunities. It is like a backbone to the development we want to achieve in FEDeRATED. In B2B communication the digital format is quite often established, but a lot of authorities still work with paper. Those authorities need to do something, and we are following their development. At the same time, we keep on creating solutions for the business world. And we think the Baltic corridor could be an ideal pioneering environment for such a development."

Lasse is looking forward to the upcoming cooperation between Living Labs within the FEDeRATED context. After playing with data 'in the sandbox', it is now time to work with some real transportation cases, he says. "At this stage we need to combine all aspects of FEDeRATED: Living Labs, semantics and architecture." And: "The LL-collaboration on the implementation of eFTI between Codognotto, the Dutch ministry of Infrastructure, Luxemburg and Vediafi is very promising. That will be a good rehearsal for all of us, combining our solutions."