Fintraffic

Helsinki – Vantaa cargo datahub final report

2023

Fintraffic, Finnair, Finavia, Solita, Sitra

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Executive summary

Lot of data is exchanged throughout the HEL cargo handling process, but because of **lack of shared platform and data more comprehensive data sharing agreements there is no central visibility to data that could help predict and optimize** operators' activities. Instead, the same data need to be copied for many stakeholders several times, usually at the very late state of activities **leading to waiting and other non-value-adding tasks**.

Most of the cargo operators at HEL recognize and value the potential there is by increasing the **sharing of data and use of central platform to reduce the need to manage point-to-point data sharing**. As many operators develop their digital capabilities already, they are be willing to contribute on HEL cargo data hub development as well as they see it serving their digitalization purposes. The technical solution needs to be **interoperable**, connecting to the existing **wider logistics data space** and utilizing the same **standards**.
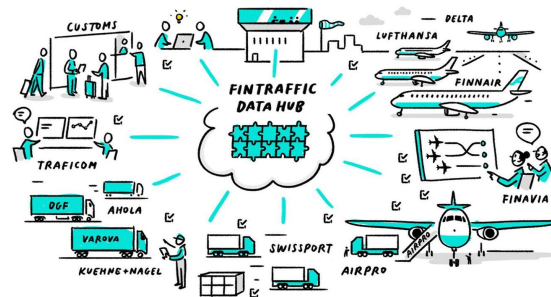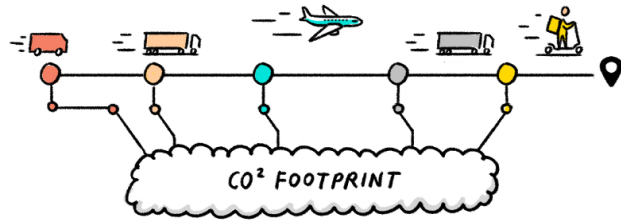
Recommended way forward, taking also into account lessons learned from AMS and BRU who have existing data hub in operations, would be to bring together **a pioneer community and start with first MVP solution**. By utilizing the most motivated cargo operators and off-the-shelf technology would enable to fast **show something concrete help to raise awareness and interest** among rest of the HEL cargo operators.
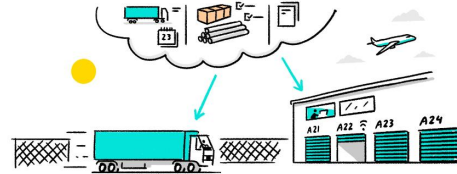
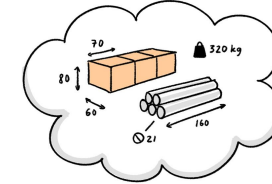# The value opportunities of sharing data - Summary

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Cost efficient airport would attract air lines and other cargo operators to use HEL airport more.

Improved security with digital data processing. Comprehensive data about shipments and cargo operations would enable to monitor and analyze security. Digital data can be also controlled better, knowing who has access to it, who has changed it and where it has been u

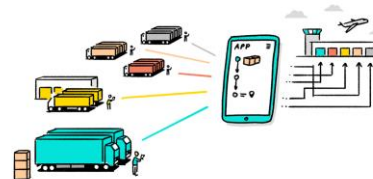Sharing shippers' data about the shipment smoothly for the whole community provides efficiency and valued shared situational awareness.

New innovations can grow from comprehensive air cargo data asset. Enabling the cargo business to grow and transform. Keeping in the speed of changes initiated from the global tre

Easy access to the data lowers the barriers to utilize data and to improve own processes with it.

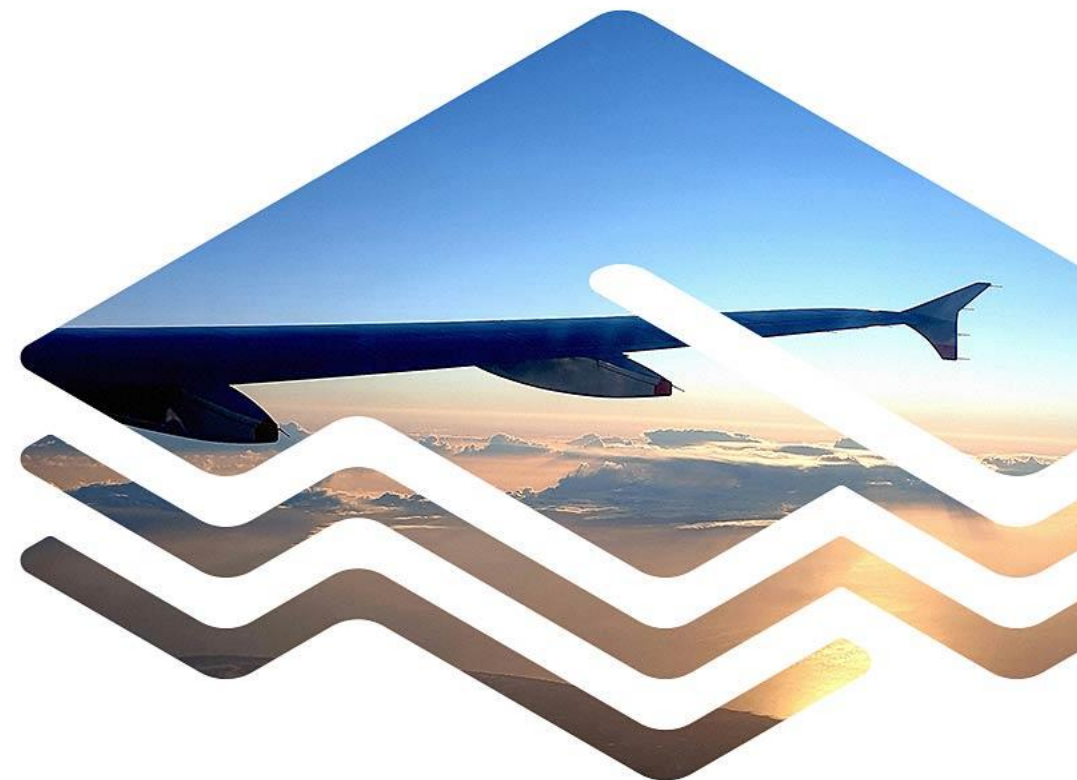# The potential long term value of the cargo datahub

There are many levels of future potential. Starting from improving concrete use cases of existing processes to gain proof of value. The more use cases are implemented the more richer data there will be, helping to make HEL airport attractive partner through cost efficiency. And eventually utilizing the data to innovate and create new services with data. Overall data driven processes and supporting capabilities enable to adapt to the impacts of global trends such as growing volumes, growing need for resilience and digitalization.

Capabilities

New services on top of datahub
Streamlined data access, improved customer experience

Makes the airport more attractive partner
Scalability and flexibility, Better decision making

Improves existing processes
Streamlined data access, Improved collaboration.
Enhanced data security, Improved visibility and transparency

Time

1

Purpose and objective of this work

Designing a desirable, viable and feasible concept

Although smooth flow of airfreight has traditionally required close collaboration and synchronized activities between the different air cargo operators, the common data-driven solutions to support this are still missing. Many manual hand-overs in the process result into breaking the visibility to correct shipment information. Up-to-date and comprehensive data is critical for the air cargo operators, to be able to run their part of the process smoothly and efficiently. Running smooth operations requires also the ability to forecast and be prepared in advance as well as possible.

The objective of this work was **to understand what are the biggest bottlenecks slowing down the airfreight process and where there could be valuable opportunities to enhance them with data.** Using this information, the project will **define a concept for HEL cargo data hub** that would create clear business value for several of the air cargo operators.

The deliverables of this work will **guide further decision making** on where to focus development efforts and who should be involved.
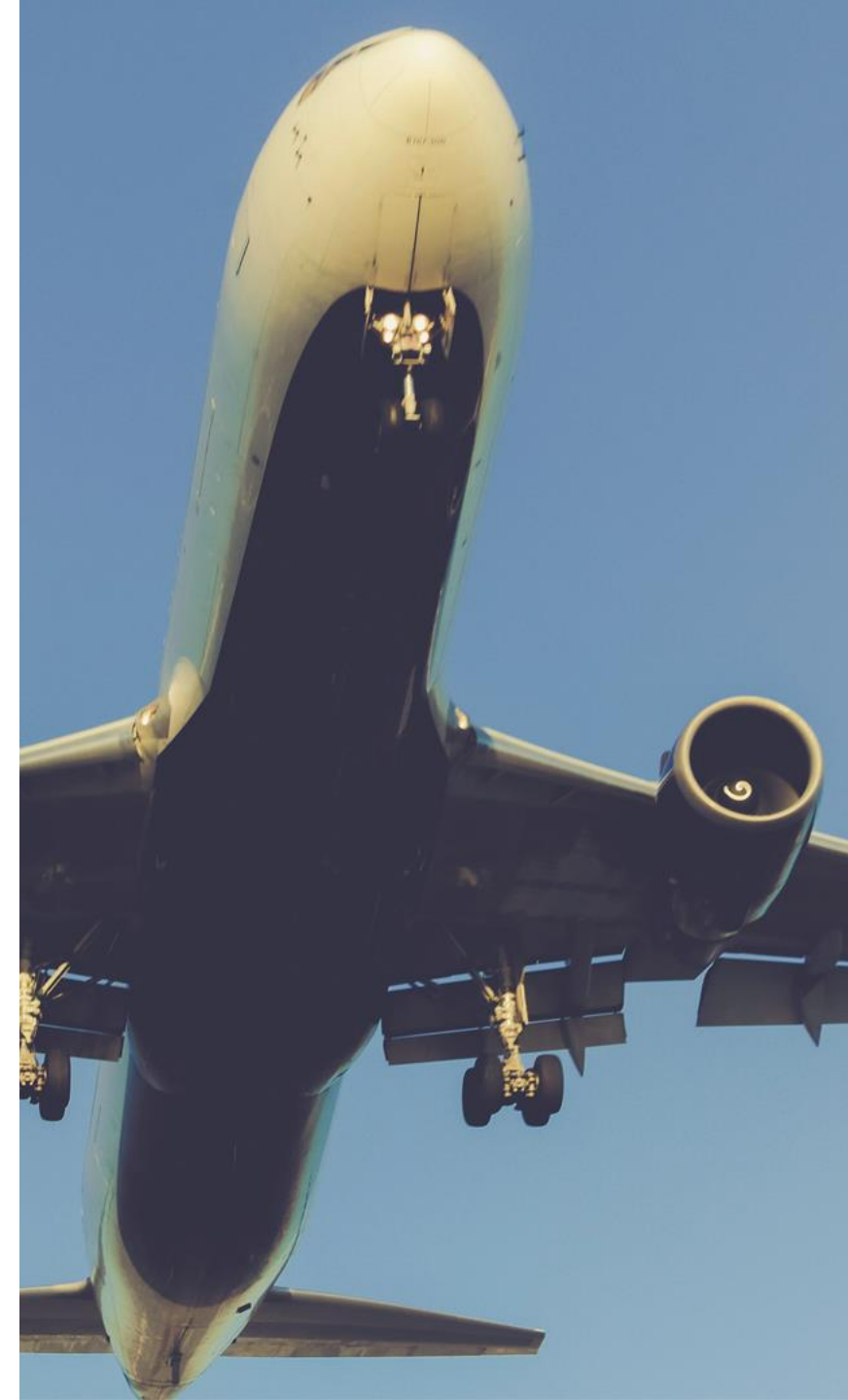
Hypothesis

- *In an airport environment, different operators could benefit from data sharing.*

- *Before making a technical solution, it is necessary to identify the most potential use cases that can be used to demonstrate the value of the airport datahub.*

- *The preliminary hypothesis is that such use cases could be found, especially in processes related to the transportation of cargo.*

Deliverables of this work

- Identify discontinuities between operators in the cargo transport process (Fintraffic, Finnair and Finavia) by utilizing co-design.

- Create a concept that answers the questions: Which problems are the most important to solve. What are the benefits of the solution for each actor? What the solution consists of and how it helps to solve the described problems.

- Document the solution to support taking further development forward.

The project consisted of three modules

Understanding the current situation and key problems

Through interviewing various air cargo operators, formed an understanding of the current process, data exchanged and data needs in form of current challenges.

Formed first value opportunity ideas.

Solution options ideation

Tested the value opportunity ideas through interviewing various air cargo operators (different ones than in the first interviews) and gathered input on what could potentially provide value and what might be preventing to achieve it.

Refined the value opportunity ideas.

Translated the value opportunity ideas into possible solution.

Concept finalization

Crystalised the value proposition and recommendations regarding the solution into material that will be used to communicate the importance and impact of next steps.

2

# Airfreight process and it's bottlenecks

Adjusting the scope along the way (as the understanding of challenges and opportunities evolved)
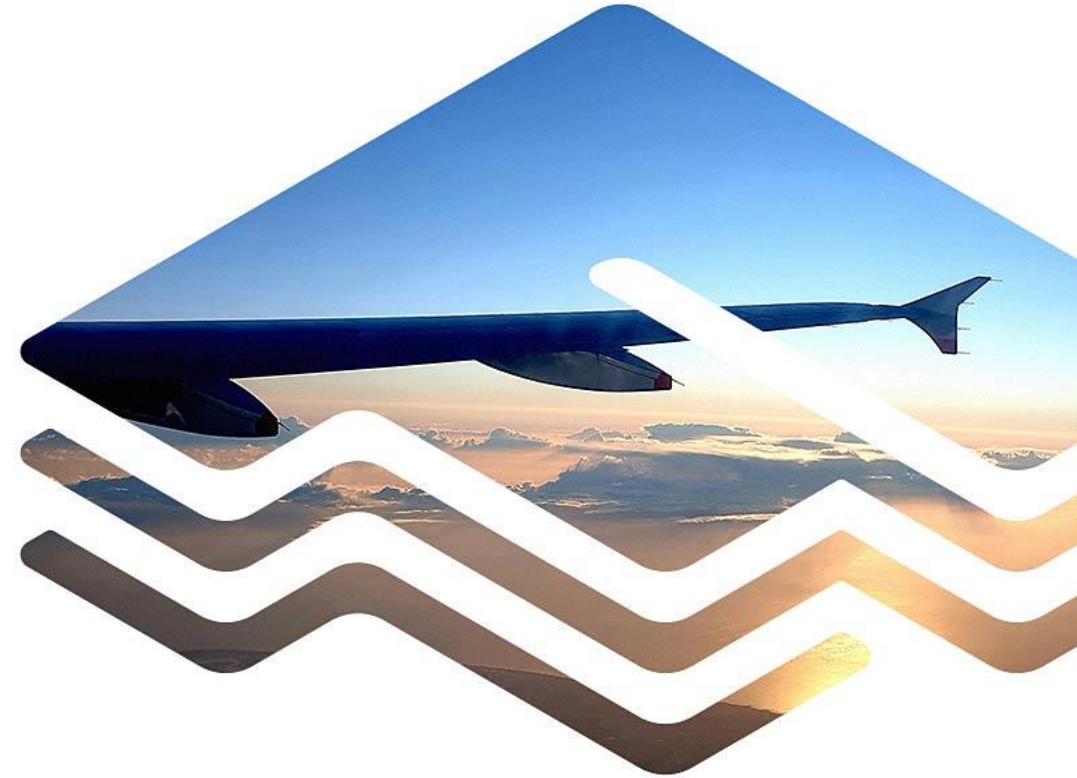
Expanding the scope as the understanding evolved

The starting point was to scope the work on **arriving cargo at HEL airport**. Representatives of different air cargo operators were identified and invited to interviews.
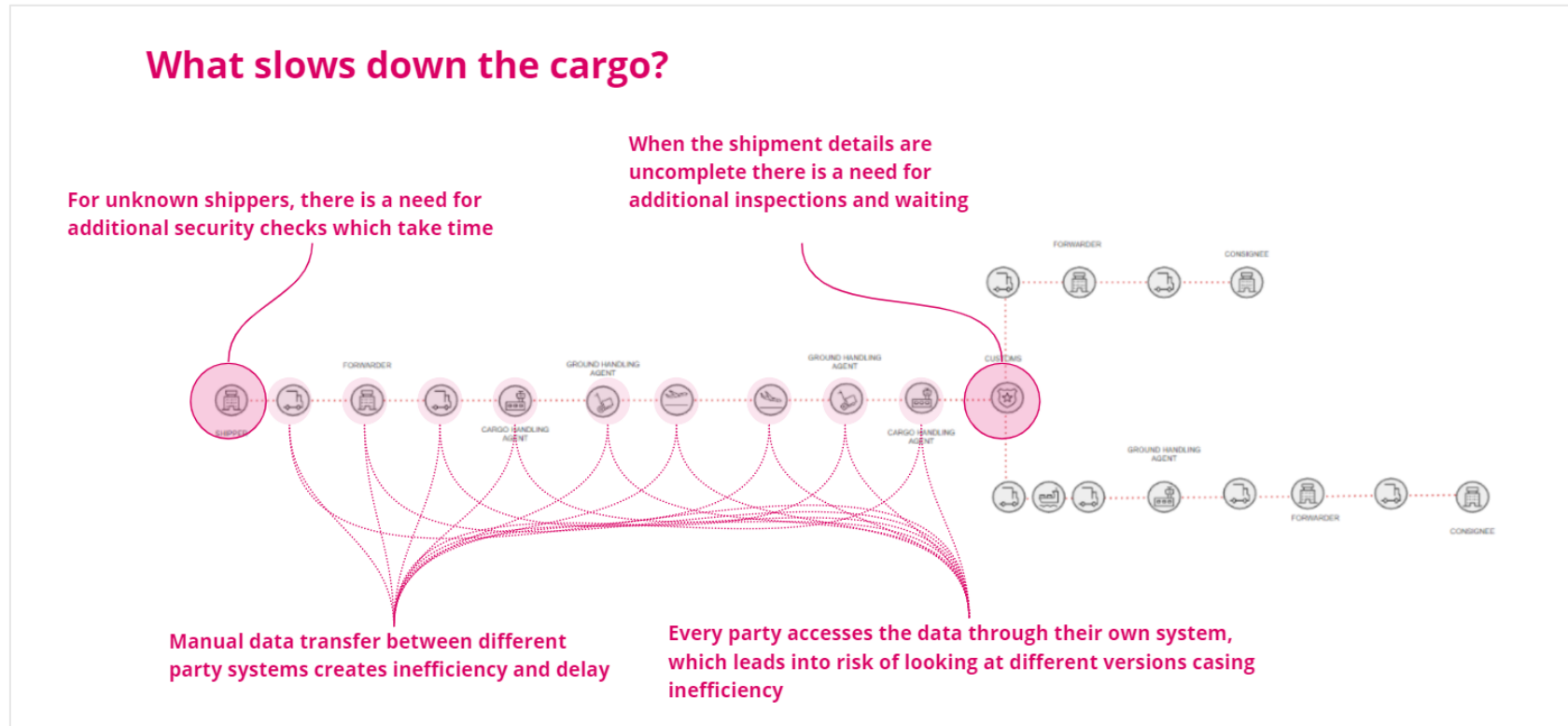
However, very soon it was realized that **the events taking place earlier in the process have an important impact** on how the cargo can be handled at the airport and what data is available or could be shared. It was then decided to take **the whole process under examination**.
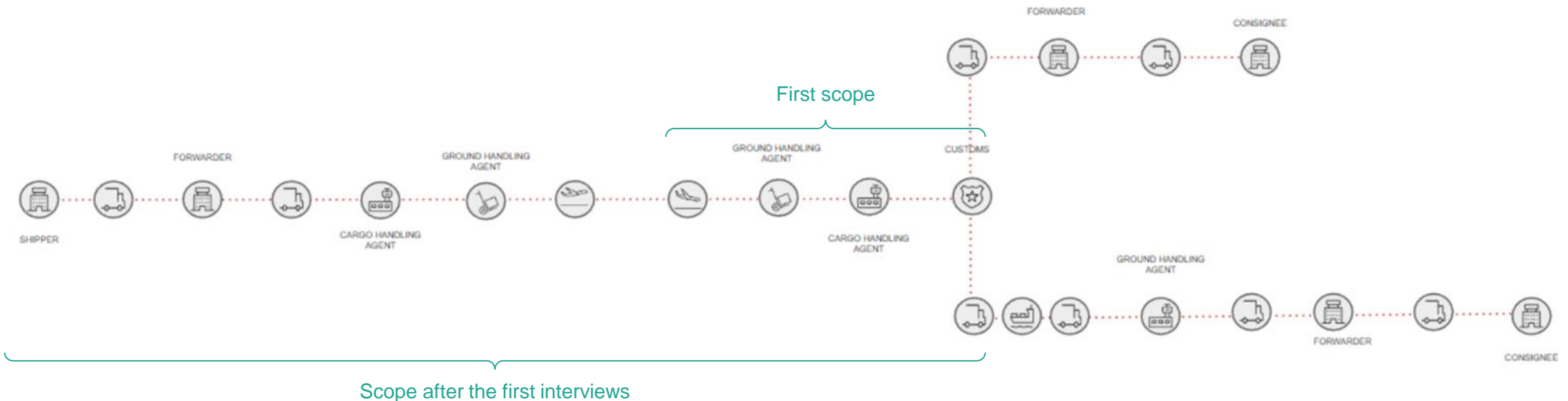
No major blocker but instead several enhancement opportunities

After interviewing the different parties from shippers to forwarders, airlines, customs and trucking companies, **several points** where identified where **better availability of more accurate data could help the party** to do their work **faster, with more confidence, more predictably**. However, none of these use cases where significant in terms of value. They are all **small enhancements** but when looking at the full picture there are **lot of these**.

The main observation was that **the speed of cargo is not really something that is a big of an issue** to be solved. Instead, **better visibility to accurate data** about the shipment in every stage, **can increase significantly trust and boost collaboration**, eventually even creating opportunities to innovate.

What slows down the cargo?

For unknown shippers, there is a need for additional security checks which take time

When the shipment details are uncomplete there is a need for additional inspections and waiting

Manual data transfer between different party systems creates inefficiency and delay

Every party accesses the data through their own system, which leads into risk of looking at different versions casing inefficiency

The most common, shared challenges to be tackled were

Earlier visibility to the shipment through data, before it reaches the "point of hand-over".

Reduce manual data processing (printing, copying data between systems) and reduce the amount of same data being copied to several systems.

Being able to **easily share own data and access relevant data**, without having to invest a lot on next technology development (either using existing own digital systems or being able to utilize a simple application without requiring huge investments).

Airfreight process connecting to other logistics processes

After taking a more holistic approach and identifying the different cargo handling operators' challenges, as well as reviewing other existing logistics data hub solutions, it became clear that **the data needs are wider than the HEL airport** as the shipments transfers continue further / start earlier. As the operators' air cargo transport processes are **tightly connected with their other logistics processes**.
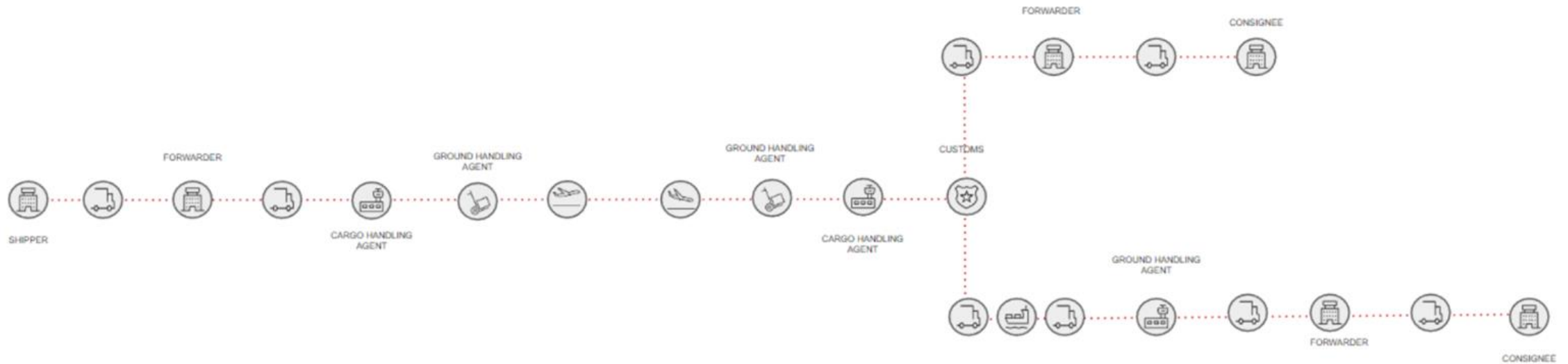
Scope after the second round of interviews, confirmed in the last workshop

Collaboration, boosted with data sharing, is the most impactful game changer

While interviewing the different stakeholders, one common theme recurred. For everyone, there was **data that another party has, that would help to predict future events** and thus develop one's own operations to be more efficient. While there was no major bottlenecks to be removed, overall better **visibility to seamless information** about the shipment, and **ability to forecast**, would **increase trust** and **reduce the time spent on non-value-adding tasks**, those that focus on fixing issues caused by not knowing where the shipment is moving or what is the content or dimensions of it.

The most important party with valuable data was identified to be the forwarders, as they play a central role in the shipment handling process.

As **similar data hub solutions have been already implemented** in other airports, like AMS and BRU, it was also considered if this type of capability would become **necessity at some point?** It might be also feasible if there was **a neutral party orchestrating** it and providing the platform, to keep it **attractive and fair for all stakeholders**.
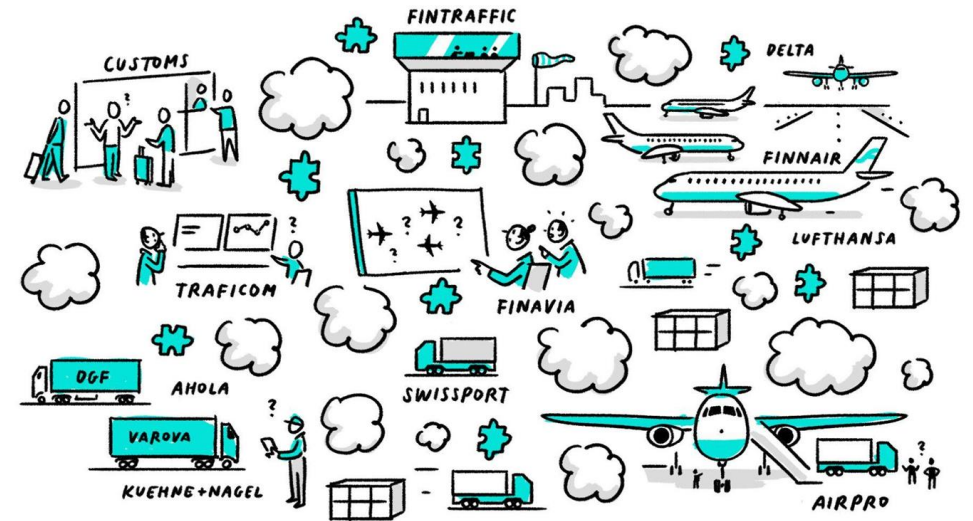
Fintraffic has a central role in Finland's logistics digitalization

There are several initiatives taken to develop data hubs and related capabilities to boost the digitalization at marine ports and on the road. This sets Fintraffic into central position where it would be natural to take the lead on the air cargo data hub initiative as well, being the sought after neutral player to provide the platform for collaboration between air cargo operators in Finland and Helsinki-Vantaa.
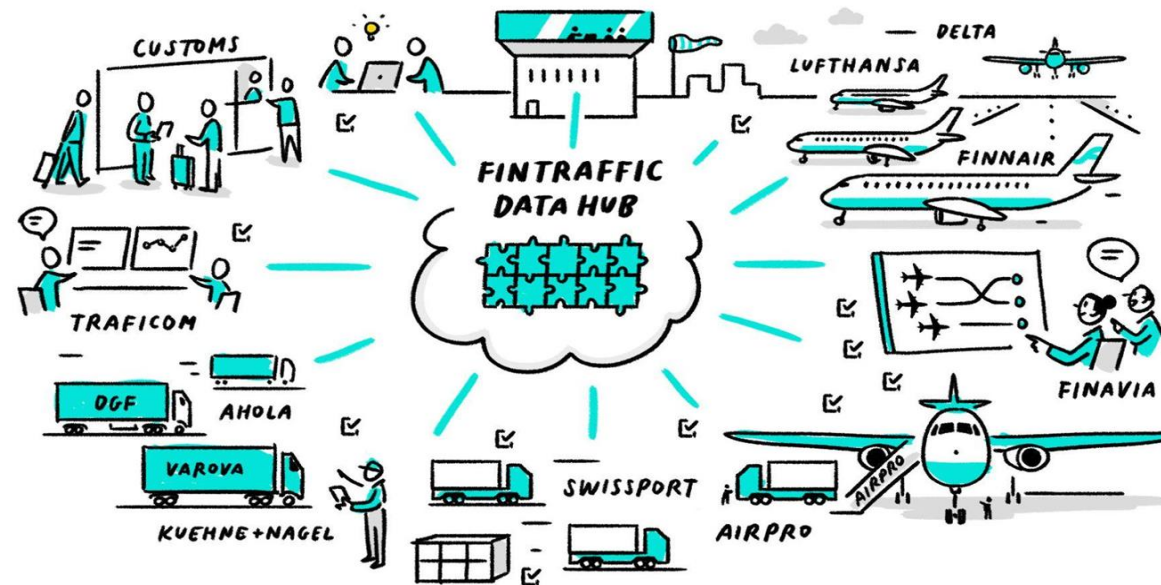
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Value opportunities from sharing data

Motivation of different air cargo operators to invest in and getting involved in the collaboration
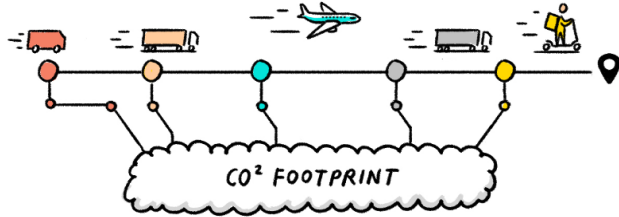
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On-time matters: is the shipment on-time at the terminal? Has it been declared for customs on-time? Is it ready for transfer on-time? Air cargo is expensive so only important shipments are using it. Interviewee
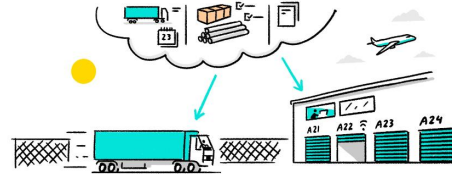
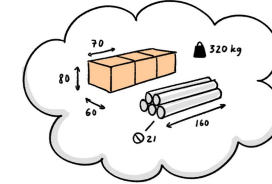# The value opportunities of sharing data - Summary

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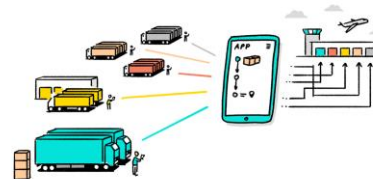
The data we are utilizing, comes from the previous party, including the shipper. Many interfaces, many messages, many places for mistakes. Interviewee

Detailed descriptions of the Value Opportunities

The Value Opportunities, designed based on the first round of interviews with representatives of the key stake holders, where tested with new interviews to collect additional insights. The Value Opportunities were identified to have potential (green), risks or challenges (red) and additional information (black).

Comprehensive CO2 data of the shipment to support steering the environmental- and emission reduction goals

CO2 emissions are becoming increasingly important for companies. More and more commitments are being made in strategic level to reduce emissions. These companies will need to be able to report their emission footprints which will make it important for them to also understand the emissions of shipments they make, and being able to choose the partners who are showing good example in this field.

HEL data hub could collect CO2 emission data from different parties involved in the air freight process, consolidate it and provide easy access to comprehensive CO2 emission data for every shipment. Forwarders (as well as other players) could use this data to strengthen their reliability and transparency as sustainable service providers towards shippers.

CO2 will be more important factor in the future and a decision driver.

Comprehensive CO2 information in national level could be a great benefit.

CO2 reporting in place makes it fairly easy to share

Might require standardization for comprehensive CO2 reporting (information fragmented) - who could drive the standardization?

CO2 is not yet a decision driver when choosing a cargo operator/partner.

Clients want CO2 information from end-to-end delivery. Is local CO2 platform enough?
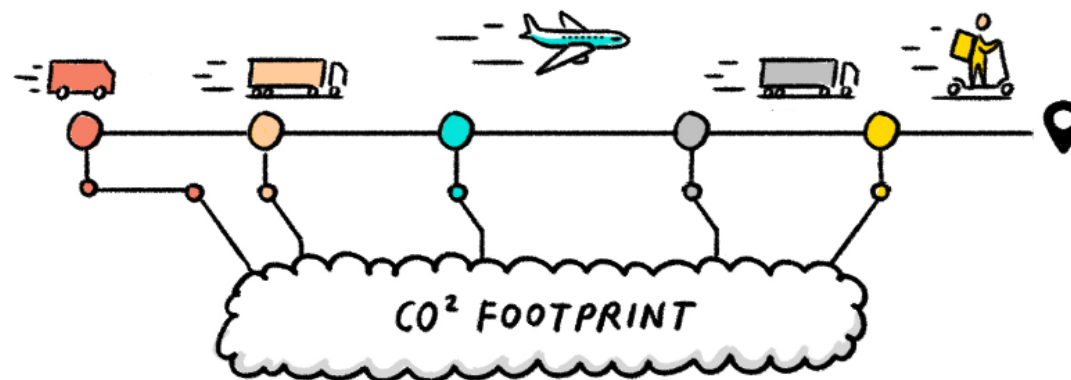
CO² FOOTPRINT

Digital customs documentation handling increases efficiency through on-time activities and reduced inspections needs.

If the documents provided for customs would be also available digitally from the data hub, the terminals would have up-to-date information what can be handed over to the trucking companies when they arrive. They could process the shipments faster and reduce the time trucks need to wait at the terminal before loading.

When the airline has the same information that Forwarders have, for customs declaration documents, it reduces the confusion and uncertainty, which leads to additional checks, in customs handling.

If Airline would have the detailed information on shipment for customs declaration, they would be able to handle the customs as soon as the "wheels touch the runway" which would make it possible to transfer the shipment directly from the plane, without having to be stores in terminal warehouse first.

Having up-to-date visibility to same information as other parties, would increase efficiency (no need to investigate possible differences in information or missing information) and reduce risks of making mistakes.

Currently terminals are developing their own systems
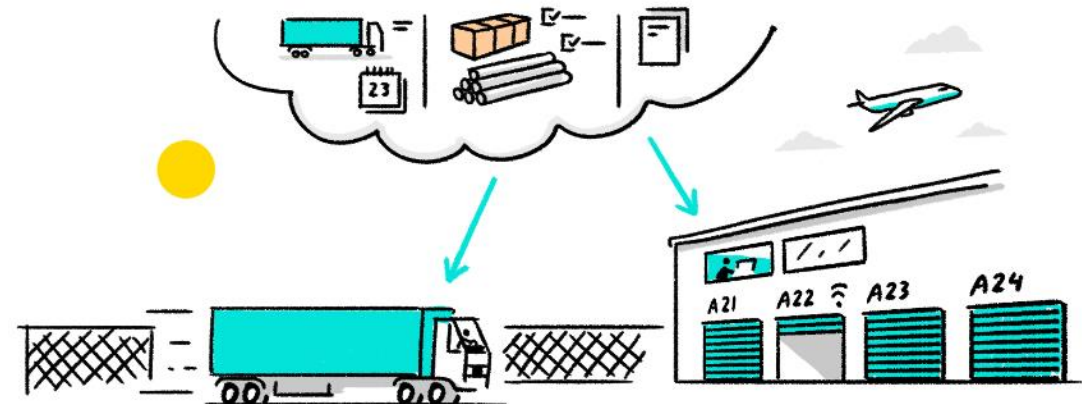
Accurate shipment information enables all the transporting parties to optimize their use of space and resources more wisely, thus saving costs, reducing emissions and increasing on-time performance.

Accurate information about the dimensions and content of the shipment will enable to plan and optimize the use of space in warehousing and transportation. Now this information is mostly missing and the real dimensions are known only when the shipment actually arrives to the transporting partner. This is causing challenges for the loading and inefficient use of space, sometimes even delays in shipping.

The dimension information is critical to be able to plan efficient use of cargo space (at the aircraft, on the truck…) but it very much missing at now. Would create great benefit to have it when planning cargo transportations.

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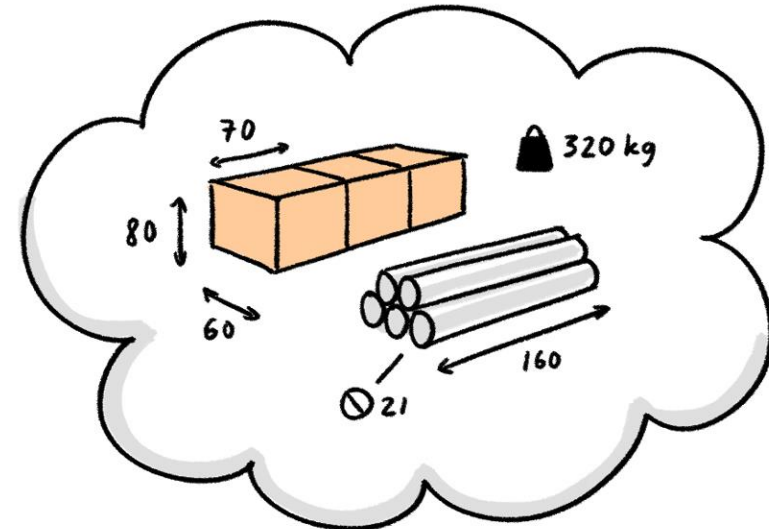
Shipment's dimensions are critical information but currently many times not available when needed. This would require the whole industry to get a grip! *Interviewee*

Cost efficient airport would attract air lines and other cargo operators to use HEL airport more.

By providing access to comprehensive and right-time shipment data, the airport could help the various stakeholders to solve similar issues with centralized solution, instead of everyone solving them alone. This could be used for marketing the airport as efficient and reliable, data-driven airport and thus attract old players to stay and new players to enter.

Although airports tend to focus on passengers, eventually the decisions related to operated network are done based on both cargo profitability and passenger demand.

Being a modern airport community with an ability to use good quality data would definitely be an advantage

COSTS

HELSINKI-VANTAA AIRPORT

Improved security with digital data processing. Comprehensive data about shipments and cargo operations would enable to monitor and analyze security. Digital data can be also controlled better, knowing who has access to it, who has changed it and where it has been used.

When data is managed digitally it can be carefully monitored and different versions can be detected. This would smoothen the process, increase trust and help to manage security of: dangerous goods, document frauds, criminal activity and human error.

Shippers and Forwarders hold the most critical information, and they would also benefit from being critical part of increasing security and helping to mitigate risks.

This would definitely improve security and traceability, which are very important factors.

Can not see how digital data on systems would be any more secure than printed. In fact, systems can be broken into, people can control who they share the prints with.

"

Lot of paper copies are needed for the shipment handling. This is causing slowness and risks of missing something, which is causing delays. Interviewee

Sharing shippers' data about the shipment smoothly for the whole community provides efficiency and valued shared situational awareness.

Shippers could provide same information they share with the Forwarders for use for other players, such as GHA, CHA and airlines with the same effort. If they would use a standardized methods, all relevant parties could utilize the data more easily.

♡ It is difficult to think of any reason why the shipper would not share all the information they have about the shipment, for example share the order records.

⚠ Shippers share their information to Forwarders, can not find a reason to share to other parties as the Forwarder is the contracting party and they are responsible of other operators they use as contractors.

"

What arrives in the evening, must be declared for customs in the morning (to avoid unnecessary, costly warehousing). It is very fast-paced activity. If the driver could see where there is jam, they could optimize. *Interviewee*

New innovations can grow from comprehensive air cargo data asset. Enabling the cargo business to grow and transform. Keeping in the speed of changes initiated from the global trends.

A trusted and accessible shipment data asset can create a ground for new innovative solutions to be identified. There is proof that when data is accessible and understood, parties are interested in investing on innovation and new ideas can grow. Examples of this are Brucloud hackathons and IATA One Record hackathons. This could potentially start to shape the whole airfreight process and open opportunities for totally new kind of business value.

The industry has strong culture of doing things as always and maybe too many parties and layers, which makes it very complex to change and introduce new better ways of working.
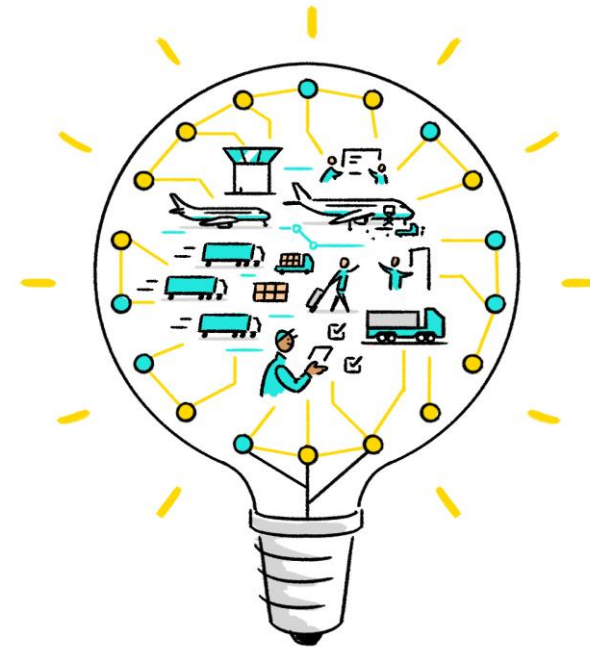
> " *Current cargo ecosystem has too many layers and complexity. This results into lack of visibility as the information is exchanged between the "hand shaking" parties only.* Interviewee

Easy access to the data lowers the barriers to utilize data and to improve own processes with it.

Data hub can provide access via APIs to cargo key information, which will reduce the investments needed from individual organizations to build capabilities. They can focus on utilizing the data faster and develop their own processes with it.

Data hub could also provide simple UI to access and input data.

Up-to-date, comprehensive information is crucial to be able to operate efficiently and optimize. If this would be easily available from one place, it would be a great benefit.

The relatively small volumes of Helsinki Airport have enabled current operations where information flows without a common data platform.
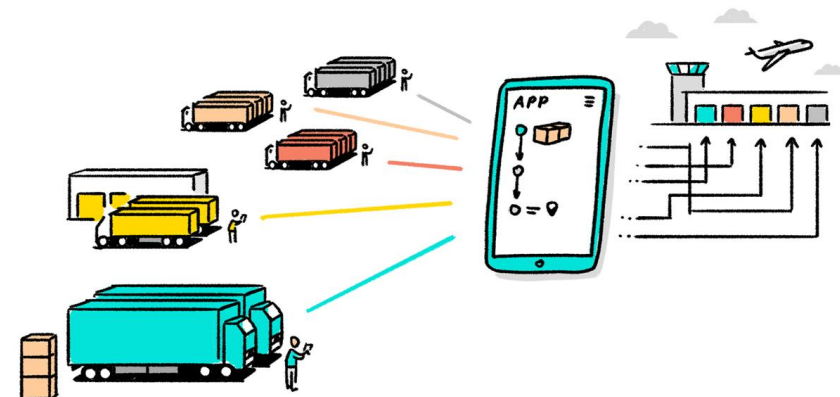
Customs declaration during the flight (on-air)

The possibility to declare customs already during the flight, was raised in discussions multiple times during this project. There was an attempt to find a way to reduce the waiting time at the terminal after landing and utilize the time spent on-air instead.

This discussion came to following conclusions: Regulation states that the customs declaration can be done only when the shipment is actually on the ground, when it has entered the country. Also the actual waiting time on-ground is not significant usually. However, the customs documents could be prepared during the flight and sent to customs as soon as the plane touches the runway, which would serve the purpose. To be able to do this there must be connections to the required data and ability to send the customs' required documentation forward digitally.

"
Several parties need to constantly input the same shipment data several times to several systems. This is because there is no shared one source of this data. This is really frustrating and inefficient.

Conclusion: Same, comprehensive information is needed by many. And everyone creates their own slice of this information. By bringing HEL cargo operators together and providing a capability to combine their information slices into shared, comprehensive information will benefit all - the Airline, the Forwarder, the Cargo handlers, the Trucking companies, and the Shipper

Value potential

Currently airport shipment data is transferred bilaterally between parties that participate in cargo handling. Current data quality and content does not enable the participants to do detailed planning or e.g. emission reporting. With Airport Data Hub all parties will have a centralized, real-time view of the detailed cargo information jointly provided and accessible to all authorized participants.
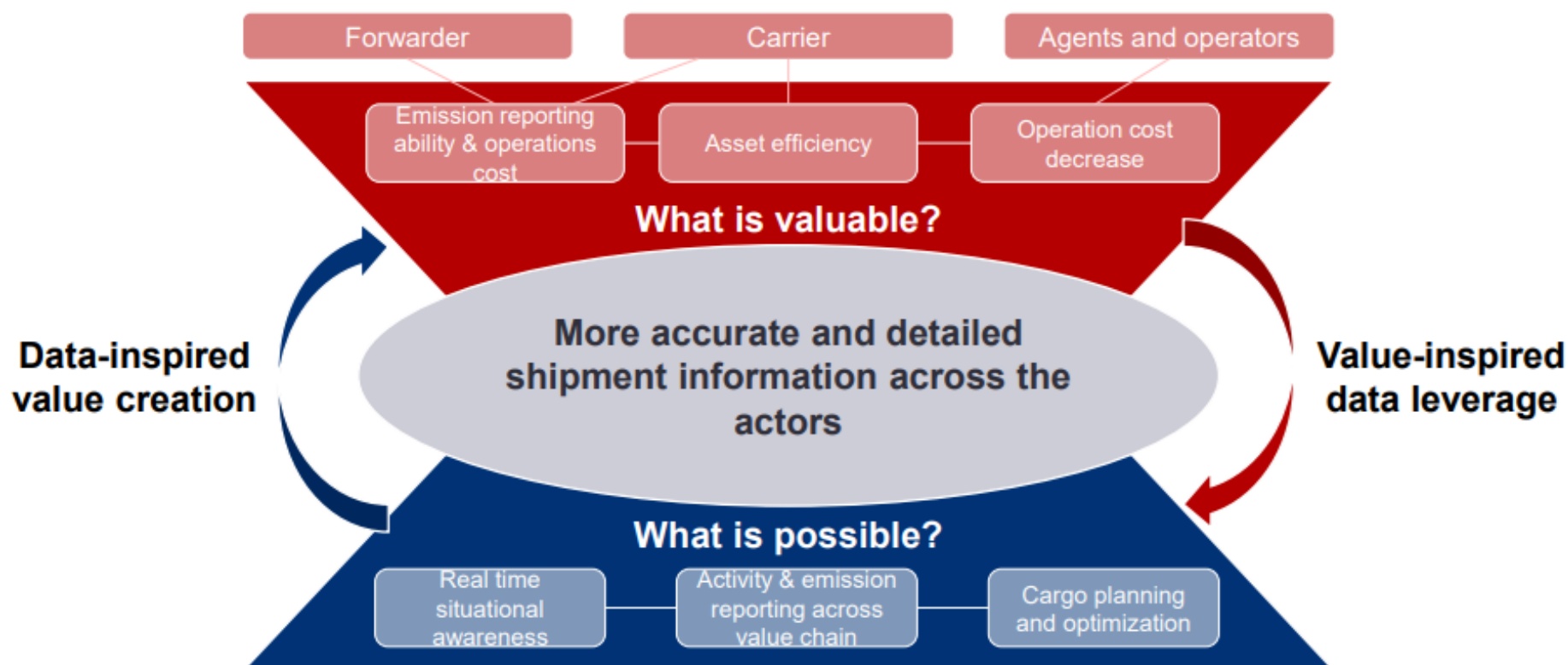
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HEL cargo ecosystem operators and data sharing needs

Data sharing in the ecosystem

A successful ecosystem is built around shared value, in this case comprehensive shipment data: **basic information about the shipment and the status of the shipment**. Every ecosystem player gains from it and as a return shares their own data, which enables the value for everyone.
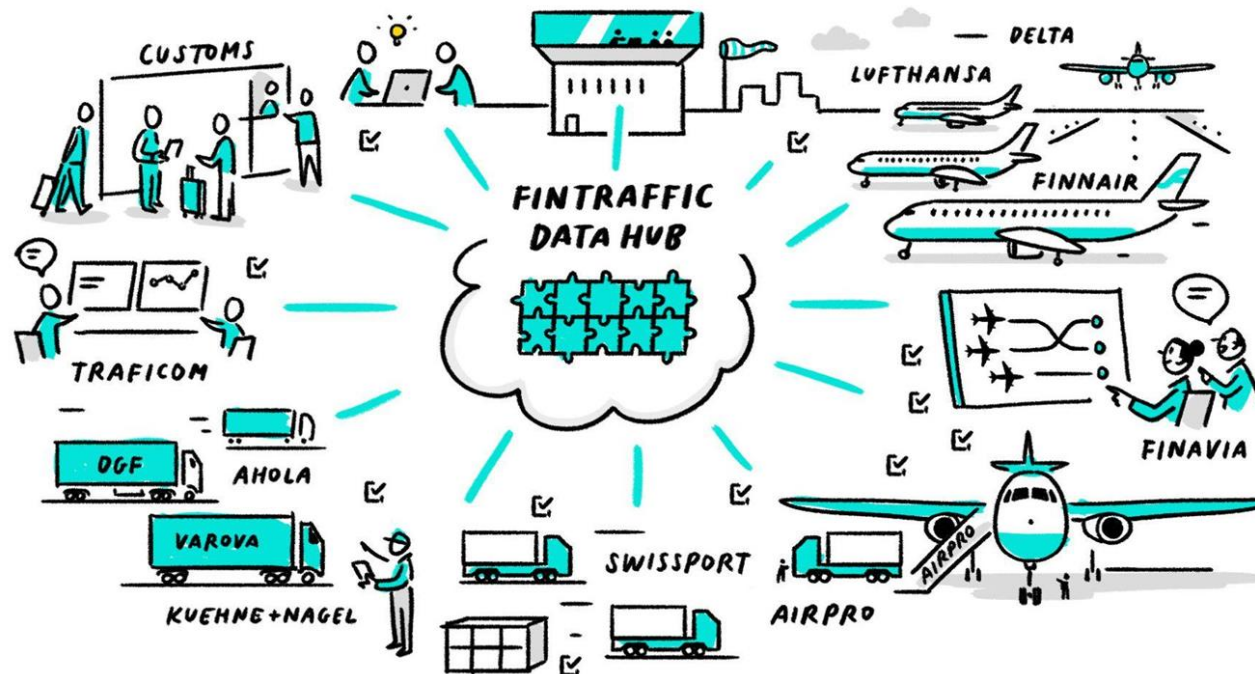
Data needs and data holders

Common data requirements focus on three information assets. On the next page, we have divided the data needs into shipment basic information needs and shipment status needs and divided the actors into those who have data needs and those who hold the data.

Shipment data holders being Forwarders and Shippers while Airline, Customs and Trucking companies being the ones with shipment data needs. Finavia holds environmental data from the airport.

By categorising those who need the data and those who have it, we can visualize the dependencies and collaboration opportunities related to data sharing between parties.

Basic data about the shipment
(dimensions, weight, content)

Shipment status
(events including schedules, customs activities/checks)

Shipment handling environment data
(location, weather conditions, rush hours / jams, situational awareness)

The dependency between data needers and data holders

Holds shipment related status information data

Shipment data holders

Forwarder

Shipment data needers

Airline

Finavia

Needs shipment basic information data

Customs

Holds shipment basic information data

Data sharing opportunity to benefit from

Shipper

Trucking

Needs shipment related status information data

Holds shipment related status information data

HOLDS: Cargo handling info (from terminal) and flight information

NEEDS: Predictability, more efficient use of cargo space

HOLDS: Traffic information

NEEDS:: Prerequisite to operate airports in the future?

HOLDS: Detailed information about the content, size etc about the shipment

NEEDS: Less manual & paper mandling. When data is available digitally, the handling is more efficient and reliable.

Forwarder

airline

Finavia

Needs shipment basic information data

Holds shipment basic information data

customs

HOLDS: (data that can be shared already available)

NEEDS: Predictability helps to plan operations and direct resources where they are most needed

HOLDS: Detailed information about the content, size etc about the shipment

NEEDS: More sustainable cargo operations to purhace

Shipper

Trucking

HOLDS: (carbon footprint)

NEEDS: Predictability helps to plan operations better and better data makes the operations reliable

Needs shipment related status information data

Shared goal of the ecosystem: Up-to-date and comprehensive with enough details visibility to cargo information and -handling information, including airport- and flight situational information.

The data different ecosystem players can bring
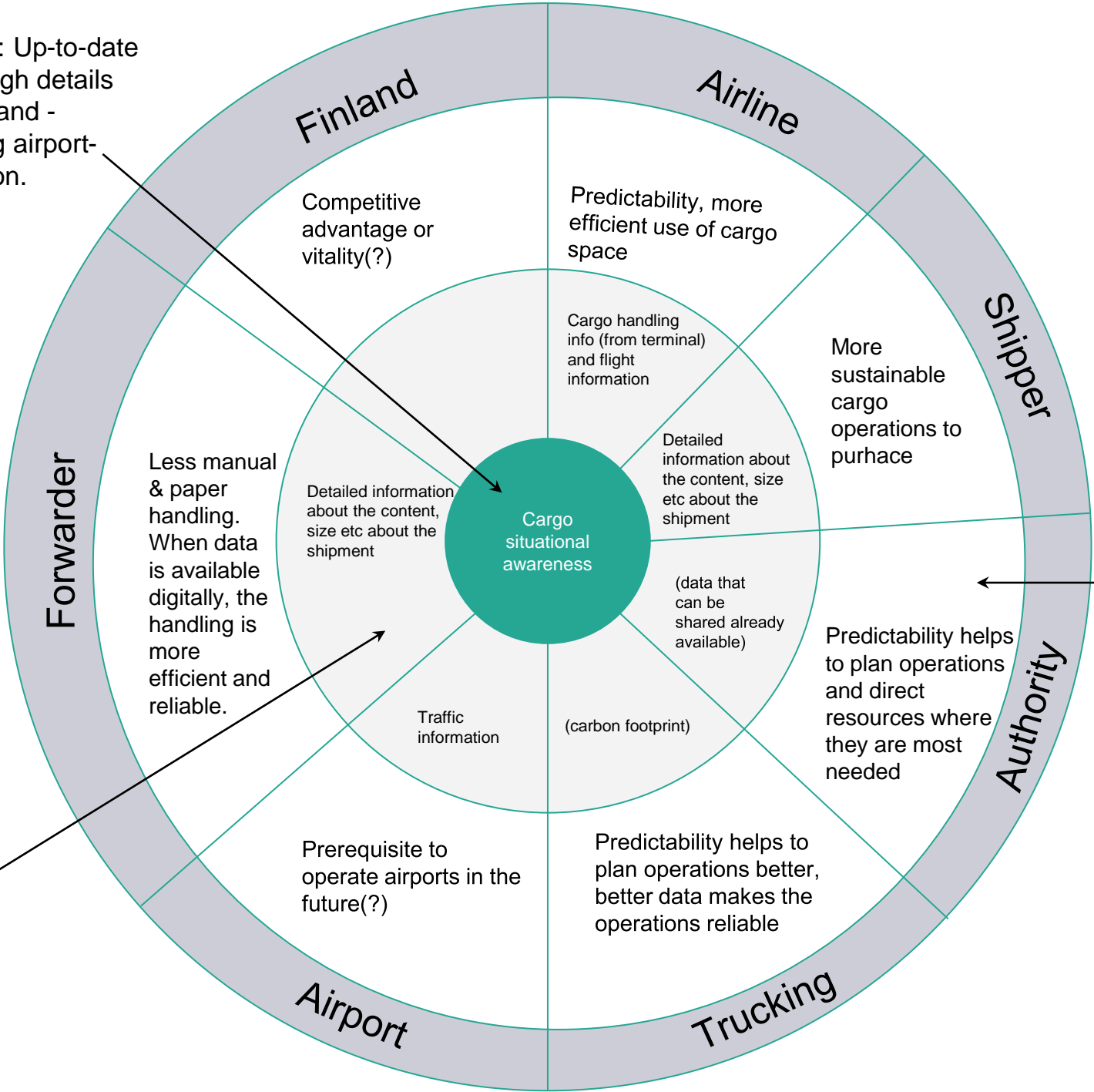
The benefit different ecosystem players can get

Finland

Airline

Shipper

Authority

Trucking

Airport

Forwarder

Cargo situational awareness

Competitive advantage or vitality(?)

Predictability, more efficient use of cargo space

More sustainable cargo operations to purhace

Predictability helps to plan operations and direct resources where they are most needed

Predictability helps to plan operations better, better data makes the operations reliable

Prerequisite to operate airports in the future(?)

Less manual & paper handling. When data is available digitally, the handling is more efficient and reliable.

Cargo handling info (from terminal) and flight information

Detailed information about the content, size etc about the shipment

(data that can be shared already available)

(carbon footprint)

Traffic information

Detailed information about the content, size etc about the shipment

5

Technical considerations

Interoperability is critical for the technical solution, as it needs to be able to evolve and grow as connected part of logistics data space in Finland and serve operators who also use other airport's cargo data hubs.

Most critical information assets, based on the challenges in the process and value opportunities

Basic data about the shipment
(dimensions, weight, content)

Shipment status
(events including schedules, customs activities/checks)

Shipment handling environment data
(location, weather conditions, rush hours / jams, situational awareness)
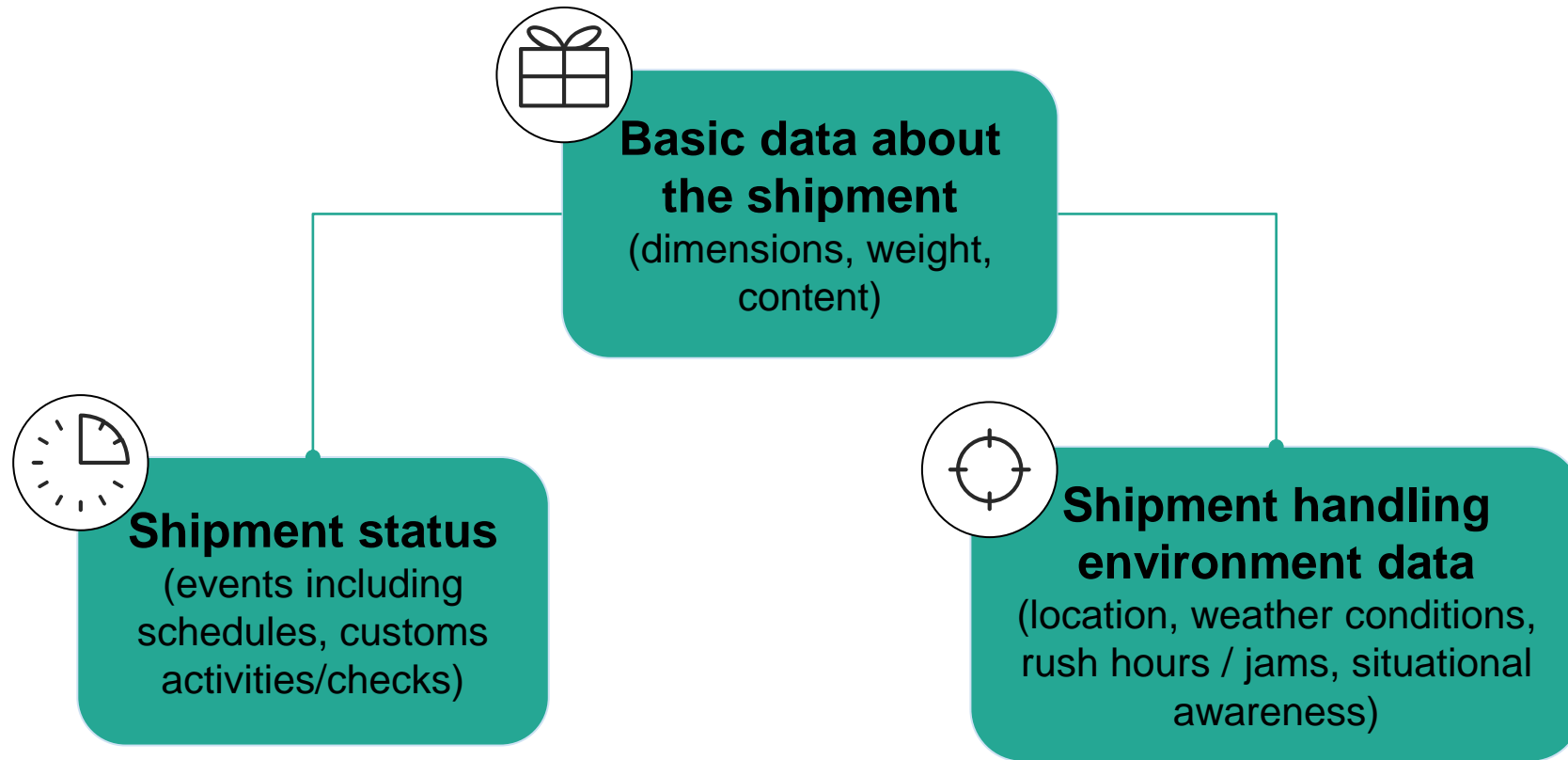
Conclusion 1

A common canonical data model is required in order to datahub act as an effective data exchange platform. For such canonical data model, IATA One Record should be evaluated

Other development impacting the digitalization of airfreight process should be monitored carefully for the interoperability

During the interviews, the following development were mentioned:

eFTI: digitalization of freight transportation information is ongoing, which means many operators will be having ability to provide their information digitally in the future. However this does not require (at the moment) operators to provide their information in digital format, it is only setting the authorities the requirement to receive digital information. It is important to consider enabling the operators to share this same digital data via the HEL data hub n the future.

ICS2: As the deadline for ICS2 is approaching soon, this is not a use case that could potentially increase the interest of cargo operators developing HEL data hub. Operators have already their own solutions being developed. However, utilizing the same digital customs information through the HEL data hub would be critical to provide rich data content. Connectivity with the EU ICS2 data hub should be considered.

IATA One Record: Airlines and airfreight operators are going to use IATA standard, so utilizing it for the HEI data hub would be critical. This would reduce the need to develop yet another technical solution

Recommendation

Connectivity to other logistics- and cargo data hubs should be considered

- Linking air cargo datahub with with marine and road transportation platforms (such as Port Activity) to provide more comprehensive view

- Bridging HEL air cargo datahub with other airports' datahubs to provide better visibility
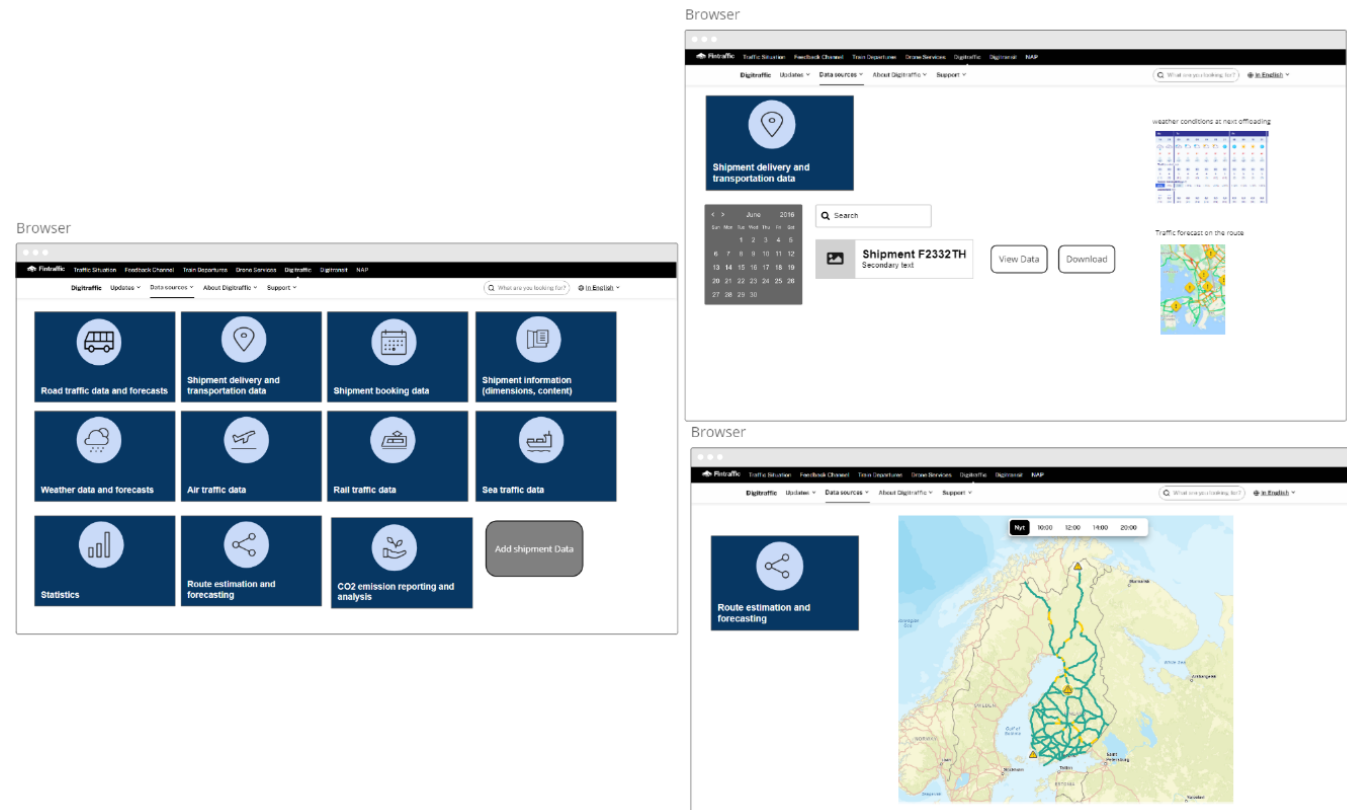
Mock ups for the last workshop to test what type of features are considered most valuable

The HEL cargo data hub should be an interconnected data sharing gateway
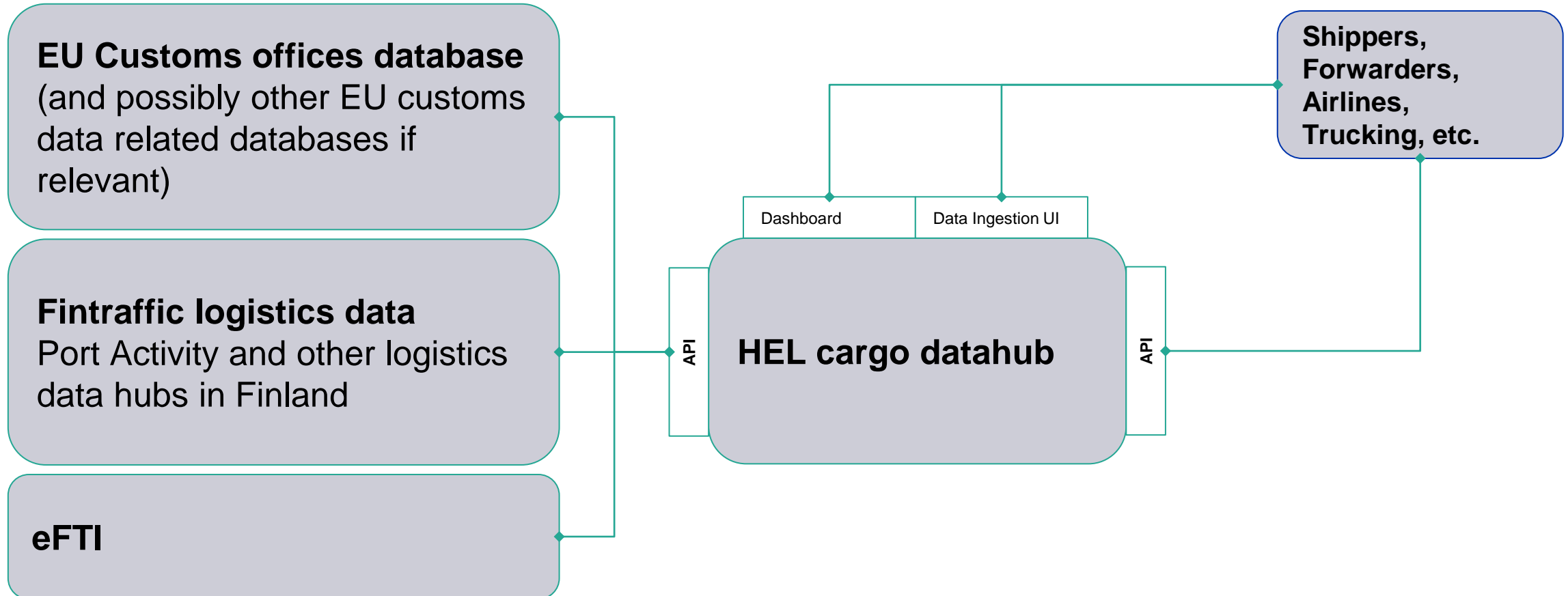
Conclusion 2
There are three technical solution focused use cases

- First use case was to be able to **exchange data with different stakeholders through API's.**
- The second use case was to build **a dashboard for viewing near real time data regarding e.g. cargo status.**
- And the third use case was to build **an UI where data could be ingested into the platform** for e.g. updating the cargo status.

Mock ups for the last workshop to test what type of features are considered most valuable

Conclusion 3

There are existing cargo datahub tools in the market so careful consideration is required to evaluate whether out-of-the-box solution or self-developed solution is more suitable. This decision should be reflected to the identified use cases and requirements of the solutions.

There are 3 kinds of solutions options

Option 1:
Industry solution to support cargo processes

Option 2:
Data hub solution for easy exchange of data

Option 3:
Develop own solution by utilizing cloud

Option 1: **Industry solution to support cargo processes**

- Off-the-shelf solution with process oriented functionality
- Easy to attach data to cargo processes
- Harmonize stakeholders' processes into a unified ecosystem level cargo process

Pros: The launch can be fast to test the first use case. Gain experience through use of the solution early on. No need to invent common features used by several parties in the industry. Helps to proceed with concrete solutions faster and create the operating model (roles, responsibilities, agreements, ways of working) which will be valuable in any case.

Cons: Low or no ability to customize. Need to follow the business logic built in to the solution by the vendor.

Option 2: **Data hub solution for easy exchange of data**

- Solutions focus on providing a platform for data exchange between parties
- Focus on managing data integration well
- Industry agnostic

Pros: Possible to set up fast a technical solution to exchange cargo data, meeting the cargo data hub first use cases.

Cons: Cargo process specific features must be developed separately as well as other features such as dashboards.

Option 3: **Develop own solution by utilizing cloud**

- Start building a datahub based on predefined use cases
- Focus first on sharing data between stakeholders
- Expand with an self-service UI for dashboards and data ingestion

Pros: Possible to build a technical solution that meets exactly the needs of HEL cargo data hub community and chosen use cases. Very flexible as the development is fully in the hands of the community.

Cons: Slow progress as there will be work on setting up the basic platform components before any testing of use case can be done. Not necessarily cheaper than buying licenses for off-the-shelf solution.
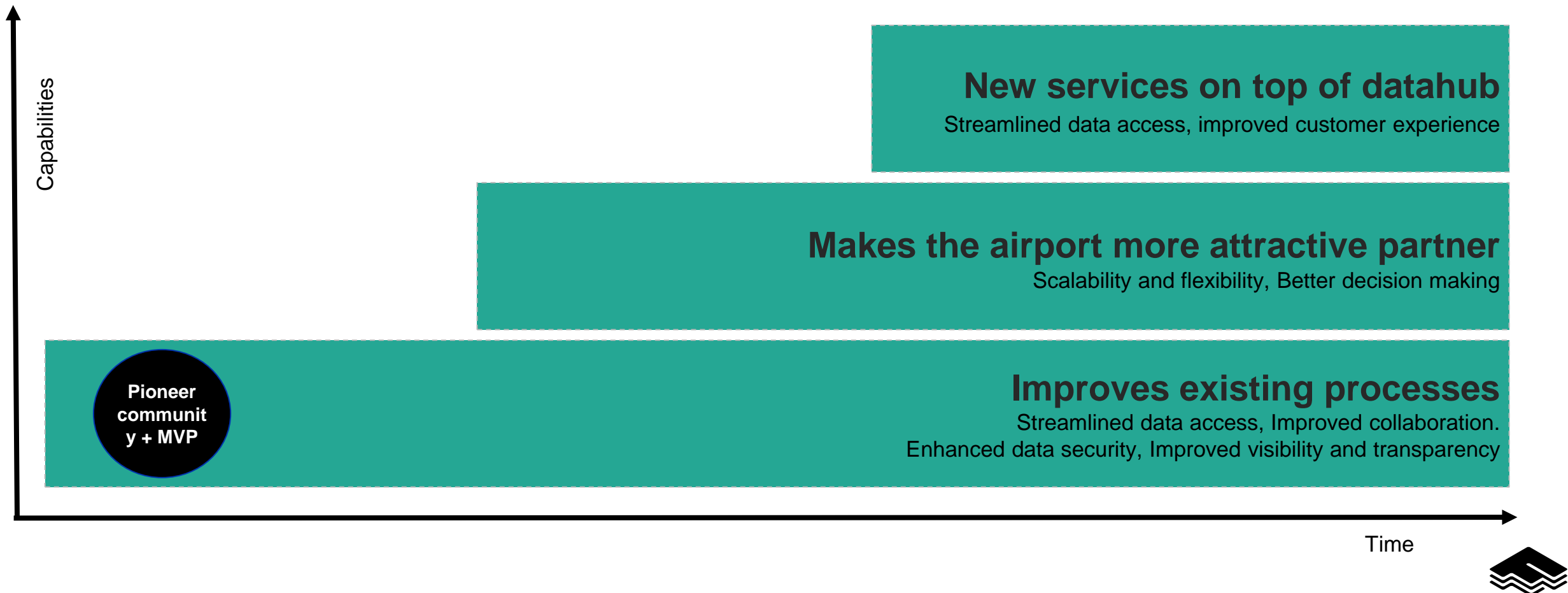
6

Future and next step recommendations

The development of Datahub should start with building a community from existing active members in HEL cargo ecosystem. This work produces material to support the launch of community building and a roadmap for extending the community and moving towards the actual datahub together.
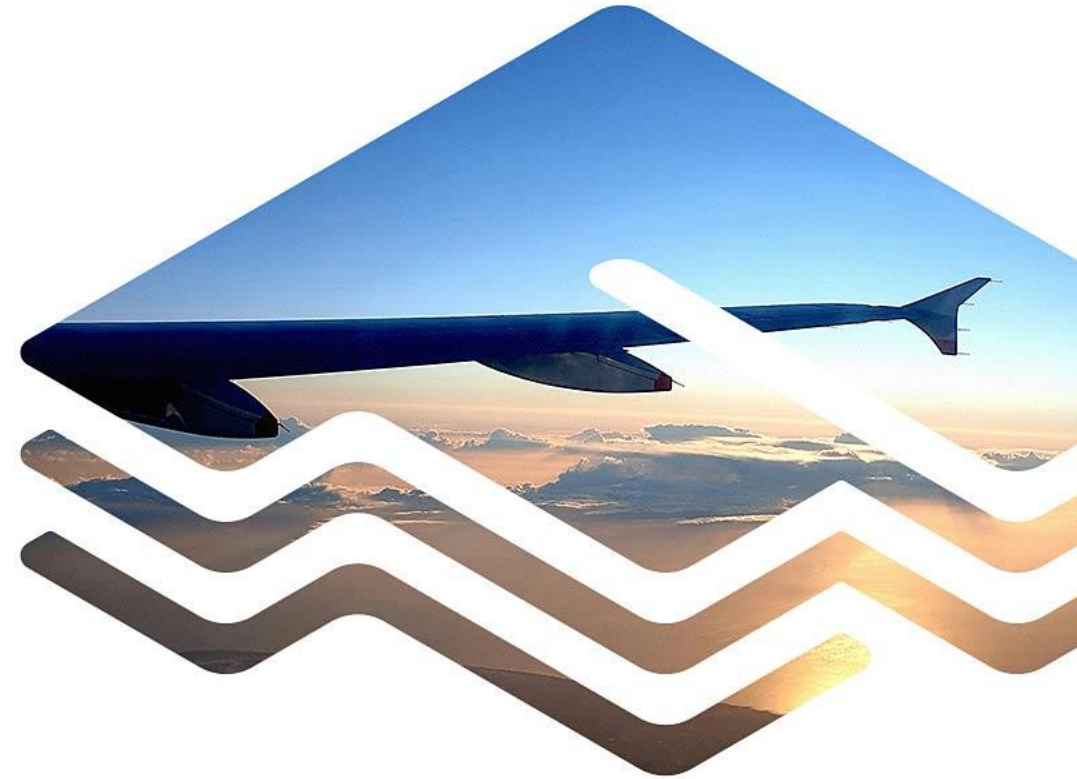
The potential benefits of the cargo datahub

There are many levels of future potential. Starting from improving concrete use cases of existing processes to gain proof of value. The more use cases are implemented the more richer data there will be, helping to make HEL airport attractive partner through cost efficiency. And eventually utilizing the data to innovate and create new services with data.

Capabilities

New services on top of datahub
Streamlined data access, improved customer experience

Makes the airport more attractive partner
Scalability and flexibility, Better decision making

Pioneer community + MVP

Improves existing processes
Streamlined data access, Improved collaboration.
Enhanced data security, Improved visibility and transparency

Time

Future trends affecting air freight cargo

At least following trends are affecting air cargo industry in the near future. Focusing on future trends can help air cargo companies stay ahead of the competition, understand changing customer demands, adapt to globalization and develop sustainable solutions.

- Growing **volumes** (rapid growth of online retail sales and demand for temperature-sensitive products)

- **Digitalization and technology** development (automation, robotics, self driving cars, drones**...**)

- Growing **energy price** and -efficiency (emissions)

- Growing focus on **carbon emissions** (need to report and reduce)

- **Labour shortage** (difficult to find and retain competent workforce)

- Growing **need for resilience** (pandemia, nature disasters, war...)

Future scenario: what if there is no datahub in place

Comments from the workshop participants when asked how would the future look like if won't invest in datahub today:

"we remain in stone age and might lose "the momentum""

"We just continue as last ... years"

"we lost our chances for cost efficient operations - expenses increase"

"what is the chance other competitors are NOT evolving? better stay awake than behind…"

"we can't handle the operations as today once the volumes will significantly increase"

"Have to wait and see if any similar industry solution will be adapted (IATA, Airlines, etc)"

"Lack of standards will result in multiple different solutions and platforms."

Conclusion: If the air cargo parties at HEL do not improve their data utilization in the future, they may face several challenges and missed opportunities for growth and innovation.

Datahub at AMS airport

" *It all starts with the community*

AMS Airport ecosystem has had a functioning community of cargo operators for several decades which owns the solutions and promotes joint development. Needs for the joint datahub come from community members.

Being part of a community allows its members to use data-driven tools that make it easier for them to function. Access to these tools also puts them at an advantage over other operators. That is why they are also willing to invest their time in community activities. "You get some you give some".

Our recommendation is that the same operating model for the Community should also be tested at Helsinki Airport when designing Datahub.
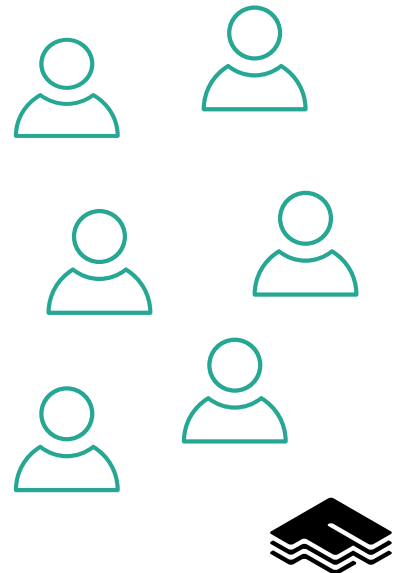
A well-functioning data hub requires strong community between airport operators

1. Communicate the purpose

"Tech is easy, culture is hard" The biggest challenge is not to know which data will change, but to get the community to play together: clarify and communicate common motivators for sharing data. What problems it aims to solve? What are the key benefits it will offer to stakeholders?

2. Get stakeholders involved

Get identified stakeholders involved and define their roles and responsibilities. This should be done by:

- Developing a governance model that defines roles and responsibilities of the community members, the decision making process and the rules and procedures for sharing data
- Establishing communication channels for building and maintaining a datahub community

Outcome of this project:

Purpose of the datahub: By bringing cargo operators together and providing a capability to combine their information slices into shared, comprehensive information will benefit all

Outcome of this project:

Identified stakeholders are workshop participants + members of previous data community members.

A well-functioning data hub requires strong community between airport operators

3.   Define used data standards and technical infrastructure

There are several standards and technologies affecting air cargo. The used standards and technologies should be agreed and developed in collaboration with the community members

4.   Monitor and evaluate:

It is important to monitor and evaluate the performance of the datahub community regularly. **We recommend starting small with the pioneer community and concrete value opportunity and expanding little by little towards bigger goals.**

Outcome of this project:

Standards and techs recommended depend on the chosen value opportunity.

Outcome of this project:

Potential value opportunities are listed in this document.
Concrete next steps are presented next

Value proposition for datahub community:

By bringing cargo operators together and providing a capability to combine their information slices into shared, comprehensive information, all will benefit