PMU ™ – The market research

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School: Karel de Grote – University College

Company: Independent Container Line

Foreword

This research would never took place without the input of 3 very motivated fellow students who are the co-founders of the platform idea 'Pick-Me-Up': Jasper Geerts, Maxim Schroeyers and Alexis Wouters.

I would like to pay my gratitude to Wendy De Groote, Peter Obourdin, Hendrik Moerkerke and every other employee from ICL for giving me the opportunity to do my internship and research at ICL.

Our lecturer Ilse Van Vlierberghe from Karel de Grote University College was my mentor during this project. She helped in many ways: introducing to new contacts, helping to structure the content of this paper, give new insights, etc. Together with my English lecturer An Cox they read and corrected errors in this paper.

Also, I would like to pay my gratitude to VEA[1]. Thanks to them I could contact a lot of people to do my survey. Thanks to Vanessa Thijs from VEA I received a master thesis from Chaudri Sidharth about demurrage and detention. I based my research on this academic thesis that helped me better understand demurrage and detention and its economic impact.

I also want to thank Daniel Lievens, CEO from Nxt Port he gave us new insights and tips to develop our idea. And he introduced us to John Kerkhof from APCS.

Annemie Peeters from Port of Antwerp and Chris De Clerck -Acting Head of Department, FPS Finance, Customs and Excise- to invite us to the follow up meeting about CCRM.

Olivier Kegels, he is our coach from Bryo. At weekly coaching sessions he helped us developing our idea, make a good BMC[2] and financial plan.

[1] Federation of Antwerp freight forwarders

[2] Business Model Canvas

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Introduction

The ongoing globalisation ensures that the world-wide transportation of goods keeps growing continuously. Especially the containerized transport. The ocean's capacity is infinite, container vessels are breaking all records in capacity. This growth is not without any obstacles. One of the weak points of these huge ocean vessels with thousands of TEU[3] is the hinterland.

> Ivan Van de Cloot wrote an opinion in Flows magazine. [4] His opinion is that logistics should evolve to an added value policy instead of a volume policy. I agree with his opinion because I think an added value economy is less vulnerable. Moreover we should think about a sustainable logistic concept and be careful with the available space for harbour and logistic activities.

It takes a lot more time and effort to adapt the infrastructure of the ports, or more specifically the container terminals, to this economy of scale trend. This results in more and more congestion problems at the gates of these terminals because of the increasing peak moments.

To solve this problem without working on the infrastructure we will have to find ways to improve the efficiency of the supply chain. Everybody is focussing on the flow of goods and some also on the flow of documentation. The newest trend, however, is the flow of data. This is what we are trying to support. Moreover, we are trying to improve the support of data collaboration between different parties.

In the logistic and maritime sector all companies and other parties are already using their own digital systems. They achieved a lot of improvements by introducing this digitalisation. But an incredible potential is left behind. To unlock this potential we need to connect the data of all parties and start to collaborate. This allows us to eliminate lots of unnecessary correspondence, gives us new potentials and improves the efficiency.

This paper is a research of the possibilities and opportunities of a self-developed data collaboration platform to improve container import procedures.

[3] TEU is the abbreviation for a Twenty-foot Equivalent Unit of in other words a twenty-foot container.
[4] http://www.flows.be/nl/opinies/opinie-ivan-van-de-cloot-volume-versus-waarde-logistiek

1 ICL

The abbreviation 'ICL' stands for 'Independent Container Line'.

Figure 1 Logo ICL

ICL is a relatively small niche carrier established in 1985. It's an American company but ICL Europe is the local agent in Antwerp.

ICL has a fixed sailing schedule in the North-Atlantic Ocean along the seaports: Antwerp, Liverpool, Chester and Wilmington. Using 4 vessels with a capacity of approximately 2,500 TEU: M/V Independent Voyager, M/V Independent Pursuit, M/V Independent Spirit and M/V Frisia Bonn.

Figure 2 ICL line service

ICL's core business is shipping FCL containers but ICL also considers the complete supply chain of its customers. For example, the LCL department helps customers to save money by consolidating goods in containers and the intermodal department tries to deliver the goods against a competitive price till destination.

ICL is very competitive because of their fixed weekly schedule. For example in Antwerp every vessel arrives on Monday end leaves on Wednesday. This is a very reliable service that allows customers to have a fixed and continuous logistic flow.

In total there are 167 employees, 91 in Antwerp and Liverpool and 76 in the United States. Therefore a lot of attention is given to the working conditions of the employees.

1.1 Brand messaging

- Incomparable reliability
- Customized logistic solutions
- Personalized service

1.2 Mission Statement

- Serving the customer as our number one priority
- Taking good care of the people of ICL
- Establishing mutually beneficial partnerships with our suppliers

1.3 ICL Values

- Conduct business honestly and with integrity
- Treat everyone with dignity and respect
- Build trust necessary to have open and honest communication
- Operate efficiently and control costs without compromising safety and security
- Communicate and support our company's objectives
- Understand, respect and bridge cultural differences
- Encourage innovative and creative thinking
- Exercise discipline in our decision making
- Be active in the community
- Protect the environment

1.4 ICL departments

1.4.1 Organigram

EU organigram, see Annex

John Kirkland is CEO & President and Dale Ross is COO. ICL ltd is divided in US operations, EU operations and UK agencies.

The EU offices are located in Antwerp. Here are 5 main departments: operations, finance/accounting, information technologies, sales and human resource. These departments have subdivisions.

1.4.2 Visited departments

1.4.2.1 Intermodal

Because it's so difficult to be competitive as a container carrier, ICL also has a solid intermodal product to improve their service level.

EFIS transport planning software is used to allocate a transport instruction to a trucker and to combine import and export transports to reduce costs if possible. Repositioning of empty equipment for import and export transport combinations can be made depending on the type of equipment, distance between destinations and requested delivery time.

Notable is the communication for transport instructions (pick up, closing date, destination). This is still send by email to the trucker company.

For urgent shipments or when the requested delivery time is close after the arrival time it's important that these urgent containers are first on quay and available for pick-up. Unfortunately it's not always possible because this depends on the stowage location on board. Therefore the stowage plan is requested so the terminal can forecast an estimated discharge time of each container.

ICL wants to report to the customer in case of an error/failure. Service failures are tracked, these service failure reports allow to improve the service. In such a report ICL notes what the error/failure was and who was responsible and what the extra cost/loss is.

1.4.2.2 Equipment[5][6]

The equipment department is responsible for the repositioning, repair and hire of containers.

The most profitable ocean freight carrier is a carrier that can ship a lot of shipments with very few equipment. Therefore, it is extremely important to have a high container rotation. It is difficult to overview the container rotation so most of the time we speak of 'box-to-slot ratio', in other words the amount of containers per container slot on the vessel or 'usage ratio', in other words the time a container is in use against the time it is stationary or empty. These ratios are continuously changing to optimize the capacity of the actual amount of shipments.

Equipment repositioning is necessary between the ports but also in the hinterland. Therefore good communication is required between equipment and intermodal. Maybe a digital platform can solve this issue.

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[5] Equipment, a department responsible for all the containers owned or leased by the shipping company.

[6] http://www.worldshipping.org/public-statements/2011_Container_Supply_Review_Final.pdf

1.4.2.3 LCL[7]

Another service ICL provides to improve their customer services level is the LCL department. Some shipments are too small for an entire container, LCL combines several of these small shipments. This service is a very good revenue for ICL because there are less empty miles by truck (equipment stays at depots) and the vessels loading rate will be bigger.

One of ICL's KPI's is to track the empty miles. The total amount of empty miles divided by the freighted miles must be under a certain %.

1.4.2.4 Pricing[8]

The pricing department is responsible for the pricing of FCL shipments. The pricing of LCL shipments is done by the LCL department itself.

Price calculation is a complex matter as there are many elements that may impact the rate, these may be market driven (fuel rates), services levels (location, type of equipment), and so on… The total price is a combination of ocean freight and several surcharges. For example the floating bunkering surcharge, imbalance surcharge, etc...

Many existing and potential customers with bigger volumes send RFQ's. RFQ's are Requests for quotations to compare carriers. These tenders are not only used to find the best price but they also compare other requirements.

[7] LCL is an abbreviation for Less than Container Load.

[8] Pricing, the pricing department calculates the best price for every contract.

2 Young Port Innovators

Young Port Innovators is a group of 4 students logistic management at the Karel de Grote University College (KdG): Alexis Wouters, Jasper Geerts, Maxim Schroeyers and myself. We are passionate about logistics in every aspect. Our ambitious goal is to start a leading company in the digitalization of the shipping industry.

2.1 Team

Alexis Wouters' interest lies in shipping and supply chain. He did an internship at Coca-Cola. Every 2 weeks he writes an article for OTM.

Jasper Geerts is a very motivated and hardworking person. His interest lies in road transport and supply chain. He writes articles for OTM on a weekly basis.

Maxim Schroeyers did his internship at TCL (Trans-continental Logistics).

Laurent Moyersoen, myself. The maritime shipping industry is my passion. My dream is to become an entrepreneur.

2.2 Mission

Young Port Innovators is a logistic process enhancer. We help logistic companies to develop a sustainable service using digital innovation and analysing data.

We want logistics to evolve to a more efficient and sustainable service so as to provide the world of its mobility needs with the least possible social and environmental impact.

2.3 The Next generation of a smart and safe port

Eddy Wouters is General Director at Antwerp Shipping Federation. On the 13th of October 2016 he gave a lecture at KdG called 'The Next generation of a smart and safe port'. During this lecture he mentioned the upcoming Nxt Port and hackathon. The lecture was about the future shipping industry and how it will look like. This motivated some students to participate in the hackathon. For myself it was an encouragement to be part of the change in the logistic sector. This was definitely the beginning of an adventure.

2.4 Hackathon

In December 2016 Port of Antwerp, Voka, Nxt Port, SAP and Cronos organized the hackathon 'Logistics of the Future 2016'. We were all individually subscribed and teamed up rather coincidentally. At that moment Young Port Innovators was born.

We were one of the 30 participating teams. Our team worked on the idea of 'Pick-Me-Up'. Unfortunately we did not make it to the finals. But nevertheless we received a lot of positive feedback and response from stakeholders. This made us decide to keep working on the project.

2.5 Pitching and coaches

2.5.1 First pitch

Thanks to the support of Karel de Grote University College and lecturer Ilse Van Vlierberghe we had the opportunity to pitch our conceptual idea for 3 managers from ICL. This was the first time we had the time to explain our concept and present our demo in front of a full class. After our presentation we had a private meeting with the managers. During this meeting ICL gave Jasper Geerts and me the opportunity to do a project internship.

2.5.1.1 *Article in Flows magazine*[9]

Translated title: KdG students present their own digital platform to ICL shipping company

KdG-studenten stellen eigen digitaal platform voor aan rederij ICL

23 december 2016 om 11:07

Tweet Delen

Studenten logistiek management hebben gisteren hun Pick me up-platform voorgesteld aan kaderleden van carrier ICL. Het platform is nog een gevolg van de Havenhackaton van twee weken geleden. De rederij was onder de indruk.

Figure 3 screenshot article Flows magazine

2.5.2 Start-Up @ Campus

For the Start-Up @ Campus competition organized by Karel de Grote University College. We had to pitch our Pick-Me-Up idea to a five member jury with different backgrounds.

Pick-Me-Up is one of the 2 winners. The winners were awarded a weekend- bootcamp with 2 coaches. In the abbey of Tongerlo we received professional coaching from Pieter Sprangers and Christophe Stuyts. We will get more start-up coaching during the academic year 2017-2018.

Figure 4 Weekend in the abbey

2.5.3 Voka – Bryo

Bryo is an initiative of the Chamber of Commerce of Antwerp. They coach and support every potential entrepreneur. Now we follow the course ‘stand-up’. These weekly coaching sessions help us developing our idea, do market research and make a business plan. The next course is ‘start-up’ followed by ‘scale-up’ courses. Every course are 10 sessions.

Figure 5 Logo Bryo

[9] http://www.flows.be/nl/trade/kdg-studenten-stellen-eigen-digitaal-platform-voor-aan-rederij-icl

3 Pick-Me-Up (PMU)

3.1 Origin of the concept

The idea to create this app came from the next challenge formulated by Gosselin at the hackathon 'Logistics of the future 2016'.

Figure 6 Logo Pick-Me-UP

3.1.1 Challenge

Efficient way to follow up free storage for import containers[10]

After a container has been unloaded, the receiver of the goods has a specific number of days' time to pick up the container.

Once this date is passed, the shipping agent will charge the receiver a fee per day per container. The amount of "free days" and the rate (per diem) is a commercial negotiation between receiver and shipping agent.

A) How can we make sure that the receiver doesn't get an unpleasant surprise when receiving the bill?
B) Is it possible to make a universal application which can track the agreed term and warn a receiver when that term is almost over?
C) Could we link this system to a planner so the receiver can automatically plan?

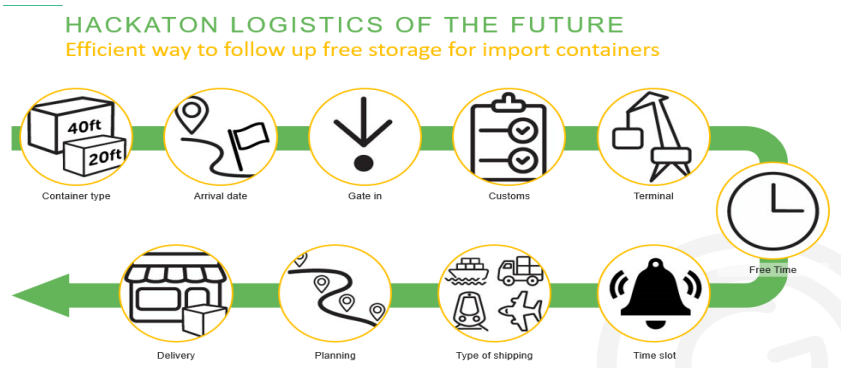


Figure 7 Hackathon challenge

3.1.2 Issue formulation

Each party involved by the import procedure of containers agreed the planning of containers at the terminal can be more efficient. Everything is organised manually, not only the communication of the availability and free time of the container, but also the demurrage and detention charges. There is insufficient communication and no overview of the entire flow between different parties. All this information should be automatically available on an online platform for the customer.

Because the majority of haulage is merchant haulage, not carrier haulage, it requires the customers to have more free time as the intermodality requires time for the containers to be transported and returned back to the designated location. Shorter free time is making the maritime supply chain more and more complex, requiring a faster turnaround time. (Chaudhri, 2016)

[10] challenge formulated by Gosselin at the hackathon 'Logistics of the future 2016'

3.1.2.1 *Transit time reliability*

According to a research at MIT university about reliability of carriers. Reliability is the difference between the contracted and actual transit time. The contracted time is the performance a customer will expect from the carrier. This means there is a lack of communication between procurement and operations.

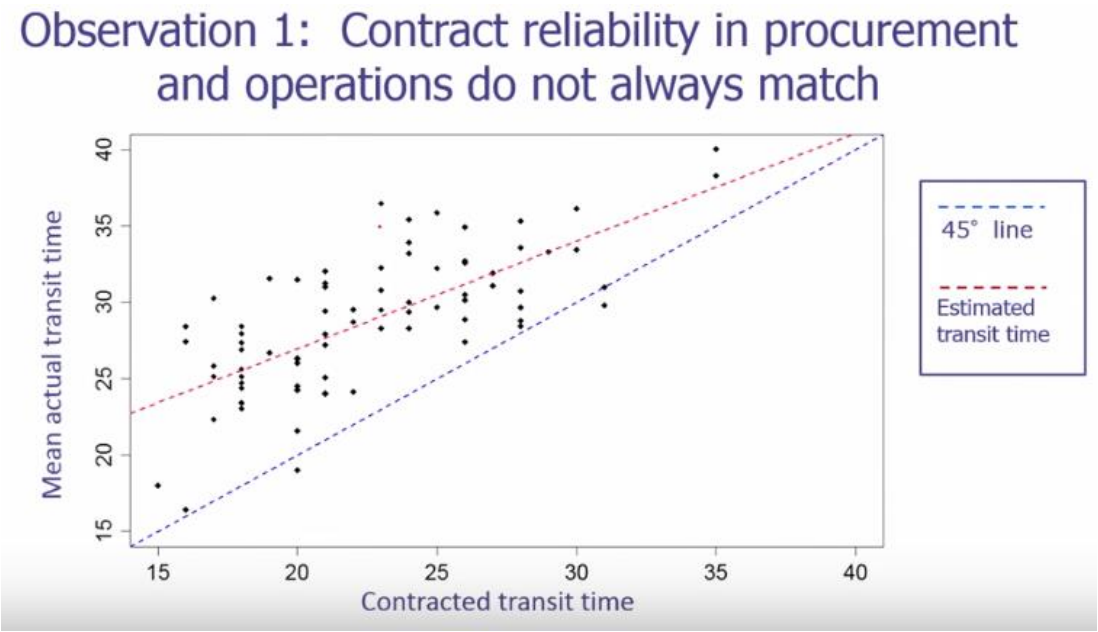
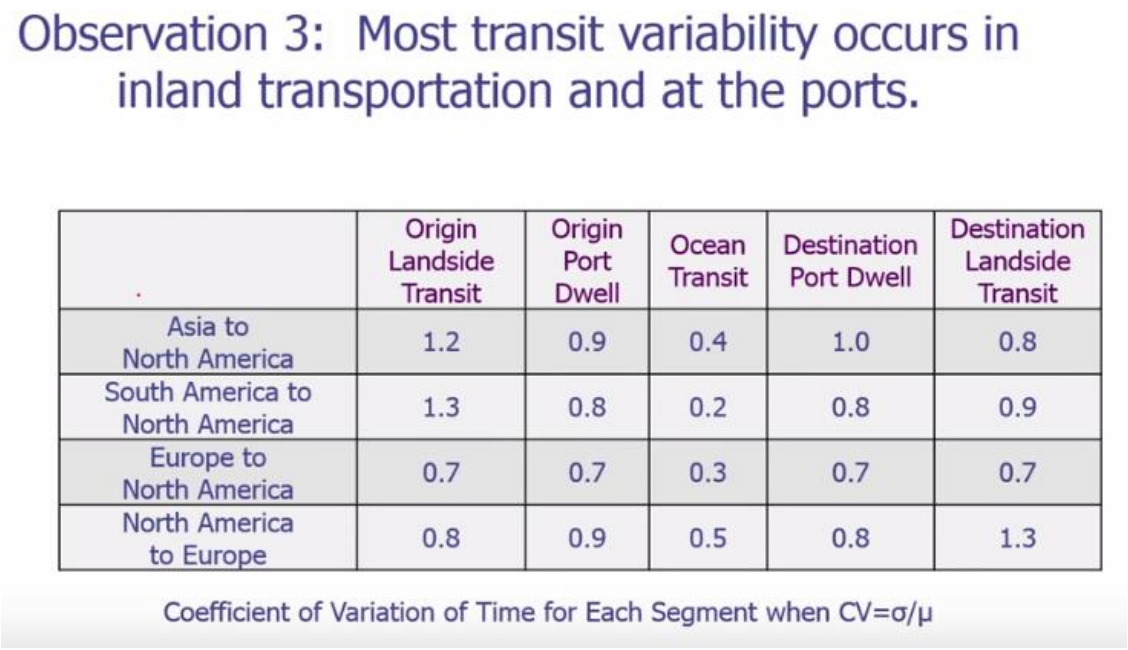


Figure 8 results research of MIT

The research shows that if we consider transit time as the time from origin till destination, not only the ocean transit time, most time is lost in port and at landside. Ocean transit is more reliable. This proves that solutions like PMU are necessary to improve the reliability and thus also the service level.



	Origin Landside Transit	Origin Port Dwell	Ocean Transit	Destination Port Dwell	Destination Landside Transit
Asia to North America	1.2	0.9	0.4	1.0	0.8
South America to North America	1.3	0.8	0.2	0.8	0.9
Europe to North America	0.7	0.7	0.3	0.7	0.7
North America to Europe	0.8	0.9	0.5	0.8	1.3

Figure 9 results research of MIT

3.1.2.2 Transit time versus logistic cost

For less time-sensitive goods companies often choose the cheapest transportation cost but this will be probably also the longest route and transit time. However, if we compare the total cost of a fast transit with a longer transit time, the outcome is different from expected. Especially if we take a look at the total logistic cost. For example, a longer transit time also means a higher pipeline inventory and a higher safety stock. So in the end it's often better to pay more if you can reduce the transit time.

For example losing a day at the terminal costs more than only demurrage charges. Losing a day can affect the whole supply chain due to failed planning.

3.2 Demurrage & Detention definitions

Demurrage and detention have many definitions. Every carrier has his own interpretation. To make a correct universal definition we divide the topic in three subtopics. Demurrage & detention, import & export and Free time & charges. PMU is a service for the import container we will therefore focus on import in this paper.

All definitions below are formulated by Sidharth Chaudhri in his master thesis. [11]

Demurrage can be defined as the charge that may be applicable to a customer for keeping the containers at the terminal or designated container yard beyond a predefined free period. Demurrage can be sub categorised as export demurrage and import demurrage.

Export Demurrage is the demurrage that may be applicable for the storage of containers at the terminal or container yard, after laden of containers at the designated place to vessel cut-off or deliver cut-off (in case of inland container depots). Free time allocated for export demurrage is usually combined with the free time given for export detention.

Import Demurrage is the demurrage that may be applicable for the storage of containers at the terminal or container yard, after their arrival beyond allotted free time. The free time is usually counted from the day of discharging of containers on to the terminal or container yard to the date of container gate out.

Detention can be defined as the charge that may be applicable to a customer for not returning the allocated containers, back to the pick-up location or to a location as contracted with the carrier, within the pre-defined free time. The allotted free time is counted from the gate-out of the equipment to gate-in of equipment at the container yard or terminal. Detention can be subdivided into two viz. Export Detention and Import Detention.

Export detention is the detention applicable on the empty containers picked up by the customer and returned at the terminal after completion of stuffing. Free time in this case is generally calculated from the pick-up of the container to the gate-in of the container, with both the days typically being inclusive.

Import detention is the detention applicable on the import container picked up by the customer from the terminal or container yard and returned back to the contracted location. In such cases the free time is generally calculated from the gate-out of the unit to gate-in of the unit, with both the days typically being inclusive.

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[11] Economic Analysis of Demurrage and Detention along the Maritime Supply Chain, VEA Price Master thesis, Antwerp University, Sidharth Chaudhri

Free time can be referred to the duration of days, calendar or working days, which are pre negotiated or determined between the carrier and the shipper, before the imposition of any demurrage or detention charges. Free time could be different for demurrage and detention, or it could be counted as merged, depending on the VOCC's rules at different ports.

3.2.1 Charges

The demurrage and detention charges can verify depending on the location, type of equipment and carrier. Import demurrage charges in Antwerp cost -depending on the carrier- between 30 and 60 euros a day for a 20ft DV[12] container. Detention is always cheaper because there is no terminal cost, this will cost between 10 and 40 euros a day.

For special equipment and out of gauge units the charges are in general higher. Examples of special equipment are flat racks, reefers and tanks.

3.2.2 Free time

Before 2012 free time was up to 10 days but in 2012 most carriers reduced the free time to 7 days. 3 years later, in 2015, some carriers reduced their free time further to only 3 days. A free time can also be negotiated. In such case the contracted free time is valid. A contracted free time can be customized for a certain type of shipments.

3.2.3 Import vs Export

Import and export are totally different procedures and so they should be examined separately.

According to the research of Chaudri Sidharth import tariffs are in general higher compared to export tariffs. We can therefore assume that focussing on the import leg will be more beneficiary for the supply chain. To offer a total solution we've opted for the development of a platform that can be used not only for the import leg but also for the export leg.

3.2.4 Complexity

As you can see demurrage and detention is not just a regular standardized topic. There are many different interpretations and components that influence the approach.

The complexity of this topic makes it difficult for forwarders and BCO's[13] to track and calculate their D&D of every shipment certainly when they have different shipments with different carriers at different locations in the world.

[12] DV or Dry Van container is a standard container without special options for general cargo.
[13] Beneficial Cargo Owner

3.3 Stakeholders

3.3.1 Shipping company

Job: To transport as many goods as possible with the least equipment possible.

Pain: Loss of container capacity due to blocked containers by customers and empty repositioning

Gain: encourage customer to return the container as quick as possible

3.3.2 Shipper

We have to distinguish a shipper between direct shipper and indirect shipper – via intermediary forwarder.

Forwarder (shipper):

Job: finding the best combination of logistic services

Pain: bad communication of the availability of the container at the terminal
Demurrage and detention are unforeseen costs

Gain: Real-time message of the availability of the container

BCO (shipper):

Job: Receive the cargo as per their ideal standards.

Pain: D&D are
a/ unforeseen costs
b/ calculated as unit & space used as an "alternative warehouse"

Gain:
a/ A better follow-up and planning of the on-carriage and detention and demurrage costs
b/ a close follow-up results in b1/ connect with the JIT-principle or b2/ well-calculated costs of the conscious decision leaving the cargo longer in the equipment (detention) and/or use the space on the terminal (demurrage) instead of unloading asap in the warehouse/at the factory.

3.3.3 Terminal[14] [15]

Job: To handle as many containers as possible

Pain: congestion at the gate, too little capacity due to stationary equipment

Gain: Spread of peak hours at the gate
More capacity with less 'forgotten' containers

3.3.4 Dispatch / haulage

Job: Efficient transport of goods

Pain: Time waste at the gate

Gain: A better planning
Less empty miles by combining gate in/out transport and merchant/carrier haulage

3.3.5 Customs

Job: To protect the community

Pain: balance between facilitating the trade and guarantee the safety and security

Gain: Good use of CCRM (only in Europe)

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[14] http://www.portofantwerp.com/en/containers

[15] http://www.dpworlddoraleh.com/dct/Procedures/2%20Operation%20Procedures/12.%20GATE%20OPERATIONS.pdf

3.3.6 NXT Port

As data sharing platform NXT Port can be a huge advantage to collect data and distribute the software. Nxt Port receives all kinds of data and translate this data in an API so developers can easily make applications.

Job: NXT Port connect developers with companies that provides their data so developers can make new applications.

Pain: Not yet operational, still in the start-up phase

Gain: We could be one of the first users of NXT Port

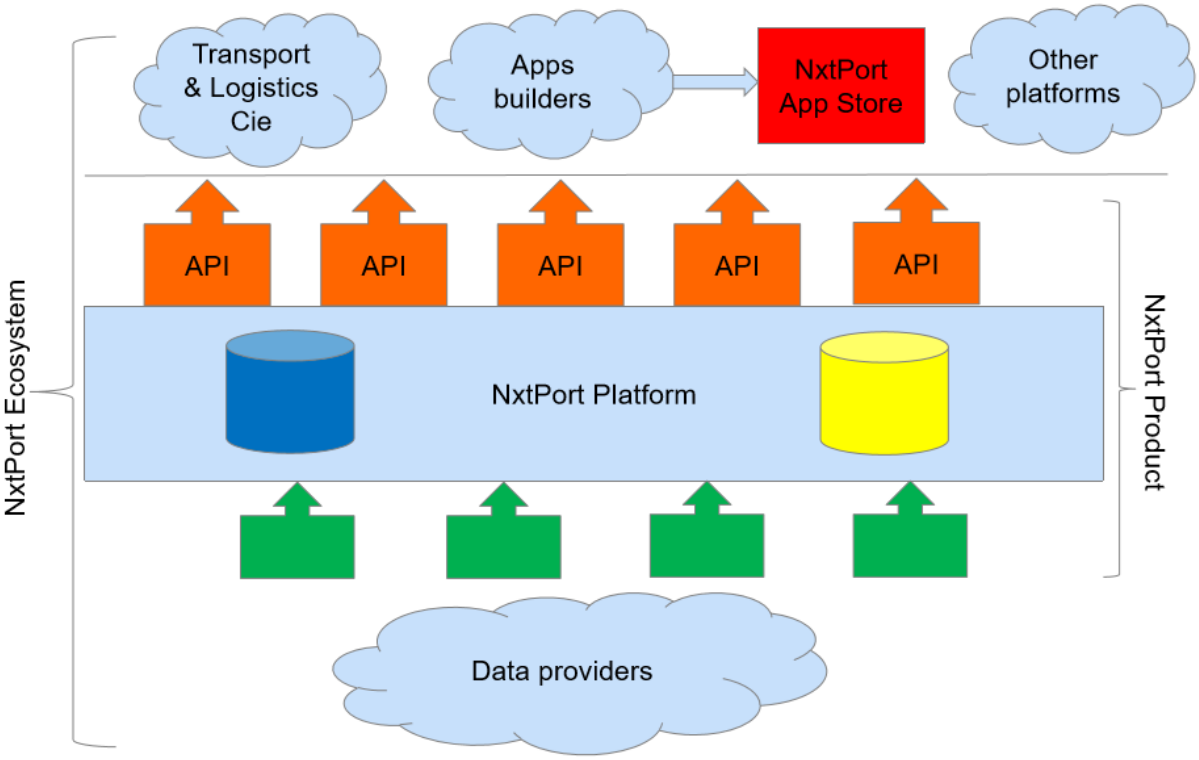


Figure 10 schematic image of Nxt port

Nxt Port collects all data and translate this data in Application Programming Interface (API). In computer programming, an API is a set of subroutine definitions, protocols, and tools for building application software. In general terms, it is a set of clearly defined methods of communication between various software components. A good API makes it easier to develop a computer program by providing all the building blocks, which are then put together by the programmer. An API specification can take many forms, but often includes specifications for routines, data structures, object classes, variables or remote calls.[16]

[16] https://en.wikipedia.org/wiki/Application_programming_interface

3.4 Solution

The answer we found to this challenge is a combination of better communication and improved planning. We connect all parties as an independent integrator and bundle the necessary data on a digital platform so we can automatically send the information the customer requires.

The shipping agent (or carrier), Customs and the terminal are data suppliers. We bundle this data and process it through our system so each shipment/container can be clearly displayed to the customer.

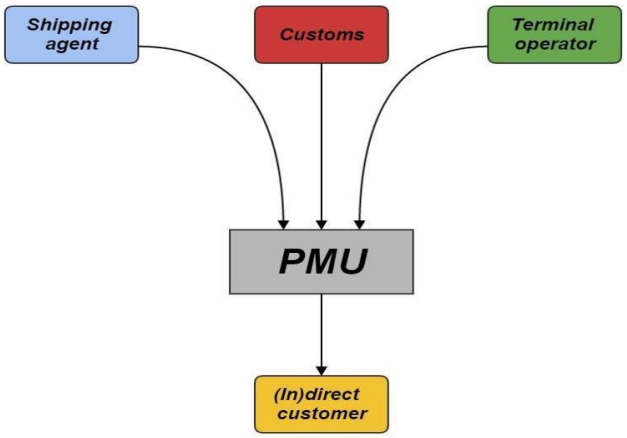


Figure 11 schematic image of parties

3.4.1 Visualization

The most added value of PMU will be the visualization of the already existing data and providing this visualized data to the customer. This will facilitate the analyses for employees and improve their work.

PMU groups all information of a shipment in one window and displays the demurrage and detention on a timeline. In this time line the total costs are calculated of the selected container.

We can show statistics to managers so that they can follow trends and facilitate their decision making process. For example the total amount of containers that exceeded their free time and the corresponding costs on a certain location.

3.5 Demo

See demo version http://pmu.craftstation.be/

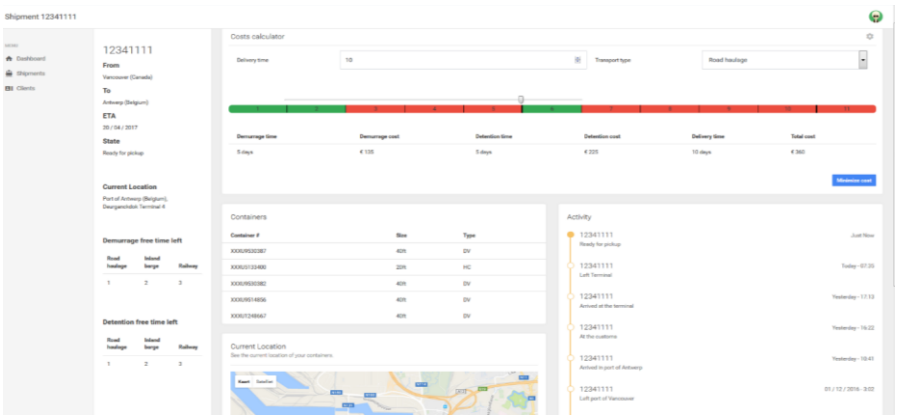


Figure 12 screenshot Demo

All parties will have a different dashboard in the application to ensure the confidentiality of the information.

The carriers will be able to see the most information because they also deliver most of this information/data. They can edit commercial data like: customer profiles, shipments and free time, demurrage and detention rates and agreements.

The customer (shipper/forwarder) will be able to see and use all this information but won't be able to edit. He can only see his own demurrage and detention rates and remaining free time. In addition there will be a window with "latest activity" so you can track the container in an early stage.

In Europe, Customs actually doesn't need a dashboard because of the connection with CCRM, all the data will come through automatically.

3.5.1 Cost calculator

The cost calculator visualizes free time, demurrage end detention in a timeline so it can be used as a planning tool to optimize the costs.

Green coloured days are the free time and the red coloured days are D&D charged days. It is possible for the user to adapt the delivery time. Delivery time is the estimated time between pick-up and return or re-use of the equipment.

The transition between demurrage and detention is the pick-up moment. With this tool it is possible to move the pick-up date and simulate the corresponding costs.

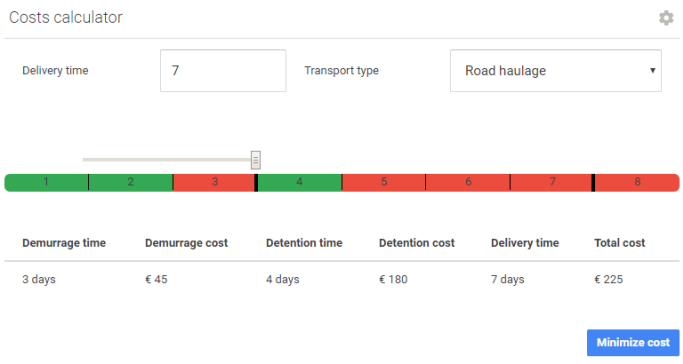


Figure 13 screenshot cost calculator

3.5.2 Possible features for the app

We like to keep our idea simple but in the back of our mind we know there are many potential options to improve and expand the web application.

3.5.2.1 Container damage report

An image of a container where the customer can point the place of damage and add a description and picture of the damage, adding the time and place of when and where it took place.

This would allow the equipment department to allocate the repair costs in a more efficient way. Moreover, this can be an addition to the EIR (equipment interchange receipt).

3.5.2.2 Peak hours at the gate

To avoid congestion at the gate[17], the customer can consult the actual and expected congestion at the terminal. He will also have the possibility to book a time slot at the gate to pick-up the container.

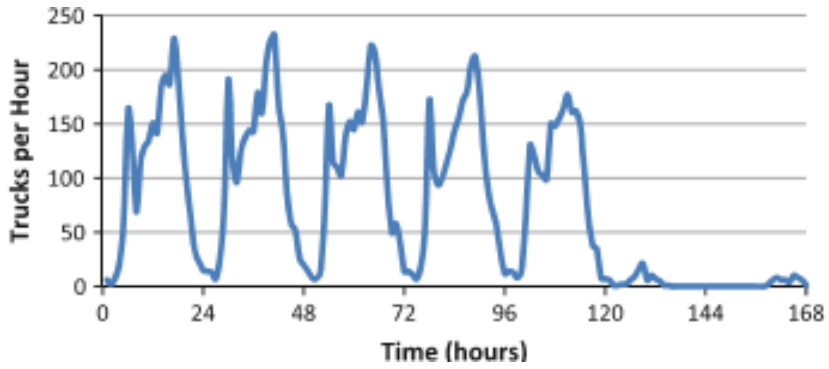


Figure 14 Gate congestion[18]

3.5.2.3 Intermodal planning tool

In the PMU system we already have container numbers and destinations. We can develop a tool where forwarders can provide digital transport instructions. Our application can send these to the party providing the intermodal transport.

Equipment repositioning

The inland equipment repositioning is a huge cost and issue that can be optimized by this intermodal planning tool.

3.5.3 Example

Before you can pick-up your container at the terminal, there are several parties that have to give their permission: the shipping agent (representing the carrier), Customs and the terminal operator. When a container vessel is at sea the ETA is known. The shipping company is not obliged to send an arrival notice[19] to its customer. Most carriers or their agents send arrival notices as a service for their customers. We know we can expect the delivery within a certain timeframe. However, this doesn't mean the customer already knows exactly when he can pick-up his container because the container first has to be discharged from the vessel and cleared by Customs.

PMU responds to this problem by sending a 'ready for pick-up' message to the customer. PMU also displays the remaining demurrage and detention time and charges. This allows the customer to

[17] http://www.flows.be/nl/shipping/congestie-op-containerterminals-zo-kan-het-echt-niet-verder
[18] A chassis exchange terminal to reduce truck congestion at container terminals, R. Dekker, S. van der Heide, E. van Asperen, P. Ypsilantis, 4 May 2012
[19] http://internationalshippingusa.com/arrival_notice_in_sea_freight.aspx

forecast his costs and plan the on-carriage.

3.6 Data supply

Which data do we know at which stage in the process? We analysed APCS[20] EDI[21] messages to find all data components we need for our application.

The United Nations rules for Electronic Data Interchange for Administration, Commerce and Transport (UN/EDIFACT[22]) is a set of internationally agreed standards and guidelines for the electronic interchange of structured data.

3.6.1 Data sender and receiver

In this chart you can see all different actors. They are all senders and receivers of EDI messages. Here you can see who the sender or receiver is for every message.

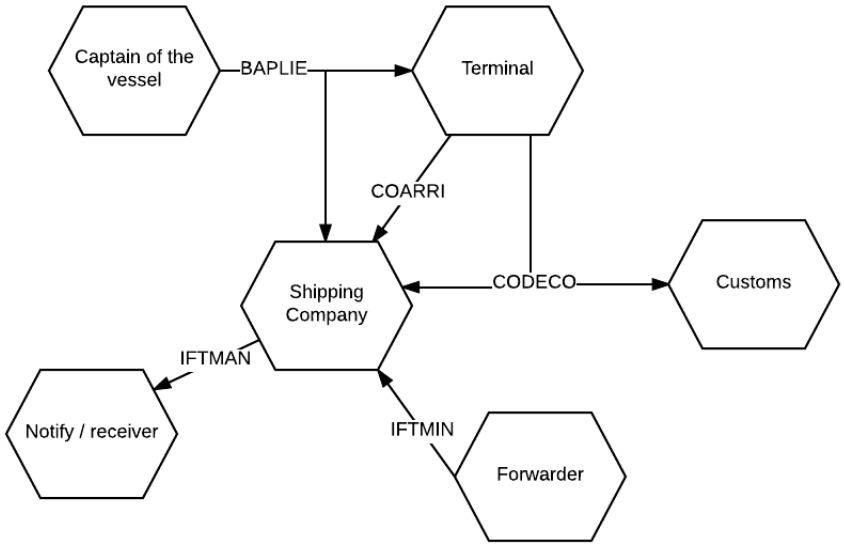


Figure 15 schematic image of data providers

BAPLIE: Bayplan/Stowage Plan Occupied And Empty Locations

COARRI: Container Discharge/Loading Report

CODECO: Container Gate-In/Gate-Out Report

IFTMAN: Arrival Notice

IFTMIN: Transport Instruction Message

[20] http://www.portofantwerp.com/apcs/nl/functionaliteiten
[21] http://www.jobisez.com/edi/documents/
[22] http://www.unece.org/cefact/edifact/welcome.html

3.6.2 Data Flowchart

In this flowchart I connected all activities and interactions of the container import process. Here you can see when every EDI message comes into our system. Note: we do not receive the EDI message itself but translated as an API via Nxt Port.

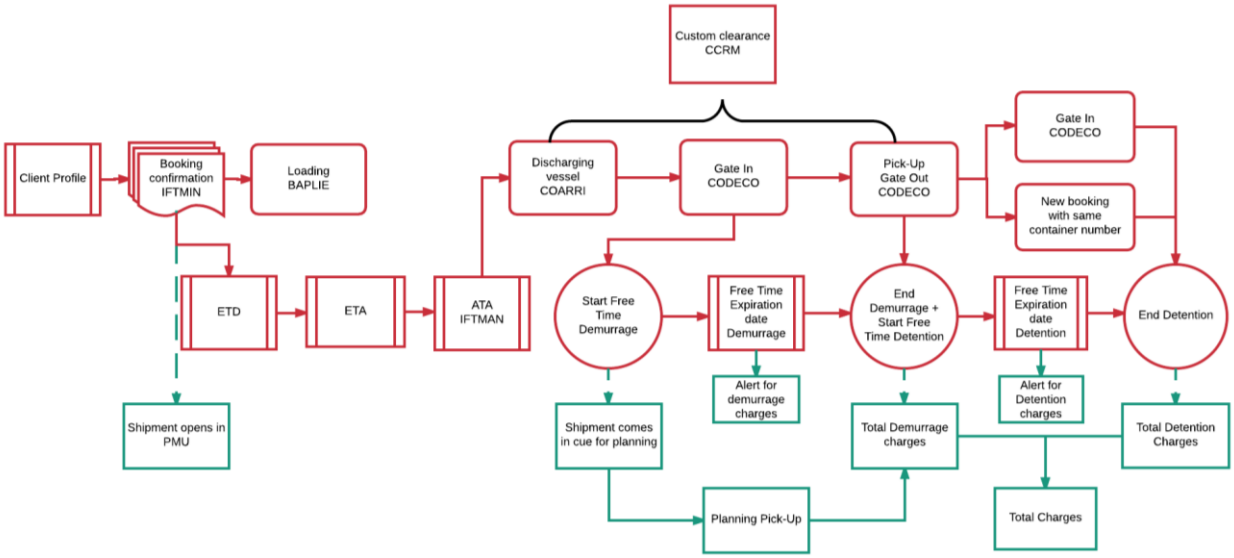


Figure 16 flowchart of import procedure

3.6.3 Carrier

The carriers provide most of the data of the shipment. Because the carrier collects all necessary data. All this data is already available as EDI 315[23] (X12 standards) so we can integrate this data into our system.[24]

In an EDI 315 message this information is integrated:

- Status Code
- Status Location
- B/L number
- Booking Number
- Office code
- Container Number

3.6.3.1 Commercial data

Until now we only mentioned operational data. But to be able to calculate D&D and free time we will also need commercial data, such as D&D rates and free time. This is a bit trickier because of the complexity of D&D and the confidentiality of service contracts. Therefore commercial data is not integrated in Nxt Port thus we must find another way.

A first option is to make a big and complex matrix with all standard D&D rates and free times of every location, carrier and equipment type. In such a case we exclude all service contracts. A possibility is to let the customer enter all exceptions manually.

[23] https://www.seaboardmarine.com/electronic-data-interchange/
[24] https://www.aafes.com/Images/doingbusiness/315v43r1.pdf

3.6.4 Terminal operator

The terminal operator receives the data of where a container is stowed in the vessel from the captain (BAPLIE). This allows the terminal to make a discharge plan. This is a first indication of when a container will be available for pick-up. At a later stage the terminal sends data of when a container is actually discharged from the vessel (COARRI) and where it is placed on terminal (CODECO).

Optional data from the terminal can be peak hours and the available time slots at the gate to avoid congestion.

3.6.5 Customs

It is our intention to connect Customs to the platform. So it becomes immediately visible when a container is being released by Customs. Therefore, we need a system to link to our platform like CCRM in Europe. In other continents there are other rules and other systems applicable.

3.6.5.1 CCRM[25]

Wednesday the 31th of May we were invited to the follow up meeting of CCRM in the Antwerp Port House. This meeting was organised by the Port of Antwerp with Customs, terminal operators, shipping companies and forwarders.

General

CCRM (Customs Container Release Management) is a project under the MASP (Multi-Annual Strategic Plan) program. MASP is a European guideline to standardise and digitalize Customs.

The start of CCRM ensures that the container release process is improved by collecting all container-related messages. For example, terminal operators will now be able to view container release status, which will ensure no container will leave the terminal without permission. The application will work for processing and determining the (release) status of containers according to the "red-lights" principle on a container level. Customs sends the CCRM message to APCS and APSC handles the distribution to all terminals. In the future this task will be done by Nxt Port. With the PMU platform we can show this information directly to the customer.

The tricky part about the CCRM message on container level is that 1 shipment declaration can contain multiple containers. If 1 of these containers is selected for control by Customs. All others have to wait at the terminal while one container is getting checked. Another possible case is that 1 container contains multiple shipments. If one of these shipments is selected for control than the other shipments are delayed too. With LCL shipments it's even possible there are multiple shipments spread in multiple containers to optimize the container load. For example 1 shipment of 2 pallets loaded in 2 different containers. This makes the Customs declaration more difficult but the carrier is protected by the sentence "Stuffed like our convenience". Besides the declarant is not informed about this delay because they can only receive a release message, not a control message.

[25] http://financien.belgium.be/nl/douane_accijnzen/ondernemingen/reglementering/wetgeving/ccrm

Planning & scope

In order to make the implementation easier, this is divided into different phases.
Right now Phase 1 is implemented. In this phase CCRM can receive different messages from PLDA and process them.

- Handling of containers included in the summary declaration for temporary storage (= freight manifest)
- Treatment of transshipments
- Treatment of the containers included in the declarations for an authorized destination (except NCTS declaration)
- Management of the red lights principle
- Manual interventions

The following elements will be implemented in later phases:

- Treatment of containers included in declarations ENS and EXS
- Handling of containers delivered via inland waterways
- Treatment of containers included in NCTS
- Management of red lights principle for declarations ENS, EXS and containers delivered via inland waterways and NCTS.

The CCRM connection with NCTS is now in a test phase. Customs needs feedback from terminal operators to do adaptations if necessary. To start a connection with ENS it will take longer, this procedure starts only in one year. Because first the risk analysis of ENS must be rewritten. Also GCA will change in 3,5 to 4 years. Thus, in the coming years we expect some major changes worth to follow-up.

Message structure

Customs send a ContainerStatus message (CCRM06) to the terminal and the terminal automatically send a ContainerStatusResponse message (CCRM07) back to confirm the receipt.

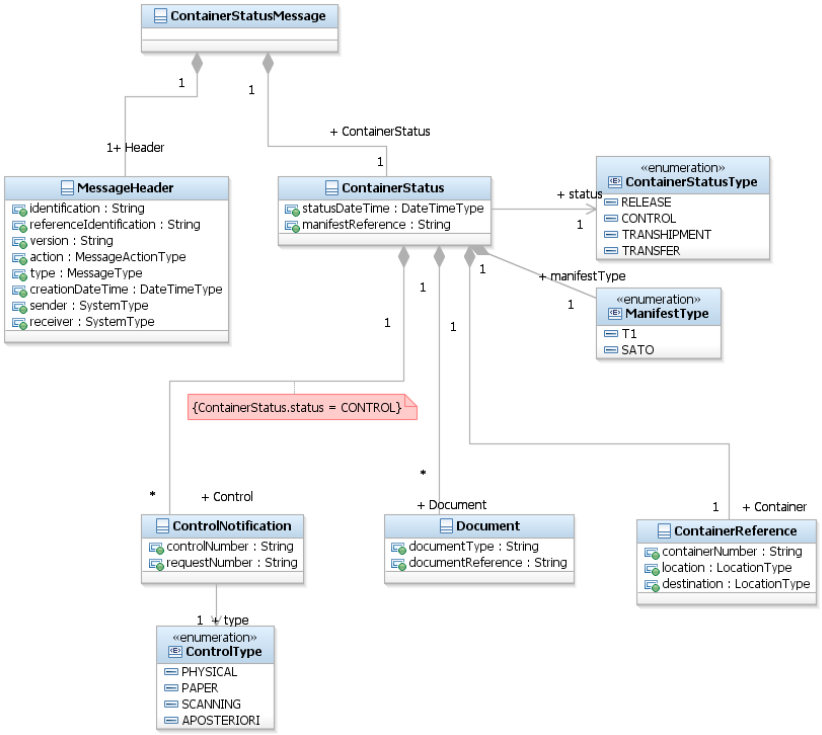


Figure 17 CCRM06 or ContainerStatus message structure

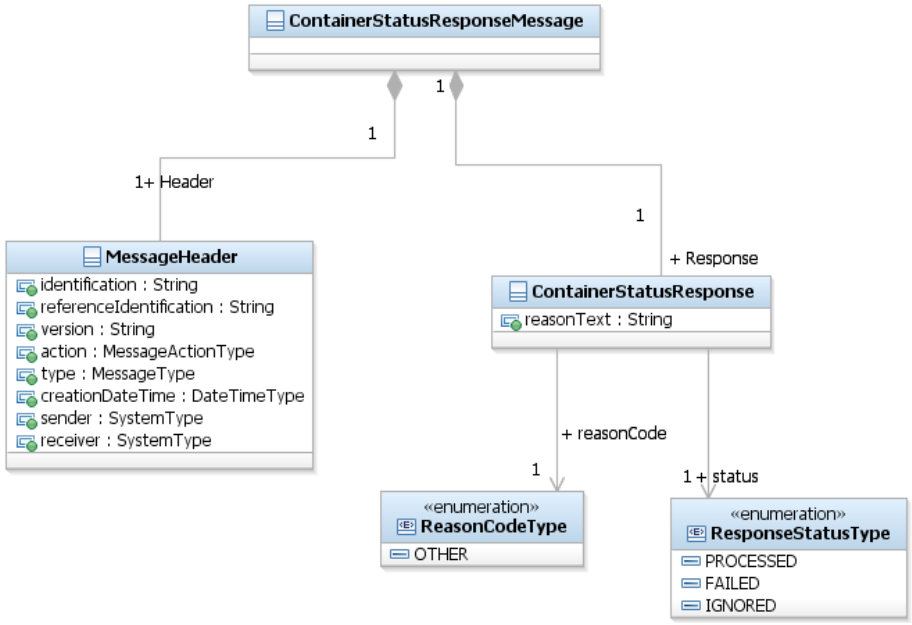


Figure 18 CCRM07 or ContainerStatusResponse message structure

The message is sent to CCRM via a web service interface. This interface is described by the WSDL. This interface processes Extensible Markup Language (XML) messages.

3.6.6 Information for the PMU user

The information has to be provided on container level so every single pick-up can be planned separately. The PMU user will be the one who arranges the pick-up from the terminal. That can be a direct (BCO) or an indirect customer (forwarder).

Useful data for the user is:

- Container status in real-time (example: ready for pick-up)
- Alert by exceptions or errors
- Free time expiration date
- Remaining free time
- D&D charges per container/shipment/location

3.6.7 Advantages of the PMU software

The user will have a visualized and better overview of the charges they have to pay and won't be confronted by unforeseen costs.

In logistics all flows and handlings must be done as effectively and efficiently as possible. At its best, all aspects must be optimized. In shipping there is a huge potential for improvements. Thus, we think if we give a customer the opportunity to plan his own container pick-up more efficient than before, there will be less time and money wasted. This is a huge extra customer service which customers will definitely appreciate.

In the shipping market every euro/dollar counts. Carriers can't reduce their prices without losing money. The only way to make a difference in future shipping without a price war is customer service. Every customer will choose for the carrier with the best solution for his requirements. Whether this requirement is focussed on the lowest price, best service or both - in an ideal combination.

3.6.8 Threats

A threat is the fact that BCO's (Beneficial Cargo Owners) are using containers as
a means of temporary storage because they are unable to receive the cargo.
And as such they are fully aware of the pending demurrage costs.
Furthermore demurrage and detention charges are higher than the direct costs associated with equipment ownership and storage incurred by the carriers. The demurrage charges are aimed to return equipment back to the carrier's disposal as soon as possible so the carrier need not incur the costs of on-hiring new equipment for short periods.

3.7 Export

Until now we focussed on the import side because this is the most problematic in terms of D&D. But PMU can also be used for export planning. For example order the right type of empty container at an agreed place and time. An overview over the D&D free time periods and a warning for the closing date. Loading confirmation and departure of the vessel. Even VGM can be integrated.

3.8 Opportunities for PMU

Technically almost anything is possible, once you start wandering about the possibilities of PMU. But we have to be realistic and start with the basic idea and take it from there. In a further stage we can always do adaptations.

I personally think that PMU is a strong product because it raises the service level and focusses on the quality of the shipping service. In times of crisis when nearly all large shipping companies are struggling to make profit it's important to target another aspect and rather go for improvements. PMU is only a small part of this vision but it's a start that –I believe- can have a huge impact.

4 Integration of PMU in ICL

4.1 ICL departments

To do proper research about the working of our system inside a shipping company we had to meet all the involving departments in the process and develop insight in their operations.

Our goal is to adapt the platform so it will be a gain not only for every individual department but also for the entire flow.

4.1.1 Lunch & Learn

We organised Lunch & Learn sessions for employees who were interested in our project. In these sessions we explained who we are, how the idea of PMU came about and what PMU entails. These sessions gave us the opportunity to answer and ask questions and discover new insights from other employees.

4.2 Compass[26]

Compass is an in-house developed software system ICL uses to run all its data of shipments and operations.

Compass tracks shipments thru their full life cycle The information is available to the users and if at any stage there is information missing or there's action required, Compass alerts its' users.

We are investigating the possibility to link PMU to Compass, so employees can work in their usual IT systems and if a shipment needs to be adapted it can automatically adapt simultaneously in both systems.

4.3 Statistics

4.3.1 Percentage of containers exceeding their free time

To investigate the demand for our product we calculated the extent of the problem. We analysed the data from ICL of all FCL shipments in the first quarter of 2017.

For this research we excluded LCL shipments, empty equipment and shippers owned containers because demurrage or detention is not always applicable for these shipments. They would only influence the statistics.

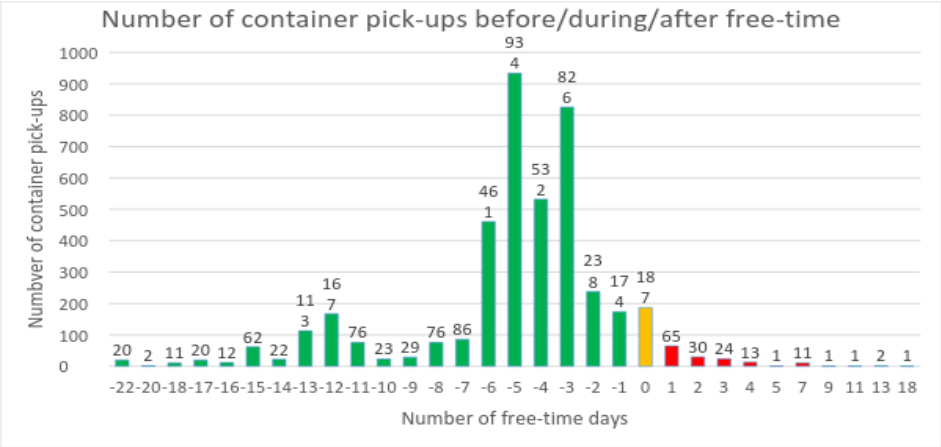
[26] https://www.emrcompass.com/

4.3.1.1 *Demurrage in Antwerp*

If we consider all FCL import containers arrived in the port of Antwerp from 1st of January till 31st of March 2017, on average containers were picked up 3 days after actual arrival of the vessel.

For 3.39% of the containers demurrage had been charged, these containers did exceed the free time with 2.54 days.

In the graph we can see some remarkable data. For example, some containers were removed 22 days prior to the expiration of their free time. These may be due to an operational issues requiring a Free Time adjustment.

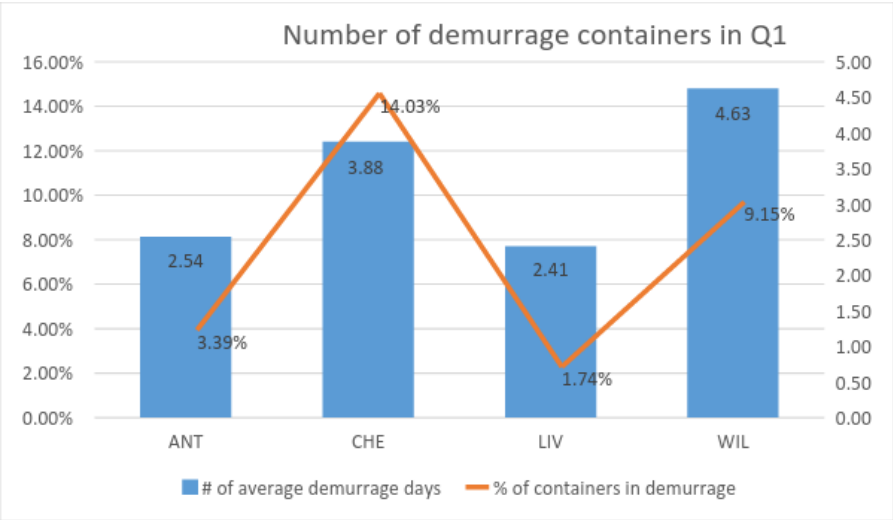


4.3.1.2 *Demurrage in the other ports of the ICL route*

We did the same calculation for the other ports Liverpool, Chester and Wilmington. The results for the US are remarkably higher than those for the EU and UK. Not only more containers are charged for demurrage, they also exceed their free time longer.

For example:

In Wilmington, on average 9.15% of the containers are charged for demurrage. These containers exceeded their free time with 4.63 days.
In Chester even more containers were in demurrage, 14.03% for an average of 3.88 days.
Liverpool scores even better than Antwerp.



4.3.1.3 Detention

Whether the container is returned empty or full, containers remain an average of 4.18 days in the possession of the customer. The longest return delay is 40 days. Even though our research shows that in 36% of the cases the customer only needs 1 day to return the container.

4.3.2 Reason customer exceed Free time

Our platform can't guarantee to avoid D&D charges but we can help the customer to pay more attention to these possible charges. Even though sometimes they will exceed free time on purpose.

If we track the reason why a customer exceed his free time it gives an opportunity to find a suitable solution. For tracking this kind of information we need a system like PMU so all the data can be electronically processed and analysed.

Here are a few possible reasons why customers exceed their free time:

- When the charges are cheaper than hiring a warehouse.
- If there is not sufficient place in the warehouse to discharge the container.
- Accidentally missed the deadline due to lack of information.
- Because of inaccurate planning.
- If there is no truck/barge/train available.
- Problems with Customs clearance.
- Congestion problems.

4.3.3 Revenue of demurrage and detention

Although demurrage and detention charges may represent a source of revenue, there are costs associated with it as well. Ultimately it is the carriers' goal to get the equipment back to their disposal as soon as possible.
And it is in line with what customers may expect from the carriers.

4.4 Customer survey[27]

Survey: https://www.surveymonkey.com/r/DVJVNHR

We want to sell our product to forwarders and BCO customers. Are these companies "waiting" for our product? What is the need in the market? For this research we contacted as many forwarders and import customers from ICL as possible and sent them a survey with 3 questions and 4 statements about free time, demurrage and detention.

The first 3 questions were meant to measure the current problem.

1. Are you on time and correctly informed about the availability of your container at the terminal?
2. Do you have a clear overview of the number of days free time and the free time expiration date?
3. Are you able to plan the on-carriage on time and efficient depending of the availability of the container at the terminal?

The next 4 statements were meant to measure the need for a product as PMU. The customer had to scale his interest from 1 to 5.

4. An automatic notification when your container is available at the terminal.
5. A visual overview of both remaining free time, demurrage charges and detention charges.
6. A forecasting of the demurrage and detention charges to pay for a given simulated pick-up.
7. A visual overview of the peak hours at the gate of the terminal to schedule your pick-up more efficient.

4.4.1 Overview of responds

Most shippers are satisfied with the information they receive from the carrier about the availability of their containers. Even though in question 2 we notice that shippers often don't have an overview of the free time and free time expiration date. Especially when they booked with many different shipping lines.

Almost half of the respondents is interested in an automatic notification when the container is available for pick-up at the terminal. Even more are interested in a visual overview of the remaining free time and charges. Many respondents are also interested in a forecast of the D&D cost per container. There is less interest in the congestion at the gate and a scheduled pick-up slot at the terminal.

From this small survey with not so many respondents we can conclude that shippers are satisfied with the current situation but there are also interests in an application like PMU. Some shippers see the advantages of the system, others don't. We have to take in account that maybe some of the respondents were not representative for this survey because they are not responsible for the pick-up of their shipments.

[27] In annex all summary data of this survey.

5 PMU business[28]

5.1 Business Model Canvas (BMC)

See annex

A business model canvas is a simplified way to make a business plan. It's a structured map with all essential elements for a successful organisation.

Value proposition: a user-friendly planning tool and cost calculator

Customer segments: Direct and indirect customers (Forwarder or BCO)

Channels: Cloud

Customer Relationships: Dedicated guidance

Revenue Stream: Abonnement on shipped volume

Key activities: App development (and Logistic solutions)

Key resources: IT-team and financing

Key Partners: Customs, terminal and Nxt Port (potential partners: Avantida[29] and CBP[30])

Cost Structure: IT-development, sales/marketing, data streaming and server rent

5.2 Go to market strategy

What to sell?

Our customer improves his service level.

The customer receives a planning tool and better overview.

Where to sell?

We sell to forwarders and BCO companies.

How to sell?

Licence for an online web application in the cloud.

The best way to penetrate a market is to start in a small market segment of a big market.

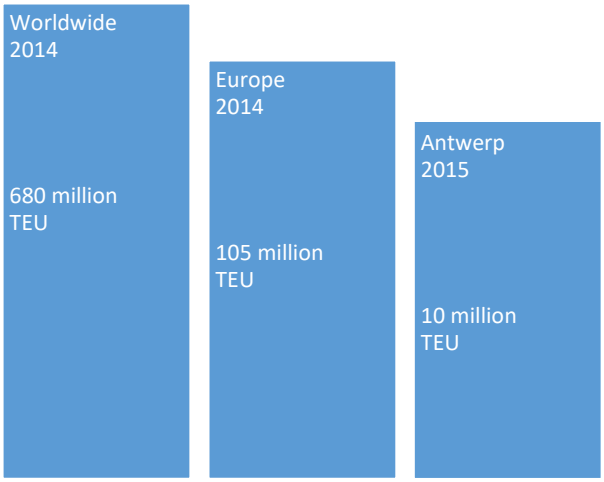
[28] https://hbr.org/2015/04/how-to-launch-your-digital-platform

[29] http://www.avantida.com/

[30] http://www.portofantwerp.com/nl/node/16149

5.2.1 Opportunity Market Validation

Total amount of shipped TEU per region[31]



In Antwerp is a perfect atmosphere for PMU to start-up. There are approximately 200 forwarders and millions of containers imported every year. Outside Antwerp there is also a lot of growth potential on a world scale.

5.2.2 Macro trends

5.2.2.1 Technological

The digitalization finally has started in the shipping industry. Innovating Start-Ups shoot from the ground. Companies are investing in computerized systems. And platforms like Nxt Port are trying to connect all these data. There is more and more need for easy-to-use applications.

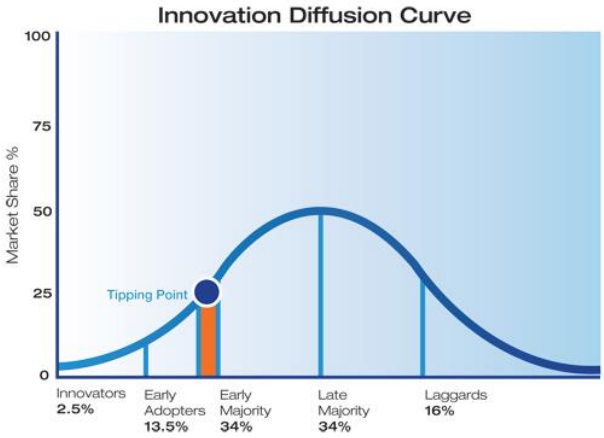
5.2.2.2 Economical

The shipping industry is still a growing sector. The container shipping industry is still expanding even in spite of the crisis of the last few years.

5.2.3 Timing

I believe our timing to enter the market is almost perfect if we can develop fast enough to launch. There are other start-ups with similar ideas. The market is changing and everyone is seeking for partnerships to jump on the train of digitalization.

As you can see in the Innovation Diffusion Curve this is the best moment to enter a market.



[31] http://data.worldbank.org/indicator/IS.SHP.GOOD.TU?locations=EU

5.2.4 Adaption rate

How fast will our customer buy our product? Is the customer waiting for this product?

I think we've come at the right moment in the market. The biggest carriers in the world are already introducing there new digital platforms to improve their services. Smaller and mid-sized carriers often don't have the option to develop such a system. We want to offer our platform to customers of these smaller and mid-sized carriers so they can keep up with the competition.

Some companies react sceptical to the idea of sharing data. But I expect that with a little sensitization of the advantages and the raising demand for solutions of the customer will change their opinion. After the first success story all companies will follow.

5.3 Earning model

The customer pays monthly abonnement costs, this abonnement is calculated based on the expected shipped volume per year. So there will be less economy scale advantages between different carriers.

There will be 5 different abonnements depending on the shipped volume of the customer.

Abonnement size	**Containers/month**	**Price PMU**
Small	1-10	€ 20
Mid-sized	11-50	€ 100
Large	50-100	€ 250
Big	100-500	€ 500
Huge	+500	€ 1000

The price calculation will be based on the average percentage of containers going over their free time (Y) and average cost of a single container when 1 day over Free time (€ X). This shows D&D cost divided over all containers and thus the maximum price the customer is willing to pay. Our price per container must be under this calculation.

Calculation: € X * Y % = price / container

Example:

Average percentage of containers in demurrage: 7 %
Average demurrage charge for a container: 45 euro
€ 45 * 7% = 3,15 euro / container

5.4 Cost structure

The ancient way to install software is to visit every customer to install local hardware servers. This costs a lot of time and money. Another option is to distribute PMU as a cloud based software[32]. There will be a lower installation cost. A third option is to link PMU as a plugin to other bigger software companies.

Our main costs will be the rent of virtual servers, live data streaming out and maintenance of the web application. The actual cost to stream live data of Nxt Port is still not clear.

[32] https://www.onbase.com/~/media/Files/hyland/whitepaper/wp_cloud_pricingcomparison.pdf/

5.4.1 employees

To develop this project with success and produce efficient working software we will need at least 2 IT-employees. Therefore we want to do a collaboration with IT-students and an experienced IT-manager, preferably with experience in the maritime sector.

How to find a lead developer?[33]
It is difficult to translate logistic knowledge and ideas to the developers so they understand what we expect from them. And vice versa, IT-developers have to explain to us what the problems and possibilities are . For such a collaboration we need an IT-developer with good social and communicative skills. And last but not least we need to keep an open mind and consider their comments to maintain a full approach.

5.5 Legal protection

5.5.1 NDA (non-disclosure agreement)[34]

See in Annex

As a starter we welcome any advice and co-operation from people and businesses. However, we will have to beware of other companies that might want to take advantage of our innovative initiative. We always need to bring an NDA to meetings to secure the confidentiality of our idea.

5.5.2 Declaration of intent

See in Annex

In the beginning of the project internship both parties signed a declaration of intent in which both parties agreed to consider collaboration in case of a successful end of the internship.

5.6 Investors

During the start-up phase, while we are building the platform we won't have an income.

When the platform is operational we aim for an annual revenue of 100K euro, this probably won't cover all the costs during the first 2 years. Therefore, we have to search for investors to compensate for this shortage.

All Belgian investors can make use of the Tax shelter. This means they will have a reduced personal tax.

5.7 Pioneers

Young Port Innovators are pioneers in this specific idea. With deep regret we have to admit that whilst my internship and whilst working on this paper Maersk and Damco[35] bypassed us in developing the application. But this won't stop us, we target other companies and develop a better and more extensive application with more features.

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[33] http://mashable.com/2013/04/09/hire-startup-developer/#JmZVkdnjCsq0

[34] https://www.gov.uk/government/publications/non-disclosure-agreements/non-disclosure-agreements

[35] Maersk, Microsoft team up to provide demurrage, disruption alerts , Journal Of Commerce, 27/04/2017

6 Conclusion

This is a comprehensive paper about an innovative product in the container shipping industry. I tried to include all aspects of a market research. I hope I was able to write it in clear language for both logistic professionals as for non-experts.

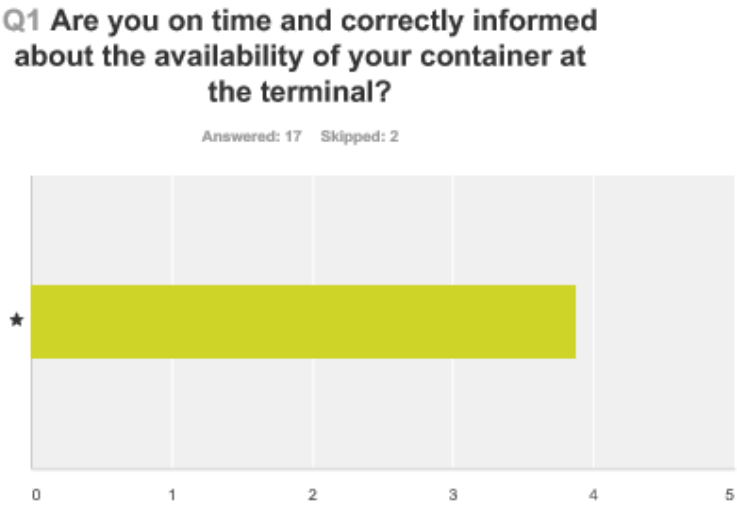
Before this paper our idea was rather conceptual. Now after all the research and interesting conversations with experienced professionals our idea is getting more and more clear. We have all the necessary documentation to discuss the feasibility of the project with all 4 co-founders. And if we are willing to take a shot to start a company together or not.

The actuality proves the importance of projects like this. The many articles in Flows magazine -which is a very reliable source for articles about logistics in Antwerp- show that it's a vivid topic that requires more attention. And I still believe this is only the beginning of a decade full of logistic innovations.

Regardless of the feasibility of the project it was in anyway an interesting and instructive process. During this project I learned many things, not only about shipping itself but especially about leading a project and how it is to work at ICL. This was a very educational project of which I will benefit my entire career.

7 Annex

Annex: Customer survey

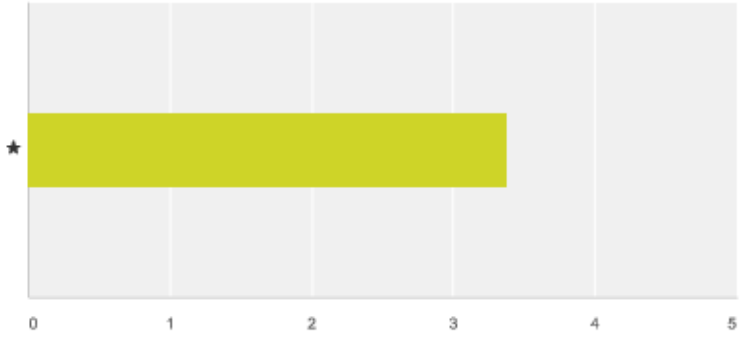


	1	2	3	4	5	Total	Weighted Average
★	0.00% 0	11.76% 2	29.41% 5	17.65% 3	41.18% 7	17	3.88

#	Comment:	Date
1	Yes	5/15/2017 11:51 AM
2	We don't work with imports. We are an export team. ICL does very well w/ communication regarding exports.	5/12/2017 8:56 AM
3	Automatic messages when vessel actually arrived AND when actually discharged would be very helpful.	5/12/2017 1:58 AM
4	when we receive the booking confirmation from the shipping line - availability and terminal are mentioned	5/12/2017 1:53 AM
5	yes	5/12/2017 1:29 AM
6	ICL does a great job providing containers & all information requested from them	5/11/2017 5:45 AM

Q2 Do you have a clear overview of the number of days free time and the free time expiration date?

Answered: 16 Skipped: 3

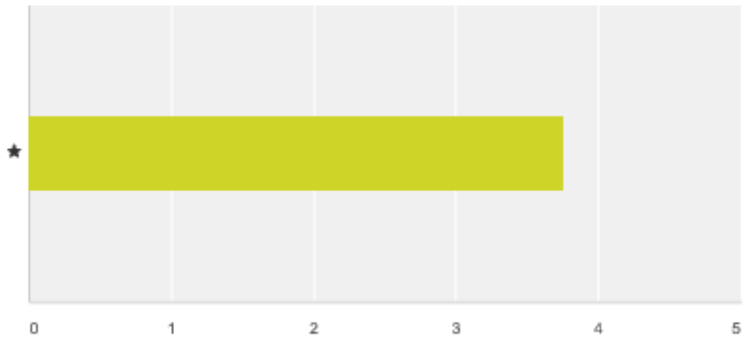


	1	2	3	4	5	Total	Weighted Average
★	12.50% 2	18.75% 3	18.75% 3	18.75% 3	31.25% 5	16	3.38

#	Comment:	Date
1	ICL controls our bookings and therefore we don't track.	5/12/2017 8:56 AM
2	No. All carriers have different free time days. Some of them mention this on their website, others on their arrival notice, on the release. For some you have to call.	5/12/2017 2:11 AM
3	Each shipping line have their own free time, and tariff structure. Free period and charges per day aren't always mentioned on arrival notices.	5/12/2017 1:58 AM
4	not always clear. we most of the time request this at the shipping line. normally they use the standard free time days - but then you have to know them. so requesting this at the shipping lines is mandatory	5/12/2017 1:53 AM
5	yes	5/12/2017 1:29 AM
6	N/A	5/11/2017 5:45 AM
7	exception: national holidays, delays of ocean vessel due to eg weather	5/3/2017 5:58 AM

Q3 Are you able to plan the oncarriage on time and efficient depending of the availability of the container at the terminal?

Answered: 17 Skipped: 2

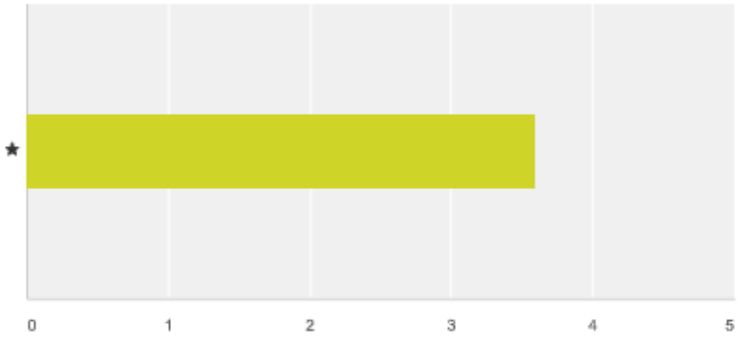


	1	2	3	4	5	Total	Weighted Average
★	0.00% 0	11.76% 2	17.65% 3	52.94% 9	17.65% 3	17	3.76

#	Comment:	Date
1	YEs	5/12/2017 8:56 AM
2	yes	5/12/2017 1:29 AM
3	depending on the customer requires	5/3/2017 5:58 AM

Q4 An automatic notification when your container is available at the terminal.

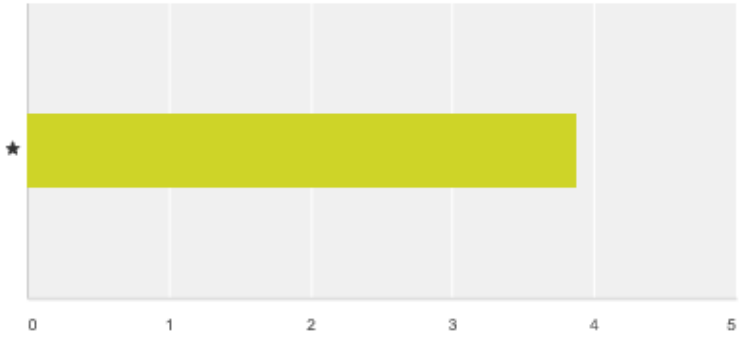
Answered: 17 Skipped: 2



	1	2	3	4	5	Total	Weighted Average
★	23.53% 4	0.00% 0	17.65% 3	11.76% 2	47.06% 8	17	3.59

Q5 A visual overview of both remaining free time, demurrage charges and detention charges.

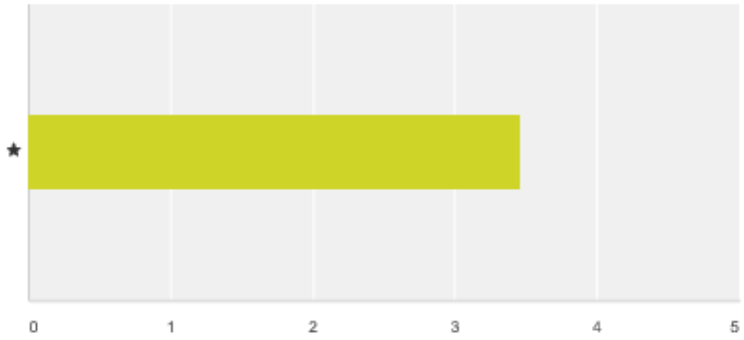
Answered: 17 Skipped: 2



	1	2	3	4	5	Total	Weighted Average
★	11.76% 2	0.00% 0	23.53% 4	17.65% 3	47.06% 8	17	3.88

Q6 A forecasting of the demurrage and detention charges to pay for a given simulated pick-up.

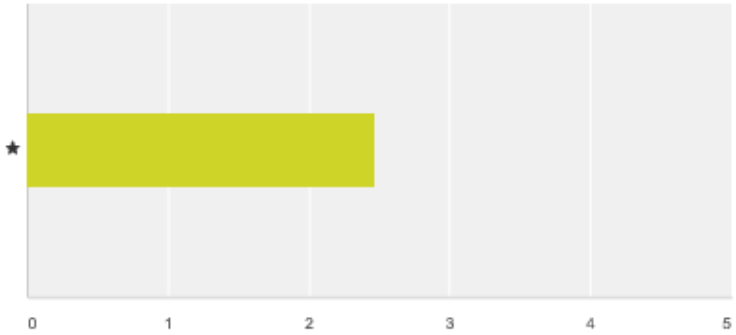
Answered: 17 Skipped: 2



	1	2	3	4	5	Total	Weighted Average
★	17.65% 3	11.76% 2	17.65% 3	11.76% 2	41.18% 7	17	3.47

Q7 A visual overview of the peak hours at the gate of the terminal to schedule your pick-up more efficient.

Answered: 17 Skipped: 2



	1	2	3	4	5	Total	Weighted Average
★	35.29% 6	23.53% 4	17.65% 3	5.88% 1	17.65% 3	17	2.47

Q8 Do you have any other remark you want to share with us?

Answered: 3 Skipped: 16

#	Responses	Date
1	Please create a platform giving an overview of the above topics! ;-)	5/12/2017 2:00 AM
2	no	5/12/2017 1:30 AM
3	We always appreciate the convenience of working with ICL....thank you!	5/11/2017 5:48 AM

Annex: article about satisfaction in container transport

Satisfaction survey in container transport: Customers rate service quality of ocean carriers “poor to average”

11 Apr 2017

London, UK, and Brussels, Belgium, 11 April 2017 - The service provided by container shipping lines is rated as poor to average and has deteriorated in the past year, according to a survey of exporters, importers and freight forwarders conducted jointly by Drewry and the European Shippers’ Council (ESC).

The ESC and Drewry contacted several hundred shippers and forwarders from all over the world in March 2017 and asked them how satisfied they were with 16 price and non-price related attributes of the services provided by ocean carriers. The survey also looked into areas most in need of improvement and how quality varies by type of carrier.

On a scale of 1 (very dissatisfied) to 5 (very satisfied), customers on average did not rate carriers higher than 3.3 for any of the 16 service attributes, the survey showed (see chart).

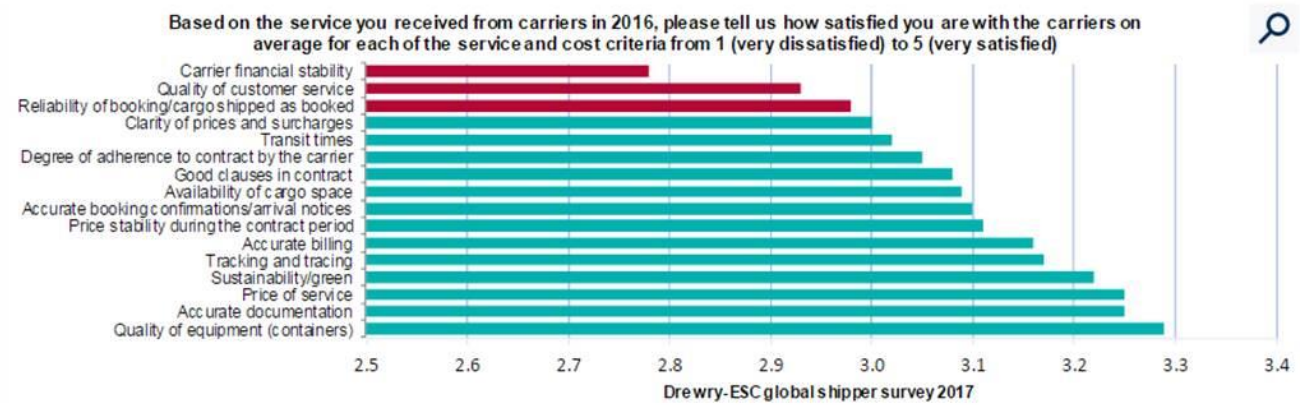
The three areas of service or price in which shippers and forwarders were the most dissatisfied with were “carrier financial stability”, “quality of customer service” and “reliability of booking/cargo shipped as booked”. At the other end of the spectrum, the three areas where they were the most satisfied were “price of service”, “accurate documentation” and “quality of equipment (containers)”.

"*We see that shippers want to be treated not only as customers, but also as partners, when discussing their container transport requirements. In times when supply chains are becoming more and more complex, partnership is of key importance and unfortunately it is missing,"* said Fabien Becquelin, Maritime Policy Manager at ESC. *“Comparing transport modes, the air freight industry is suffering from similar problems to the container shipping industry, but it came to the conclusion that partnership is the only way out and is reaching out to the shippers”,* Becquelin added.

“Shippers and forwarders clearly see the necessity for the carrier industry to invest in IT and to balance the needs for cost competitiveness and for more predictability and reliability,” said Philip Damas, head of the logistics practice of Drewry.

The ESC and Drewry plan to run the shipper and forwarder satisfaction survey regularly and invite interested shippers and forwarders to contact them, should they wish to be included in next year’s survey, provide their views and be kept informed of our carrier performance assessments.

Drewry Supply Chain Advisors works for beneficial cargo owners on benchmarking contract rates and best practices in ocean transport procurement and runs optimisation-based ocean freight rate tenders. Drewry Supply Chain Advisors is the logistics practice of the Drewry group.



Annex: Declaration of intent

Intentieverklaring – Pick-Me-Up

Partijen

ICL Europe **Independent Container Line** *Kijkdorp 57* *2000 Antwerpen* *België*	**YPI** **Young Port Innovators** *Nationalestraat 5* *2000 Antwerpen* *België*

Inhoud

Het ondertekenen van deze intentieverklaring heeft betrekking op volgende materie:

Pick-Me-Up (PMU): de huidige versie van dit product bestaat een online platform dat wordt aangeboden onder de vorm van Software as a Service (SaaS). Dit platform werd uitgedacht tijdens de Logistics of the Future - Hackathon in de maand december 2016.

Doel van dit platform bestaat eruit om de informatiestroom tussen de verschillende stakeholders, bij de importprocedure van een container, te stroomlijnen. Hierdoor krijgt de ontvanger een beter beeld van de positie van de importcontainer in de logistieke keten.

Het laat hem/haar toe om op een laagdrempelige en gebruiksvriendelijke manier, ten allen tijde de positie van importcontainer te raadplegen. Zo kan hij/zij de operationele beslissing maken wanneer deze importcontainer dient te worden afgehaald.

De rederij, in dit geval ICL Europe is de leverancier van de containerdata, samen met o.a. FOD Douane & Accijzen (CCRM) en de terminaloperator (IMT).

Door ondertekening van deze intentieverklaring, bevestigen beide partijen dat na grondige evaluatie van het platform – onder de vorm van een projectstage (afgelegd door Laurent Moyersoen) – zullen beslissen om één of meerdere onderdelen van het platform te integreren in de bestaande online dienstverlening die ICL Europe aan zijn klanten aanbiedt. Deze beslissing wordt genomen na de afloop en indiening van de projectstage, met uiterlijke datum 31-07-2017.

Datum en handtekening

20 april 2017

Hendrik Moerkerke (ICL Europe)

Laurent Moyersoen (YPI)

Deze intentieverklaring is in geen enkel geval een bindende overeenkomst noch resultaatsverbintenis en is geen onderwerp van de Belgische Wet. Beide partijen behouden het recht om deze verklaring op elk moment in de tijd op te zeggen.

Annex: Article about competition

Maersk, Microsoft team up to provide demurrage, disruption alerts

Hugh R. Morley, Senior Editor | Apr 26, 2017 5:54PM EDT

With the help of Microsoft, Maersk Line plans to roll out customer software applications in the third quarter that will help beneficial cargo owners track containers and manage cargo as it moves across the globe, including through Customs.

Ibrahim Gokcen, chief digital officer in the carrier's logistics and transportation arm, on Wednesday said the software is part of a determined effort to make digitalizing company's operations a "core piece of our business strategy." He called it a "must-win" strategy for the company that was triggered by industry trends and customer demands.

"It all starts with the customers," Gokcen told JOC.com. "Their business models are changing rapidly, and their expectations area getting higher. They see a lot of complexity in their supply chains. They are looking for simpler solutions. So they really are raising expectations on us. They really started pushing us to first improve and enhance the customer experience."

Maersk's initiative in some ways parallels the efforts of a series of startup companies that are looking to harness digital technology to transform different aspects of the shipping industry, which some observers believe has been reluctant to embrace technology and is stuck using the methods of the past. The industry sectors that the startups have targeted include freight forwarding, container booking, process management and data analysis of rates and other metrics.

Gokcen spoke at an event organized by Microsoft to highlight their work developing software with a dozen companies, among them Maersk; La Liga, the Spanish soccer league; Bank of America; Hershey; and Mojix, a radio frequency identification hardware and data analytics company.

Gokcen, who joined Maersk a year ago after 12 years at GE, was one of two IT heads interviewed on stage at the town hall style forum. Maersk also announced Wednesday that it has selected Microsoft as its partner in the digitization project, and will use Microsoft's Azure cloud platform to store data.

The event came three weeks after Maersk Line and IBM announced they had teamed up to deploy "blockchain" technology to digitalize the complex paper trail involved in the global supply chain, a collaboration that could reduce cost, errors, and time involving tens of millions of shipping containers. Earlier this month, Damco, the freight forwarding and logistics arm of Maersk Group, launched an online freight forwarding portal.

At Wednesday's event, Damco demonstrated a software platform called Customs House Brokerage, which is designed to help shippers document cargo movement, consolidate data and run analytics such as expenditures on cargo logistics, and also to handle the movement of containers through Customs. The software, which will be released in desktop and mobile formats, will be released in two to three months, said Johanna Hainz, the company's global head of supply chain solutions.

Gokcen said Maersk will release a program, remote container management, in the third quarter that will provide customers with greater visibility on container movements through the supply chain. A global positioning satellite device on each container enables them to better track cargo, and even monitor the temperature of refrigerated items so that shippers know whether sensitive food items are in good condition or have gone bad, and can plan accordingly, he said.

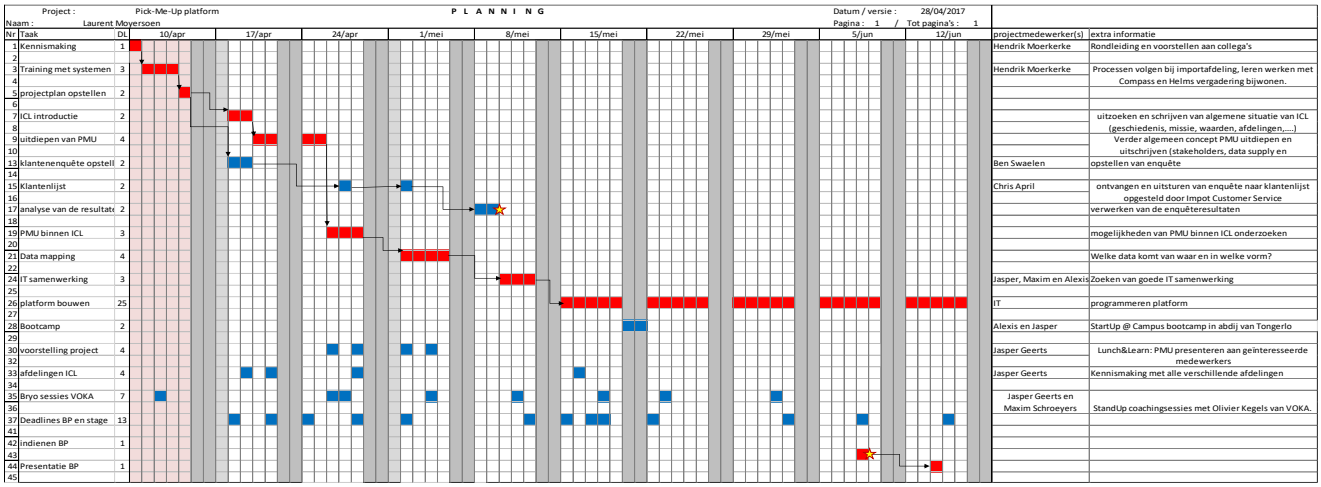
“That’s the value that the customers are seeing,” he said. “They know across the entire landscape, what is happening to them. If something that’s not expected happens, how do they plan for it?”

DAMCO also showcased recently released software, called D&D, that tracks shipment contracts across a shipper’s cargo and monitors when free time expires and when each individual container will be charged detention or demurrage costs, and identifies those containers that are at risk of incurring such costs in the near future.

“So they can look at what is my expenditure if I am not pulling my containers out on time,” Hainz said.

Another recently released application tracks container movements and potential disruptions – such as a typhoon or a port labor disruption – to warn shippers of possible delays, enabling them to take action to avoid the problems, Hainz said.

Annex: Project plan



Project : Pick-Me-Up platform — P L A N N I N G — Datum / versie : 28/04/2017
Naam : Laurent Moyersoen — Pagina : 1 / Tot pagina's : 1

Nr	Taak	DL	10/apr	17/apr	24/apr	1/mei	8/mei	15/mei	22/mei	29/mei	5/jun	12/jun	projectmedewerker(s)	extra informatie
1	Kennismaking	1											Hendrik Moerkerke	Rondleiding en voorstellen aan collega's
2														
3	Training met systemen	3											Hendrik Moerkerke	Processen volgen bij importafdeling, leren werken met Compass en Helms vergadering bijwonen.
4														
5	projectplan opstellen	2												
6														
7	ICL introductie	2												uitzoeken en schrijven van algemene situatie van ICL (geschiedenis, missie, waarden, afdelingen,...)
8														
9	uitdiepen van PMU	4												Verder algemeen concept PMU uitdiepen en uitschrijven (stakeholders, data supply en
10														
13	klantenenquête opstell	2											Ben Swaelen	opstellen van enquête
14														
15	Klantenlijst	2											Chris April	ontvangen en uitsturen van enquête naar klantenlijst opgesteld door Impot Customer Service
16														
17	analyse van de resultate	2												verwerken van de enquêteresultaten
18														
19	PMU binnen ICL	3												mogelijkheden van PMU binnen ICL onderzoeken
20														
21	Data mapping	4												Welke data komt van waar en in welke vorm?
22														
24	IT samenwerking	3											Jasper, Maxim en Alexis	Zoeken van goede IT samenwerking
25														
26	platform bouwen	25											IT	programmeren platform
27														
28	Bootcamp	2											Alexis en Jasper	StartUp @ Campus bootcamp in abdij van Tongerlo
29														
30	voorstelling project	4											Jasper Geerts	Lunch&Learn: PMU presenteren aan geinteresseerde medewerkers
32														
33	afdelingen ICL	4											Jasper Geerts	Kennismaking met alle verschillende afdelingen
34														
35	Bryo sessies VOKA	7											Jasper Geerts en Maxim Schroeyers	StandUp coachingsessies met Olivier Kegels van VOKA.
36														
37	Deadlines BP en stage	13												
41														
42	indienen BP	1												
43														
44	Presentatie BP	1												
45														

8 List of illustrations

9 Bibliography

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