

NAVIGARE NECESSE EST VIVERE NON EST NECESSE

“TO SAIL IS NECESSARY; TO LIVE IS NOT NECESSARY”



**ATTRIBUTED BY PLUTARCH TO *POMPEY THE GREAT*, DURING A SEVERE STORM,
COMMANDING SHIP MASTERS AT SEA TO BRING FOOD FROM AFRICA TO ROME
ABOUT 50 BC**

"DOES FINLAND HAVE ENOUGH MARITIME TRANSPORT CAPACITY ?"

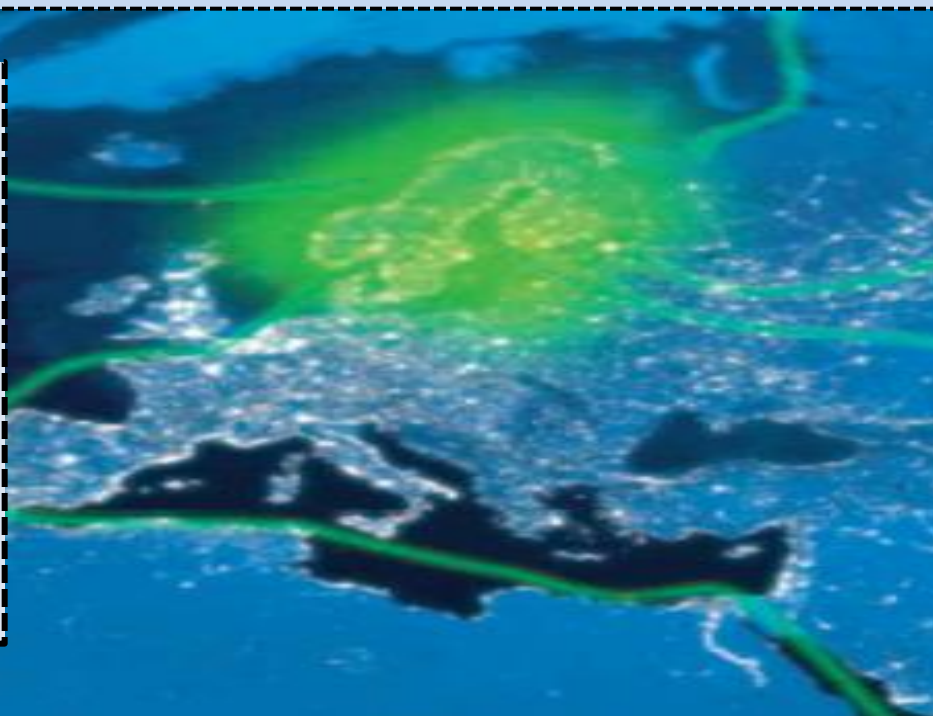
BÖS- 11.9.2015

**SECURITY OF SUPPLY OVER SEAS
MAINTAINING THE CRITICAL INFRASTRUCTURE
Foreign trade**

MARITIME TRANSPORTS:

IMPORTS 45 Mtn
(metric tonnes)=
78 % of the total import
to Finland

EXPORTS 41 Mtn
(metric tonnes)= **90 %**
of the total export
from Finland



Maritime Import:

Raw materials excl fuel 10,5 Mtn

Fuel and lubricantes

21 Mtn,

Of which coal and coke 5,7 Mtn,

Mineral oils and –product 15,2 Mtn

Chemicals

4,3 Mtn,

Foods

2,25 Mtn

= 38, 05 Mtn

Maritime Export,

Raw materials, wood and pulp

11,3 Mtn,

Paperd and carboard

9,0 Mtn

Iron and steel

2,8 Mtn

= 23,1 Mtn

THE FINNISH FOREIGN TRADE, TRANSPORTS 2014

TOTAL = 103 Mtn

MARITIME TRANSPORT 83 %, 85 Mtn,

ROAD AND TRAIN 14 %, 14 Mtn,AIR 0,2 %, 0,235 Mtn

SOURCES: Statistics from Finnish Transport Agency 2014, Finnish Customs 2014

MARITIME TRANSPORTS

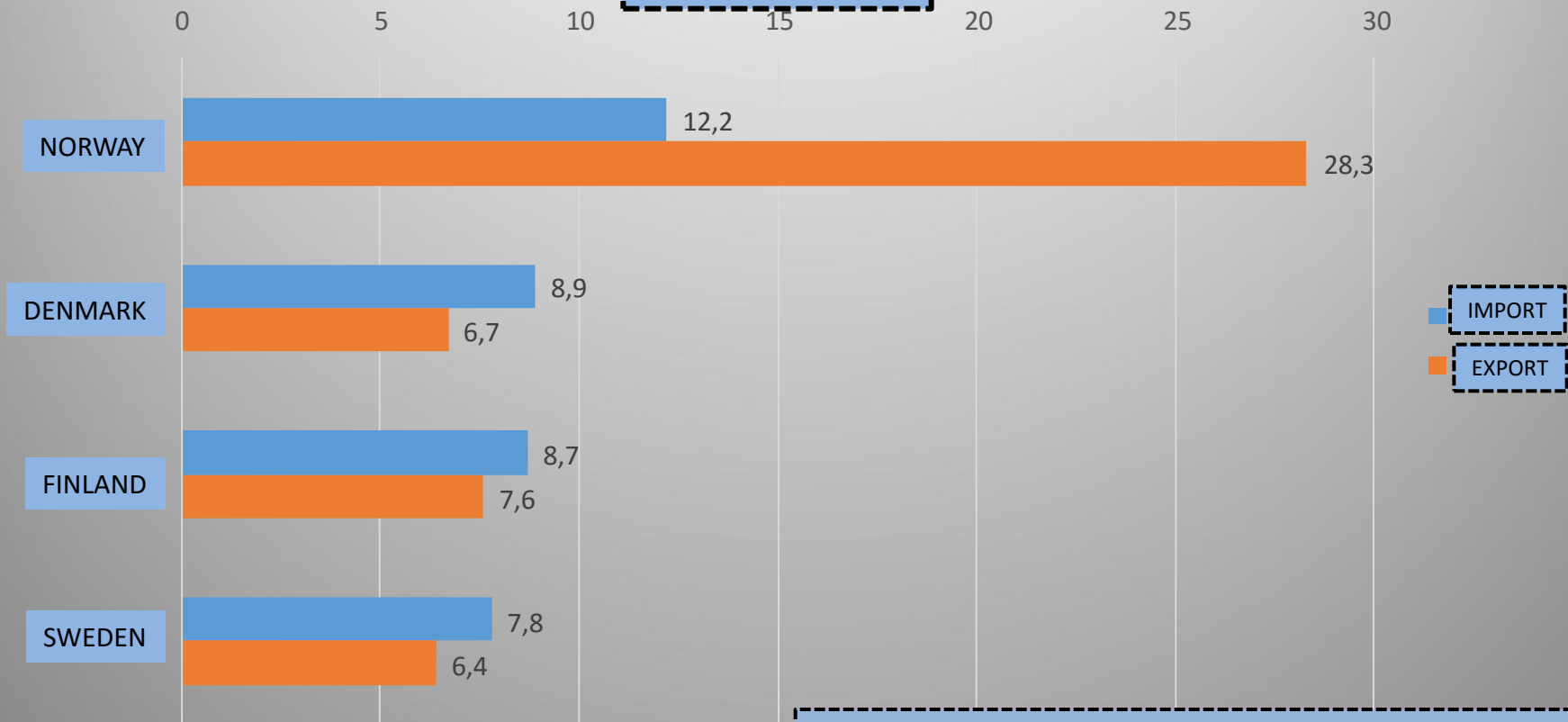
IMPORT AND EXPORT

IN THE NORDIC COUNTRIES

Tonnes (metric)per capita

BÖS 14.3.2015

TONNES/CAPITA/YEAR



SOURCES: 1. Svensk trafikanalys, Sjöfart 2013
2. Liikennevirasto, Ulkomaan meriliikennetilasto 2013

"DOES FINLAND HAVE ENOUGH MARITIME TRANSPORT CAPACITY ?"

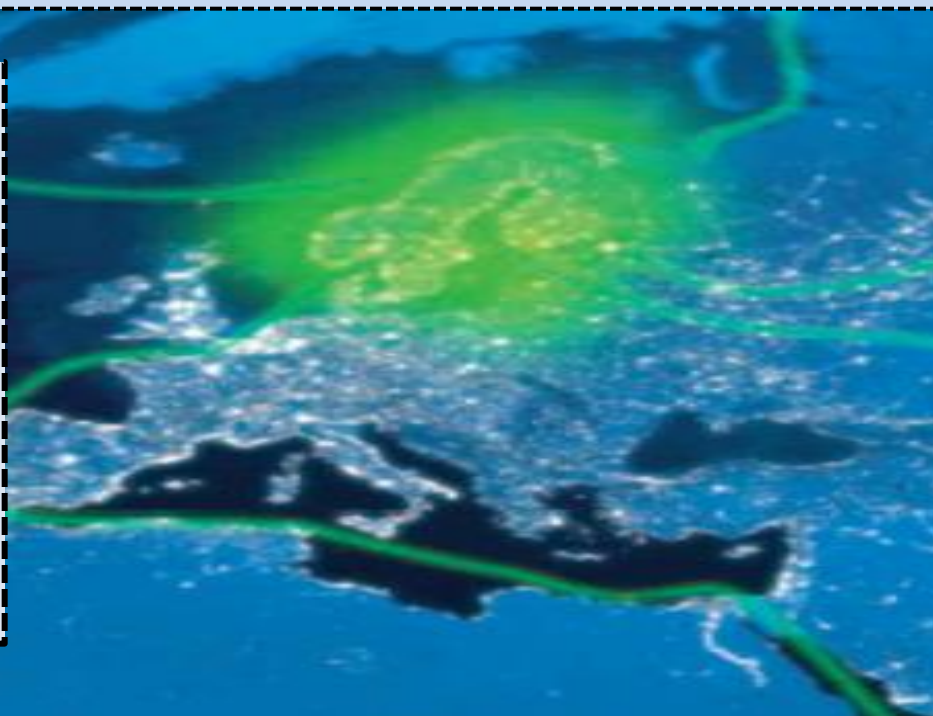
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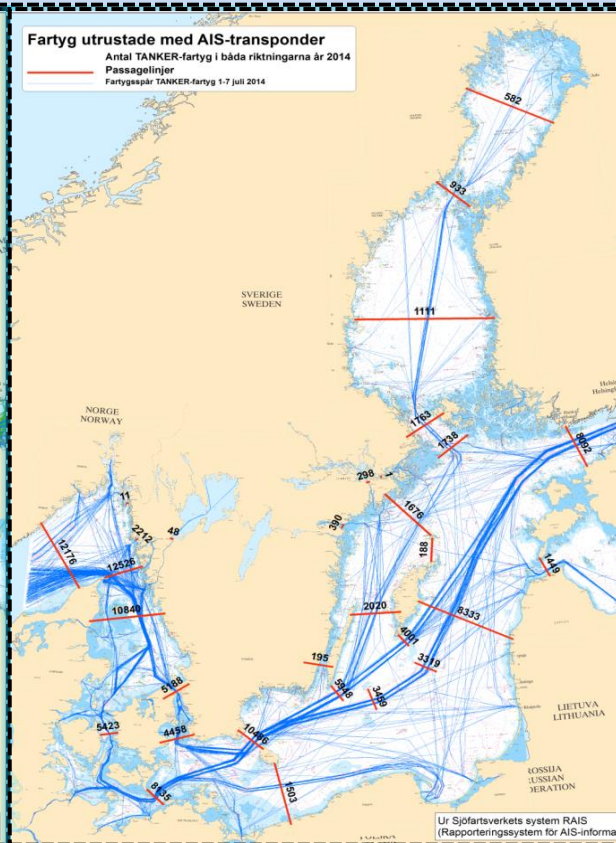
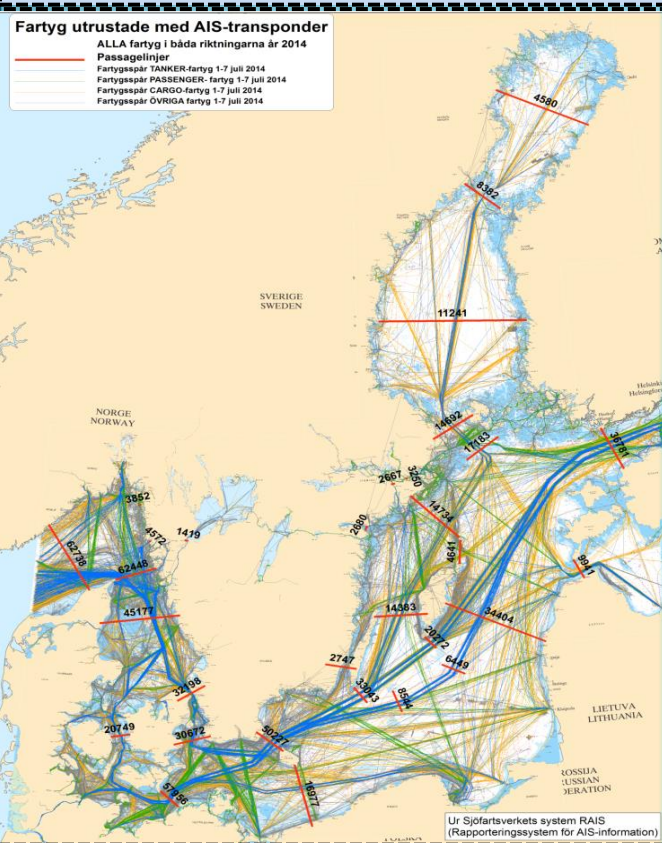
SOURCES: Statistics from Finnish Transport Agency 2014, Finnish Customs 2014

THE BALTIC MARITIME TRAFFIC INTENSITY 1.-7.1.2014, NUMBER OF SHIPS PER YEAR

All ships at Bornholm longitud, sailing South or North, both directions

67 204 AIS targets,

EVERY MOMENT THERE ARE APPR **2500 AIS-SHIPS** SAILING IN THE BALTIC



MARITIME TRANSPORT VOLYMES

BÖS 8.9.2014,
9.9.2015

ON THE BALTIC

2500 SHIPS SAILING EVERY MOMENT DURING THE DAY

**FROM A FINNISH POINT OF VIEW 160 SHIPS ARRIVING OR
DEPARTING FROM OR TO OUR HARBOURS EVERY DAY ALL
OVER THE YEAR FROM**

= 320 000 METRIC TONNES CARGO

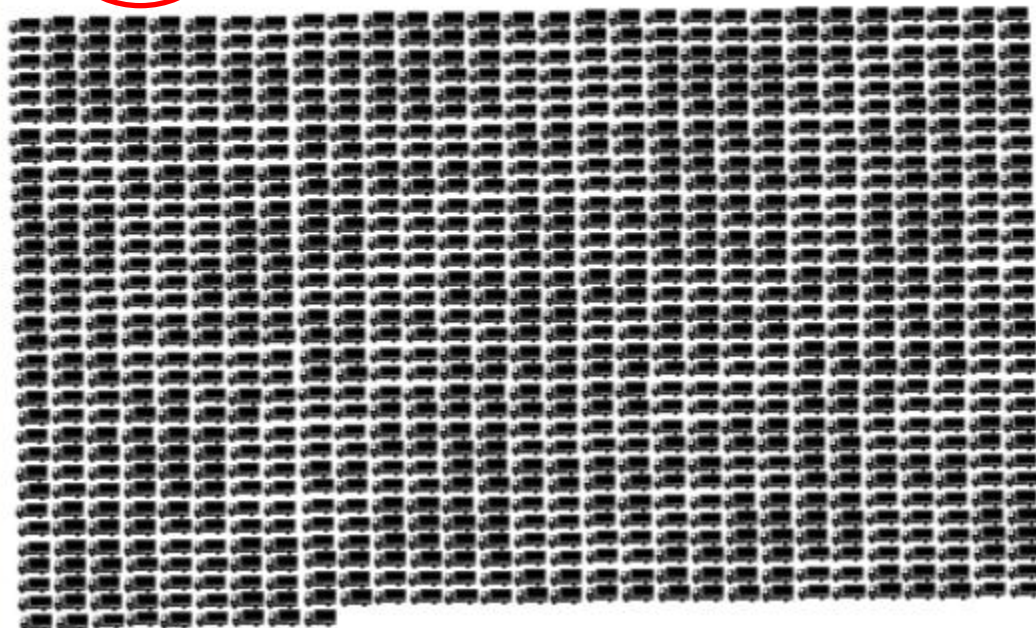
THE CARGO FROM 160 "DAILY" SHIPS EQUAL TO

7000 RAILWAY WAGON

OR 11 200 TRUCKS

1000 CONTAINER(TEU) CARGO CAPACITY EQUAL TO = 500 TRUCKS

1500 TEU CARGO SHIP CAPACITY COMPARED TO OTHER TRANSPORT ALTERNATIVES
2009
(AVERAGE SHIP, CAPACITY IN SSS 1400 TEU)



A CARGO TRAIN TRANSPORTS
75 TEU,
A TRUCK IN AVERAGE
1,6 TEU

A CONTAINER SHIPLOAD
EQUAL TO
20 CARGO TRAINS
OR
939 TRUCKS

MARITIME TRANSPORT

1. A government report on Finland's security and defence policy states that the ***functionality of transport services*** vital for Finland must be ensured ***in all circumstances***.

= MERCHANT FLEET, WITH ADEQUAT PERFORMANCE

2. Critical import products include ***energy and food***. In a more long-term disruption, it is also necessary to be able to safeguard the ***transport of exports*** in order to maintain a balanced economy.

3. At the moment, Finnish vessels are capable of handling all imports of ***energy necessary*** for the functions of society. In the event of a shift in the import of oil and coal from neighbouring areas to geographically distant markets, the current vessel capacity and its structure ***would be insufficient***.

= CRITICAL SHARE OF THE CARGO CAPACITY

FINLAND IS THE ONLY COUNTRY (+ESTONIA, NOW AND THEN) IN THE WORLD
WHERE
THE SEA TRAFFIC IS POSSIBLE ALL AROUND THE YEAR ONLY BY
ICEBRAKER ASSISTANCE

"DEMANDING" IS'N IT

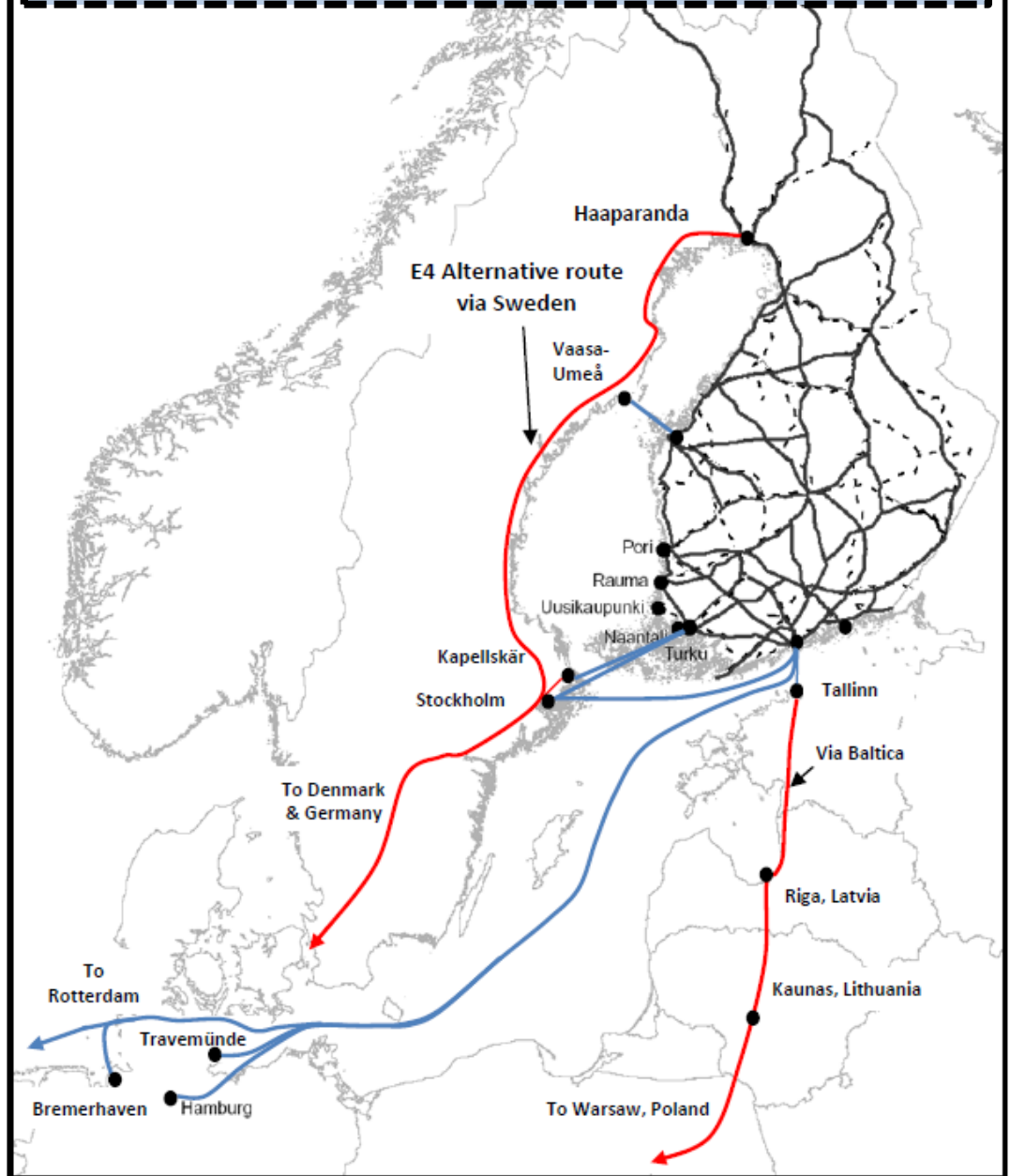
BÖS- 12.9.2015



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MarineTraffic.com

(ONLY)
A THIRD OF THE MARITIME TRANSPORT SERVICES OF FINNISH FOREIGN TRADE
ARE CARRIED OUT ON FINNISH KEEL

ENOUGH OR INSUFFICIENT ?



THE ROUTE ALTERNATIVES FOR THE FINNISH FOREIGN TRADE

2014
103 Mtn transported in
Finnish Foreign trade

CRITICAL INDUSTRY SECTORS IN FINLAND AND THEIR MAIN IMPORTS

BÖS- 11.9.2015

ACCORDING TO A INDUSTRY SURVEY 2011

<i>Critical industry</i>	<i>Main imported goods and materials</i>	<i>Rate of import dependency (%)</i>
Energy	Oil, gas, uranium, coal	Crude oil, uranium, coal, natural gas 100% - Share of imports in all energy production 65 % - Electricity: 15-20 %
Food sector	Pesticides, fertilizers and their raw materials, animal feed, agricultural machinery, chemicals, packaging materials Raw materials for the foodstuffs Packing materials	- Pesticides 100 % - Fertilizers (surplus approx. 50 %) - Ammonia % noble metal catalysts used in fertilizer production 100 % - Animal feed (soya protein) 70 % - Machinery 45 % - Raw materials for foodstuff 20 % - Food sold for customers 30 % - Packing materials
Health care	Pharmaceuticals, equipment, chemicals	- Raw materials for pharmaceutical production - Pharmaceuticals 85 % - Equipment 70 % - Packing materials
Forestry industry	Timber, fillers, coating pigments	- Timber 10-23 % - Fillers (kaolin) 70 % - Pigments
Chemical industry	Crude oil, basic chemicals, rubber	- Crude oil 100 % - Basic chemicals - Rubber 100 %
Technology industry	Components and parts, metals, minerals, fuels	- Components & Parts - Iron concentrate 100 % - Copper, nickel, & zinc concentrate - Components and other raw materials

Sources:

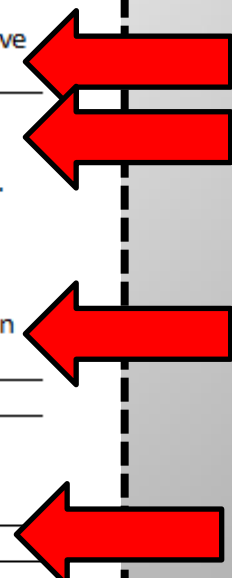
1. FINNISH CRITICAL INDUSTRIES, MARITIME TRANSPORT VULNERABILITIES AND SOCIETAL IMPLICATIONS, PUBLICATIONS FROM THE CENTRE FOR MARITIME STUDIES, UNIVERSITY OF TURKU, A 55, 2011,
2. HUOLTOVARMUUSKESKUS 2009,
3. MANNI & RIIPINEN 2002,
4. SIMOLA 2010,
5. HE 151/2008,
6. SUNDBERG 2009,
7. TEM 2008,
8. TEM & ELY 2010

CRITICAL LENGTH OF DISRUPTION BY INDUSTRIES

BÖS- 11.9.2015

BASED ON INDUSTRIES INTERVIEWS AMONG INDUSTRIES
DEPENDENT ON THE MARITIME TRANSPORTS VIA THE GULF OF FINLAND

<i>Industry</i>	<i>How long production can be carried out after a disruption</i>
Energy production	Coal: 3 months (reserves by law 3 months) Oil production: 2-3 days (production process is then forced to put down), reserve stocks of critical products (corresponding the amount of imports for 90 days)
Food supply & food exports	Grain imports & exports: several months (can be stored) Meat 2-3 weeks (whit special arrangements) Animal feed: 2-3 weeks (whit special arrangements: if there is a breakdown etc. at a factory, it will have an immediate impact) Malt: several months (can be stored) Milk products: 2-3 days Consumer products: from 2-3 days (perishable products) to 2-3 weeks (based on the products)
Chemical industry	Approximately 2 weeks (whit special arrangements) 2-9 days
Pharmaceuticals & healthcare supplies	Mandatory reserves by law industry & imports (3,6 & 10 months) of critical supplies, hospital (3-6 month stocks) Other supplies*: 3 weeks to 2 months
Forestry	12 hours- 2 days
Metals and mining	Depending on the product: from a few weeks to 2-3 months
Technology industry	2-3 days



Sources:

FINNISH CRITICAL INDUSTRIES, MARITIME TRANSPORT VULNERABILITIES AND SOCIETAL IMPLICATIONS, PUBLICATIONS FROM THE CENTRE FOR MARITIME STUDIES, UNIVERSITY OF TURKU, A 55, 2011,

FOREIGN MERCHANT TRADE

Based on 2012 Statistics

FINNISH MERCHANT FLEET = 1 269 994 Dwt
(- Tankers, Coal bulk, Passenger, special ships and tugs)

Available = 841 774 Dwt
Cargo capacity **379 128 tons**
Import 29 808 483 tons
69 Roundtrips a year
Export 36 919 985 tons
86 Roundtrips a year

BY FINNISH SHIPS
Import 41,0 %
Fin= 19,97 Mt
NI=5,691 Mt
Swe =4,15 Mt
N= 2,25 Mt
AntiguaB= 2,05 Mt
Vienti 19,1 %
Fin= 8,4 Mt
NI= 6,38 Mt
Swe= 4,77 Mt



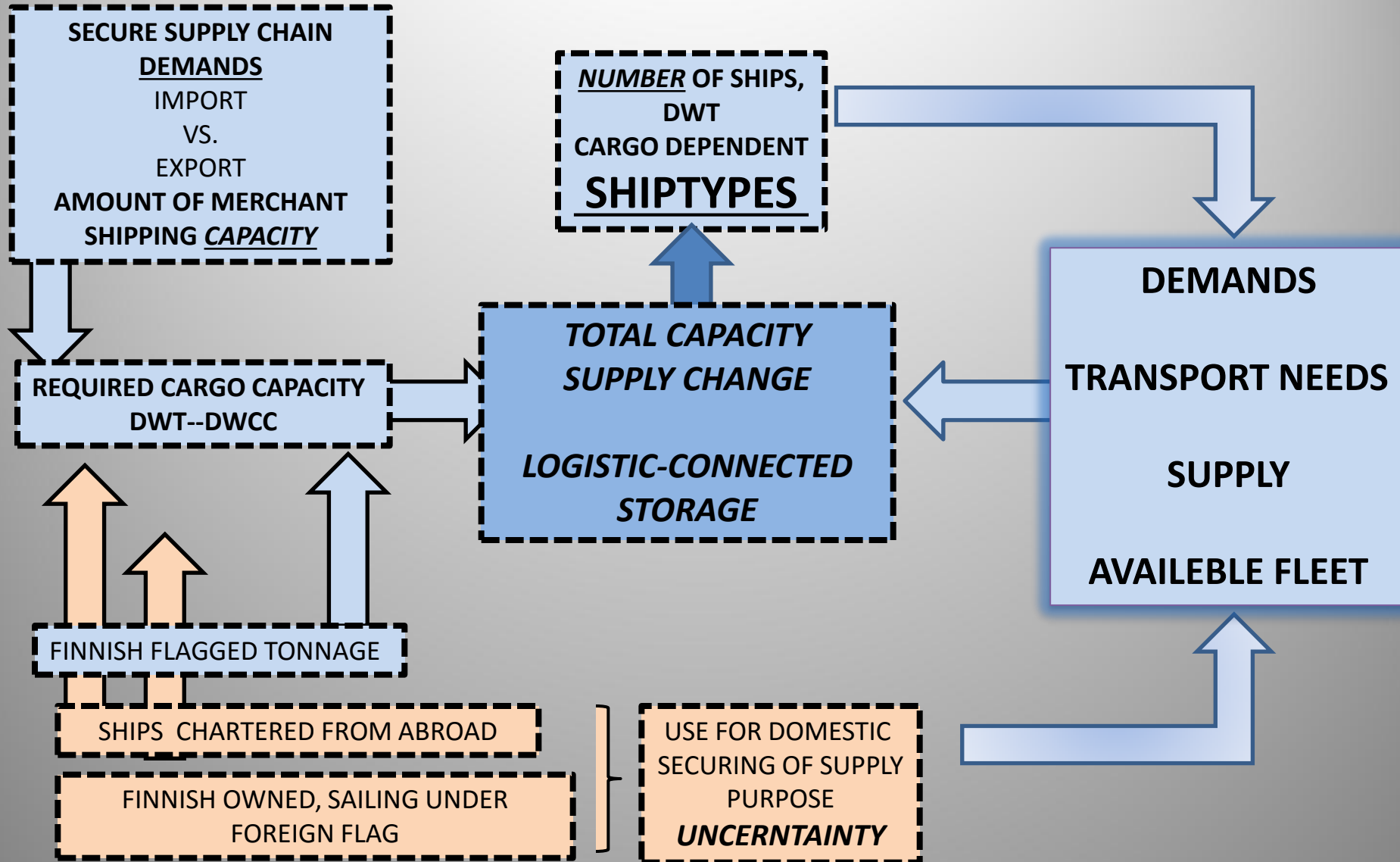
- 48 Foreign trade Harbours
 - 23 Twinter harbours
 - 14+ 1 Security of Supply Harbours
 - 14+ 2 Ten-T Harbours
- COR NETWORK
HAMINAKOTKA,
HELSINKI, TURKU JA
NAANTALI

Ship calls, incoming and outgoing in average **160 ships daily**
= 320 000 metric tonnes of cargo
Of which 28 000 metric tonnes to the next harbour, or from the first harbour

Daily transported merchant cargo
Equal to 6960 cargo trains, Or 8000 trucks

CONCLUSIONS-----SUMMARY

BÖS-20.9.2015



**THIS IS AN
ONGOING *RESEARCH* PROJECT**

**THANK YOU
FOR YOUR ATTENTION**

**ANY SHORT ANSWERS
REQUIRING
QUESTIONS ?**