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Improvement of the air cargo transport sector by
service oriented ICT-methods and processing logistic network

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Task 4.3 Case scenarios

Work Package # 4 - ICT INFRASTRUCTURE - Conception, Development, Implementation, Test, Transfer

Task # 4.3 – Implementation

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Contents

Introduction.....	3
Step 1: Goods in Polish Air Cargo	3
Step 2: Regional Service providers	3
Step 3: Case scenario	13
Step 4: Shipment description – demonstrator	13
Step 5: Shipment description – lacking data	15
Step 6: Compilation	15
Bibliography	17

Introduction

Scope of this work is to investigate possibilities of transporting goods via an airport in the partner region – Poland. Katowice Airport was chosen for more detailed investigation. A simulation of the case scenarios was carried out, using the software developed in Task 4.2, to verify optimality of the selected routes.

Step 1: Goods in Polish Air Cargo

In terms of weight, the most important goods shipped using air cargo are [4]:

- machine parts,
- electronics,
- medicaments
- textiles

Other notable goods include fresh fruits and live animals.

In Silesia region automotive and high technology

In Poland in, air cargo traffic import from other countries on long haul routes is the most prominent part of air cargo market [3][6]:

- domestic connections 20,5%
- international connections 79,5%
- export 33,2%
- import 66,8%

Step 2: Regional Service providers

According to Polish aviation regulations, company transporting goods or handling cargo on the ground must have concession and certificate. Registered agents at Katowice Airport are as follows [7]:

1. Katowice - Pyrzowice GTL LOT – Usługi Lotniskowe sp. z o.o.



Ożarówice, Poland

Telephone: (+48 32) 284 50 85

Fax: (+48 32) 284 50 90

e-mail: biuro@gtllot.com.pl

www: <http://gtllot.com.pl>

2. TNT Airways S.A.



Grace-Hollogne, Belgium

Telephone: (+32) 4 239 3000

Fax: (+32) 4 239 3 999

e-mail: infotntliege@tnt.com
www: <http://www.tntliege.com>

3. PLIT-Katowice Sp. z o.o.

Krakow, Poland
Telephone: (+48 32) 284 50 03
Fax: (+48 32) 284 50 04
e-mail: plit-ktw@plit.pl
www: <http://www.plit.pl>

4. DHL Express



Piaseczno, Poland
Telefon: 801 345 345
e-mail: pl.bigchina@dhl.com
www: <http://www.dhl.com.pl/publish/pl/pl/services/Logistyka.high.html>

5. PEKAES MULTI-SPEDYTOR Sp. z o.o.



Błonie, Poland
Telephone: (+48 22) 460 27 31
e-mail: ir@pekaes.com.pl
www: <http://www.pekaes.com.pl>

6. UPS Airlines



Warsaw, Poland
Telephone: 022 5340000
Fax: 022 5340801
e-mail: totaltrack.gb-eng@ups.com
www: <http://www.ups.com>

7. C.HARTWIG GDYNIA



Gdynia, Poland
Telephone: (+48 58) 690 00 00
e-mail: chg@chg.pl
www: <http://www.chg.pl>

8. C.HARTWIG WARSZAWA

Warsaw, Poland
 Telephone: (+48 22) 6067230
 Fax: (+48 22) 6066150, 6067456
 www: <http://www.c.hartwig.pl>

9. FedEx Express



Memphis, USA
 Telephone: (+48 22) 576 31 60
 www: <http://www.fedex.com/pl>

10. AirTrans H. Watóła Sp. Jawna



Pyrzowice, Poland
 Telephone: (+48 32) 381 05 61
 e-mail: ktwteam@airtrans.com.pl
 www: <http://airtrans.com.pl>

11. Time matters Sp. z o.o.



A company of Lufthansa Cargo
 Warsaw, Poland (Polish branch)
 Telephone: (+48 32) 775 46 70
 Fax: (+48 32) 775 46 71
 e-mail: Poland@time-matters.com
 www: <http://www.time-matters.com/en/branches/poland>

Freight forwarders in Poland, dealing with transport to and from People's Republic of China (investigated further in the scenarios), regardless of transport mode, are as follows [1]:

1. Solid Logistics Sp. z o.o.



Gdynia, Poland
 Telephone: 58 621-37-17 , Fax: 58 621-37-00 ,
 e-mail: gdynia@solid-logistics.com.pl
 www: <http://www.solid-logistics.com.pl>

2. GLOBAL FREIGHT SERVICES (GFS Polska)



Warsaw, Poland

Telephone: (+48 22) 576 42 84, 576 42 85, 576 42 86 , Fax: (+48 22) 868 18 22

e-mail: gfs@gfsservices.pl

www: <http://www.gfsservices.pl>

3. AB logis sp. z o.o.



Józefosław, Gdynia, Poland

Telephone: +48 58/6213637

Fax: +48 58/6213621

e-mail: spedycja@ablogis.pl

www: <http://www.ablogis.pl>

4. ADECON



Lisków, Poland

Telephone: 62 59 777 25

Fax: 62 5977723

e-mail: biuro@adecon.pl

www: <http://www.adecon.pl>

5. Agencja Transportowa Makro Service - lotniczy, morski



Warsaw, Poland

Telephone: +48 22 8781100

Fax: +48 22 8685563

e-mail: ewa.zasuwik@makro-service.com.pl

www: <http://www.makro-service.com.pl>

6. ALFA FORWARDING LTD



Gdynia, Poland

Telephone: + 48 58 6605900

Fax: + 48 58 6612203

e-mail: office@alfaforw.com.pl

www: <http://www.alfaforw.com.pl>

7. Anmar Andrzej Nowak Mariusz Cisło s.c.



Gdynia, Poland
Telephone: 58/733 01 35
Fax: 58/733 01 50
e-mail: agencja@acanmar.pl
www: <http://www.acanmar.pl>

8. ASL Sp. z o. o.



Warsaw, Poland
Telefon: +48 22 544 17 20
Fax: +48 22 894 60 33
e-mail: bigchina@asl.com.pl
www: <http://www.asl.com.pl>

9. C. Spaarmann Logistics Sp. z o.o.



Piaseczno, Poland
Telephone: +48 22 716 56 70
Fax: +48 22 112 12 24
e-mail: warszawa@spaarmann.pl
www: <http://www.spaarmann.pl>

10. Cargoways



Katowice, Poland
Telephone: +48 88 858 22 22
Fax: +48 22 490 55 28
e-mail: biuro@cargoways.pl
www: <http://www.cargoways.pl>

11. Cosco Poland



Gdynia, Warsaw, Poland
Telephone: (+48 58) 660 99 50-53, (+48 22) 619 46 09
Fax: (+48 58) 661 61 47

e-mail: import@cosco.pl

www: <http://www.cosco.pl>

12. DHL Logistics Sp. z o.o.



Piaseczno, Poland

Telefon: 801 345 345

e-mail: pl.bigchina@dhl.com

www: <http://www.dhl.com.pl/publish/pl/pl/services/Logistyka.high.html>

13. Euro Shipping Sp. z o.o.



Gdynia, Poland

Telephone: (+48 58) 733 01 90

Fax: (+48 58) 733 01 89

e-mail: office@euro-shipping.com.pl

www: <http://www.euro-shipping.com.pl>

14. FELTRANS Sp. J.



Sochaczew, Poland

Telephone: + 48 46 862-45-19

Fax: +48 46 862-28-99

e-mail: feltrans@feltrans.pl

www: <http://www.feltrans.pl>

15. IGS Schreiner Polska Sp. z o.o.



Nadarzyn, Gdynia, Poland

Telephone: (+48 22) 701 70 00

Fax: (+48 22) 737 24 10

e-mail: info@igs.com.pl

www: <http://www.igs.com.pl>

16. ITL OMEGA Sp. z o.o.

Warsaw, Poland
Telephone: 0048 22 501 20 10
Fax: 0048 22 501 20 20
e-mail: biuro@itl-omega.pl
www: <http://www.itl-omega.eu>

17. OTEC Polska

Warsaw, Poland
Telephone: 22 335 45 18
Fax: 22 335 45 01
e-mail: morski@otec.pl
www: <http://www.otec.pl>

18. OWL Ocean World Lines Poland Sp. z o.o.

Gdynia, Polska
Telefon: 58/76 66 221
Fax: 58/76 66 223
e-mail: info@owlpl.com
www: <http://www.owl.biz>

19. PACTRA Logistics (Poland) Sp. z o.o.

Warsaw, Poland
Telephone: 022 849 14 58
Fax: 022 849 14 58
e-mail: joanna.lewicka@pac-tra.com
www: <http://www.mnp.de>

20. PEKO Spedycja Międzynarodowa sp. z o.o.



Gdańsk, Poland
 Telephone: 58 323 88 99
 Fax: 58 323 88 22
 e-mail: spedycjaoffice@peko.pl
 www: <http://www.peko.pl>

21. Poltrans



Hamburg, Niemcy
 Telefon: +(0 40) 75 24 93 25
 Fax: (0 40) 75 24 93-40
 e-mail: s.pietrzak@poltrans.de
 www: <http://www.poltrans.de>

22. POLZUG Intermodal GmbH



Hamburg, Germany
 Telephone: 0049 40 74 11 45 0
 Fax: +49 40 74 11 45 72
 e-mail: hamburg@polzug.de
 www: <http://www.polzug.de>

23. Primer Spedycja Międzynarodowa Sp. z o.o.



Gdynia, Poland
 Telefon: +48 58 733 01 80÷84
 Fax: +48 58 733 01 85
 e-mail: info@primer.pl
 www: <http://www.primer.pl>

24. Raben Sea & Air Sp. z o.o.



Warsaw, Poland
 Telefon: +48 22 3640 300
 Fax: +48 22 3640 301

e-mail: biuro@raben-sea-air.com
www: <http://www.raben-sea-air.com>

25. Real Logistics



Wrocław, Polska
Telefon: +48 71 722 41 54
Fax: +48 71 350 47 57
e-mail: info@real-logistics.pl
www: <http://www.real-logistics.pl>

26. RGW Express Sp. z o.o.



Warsaw, Poland
Telefon: (+48) 22 500 24 00
Fax: (+48) 22 500 24 24
e-mail: info@rgw-express.pl
www: <http://www.rgw-express.pl>

27. Rohlig Poland Sp. z o.o.



Piaseczno-Warszawa, Polska
Telefon: (+48 22) 737 75 75
Fax: (+48 22) 737 75 00
e-mail: rocowaw@rohlig.pl
www: <http://www.rohlig.pl>

28. Rusak Business Services Sp. z o.o.



Warsaw, Poland
Telephone: 022 678 60 45
Fax: 022 678 61 28
e-mail: rusak@rusak.pl
www: <http://www.rusak.pl>

29. SIGNA Sp. z o.o.

Hamburg, Germany
Telephone: +49 4070293954
Fax: +49 4073091965
e-mail: signa.de@signa.net.pl
www: <http://www.signa.net.pl>

30. STEFAR GmbH

Hamburg, Germany
Telephone: 00 49 40 24424 14 14
Fax: 00 49 40 24424 14 24
e-mail: szpotowicz@stefar.de
www: <http://www.stefar.de>

31. Transpol Janusz Nowicki

Gdynia, Poland
Telephone: +48 58 / 352 12 77
Fax: +48 58 / 785 54 27
e-mail: lkiersznikiewicz@spedycja-transpol.pl
www: <http://www.spedycja-transpol.pl>

32. UPS Polska Sp. z o.o.

Warsaw, Poland
Telephone: 022 5340000
Fax: 022 5340801
e-mail: totaltrack.gb-eng@ups.com
www: <http://www.ups.com>

33. WARS-SPED Spedycja Międzynarodowa i Krajowa



Warsaw, Poland

Telephone: (22) 619 25 24

Fax: (22) 618 41 05

e-mail: info@wars-sped.pl

www: <http://www.wars-sped.pl>

Step 3: Business case scenario

A case of transport of goods from China has been chosen for consideration. This direction potential has not been exploited so far. Planned LOT connection Warsaw-Beijing opens possibilities for carrying belly cargo transport, while UPS aircraft that land in Warsaw, also land in China on its voyage around the globe[6]. Currently, the main transport modes for transport from China are air and sea freight.

Considered shipment parameters are as follows:

Table 1. Shipment details.

Item [-]	Computer parts
Origin	Yat Fai Logistics Center, Jiangyin, Jiangsu
Destination	Alliance Silesia IV Logistics Center
Number of pieces [pcs]	1000
Piece weight [kg]	1,181
Piece dimensions [m]	0,05x0,21x0,297
Piece volume [m ³]	0,0032
Total weight netto [kg]	1181
Total volume netto [m ³]	32
Special requirements	Fragile goods

Step 4: Shipment description – demonstrator

As demonstrator was not available during the writing of the report (see Picture 1 below), screenshot from previous test were used to elaborate description of goods as used on the demonstrator.

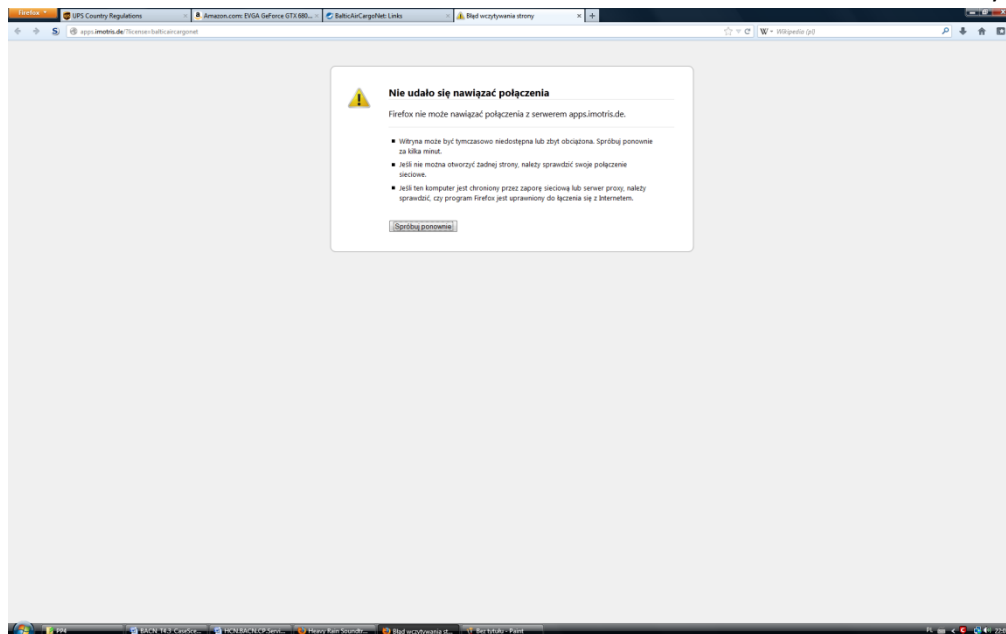
Table 2. Shipment description details.

Start	- *
Ziel	Warehouse at Katowice**
Gutart	Computer parts**
Verwende	LKW/Zug/Seechiff/Flugzeug*
Optimieren	Zeit/Kosten
Verpackungseinheit	1,5 tonne container**
Anzahl der Stücke	1000
Gesamtgewicht [kg]	1181
Gesamtvolumen [m ³]	0,0032
Max. Stückgewicht [kg]	1,181

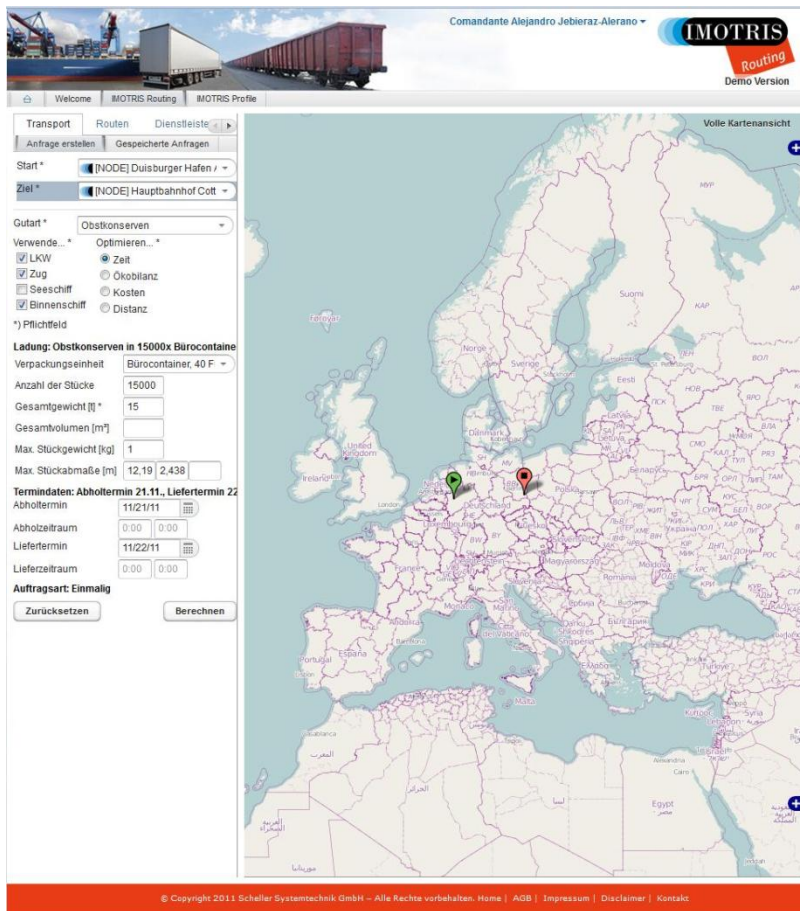
Max. Stückgeabmaße [m]	0,05x0,21x0,297
Abholtermin	11/21/13
Liefertermin	12/25/13

* No matching data available on the demonstrator

** Actual name to be chosen on demonstrator is not known due to its unavailability.



Picture 1. The demonstrator was not available for the test at the time of elaborating this document.



Picture 2. Demonstrator screenshot from previous report.

Step 5: Shipment description – lacking data

The demonstrator is restricted to Europe and did not contain area of China and no air transport is available yet. This is very well known to the WP4 leader, however.

On comparison of Table 1 and Table 2 it can be seen that the demonstrator contains enough information, at least provided that “gutart” field dictates necessary conditions for transport. In case of electronic devices, these may vary, e.g. liquid cooled devices may require stringent temperature range.

E-platforms in Poland, (e.g. http://transportzchin.com/transport_lotniczy/krok/2/) also offer possibility of finding added value services associated with transport, such as audit, inspections, customs, etc.

Step 6: Compilation

A simulation has been performed to find optimal route from Yat Fai Logistics Center to Alliance Silesia IV Logistics Center. Only direct transport cost was included, no customs or taxes were taken into account. List of nodes is listed in Table 3.

Table 3. Input nodes description.

No	Node description
1	Warszawa Okęcie Airport
2	Katowice – Pyrzowice Airport
3	Gdańsk – Rębiechowo Airport
4	Parchim Airport
5	Copenhagen International Airport
6	Helsinki International Airport
7	Beijing International Airport
8	Shanghai Pudong International Airport
9	Chengdu International Airport
10	SEGRO Business Park Łódź
11	Europolis Park Błonie
12	Trefl Logistic Center
13	Alliance Silesia IV Logistics Center
14	Priorparken 851 2605 Brøndby Dania
15	Supply Division Warehouse
16	COPENHAGEN ELECTION A/S Sankt Annae Plads 11 DK-1250 Copenhagen K Denmark
17	Urumqi Warehouse Urumqi, Tibet 830000, China
18	Prologis Chengdu Airport Logistics Center
19	Shanghai Nanhui Warehouse Lingang Avenue
20	Yat Fai Jiangyin 8F, Yat Fai Logistics Center, 23 Panlongshan road, Jiangyin, Jiangsu
21	Toll Global Logistics, Beijing No 8, Hong Da Road, Gaojiapu, Daxing
22	Pasilankatu 2 PL 124 00240 Helsinki
23	Mustola Harbour Main gate 53100 Lappeenranta
24	Am Turm 14 03046 Cottbus, GERMANY
25	Spedition HOMTRANS Service GmbH & Co. KG Am Rieck Logistikpark 1 D-18196 Kavelstorf
26	Sea Port Gdynia
27	Sea Port Kiel
28	Helsingin Satama,
29	Sea Port Shanghai
30	Sea Port, Frihavnen

Four modes of transport were taken into account, sea, rail, truck and air transport. It was assumed that all physically possible connections are available, at cost calculated using coefficients shown in Table 4.

Table 4. Input transport cost.

Transport mode	Direct cost per hour per kilogram [€/h/kg]
Air	0,32
Sea	0,03
Truck	0,07
Rail	0,11

The final solution comprises a series of transport offers. Calculation results are shown in Table 5 below. The route numbers correspond to the nodes in Table 3.

Table 5. Calculation results.

Optimisation criterion	Route	Transport modes
Time	20-8-2-13	Truck-Air-Truck
Cost	20-29-26-13	Truck-Sea-Truck

The calculation shows, not so surprising, conclusion that using air and sea ports in Poland is cost effective for shipment from China to Poland, at least from the point of view of direct operating costs. In fact, however, it is often not the case [5]. The barriers for increasing traffic in Polish airports are long custom procedures and law governing VAT, that require freezing capital. Hence the calculations only show potential of using fuel efficient routes.

Bibliography

Web sources:

- [1] <http://www.bigchina.pl>
- [2] <http://rafinacja.pl/wspolpraca-handlowa-eksport-do-chin/>
- [3] <http://www.katowice-airport.com/pl/airport/show-news/814488>
- [4] http://informatykagospodarcza.2taj.net/zarzadzanie_i_marketing/logistyka_lotniczego_transportu_towarowego
- [5] http://www.importchiny.pl/odprawa_celna.php

Reports:

- [6] Dziugiel Bartosz et al. „Task 3.1 Air Cargo Market In Poland” Institute of Aviation, Warsaw 2011.
- [7] Wojciech Miksa „Task 4.1 TO BE concept”, Institute of Aviation, Warsaw 2012.