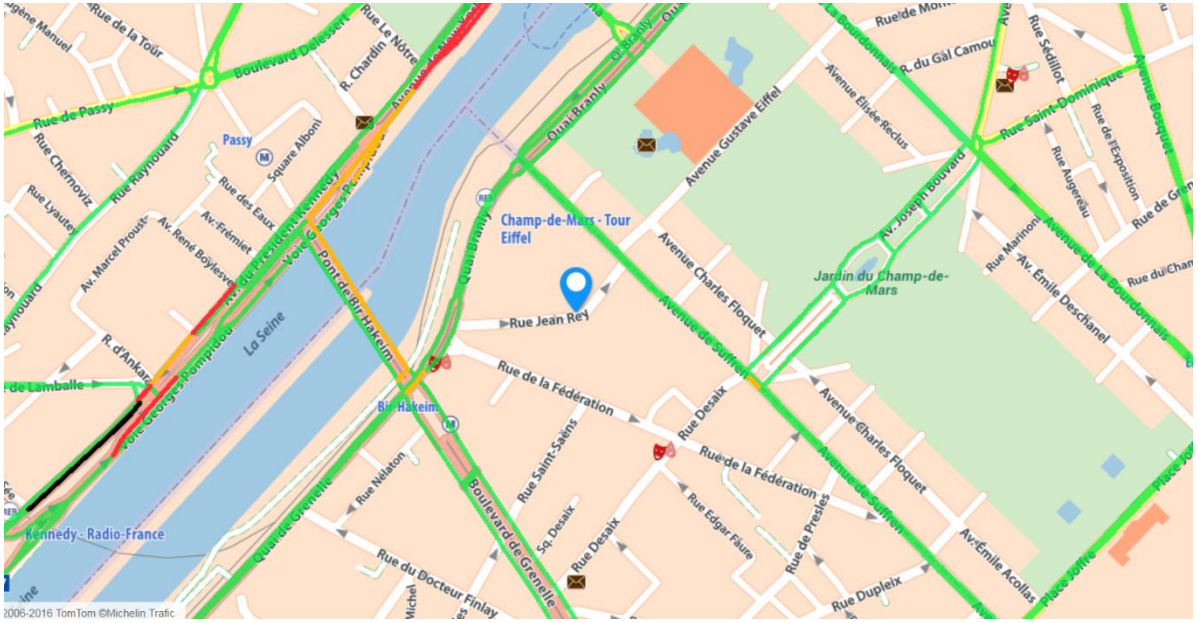
INTERNATIONAL UNION
OF RAILWAYS

unity, solidarity, universality

Eurasian corridors stakeholder group
Paris, 22 November 2017

Where?

UIC headquarters, 16 rue Jean Rey, Paris



When?

22 November 2017, from 10h00 to 17h00

Languages: English and Russian

AGENDA

- Welcome by Jean-Pierre Loubinoux, Director General UIC

- Presentation of the Recommendations and Gaps from the UIC Study on Eurasian Corridors

- Thematic discussions:
  - Market and technology
  - Digital and information flow
  - Operations and services

- Product development: update on services

- Priority topics to be addressed at the Global Rail Freight Conference
  Genova 20-22 June 2018

- Wrap up and next steps

Geographical scope of the study

Main Eurasian routes with track gauge (schematic)[1)]

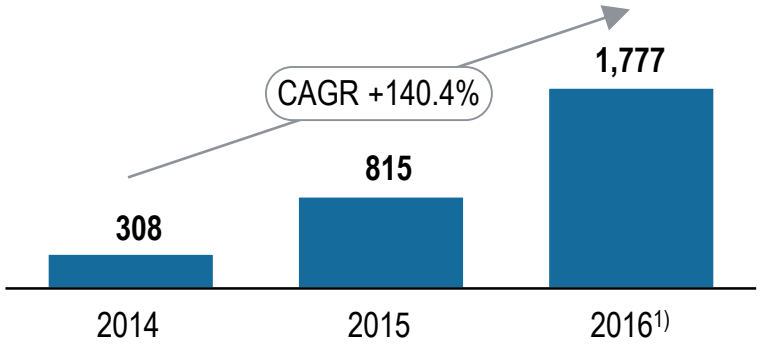
1) Conical projection to minimize visual distortion of distances; numbering based on route usage for Eurasian rail freight transport

Source: UNESCAP, Roland Berger

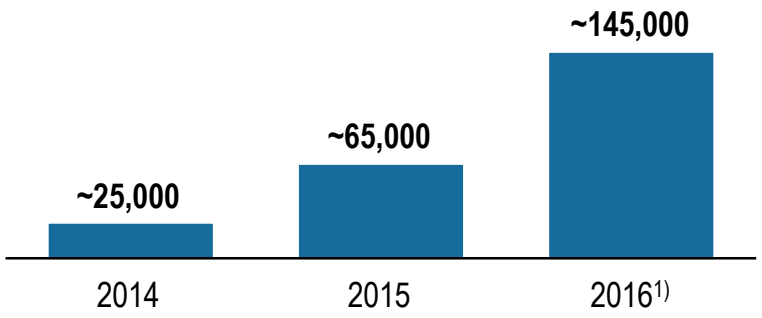
Eurasian rail cargo transports have grown significantly, but still have a low intermodal market share

Development of rail freight between Asia and Europe

Transport between China and Europe via rail [Trains]



Transport between China und Europe via rail [TEU]



> Improvements driving volume development on Eurasian rail routes
  - Reduction of transit time and increased punctuality
  - Increase of destinations to 15 in Europe and 16+ in China
  - Reduction of freight rates, subsidies from China's OBOR initiative
  - Targeting of suitable customers and regions e.g. Western China
  - Ease of border crossings through common consignment note, Eurasian Customs Union and local improvements
  - Upgrading and extension of infrastructure e.g. in Kazakhstan
> However, market development and competition from other transport modes prevent rail transport from reaching higher market share
  - Freight rates for container shipping have fallen significantly since 2011. Price level of rail transport is now 3 to 4+ times higher than shipping (Shanghai Shipping Exchange rate SCFI for Europe in March 2017 under USD 900 per TEU)
  - Economic growth rates in China cooled down and the overall trade between Asia and Europe stagnated in 2015 and 2016
  - Still room for efficiency and quality gains in waiting times and processes for border crossings and customs, reliability and client information etc.

1) Roland Berger calculations based on interviews with several players, e.g. DB Cargo, TEL
Source: EATL, DB Cargo, CRIMT, press research, Roland Berger

Routes 1 and 2 are the fastest and most used routes with high reliability and good infrastructure – Alternatives need to be improved

Route assessment

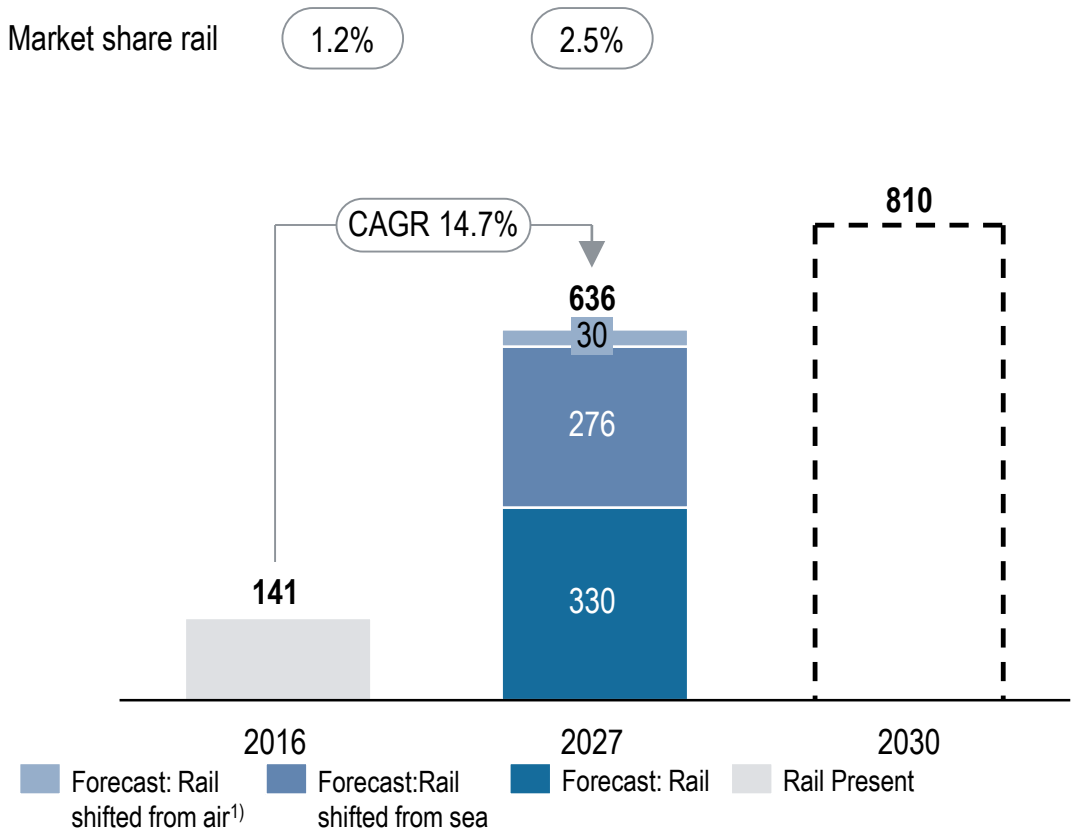
Route		Length	Transit time[1)]	Capacity and Comments
1	**Via Alashankou/ Dostyk or Khorgos (Kazakhstan)**	> 10,000 km	> 16-17 days	> High reliability, good infrastructure > Sufficient capacities, new terminal in Khorgos
2	**Via Manzhouli/ Zabaykalsk (Russia)**	> 11,000 km	> 17-18 days	> High reliability, good infrastructure > High volume but limited free capacity in Zabaykalsk
3	**Via Erenhot/Zamyn-Uud (Mongolia)**	> 10,500 km	> 18-19 days	> Alternative to route 2, additional border crossings > Weak infrastructure in Mongolia, limited capacity
4	**Via Suifenhe/ Vostochny (Russia)**	> 11,500 km	> 18-19 days	> Suitable route for traffic from South Korea > High reliability, good infrastructure
5	**Via Dostyk or Khorgos/Baku**	> 12,000 km	> 19-23 days	> Alternative for traffic to Southern Europe > Two times RoRo shipping[2)], limited capacity
6	**Via Khorgos/Tashkent/Tehran**	> 12,500 km	> Hardly used	> Weak infrastructure, route has to be developed > Limited capacity
7	**Via Tehran/Baku/ Moscow**	> 13,500 km	> Hardly used	> Suitable route for traffic from India to Europe > Weak infrastructure, route has to be developed

1) Fast/Speed rail services can achieve a smaller transit time 2) Roll-on/roll-off shipping, rail cargo is driven on/off the vessel

Source: Company information, EATL, Roland Berger

For 2027, a total rail potential of around 636,000 TEU is forecasted – Significant amount coming from shift from sea

Rail potential base case forecast ['000 TEU]



1) Rough estimate based on shift factors of 5% from overall Asia-Europe air traffic 2) Length of an European train

- Total rail potential includes
  - Existing rail volumes increasing over time
  - Shift from sea to rail, including growth of sea transport
- Shift from air as potential, but small (in terms of volumes) upside
- 636 k TEU can roughly be translated into 21 trains per day in 2027 (assumption: 82 TEU per train[2])
- Due to separate analysis TEU volumes of South Asia, Turkey and Iran trade with EU 28 not included
- Extrapolated forecast until 2030 shows a total rail cargo volume of 810 k TEU

Source: Eurostat, Roland Berger

Timing and reliability stay key success factors – Operations have improved but market still sees further improvement potential

Prioritization and evaluation of success factors – Analysis of interviews

Parameter	Importance for rail link	Gap 2017[1)]	Changes since 2011 and comments
Transport time	●	◔ ↗	> Speed gains of approx. two days since 2011 > Gaps seen mostly inside Europe (slow transportation, delays)
Reliability	●	◑ ↗	> Rail now more reliable than sea > Especially shippers still see need for improvement and more information
Balanced quantities	◕	◕ →	> Continuously smaller eastwards transport volumes, changing only slowly > Alternatives like stepwise returns make transport more complicated
Target goods	◕	◑ →	> Suitable goods are targeted and LCL offers were introduced > Still potential, e.g. in chemicals, temperature controlled goods and air freight
Price	◕	◑ ↘	> No pure price competition but more competition through low sea freight rates > Potential for more cost efficiency and less dependence on subsidies
Frequency, flexibility	◕	◑ ↗	> Frequency increased strongly in last years > Many trains are still on request instead of regular trains
Target geogra-phical coverage	◑	◑ →	> Network has increased in past years > Next step should be consolidation for more efficient geographical coverage
Availability	◑	◑ ↗	> Imbalance of traffic complicates return of platforms/containers
Customs	◑	◑ ↗	> Improvements in customs in the last years, partly seen as "solved problem" > More potential at Chinese border and through electronic documentation

Legend: Higher filling of harvey balls shows higher importance; higher filling of gap shows higher gap, direction of arrow shows progress since 2011 (upwards = positive, downwards = neg.)
1) Gap depicts overall view of established routes (Northern routes), progress arrow can be flat/negative if expectations have risen at the same time as results
Source: Expert interviews, Roland Berger

Gaps are larger for Southern routes and have to be overcome to establish a viable Southern alternative

Evaluation of success factors for Southern routes (Silk Road and TRACECA[1])

Parameter	Importance for rail link[2]	Gap 2017	Comments regarding Southern Routes
Transport time			> Speed slower than Northern routes (e.g. 17-20 days China-Turkey) > Long distance, more border crossings/customs or mode changes
Reliability			> No established regular services yet > Trial services TRACECA (DHL 2016) with delays of more than 4 days each
Balanced quantities			> Smaller eastward transport volumes are expected > Need to examine possibilities for stepwise transports
Target goods			> Target goods in European O/Ds for Southern routes (East Europe) and in new O/Ds (Turkey, Iran) need to be specified and seasonality considered
Price			> Even bigger competition from sea freight through shorter distance and good accessibility of Middle East and East European countries > High network costs in Iran and Turkey
Frequency, flexibility			> Routes not established as regular services yet
Target geogra-phical coverage			> Routes not established as regular services yet
Availability			> Routes not established as regular services yet
Customs			> Many transit countries are not part of a customs unit (Ukraine, Iran, Azerbaijan and Turkmenistan)

Legend: Higher filling of harvey balls shows higher importance; higher filling of gap shows higher gap

1) Transport Corridor Europe-Caucasus-Asia 2) Same importance as for general Eurasian transport

Source: Expert interviews, Roland Berger

The focus of operators and railways should be on operational efficiency and on customer-friendly product development

Recommendations for operators and railways

Streamline operations

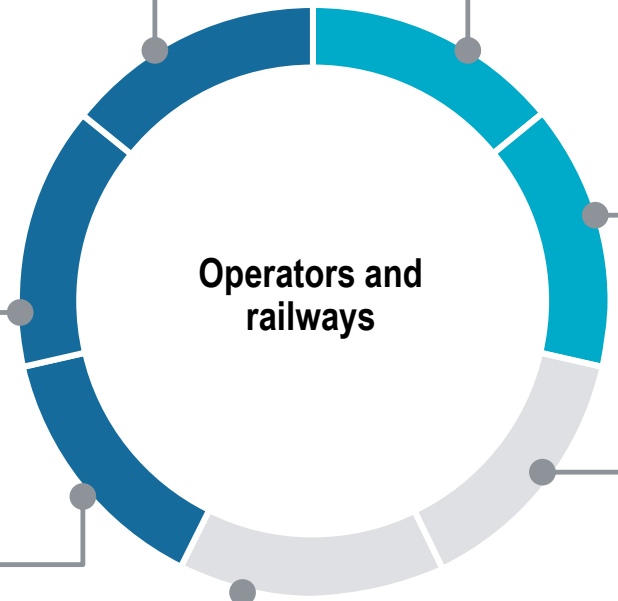
> Negotiate efficient border/terminal operations
> Tackle punctuality problems and minimize locomotive/driver changes in Europe
> Optimize cost structure for sustainability without subsidies

Participate in new opportunities

> Target and develop products for trends, e.g. e-commerce, temperature-controlled goods

Use new regions as steps to Asia

> Market transports to/from Central Asia to China as options for stepwise increasing traffic



Improve information/transparency

> Share information on arrival times
> Track reliability and use big data tools to optimize operations

Broaden services

> Increase share of regular trains
> Develop sets of additional services

Communicate infrastructure needs/ client expectations in Europe

> Communicate infrastructure needs/client expectations for international traffic
> Improve market orientation of RFCs

Evaluate and develop Silk Road markets

> Implement measures to improve service quality on Southern routes
> Research market potential of South Asian & Middle Eastern economies

Action fields: Operations | Customer expectations | Regional actions

Logistics companies need to offer additional value to their clients through easier handling of full product range

Recommendations logistics companies

Foster rail acceptance

> Offer rail as an alternative to clients – educating them about the benefits and steps that the client can make to maximize the potentials that rail offers
> Check existing contracts for potentials through rail transport and suggest clients a change

Support product development

> Use knowledge on client needs to tailor products better, e.g.
  – More information/transparency
  – Speed trains
  – Price/time differences for routes
> Work with operators and local railways to introduce the product ideas

Use new regions as steps to Asia

> Offer railways to clients with transportation needs to/from Central Asia and bundle operations with westwards rail transports to reduce prices

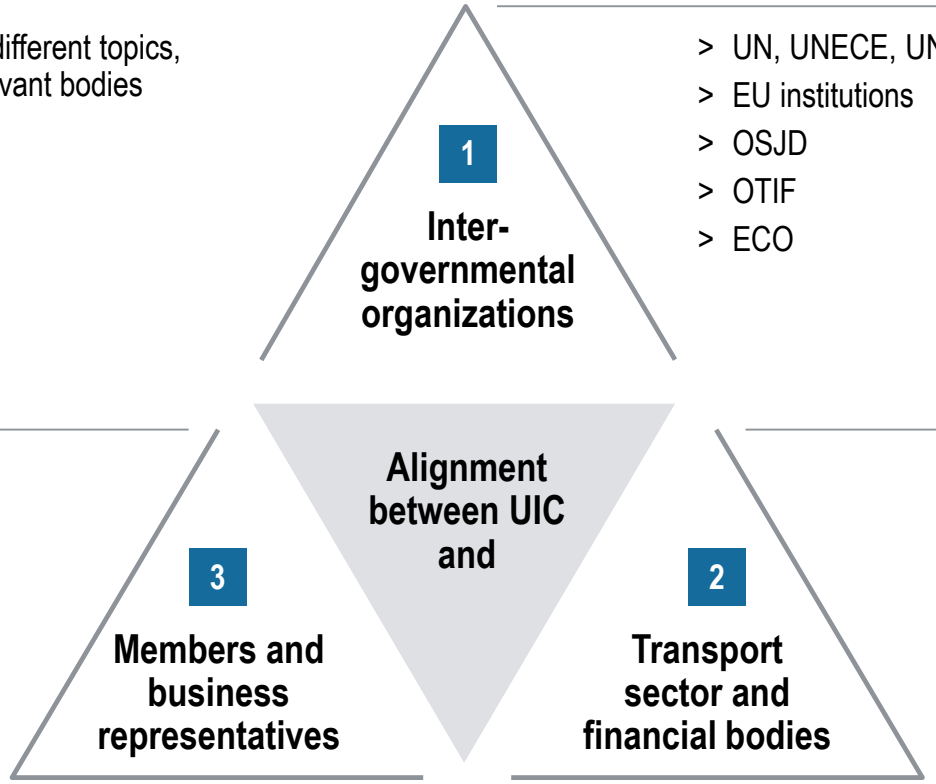
Evaluate Silk Road markets

> Research market potential and product needs of South Asian and Middle Eastern economies
> Collaborate with local railways and initiatives to develop services in the region

Action fields: Operations | Customer expectations | Regional actions

UIC aims to capitalise on existing partnerships and progress specific gaps

Cooperation has to be tailored to different topics, activities and regions – not all relevant bodies can be named here



- UN, UNECE, UNESCAP
- EU institutions
- OSJD
- OTIF
- ECO
- BSEC
- EEC
- CIT
- etc.

- Freight Forum
- Regional Assemblies
- BIRC
- CCTT
- Representatives from business
- etc.

- RFCs
- ADB
- CAREC
- TRACECA
- etc.

Border crossing – International Railway Corridors (BIRC working group), Coordinating Council on Transsiberian Transportation (CCTT), Economic Commission for Europe (UNECE), The Economic and Social Commission for Asia and the Pacific (UNESCAP), Organization for Cooperation of Railways (OSJD), Intergovernmental Organization for International Carriage by Rail (OTIF), Economic Cooperation Organization (ECO), Back Sea Economic Cooperation (BSEC), Eurasian Economic Commission (EEC), International Rail Transport Committee (CIT), Asian Development Bank (ADB) , Central Asia Regional Economic Cooperation (CAREC), Transport Corridor Europe-Caucasus-Asia (TRACECA)

THEMATIC DISCUSSIONS

1. Market and technology

   High speed freight

2. Digital and information

   Digital vision for Eurasian traffic
   Digital rail freight, a European perspective
   Legal interoperability

3. Operations and services

   Ancillary services for added value at terminal level

STUDY
Eurasian rail corridors
What opportunities for freight stakeholders?

THEMATIC DISCUSSIONS

Session 1 - Market and technology

Moderation Pavel Chistiyakov, VP Infrastructure Economic Centre, Moscow & Sandra Géhénot, Freight Director UIC

High speed freight: concepts for Eurasian corridors

- Pavel Chistiyakov Infrastructure Economics Centre, Moscow
- Sergey Shulyndin Center for High-Speed transportation management, RZD

European Perspective

- Jean-Pierre Orus, SNCF Réseau

THEMATIC DISCUSSIONS

Session 2 - Digital and information

Moderation Francis Bedel, UIC Chief Digital Officer

Digital vision for Eurasian traffic

- Natalya Stepanova, CCTT and Inessa Yakovleva, Deputy Head of IT Department, RZD
- Vladislavs Sidorovs, SIGIS

Digital Rail Freight, a European perspective

- Maarten Kesselaers, Raildata

Legal Interoperability

- Erik Evtimov, CIT

Involved countries invest in and promote Eurasian rail transport – Supporting competitive services and transport growth

Extract of recent developments

Politics

- China created the OBOR initiative which has investments in infrastructure projects at its core and high funds earmarked for financing
- Russia plans to invest USD ~800 m into upgrade of Trans-Siberian Railway
- Iran is promoting North-South Corridor from Bandar Abbas to Helsinki via Moscow
- Turkey is deploying tremendous efforts in infrastructure upgrades including setting up logistics centers in Kars
- Kazakhstan and Azerbaijan are also investing high amounts into railway infrastructure and into terminals

Price

- Currently, most direct rail routes from China are subsidized by OBOR program/regions
- In 2012 and 2013, when direct China-Europe rail lines first began offering regular service, one TEU cost over 5,000 USD
- 2016: Around 4,000 USD depending on origin in China
- Opposing expectations for future development of rail freight prices exist, concerning continuation of competition and subsidies in China
- Freight rates for container transport via ship from China to Europe fell to less than 25% of those of railway transport (2016)

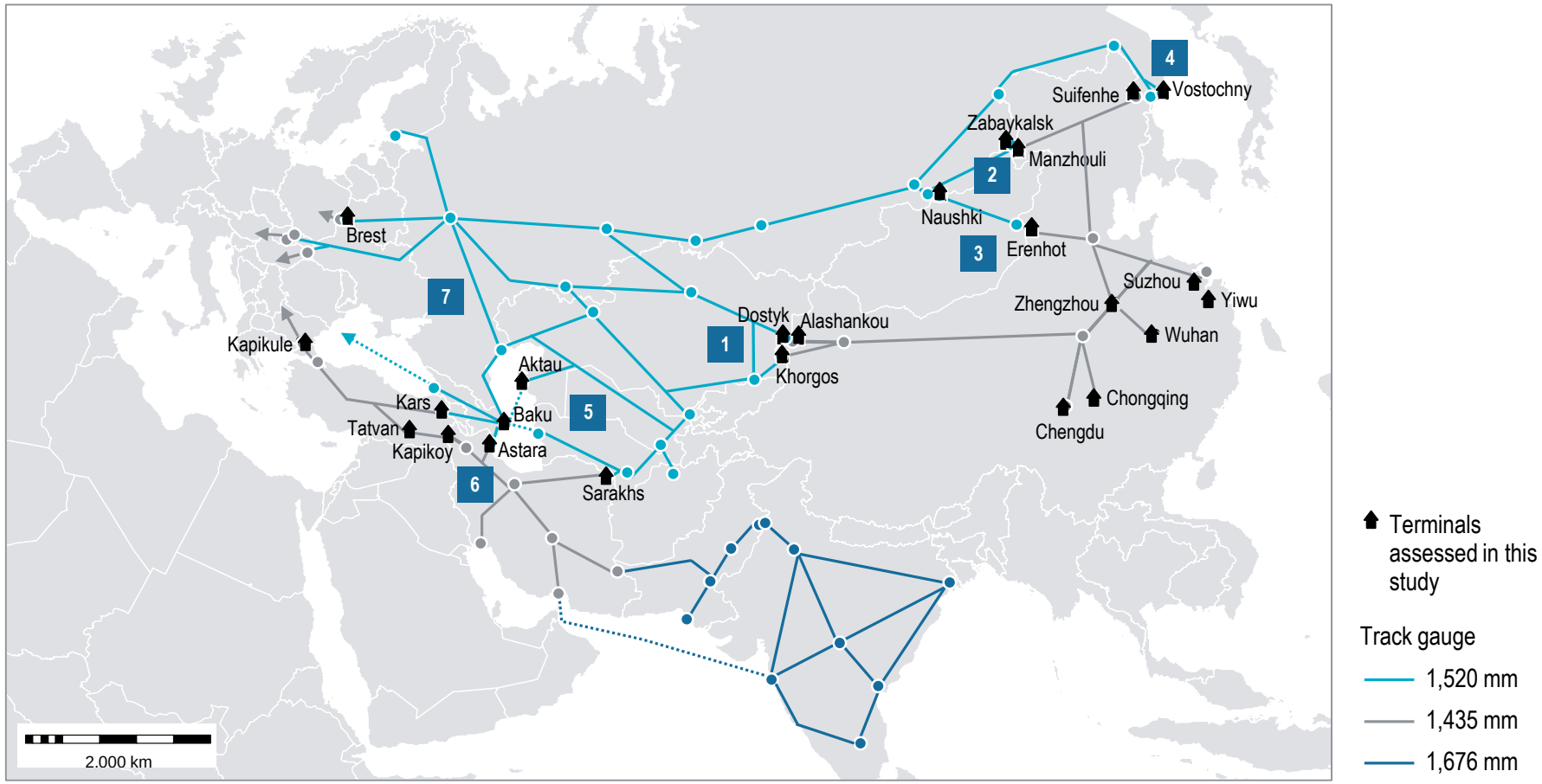
Service

- All operated trains are trains with fixed schedule but eastbound trains are mostly operated "on request"
- First improvements in harmonization of customs processes at borders and at gauge changes implemented
- Climate controlled reefers to protect goods from extreme temperatures in Russia and Kazakhstan
- Containers are mostly GPS enabled, light-triggered alarms in case of opening are available
- Theft and damage rate lower than by sea

Source: Forbes Magazine, Silk Road Rail, press research

Terminals that influence performance of Eurasian routes are important for gauge changes as well as border crossings

Assessed terminals on Eurasian rail routes[1)]



1) Conical projection to minimize visual distortion of distances

Source: UNESCAP, Company presentations of operators/railways, Roland Berger

THEMATIC DISCUSSIONS

Session 3 – Operations and Services

***Moderation Ralf-Charley Schultze, DG UIRR** (International Union for Rail Road Transportation)*

Ancillary services for added value at terminal level

- Representative from Iran Railways
- Mr. Suleimenov, Kazakh Railways
- Mr Xavier Perrin, Delta 3 (Dourges)

AGENDA

- Welcome by Jean-Pierre Loubinoux, Director General UIC

- Presentation of the Recommendations and Gaps from the UIC Study on Eurasian Corridors

- Thematic discussions:
  - Market and technology
  - Digital and information flow
  - Operations and services

- Product development: update on services

- Priority topics to be addressed at the Global Rail Freight Conference
  Genova 20-22 June 2018
  « Modal integration at the service of global distribution »

- Wrap up and next steps – next meeting

Many container trains use the Northern routes with up to 4 trains/week – Eastbound trains mainly leave on request

Current service: Regular Eurasian container trains

- Of the 815 container block trains organized on the route of China – Europe – China in 2015, 550 trains (67%) were from China to Europe and 265 trains (33%) back
- Main destinations in Europe: Duisburg, Hamburg, Berlin, Brest, Warsaw, Lodz, Lyon, Madrid
- Main Destinations in China: Chongqing, Chengdu, Zhengzhou, Wuhan, Shenyang, Suzhou, Yiwu
- Due to demand imbalance, eastbound trains, while being fully organized, mostly leave on request
- For the operation of a single train, often several operators, (national) carriers and forwarders work together

	Trains (Examples)	Days	Frequency	Start	Company[1)]	Comments
WEST	**Chongqing**/China-Russia-(Kazakhstan)-Belarus-Poland-Germany/**Duisburg**	14	4/week	2014	TEL	"New Silk Road" or "Tiger"[2)]
WEST	**Chongqing**/China-Mongolia-Russia-Belarus-Poland/**Warsaw**	15-16	1/week	2013	FELB	
WEST	**Chengdu**/China-Kazakhstan-Russia-Belarus-Poland/**Terespol**	14	1/week	2013	DHL	
EAST	**Berlin**/Germany-Poland-Russia-Kazakhstan-Central Asia-**Mongolia**		3/week	1995	InterRail	"Ostwind"
EAST	**Leipzig**/Germany-Poland-Russia-China/**Shenyang**	23	1-2/week	2010	DB AG	BMW Company train
EAST	**Duisburg**/Germany-Poland-Belarus-Russia-China/**Chongqing**	17-18	On request	2013	TEL	
EAST	**Lodz**/Poland-Belarus-Russia-China/**Chengdu**	15	On request	2014	TEL	

1) Company organizing the train, usually through the use of multiple operators and forwarders 2) "New Silk Road" via Kazakhstan or "Tiger" via Trans-Siberian

Source: FELB, Railway Gazette, InterRail, EATL, Roland Berger

New destinations in Europe and new routes are tested with pilot trains – Moreover offer of LCL services increased strongly

Recent trends: Pilot trains and LCL services

Pilot Trains

> Three kinds of pilot trains:
  a) New destinations in Europe e.g. London, Riga
  b) Alternative routes through Azerbaijan and Georgia
  c) North-South connections from India to Russia
> Most of these projects became or are intended to become regular trains

LCL services

> Trend: Increase of LCL offers for shipments not large enough to fill whole containers
> LCL and FCL can be transported on same existing train, but LCL containers require additional handling

	Trains (Examples)	Days	Frequency	Start	Company[1)]	Comments
PILOTS	**Yiwu**/China-Kazak.-Russia-Belarus-Poland-Germany-Belgium-France-UK/**London**	18	Pilot	2017	InterRail	On behalf of CRIMT
	Wuhan/China-Kazak-Russia- Belarus-Poland-Germany- France/**Lyon**	16	Pilot	2016	TEL	
	Lianyungang/China-Kazakhstan-Azerbaijan-Georgia-Turkey/**Istanbul**	17	Pilot	2015	Minsheng Logistics	"Nomad Express"
	Bangalore/India-Iran-Azerbaijan-Russia/**Vorsivo**	22	Pilot	2016	InterRail	Rail and sea
	Trains with LCL services (Examples)	**Days**	**Frequency**	**Start**	**Company[1)]**	**Comments**
LCL	**Zhengzhou**/China-Kazak.-Russia-Belarus-Poland-Germany/**Hamburg**	17	2/week	2015	DHL	
	Wuhan/China-(Kazak.)-(Mongolia)-Russia-Belarus-Poland-Germany/**Hamburg**[2)]	14-18	1/week	2017	Kühne+ Nagel	"KN Eurasia Express"
	Yiwu/China-Kazak.-Russia-Belarus-Poland-Germany/**Duisburg**	14-16	1/week		InterRail	"Drago"
	Hamburg/Germany-Poland-Belarus-Russia-China/**Suzhou**	21	1/week	2016	FELB	

1) Company organizing the train, usually through the use of multiple operators and forwarders 2) Routing depending on the needs

Source: InterRail, FELB, DHL, Kühne+Nagel, UNECE, Think Railways, Roland Berger

AGENDA

- Welcome by Jean-Pierre Loubinoux, Director General UIC

- Presentation of the Recommendations and Gaps from the UIC Study on Eurasian Corridors

- Thematic discussions:
  - Market and technology
  - Digital and information flow
  - Operations and services

- Product development: update on services

- Priority topics to be addressed at the Global Rail Freight Conference
  Genova 20-22 June 2018
  « Modal integration at the service of global distribution »

- Wrap up and next steps – next meeting

Back up - terminals

Four European RFCs directly relevant as entryways for Eurasian rail transport (RFC 6-9) – No direct entry over RFC 3 at the moment

Schematic map of RFCs[1)]

Interconnection points of routes from Asia to European Rail Freight Corridors

1	Malaszewicze – Brest (RFC 8)
2	Cierna – Chop (RFC 9) and Zahony – Chop (RFC 6)
3	Swilengrad – Kapikule (RFC 7)
4	Via Stockholm (RFC 3)

European Rail Freight Corridors[2)]

- RFC 1: Rhine – Alpine
- RFC 2: North Sea Mediterranean
- RFC 3: Scandinavian – Mediterranean
- RFC 4: Atlantic
- RFC 5: Baltic – Adriatic
- RFC 6: Mediterranean
- RFC 7: Orient – East Mediterranean
- RFC 8: North Sea – Baltic
- RFC 9: Rhine – Danube or Czech – Slovak[3)]
- RFC 11: Amber[4)]

1) Schematic map does not include all potential RFC connections, sections in the focus of this study shown by bold lines 2) Initiatives regarding RFC 10 exist, but no official implementation decision 3) Only the part Cierna to Prague implemented, other routes to be implemented by 2020 3) To be launched in 2018

Source: Austrian Ministry for Transport, Innovation and Technology, RNE, press research, Roland Berger

Connecting point to the European Freight Corridors is predominantly Malaszewicze/Brest

Status of interconnection towards RFCs

1 EU-entry at Malaszewicze – Brest to RFC 8 (North Sea – Baltic) channels by far the highest share of Eurasian traffic
> Close distance to routing from Moscow
> Good connection to Central Europe's distribution hubs in Duisburg and Hamburg

2 Little use of interconnection at Cierna (Dobra) – Chop to RFC 9 and at Zahony – Chop to RFC 6 (Mediterranean)
> Was used in past but political situation in Ukraine led to switch to Brest
> Theoretically, well located to reach Central European destinations such as Vienna

3 Little use of interconnection at Swilengrad – Kapikule to RFC 7 (Orient – East Mediterranean)
> Freight transport between EU and Turkey includes less than 3% rail traffic
> Further Asian countries yet not well connected via rail on Southern routes

4 No use of EU-entry via Stockholm to RFC 3 so far (Scandinavian – Mediterranean)
> Potential concerns Northern Europe with a total share of Eurasian trade market of ~ 5%[1)]
> Gauge change from Finland to Sweden has to be considered

+ Other possibilities
> Trade via the black sea, EU-entry in Constanta/Burgas: No regularly scheduled ferry departures implemented yet
> Connection to RFC 8 via Baltic countries: Little/no regular use

1) Share of Denmark, Sweden and Finland from freight trade EU 28 to China, Japan, Kazakhstan, Mongolia and South Korea in t and EUR in 2016
Source: Austrian Ministry for Transport, Innovation and Technology, Eurostat, expert interviews, Roland Berger

Chinese terminal infrastructure is modern and well developed – Capacity for increasing transport is available

Terminal assessment – Chinese border

Terminal	Infrastructure	Operations
Manzhouli	> Modern infrastructure > Tracks: 25 China – Europe, 7 Europe – China > Intermodal change facilities > Remaining capacity limited	> Operator: Harbin Railway Bureau[1)] > Traffic (2016): 1036 trains China-Europe, 30.5 m tons total cross-border > Further railway connections via Manzhouli are planned
Suifenhe	> Modern, large infrastructure with high remaining capacity > Tracks: 44 China – Europe, 40 Europe – China > Plans to build intermodal center	> Operator: Harbin Railway Bureau[1)] > Traffic (2016): 9 m tons total cross-border
Erenhot	> Modern, large infrastructure with high remaining capacity > Tracks: 91 both directions > Intermodal change facilities > Railway connection to China with 2 tracks, to Mongolia only with 1 track	> Operator: Hohhot Railway Bureau[1)] > Traffic (2016): 166 trains China-Europe, 14.4 m tons total cross-border > Further railway connections via Erenhot are planned
Alashankou	> Modern, large infrastructure with high remaining capacity > Tracks: 49 both directions > Intermodal change facilities	> Operator: Urumqi Railway Bureau[1)] > Traffic (2016): 1200 trains China-Europe and China-Asia, 7.5 m tons total cross-border > Further railway connections via Erenhot are planned

1) Subsidiary of China Railway Corporation

Source: CR Intermodal, EATL, company information, press research, Roland Berger

Chinese terminal infrastructure is modern and well developed – Capacity for increasing transport is available

Terminal assessment – Chinese hinterland (1/2)

Terminal	Infrastructure	Operations
Zhengzhou	> Modern infrastructure, opened in 2010 > 2 intermodal tracks (further 6 tracks as option), 850 meters > 3 Crane bars	> Operator: Zhengzhou Railway Bureau, CR Intermodal[1)] > Traffic (2015, China-Europe): 156 trains, 62,800 tons > Customs and commercial inspection spots, storage, warehousing, container repair area
Wuhan	> Modern infrastructure, opened in 2010 > 2 intermodal tracks, 1050 meters > 4 Crane bars	> Operator: Wuhan Railway Bureau, CR Intermodal[1)] > Traffic (2015, China-Europe): 228 trains, 92,500 tons > Customs and commercial inspection spots, storage, warehousing, container repair area > China-Europe freight volume to be doubled by 2020
Yiwu	> Tracks: 24 in both directions > Intermodal change facilities	> Operator: Shanghai Railway Bureau[1)] > Traffic (01-11/2016): 77 trains
Chengdu	> Modern infrastructure, opened in 2010 > 4 intermodal tracks (further 2 tracks as option), 850 meters > 3 Crane bars	> Operator: Chengdu Railway Bureau, CR Intermodal[1)] > Traffic (2016, China-Europe): 460 trains, 73,000 tons > Customs and commercial inspection spots, storage, warehousing, container repair area > 2000 international trains are projected by year 2020
Suzhou	> Tracks: 16 both directions	> Operator: Shanghai Railway Bureau[1)] > Traffic (2015): 122 trains, 68,800 tons

1) Subsidiary of China Railway Corporation

Source: CR Intermodal, EATL, company information, press research, Roland Berger

Chinese terminal infrastructure is modern and well developed – Capacity for increasing transport is available

Terminal assessment – Chinese hinterland (2/2)

Terminal	Infrastructure	Operations
Chongqing	> Modern infrastructure, opened in 2009 > 2 intermodal tracks, 850 meters > 3 Crane bars	> Operator: Chengdu Railway Bureau Chongqing Railway Branch, CR Intermodal[1)] > Traffic (2016): 400 trains, 56,000 tons > Customs and commercial inspection spots, storage, warehousing, container repair area

1) Subsidiary of China Railway Corporation

Source: CR Intermodal, EATL, company information, press research, Roland Berger

Russian terminals in Vostochny and Zabaykalsk are efficient – Infrastructure projects for Naushki were dismissed

Terminal assessment – Russia

Terminal	Infrastructure	Operations
Vostochny	> Terminal capacity: 550,000 TEU > Aim of the terminal development program to reach a capacity of 2.2 m TEU > 35 ha unsheltered warehouse and container yard for 22,380 TEU > 2 Forklifts, 17 container trucks, 14 loaders, 6 mooring container re-loader – 2 container gantry cranes soon to be installed	> Operator: OOO Vostochnaya Stividornaya Kompaniya > Traffic: ~300,000 TEU, but not only Eurasian rail transport > Shipping of containers, reloading, temporary storage, forwarding service, custom brokerage
Zabaykalsk	> Terminal capacity: 50,000 TEU > 8,000 m² unsheltered warehouse, 1,435 m² sheltered warehouse > 2 counterbalance forklifts, 2 forklift trucks	> Operator: JSC "DVTG - Terminal" > Shipping of containers, reloading, temporary storage, forwarding services, customs brokerage, documents preparation, tracking > Poor supply of wagons increases waiting times > Very high utilization of terminal capacity
Naushki	> No terminal, simple state border station > 2 platforms, 15 tracks > No warm, sheltered temporary storage warehouse > Railway checkpoint was excluded from the national reconstruction program at the end of 2015	> Russian Railways branch acting as operator > A number of logistics companies provide custom brokerage services > No stationary inspection and checking unit leading to longer times for customs transactions

Source: Company presentations, press research, Roland Berger

Kazakh terminals are also efficient and modern – Limited free capacity at Brest as the gateway to Europe

Terminal assessment – Kazakhstan, Belarus

Terminal	Infrastructure	Operations
Dostyk	> 3 receiving parks, customs zone, maintenance zone > 3 reloading slots for containers with 760 TEU/day capacity	> Operator: Kedetransservice > Traffic: ~280,000 – 300,000 TEU > Reloading (1520/1435), storage, maintenance
Khorgos	> Modern infrastructure opened in July 2015 > 104.5 ha total area of the dry port, 6 loading-unloading places, 10,000 m² warehouse including chambers with the climate-control function > 3 gantry cranes, 4 Rubber Tyre Gantry Cranes, 7 container carriers, 6 reach stackers, 2 stacker-trucks, 24 forklift loaders	> Operator: KTZE-Khorgos Gateway LLP Company[1)] > Transshipments of container in 47 minutes (1520/1435), forming of container trains, storage, maintenance , customs services, insurance > Soon to be integrated with planned logistics center (224.9 ha) and industrial (224.6 ha) zone
Brest	> Terminal capacity: ~100,000 TEU > 55,000 m² sheltered warehouse, customs zone > 3 gantry cranes to reload containers	> Operator: Brestgruztranslogistic[2)] > Very high utilization of terminal capacity > Shipping of containers, reloading (from 1520), temporary and long-term storage, forwarding services, customs brokerage, documents preparation, insurance

1) Subsidiary of KTZ Express JTC and DP World 2) Branch of Belorussian Railways

Source: Company presentations, press research, Roland Berger

Investments are made in terminals along the Trans-Caspian route – Terminals along Silk Road show deficiencies

Terminal assessment – Southern routes (1/2)

Terminal	Advantages	Disadvantages
Kapikule	> Connected to Terminal Svilengrad in Bulgaria > Most important border crossing to Europe > Border Crossing 7/24	> Freight terminal only operates 9 hours/day > No existing storage area or warehouse
Kars	> Part of the planned Baku-Tbilisi-Kars railway > Bulk loads storage available	> Kars - Akhalkalaki line to Georgia still under construction > Only operates 9 hours/day > No container storage area
Tatvan	> Port as well as terminal on west side of Van Lake for shortest route to Iran > New investments in lake Van ferries since 2015 > TCDD plans to build logistics center for 2023	> Long waiting times (average waiting times of up to 1.5 months because of low ferries capacity in the past)
Kapikoy	> Border crossing Terminal to Iran > Open to international freight traffic	> Only operates 9 hours/day > No storage area or Warehouse
Baku	> Located on Baku-Tbilisi-Kars railway and next to Baku International Sea Trade Port in Alat > Development of port capacity from 32 to 38 m tons for 2020	> Infrastructure today still in need of investments to be able to endure future transportation volume of Southern routes

Source: Company information, press research

Investments are made in terminals along the Trans-Caspian route – Terminals along Silk Road show deficiencies

Terminal assessment – Southern routes (2/2)

Terminal	Advantages	Disadvantages
Astara	> Astara-Astara project is to be commissioned in 2017 to enable border crossing on train as well as construction of terminal on 10 hectares	> No existing freight terminal yet > Only connected to railways on Azerbaijan side, connection from Iran only through road
Sarakhs	> Terminal able to handle road and rail transshipment > One of the most experienced Iranian terminals in clearing outbound transit	> Border waiting procedures can take up to 15 days > Insufficient wagon supply causes further delays
Aktau	> Existing port is being expanded to be able to handle up to 25 m tons of cargo together with the future Kuryk port for 2020	> Current maximal port capacity of 19.5 m tons of cargo

Source: Company information, press research