Agenda
AGENDA OF TODAY

10:00 – 10:10  Welcome
Sandra Géhénot (UIC)
Philip Van den bosch (UIC)

10:10 – 10:35  UICs Eurasian Corridor Study with focus on the middle and southern corridor: presenting the conclusion
Francois Davenne (UIC)
Andreas Schwilling (Roland Berger)
Xiang Li (Roland Berger)

10:35 – 11:25  Running trains through the corridors: a shippers and operators perspective
Sergio Barbarino (P&G)
Alberto Grisone (HUPAC)
Thomas Kargl (ÖBB Rail Cargo Group)
Yekaterina Ryabushko (DB Cargo Eurasia)
Xavier Wanderpepen (Forwardis)

11:25 – 11:45  Institutional aspects of corridor development
Roel Janssens (UNECE)
Özgür ALGAN (TCDD)
Iranian Railway authority

11:45 – 12:00  Linking Eurasian corridors to the TEN-T network
Asset Assavbayev (TRACECA)

12:00  Conclusions
Sandra Géhénot
Sebastian Reimann
UIC and Eurasian Corridor development

Francois Davenne (UIC)
UICs Eurasian Corridor Study with focus on the middle and southern corridor
Andreas Schwilling & Xiang Li (Roland Berger)
Silk Road Middle and Southern Corridors

Presentation of main study findings

Paris, April 22, 2021
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A. Silk Road – Today and Tomorrow
We have accompanied the development of the Silk Road rail since its inception and are committed to deliver transparency and insights.

Our journey until now, objectives of this study:

**Beginning of Eurasian rail traffic**
- ICOMOD Study (2010)
  - Market exploration
  - Initial study on rail market potential between Europe and Asia

**Phase of rapid growth**
- 2nd UIC Study (2017)
  - Transparency on status of development and forecast with focus on northern route
  - Performance evaluation of northern and southern routes

**Today – Vibrant Silk Road Market**
- 3rd UIC Study (2021)
  - Transparency on current situation and development of Eurasian rail traffic, volume forecast until 2030 for Silk Road and upside potential estimation for southern routes
  - **Focus middle and southern corridors**: transparency on current state (regarding geography, projects, market, services, players, etc.) and identification of bottlenecks and needs for action
  - Recommendations for players and UIC for corridor development

Source: UIC, Roland Berger
The Silk Road consists of three corridors – The northern corridor is the most developed

Silk Road corridor overview

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

Source: UNESCAP, The Economist, Eurostat, Expert interview, Roland Berger
Involved countries invest in and promote Eurasian rail transport – Policies and subsidies support overall project development

Overview of recent developments

1. Policies
   - Development of rail cargo volume supported by new policies (strategic partnerships for common tariffs within corridors, introduction of mechanisms to facilitate customs, lifting of sanctions) in recent years
   - Negative impact and higher trade costs from new sanctions, new competitive free trade agreements (e.g. RECP), and inefficient trade procedures
   - Increasing efforts by countries to harmonize processes and procedures and to simplify the financing of infrastructure projects
   - Further efforts needed to support the Silk Road rail cargo development

2. Subsidies
   - Chinese subsidies expected to decline in the long-term, forcing rail freight price to adjust and market to mature
   - Rate and time of subsidy decline unknown as implementation and compliance on regional level differ
   - Decline possible, but sharp drop or cancellation unlikely in near future as trains still not operating profitably
   - Currently, subsidies between 2500-4500 USD/FEU
   - Russian subsidies for transit container trains in form of reduction of track access charges (870 EUR/FEU for west- and 580 EUR/FEU for eastbound connections), eligible only for transit traffic handled via Russian companies

3. Projects
   - Infrastructure and rail connection projects between Asia and Europe since 2013 mostly northern corridor focused
   - Increasing interest in middle corridor as alternative route to China through the development of the Baku-Tbilisi-Kars railway in 2017 as well as projects in Kazakhstan, Turkmenistan and Uzbekistan
   - Regular rail freight service from Turkey to China since December 2020
   - Southern corridor via Turkey, Iran, Pakistan, and China currently not in place – Some projects under construction/planned
   - Overall minor role for middle and southern corridors at the moment

4. TEN-T connection
   - Progress made for connection with European RFCs – In particular alternatives to Mala-Brest entrance expanded
   - The construction of the Fényeslitke terminal at the Hungarian border as most noteworthy development
   - Integration of Belt and Road Initiative and TEN-T complicated – BRI not well defined and not adequately planned within TEN-T projects and strategy
   - Inflexibility when reacting to volume increase due to long duration of projects
   - Further concerns from European side regarding Chinese rail dominance, unfair practices, etc.

Source: Forbes, Silk Road Rail, Desk research, Roland Berger
The Eurasian Silk Road rail traffic is expected to continue to grow strongly, reaching 1.7-2.6 million TEUs by 2030.

Rail transport volume forecast between Europe and Asia

### Key take-aways and assumptions

**Strong growth for Silk Road rail traffic**

Although slower than previous years, the Eurasian Silk Road rail traffic is expected to continue growing strongly in the higher single digits, reaching approx. 2.2 m TEUs until 2030.

**Rail expected to be a stable alternative**

Currently, rail has only a ~2% share of containerized traffic, experts expect the share to increase gradually over the years but will stabilize at ~4-6%, as there will always be goods that need the low cost of sea and the high speed of air. If the rail performance can be further improved without cost increase, an upside of up to 10% share is possible.

**Better filled containers as result of less imbalance**

It is expected that the trade imbalance will improve as more freight will consider rail as a viable option. This leads to less empty and better filled containers.

**Southern route will grow, but remains minor**

The southern and middle corridors can obtain more share based on trade flows within their natural catchment areas if they can become more competitive in performance – Even so they are likely to remain minor.

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1) Defined as EU28 (all European Union countries + UK) to Asia 5 (Kazakhstan, Mongolia, China, Japan, South Korea)

Source: Expert interviews, Roland Berger
B. Middle and Southern Silk Road Corridors
The middle and southern Silk Road corridors are still in nascent stages in terms of market and service – Projects are going on

Current situation on middle and southern corridors

1. Natural catchment areas with limited demand potential
2. Scarcity of active players on corridor
3. Limited scheduled train service
4. Limited and non-scheduled ferry services
5. Many ongoing projects and initiatives

Source: Roland Berger
Geographically, the southern and middle corridors are only advantageous for a few niche destinations

Catchment area for Silk Road rail routes

- Geographically, Mala-Brest superior for most Central and all Western European destinations, Svilengrad better for South East Europe only
- For major Chinese industrial clusters in Central West China, Central China and Yangtze delta, via Alashankou and Kazakhstan northern route is by far the superior alternative; Erenhot and Manzhouli have indisputable advantage for the North East industrial cluster and Beijing.
- Distance-wise, middle and southern corridors are advantageous for Turkey and Bulgaria for most CN origin cities
- For Pearl delta industrial cluster and South Asian destinations, southern route via India is the better (and for South Asia the only) alternative

Source: Google Maps measurements, Desk research, Roland Berger
### The middle corridor still lacks powerful integrators – There is no player offering marketable service on the southern corridor

#### Players along the value chain

<table>
<thead>
<tr>
<th>Chinese logistics platform</th>
<th>Broad gauge traction &amp; infrastr.</th>
<th>Caspian/Black Sea ferry operator</th>
<th>IR and TR traction &amp; infrastructure</th>
<th>European carrier &amp; infrastructure</th>
<th>Terminal operator</th>
<th>Silk Road operator</th>
<th>Freight forwarder</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Plant in Chongqing</strong></td>
<td><strong>Border crossing to CIS (gauge change)</strong></td>
<td><strong>South: Iran transit (gauge change), Middle: Caspian Sea to Caucasus</strong></td>
<td><strong>Border crossing to Turkey (gauge change for Middle)</strong></td>
<td><strong>Border crossing to Europe</strong></td>
<td><strong>Destination country</strong></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- Freight volume collection, set up and organization of Silk Road trains
- Provision of local connection and arrangement of subsidies
- Traction service, wagon provision, and infrastructure access for rail service in broad gauge countries
- Offers regular and chartered ferry service to carry containers from Aktau to Baku
- For Black Sea: offers ferry service between Poti-Varna/Odessa
- Traction service, wagon provision, and infrastructure access for rail service in Iran and Turkey
- Traction service, wagon provision, and infrastructure access for rail service in Europe
- Operation of terminals at border crossings and key transit points
- Train operation and coordination from Chinese border to Europe
- Last mile transportation service, point of contact for clients

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Source: Desk research, Roland Berger
There are few scheduled services on the middle corridor – Only occasional pilots were run on the southern corridor

### Pilot trains and services on the middle/southern corridor

<table>
<thead>
<tr>
<th>Trains</th>
<th>Days</th>
<th>Frequency</th>
<th>Start</th>
<th>Type</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Istanbul/Turkey-Azerbaijan-Kazakhstan</td>
<td>15</td>
<td>2x per week (planned)</td>
<td>2020</td>
<td>Pilot (to become</td>
<td>Piloted on 4th Dec. 2020, carrying 42 containers with refrigerators,</td>
</tr>
<tr>
<td>(Khorgos)-China/Xian</td>
<td></td>
<td></td>
<td></td>
<td>scheduled)</td>
<td>passing Marmaray tunnel and Baku-Tbilisi-Kars railway</td>
</tr>
<tr>
<td>Xian/China-Kazakhstan (Khorgos)-Georgia-Turkey/Izmit</td>
<td>18</td>
<td>1x per week</td>
<td>2020</td>
<td>Scheduled</td>
<td>Started by Maersk as part of its intercontinental rail network starting</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>from May 2020, every Tuesday of the week</td>
</tr>
<tr>
<td>Jinhua/China-Kazakhstan-Azerbeijan/Baku</td>
<td>15-18</td>
<td>-</td>
<td>2020</td>
<td>Pilot</td>
<td>Piloted on 10th Sep. 2020, containing electrical and metal tools,</td>
</tr>
<tr>
<td>(Khorgos)-Turkey/Southern Europe</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>consumer products, travels via Khorgos, Aktau, and then to Baku</td>
</tr>
<tr>
<td>Lianyungang/China-Kazakhstan-Azerbeijan</td>
<td>18-19</td>
<td>3x per month</td>
<td>2018</td>
<td>Scheduled</td>
<td>Piloted on 28th Nov. 2018, carrying 21 containers of machinery,</td>
</tr>
<tr>
<td>Georgia-Turkey/Istanbul</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>electronics, consumer goods. Now 3x per month on 8th, 18th, 28th</td>
</tr>
<tr>
<td>Hohhot/China-Kazakhstan-Turkmenistan-Iran</td>
<td>15</td>
<td>-</td>
<td>2018</td>
<td>Pilot</td>
<td>Piloted on 4th Sep. 2018, carrying 41 containers with goods (machinery,</td>
</tr>
<tr>
<td>(Khorgos)-Baku/Izmit</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>automotive parts), planned to be 2x monthly</td>
</tr>
<tr>
<td>Chengdu/China-Kazakhstan-Azerbeijan</td>
<td>15-16</td>
<td>N/A</td>
<td>2016</td>
<td>Scheduled</td>
<td>Piloted on 6th Sep. 2016, carrying 41 containers with goods from</td>
</tr>
<tr>
<td>Georgia-Turkey/Istanbul</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Shanghai and Shenzhen</td>
</tr>
<tr>
<td>Shihezi/China-Kazakhstan–Azerbaijan/Kishly</td>
<td>6</td>
<td>N/A</td>
<td>2015</td>
<td>Scheduled</td>
<td>Piloted on 28th Jul. 2015, carrying 82 containers of caustic soda,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>passing Dostyk and Aktau port</td>
</tr>
</tbody>
</table>

Source: Desk research, Roland Berger
Only ASC is operating ferry service across the Caspian Sea – Black Sea services are operated by Navibulgar and UkrFerry

Ferry services on the intermodal sections of southern and middle corridors

<table>
<thead>
<tr>
<th>Sea routes</th>
<th>Ferry operator</th>
<th>Services</th>
<th>Equipment</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caspian Sea</td>
<td>ASC</td>
<td>• ASC - Alat (near Baku) – Kurik (near Aktau, no scheduled service)</td>
<td>• 13 ferries, average age 25 years old, of types: Daghestan (28 wagons), Academician Zarifa Aliyeva (52 wagons), Barda (54 wagons)</td>
<td>• ASC is the only company with own ferry vessel fleet at Caspian Sea, price at 1200 USD/FEU</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• ASC - Alat – Turkmenbashi (no scheduled service)</td>
<td>• 3 Ro-Ro vessels, average age 36 years old</td>
<td>• Used to have very unstable service due to bad weather – Larger fleet improved situation</td>
</tr>
<tr>
<td>Black Sea</td>
<td>Navibulgar</td>
<td>• Navibulgar – Chornomorsk (near Odessa) – Poti 48 hours</td>
<td>• Navibulgar 2 ferries, each with carrying capacity of 108 wagons</td>
<td>• The rates by UkrFerry are perceived as high with 2000-2400 USD per wagon + special tariffs up to 1700 USD and the ferries are outdated and slow</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Navibulgar – Varna – Poti 54 hours</td>
<td>• UkrFerry 3 Ro-Ro vessels, average age 34 years old, each capable of carrying 50 rail cars</td>
<td>• Rates by Navibulgar for trucks depend on types of goods, ranging from 700 to 4700 USD</td>
</tr>
<tr>
<td></td>
<td>UkrFerry</td>
<td>• UkrFerry – Chornomorsk – Batumi/Poti 59 hours</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Indian Ocean</td>
<td>Evergreen</td>
<td>• Evergreen Marine Corp – Port Kelang – Singapore – Nhava Sheva – Dubai – Jebel Ali – Bandar Abbas – Mundra – Nhava Sheva – Port Kelang (weekly)</td>
<td>• Four 1,100 TEU vessels on 28 days round trip service</td>
<td>• There are currently two direct lines connecting Mumbai, Mundra, Chabahar, and Bandar Abbas</td>
</tr>
<tr>
<td></td>
<td>Marine Corp</td>
<td></td>
<td></td>
<td>• Unclear whether the EMC service is counted towards the two existing lines</td>
</tr>
</tbody>
</table>

Source: ASC, Navibulgar, UkrFerry, Roland Berger
While some infrastructure projects focus on Trans-Caspian route, Iran and Turkey are also heavily investing in railway infrastructure.

Selected infrastructure projects on southern routes

<table>
<thead>
<tr>
<th>Turkey</th>
<th>Iran</th>
<th>Georgia</th>
<th>Azerbaijan</th>
<th>Turkmenistan</th>
</tr>
</thead>
</table>
| • **Domestic:** Doubling of the Plovdiv-Istanbul line including upgrades to the Svilengrad-Kapıkule border crossing in Bulgaria planned | • Electrification upgrade of the Tehran-Mashhad line with a length of 926 km – Currently under construction | • Connectivity to the Black Sea:  
  – For EUR ~100 m, a new deep-water terminal will be built in the port of Poti, which will enable it to receive additional 2.5 m tons of cargo per year  
  – Eastern Partnership joint policy initiative: EU provides EUR 233 m for Anaklia port development under the EaP\(^1\)  
  – CAREC: Construction of new railroad link to connect Anaklia to the railroad network of Georgia | • International North-South Transport Corridor: Modernization prepared of the 167 km Sumgait-Yalama Railway section as a response to the reconstruction of the Baku-Sumgait section to enable time and cost savings for cargo operations | • CAREC: Modernization of railways between Turkmenabat, Mary, Ashgabat and Turkmenbashi |
| • High speed railway development program linking, e.g. Istanbul-Edirne, Ankara-Izmir | • BRI: Launch of the 225 km long Khaf-Khorosan Razavi-Herat border to connect Iran with Afghanistan for a total investment of USD 665 m | | • China, Turkmenistan, Uzbekistan corridor initiative - Launch of the Bereket-Etrek-Turkmenistan-Iran border railway after government of Turkmenistan received funding from IsDB\(^2\) | |
| • BRI: Construction of rail logistics centers in Kars and Izmir/Kemalpasa | • North-South Transport Corridor: In December 2019, Iran and Azerbaijan started construction of the 130 km long Rasht-Astara railway that will link Iran with the 2018 established Astara terminal | | • The port of Turkmenbashi has received substantial investment and project contracts are signed. It is expected to gain importance in the future | |
| • Turkey and Iran plan to attract foreign investment for Kars-Tabriz railway link after feasibility study ended in March 2020 | • North-South Transport Corridor: Railway to connect Chabahar is being constructed (finished in three years) | | | |

1) EU-Eastern Partnership; Islamic Development Bank

Source: Desk research, Roland Berger
The time is ripe for the development of the southern routes despite current hurdles

The case for middle and southern Silk Road corridors

Decade of rail brought by need for sustainability
- Countries along the corridors ready to commit to corridor development
- Rail put in spotlight by calls for sustainability and CO₂ reduction – Time to act is now

Reduced development effort due to existing infrastructure
- Infrastructure on middle and southern corridors already in place, with TITR as operator
- Avoidance of detours by applying best practices from northern route

Demand confirmed to justify investment
- High demand potential for countries in catchment and specific goods
- Demand amplified if further regions are connected

Complemented system with development of the south
- Increased competition, faster maturation with development of southern routes
- Hedge for shortage and uncertainties in the north, more stability in system

Source: Roland Berger
Traffic from traditional Eurasian flows has limited potential for middle and southern corridors – But total potential of 400k TEUs

Middle and southern corridors volumes and upsides

Volumes middle & southern corridors and upsides[^2] [000 TEUs]

<table>
<thead>
<tr>
<th>Region</th>
<th>Volumes (000 TEUs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>EU 28 - Asia 5</td>
<td>164</td>
</tr>
<tr>
<td>EU 28 - South Asia</td>
<td>25</td>
</tr>
<tr>
<td>Turkey - Asia 5</td>
<td>40</td>
</tr>
<tr>
<td>Turkey - South Asia</td>
<td>20</td>
</tr>
<tr>
<td>EU 28 - Iran</td>
<td>62</td>
</tr>
<tr>
<td>Iran - Asia 5</td>
<td>384</td>
</tr>
<tr>
<td>Total</td>
<td>384</td>
</tr>
</tbody>
</table>

[^2]: All numbers for the year 2030, upsides only refer to flows with enough distance between them, but not adjacent flows

### Key take-aways and assumptions

**Middle/Southern corridor will not become significant with "traditional" Eurasian flows alone**

"Traditional" flows between Europe and the Asia 5 countries will not create enough flow to form a booming market. This is mainly due to the natural catchment area of the southern and the middle corridors and the heavily used, high performing alternative in the north.

**Major potential comes from upsides with countries that have no other alternative**

For countries like Turkey, Iran, and the countries in South Asia, the southern and the middle corridors are not only the natural, but the only rail route. Those volumes will not be split with the northern route and can thus be considerable.

**All upsides come with heavy pre-conditions that need to be met**

South Asia, esp. India, has huge potential volume-wise. However, it can only be realized if political rivalries with Pakistan can be resolved or circumvented and if the rail connection towards Myanmar is established. Similarly, Iran’s potential is heavily depending on the status of the country’s sanctions.

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1) Defined as Pakistan, India, Nepal, Bangladesh, Myanmar, Thailand. Of the potential with EU, majority >50% is attributable to India
2) All numbers for the year 2030, upsides only refer to flows with enough distance between them, but not adjacent flows
3) The 73,000 TEUs are included in the base case calculation on prev. slide, the upsides are excluded

Source: Expert interviews, Roland Berger
C. Gaps and Bottlenecks
The middle corridor has made noteworthy progress during the last survey whereas the southern corridor is stagnating

Evaluation of success factors for middle and southern corridors

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Importance for rail link</th>
<th>2017 Results 1)</th>
<th>Middle Corridor</th>
<th>Southern Corridor</th>
<th>Comments regarding southern routes</th>
</tr>
</thead>
</table>
| Transport time        | 🟢                        | 🟢               | 🟢               | 🟢                | • Speed significantly slower than on northern routes  
                          |                          |                 |                 | • Long distance, more border crossings, and modal changes |
| Reliability           | 🟢                        | 🟢               | 🟢               | 🟢                | • Regular service on middle corridor with reliable performance  
                          |                          |                 |                 | • No regular service on southern routes |
| Availability          | 🟢                        | 🟢               | 🟢               | 🟢                | • Minimal regular service on middle corridor but frequency not sufficient; no service on southern corridor yet |
| Balanced flows        | 🟢                        | 🟢               | 🟢               | 🟢                | • Smaller Eastward transport volumes also true for middle corridor – Generally base demand is comparably small, additional streams need to be unlocked |
| Price                 | 🟢                        | 🟢               | 🟢               | 🟢                | • Infrastructure costs not significantly higher, however lower efficiency results in higher cost in the end  
                          |                          |                 |                 | • Middle and southern corridors are not subsidized |
| Customs               | 🟢                        | 🟢               | 🟢               | 🟢                | • Customs processes are no longer perceived as game breaking, but still optimization possible compared to northern corridor |

Legend: Higher filling of importance harvey balls shows higher importance; For corridor assessment fully harvey balls show relative performance compared to northern corridor, with full balls showing better performance, 3/4 being on par with north and empty meaning the criteria cannot be assessed due to lack of service

1) The 2017 survey did not differentiate middle and southern corridors. The evaluation system was different. The results are translated into the new system

Source: Expert interviews, Roland Berger
Lack of reliable service and northern competition is preventing the southern routes from unlocking their potential

Bottlenecks – Market, services and demand

Key take-aways and bottlenecks

1. **Good theoretical demand perspective for countries on southern routes**
   - Turkey, Kazakhstan, and Iran certified to have high demand potential
   - Willingness to attempt connection given resolution of complications
   - Preferred route for temperature-controlled goods

2. **Low service level and the chicken-egg deadlock between supply and demand**
   - Poor availability and quality of rail and ferry service on the middle corridor
   - Higher cost due to lack of efficiency despite comparable cost of infrastructure – Diminished competitiveness of rail
   - Without much demand, no incentives for increased service

3. **Heavy competition from far superior alternative from the north**
   - Northern route vastly outperforming in terms of transit time and cost (14 vs. 30 days), reliability, and complexity
   - Phenomenon of redirection of southern demand to northern route

4. **Smaller catchment for southern routes in Europe**
   - Geographically no advantage for majority of European countries to use middle and southern corridors
   - Particularly after better connectivity of Hungary with northern route

Views from experts

"We are trucking our Turkish cargo to Budapest to use Russian rail. If you give me Istanbul-Shanghai in 18 days, I’m there" - Operator

"These can be huge markets (TR, IR, KZ)… But you know, sometimes demand is there just because they simply cannot go elsewhere" - Shipper

"I need predictable, fixed schedules – There are currently just not enough frequencies" - Operator

"We looked at the middle corridor because of Russian embargo, now they solved it – And I need T2T1 only 14 days, Turkey more than 30" - Operator

Source: Expert interviews, Roland Berger

1 Terminal to terminal  2 Particularly for rail in Turkey and Turkmenistan, Caspian Sea waiting time can reach 4-5 days
For infrastructure, there are under-developed areas that need to be addressed – Capacity regarding further growth is put into question

Bottlenecks – Infrastructure

Views from experts

"If you realize that on broad gauge the trains are taking 7 days and in Europe 12, you know where the problem lies" - Carrier

"Infrastructure in Eastern part (of Turkey) has for sure room for improvement" - Operator

"Currently, the infrastructure in UA is ok, but we need investment at border points if volume really goes up as we want them to" - Operator

"Sometimes, if the ferries do a wrong manoeuvre, they are out of service for two days. It's a magical lake (Van)" - Carrier

Key take-aways and bottlenecks

1. Good rating for broad-gauge infrastructure, doubt regarding further growth
   - Kazakh broad-gauge infrastructure with high spare capacity and good performance and connection (Section West of Khorgos of ~100 km in need of reconstruction)
   - Terminals not perceived as bottlenecks, except the ones on Kazakh-Chinese border
   - General doubt about capacity in the system considering the substantial rise of traffic volume

2. Infrastructure in Eastern Turkey and Turkish rolling stock to be improved
   - Sections of tracks in Eastern Turkey are single track and non-electrified
   - Occasional rolling stock shortage in Eastern Turkey due to trade flow imbalance
   - Van Lake ferry service perceived to be unreliable – Rail construction around the Van Lake planned, but realization time consuming

3. Suboptimal infrastructure in Southeast Europe and lack of coordinated effort
   - European infrastructure perceived as problem due to low priority of freight trains and interoperability issues
   - Infrastructure in Romania outdated and in need of reconstruction, hampering growth
   - Lack of coordinated effort between countries regarding infrastructure projects to guarantee continuous traffic flows

Source: Expert interviews, Roland Berger
Customs is generally more complicated for rail – Digitization and coordinated harmonization are major improvement potentials

Bottlenecks – Customs and border crossing

**Key take-aways and bottlenecks**

1. **Customs perceived to be manageable but with a lot of improvement potential**
   - Number of border crossings and non-efficient customs processes as bottlenecks
   - Border crossing procedures perceived to be cumbersome but manageable by operators
   - Mostly "first time" issues or "normal" problems

2. **Lack of data digitization and CIM/SMGS harmonization complicating processes**
   - Many documents such as consignment notes and declarations still done with paper at certain borders – Time-consuming and error-prone processes
   - Common CIM/SMGS consignment note is still not accepted in Turkey, Uzbekistan, Tajikistan, and Turkmenistan

3. **Suboptimal physical infrastructure at some border crossing points**
   - Lack of modern systems and qualified personnel at some customs
   - Cargo inspection difficult and time-consuming (due to trucking) if customs not integrated in terminal

4. **Rail naturally more difficult for customs due to inherent characteristics**
   - Long distance over land in the transit country mandatory for rail cargo
   - Customs mandated to conduct stricter controls for hazardous and illegal goods

**Views from experts**

"Between Kazakhstan and Russia there are basically no borders, on the middle corridors there are so many" – Int. Org.

"Sometimes the customs is not built in the terminal, if they need to inspect rail cargo, they need to truck it to the customs, open it and truck back – That is kind of ironic" – Int. Org.

"Of course there are problems with customs, but they are normal 'customs problems' – Nothing we cannot handle" – Operator

"The current consignment note in paper form leaves room for corruption and increases time due to bad translation" – Int. Org.

Source: Expert interviews, Roland Berger
Geopolitical tensions are often cited as major roadblocks for middle and southern corridors – Especially with many parties involved

Bottlenecks – Politics and policies

### Views from experts

- “…And there are always the political tensions, it is always a political issue” – Int. Org.
- “We have many American customers, they will never let us transit through Iran” – Operator
- “The biggest problem for us is, there is currently no subsidies for the middle corridor” – Operator
- “There is no coordinated alliances, each country is trying to attract volumes on its own” – Int. Org.
- “Russia has never really relinquished its control over Central Asia” – Operator

### Key take-aways and bottlenecks

#### 1. Middle corridor even less competitive with lack of subsidies

- Northern route outperforming and subsidized – High priority given to northern routes by Chinese subsidies due to their importance
- Middle corridor subsidies discussion started with Xi’an but interrupted by COVID-19
- Subsidies from China or countries along the route as potentially effective way to kickstart the market

#### 2. Individual political efforts and lack of coordinated corridor management

- Many corridor strategies and initiatives ongoing around Central Asia – Currently, missing centralized coordination of efforts
- Many countries trying to attract volumes individually – Without effective alliance
- Coordinated corridor management needed to direct all resources towards efficient development

#### 3. Complicated situation aggravated by sanctions and geopolitical tensions

- Naturally higher complication with more countries involved on middle and southern corridors
- Iranian sanctions blocking all possibilities for the southern corridor
- Geopolitical rivalries and cultural tensions standing in the way of effective collaboration (particularly South Asia)

Source: Expert interviews, Roland Berger
D. The Way Forward
Multilateral effort on many fronts was necessary to make the northern route a success – Southern routes several years behind

Major milestones on the Silk Road corridors

Coordinating Council on Trans-Eurasian Transportation founded (1993)

- Eurasian Customs Union
- First UIC ICOMOD study (2010)
- First CR-Express train launched in Yuxinou
- Chinese subsidies for Eurasian rail traffic introduced (2011)
- Seven countries customs conference on facilitation of customs procedures
- Trains from Wuhan and Suzhou started (2012)
- First eastbound test train successfully arrived
- Trains from Chengdu started operation
- OBOR initiative unveiled (2013)
- First CR Express coordination conference
- UTLC founded
- Mandatory notification of goods imported by rail and exchange of elec. customs doc. in Russia (2014)
- Seven railways agreement
- Start of using new Belarus-Polish border crossing (2017)
- Creation of AIIB and Silk Road Fund
- Order 1572 of Russia Federal Customs Service (2015)
- Khorgos gateway operational
- China accepts CIM/SMGS
- China accepts EAEU CC (2015)
- Eura. trains united under brand CR Express and first devel. plan
- Decree tying EAEU with BRI betw. CN-RUS (2016)
- TITR becomes operational and BTK railway finished (2017)
- Eura. trains united under brand CR Express and first devel. plan
- Intermodal common consignment note probed
- Russian sanctions on food lifted
- Electronic sealing used
- Russian subsidies (2018+)

Source: ZBW, MPRA, OBOR, UIC, CCTT, Desk research, Expert interviews, Roland Berger
The development of middle and southern corridors needs joint efforts from all players

Fields of action for players on middle and southern Silk Road corridors

**Awareness and promotion**
- Promote and advertise middle corridor to European and Chinese stakeholders
- Pinpoint and address concerns to instill trust in the system and to trigger demand

**Cooperation and coordination**
- Involve more stakeholders into corridor development process
- Intensify cooperation between countries and national carriers
- Create platform to bundle and coordinate corridor management programs

**Digitization and harmonization**
- Digitization and harmonization considered as major uplift potentials
- Spread usage of CIM/SMGS (intermodal) consignment note
- Foster digitization of customs processes
- Adapt transit guidelines and foster cross-national customs alignment

**Operationalization**
- Ramp-up frequencies and improve service level on middle corridor
- Establish integrator role with contact to end client and marketable product
- Improve transparency on fares & tariffs, transport status, service schedule, etc.

**Investment and public support**
- Continuous investments in rail infrastructure, border crossings, and ferries, with primary focus on bottlenecks
- Enter dialogue and secure direct or indirect subsidies (in form of reduced tariffs) from China and countries along the corridor

**Key players**
- UIC, all key stakeholders on corridor
- UIC, TRACECA, UNECE, other int. org.
- CIT, CCTT, WCO
- Operators, national railways
- TITR, countries along corridor

Source: Roland Berger
UIC should continue to help raising awareness for middle corridor and strive to enable an economical operation.

UIC action modules part of the Freight Department multiregional work plan

- **Raise awareness for southern routes**: Organize two corridor conferences to promote corridors and foster collaboration of all involved stakeholders.
- **Establish cost competitiveness**: Launch dialogue with CN-regions on subsidies and connect MDBs and carriers to provide loans for fixed schedule services.
- **Strengthen operationalization**: Offer assistance to strengthen TITR's performance and standing, initiate talks on establishment of integrator.
- **Promote harmonization and digitization**: Harmonize technical standards and processes along transport route, promote digitization of documents and processes.

Source: Roland Berger
European politics can support the development of the middle and southern corridors by five direct and indirect actions

**Fields of action for European politics¹)**

- **Coordinating BRI and TEN-T**
  - Addressing current concerns (e.g., unfair practices), establish legal guardrails to increase participation of European players
  - Planning integration of BRI as it is not adequately planned within TEN-T projects and strategy yet
  - Leveraging BRI for Eastern European countries to improve condition of their infrastructure

- **Establishing favourable legal framework**
  - Creating legal framework to facilitate adaption of CIM/SMGS consignment note in EU and EUCU (e.g. in Turkey)

- **Establish general enabling conditions**
  - Solving issue of depriorization of freight traffic in order to reduce intra-European transit time (e.g. in Germany and Poland)
  - Improving interoperability of rail systems between European countries

- **Increased and coordinated investments**
  - Increasing infrastructure investment, e.g., to create capacity through additional entrances to EU from which middle corridor can benefit
  - Creating coordinated infrastructure investment management between countries along key rail routes in EU

¹) To communicate to European decision-makers by international organizations with respective networks (e.g. TRACECA)

Source: European Commission, Expert interviews, Roland Berger
Joint efforts are now needed to make the development of the middle and southern corridors a success

Conclusion

Northern corridor has been an exceptional success story
• Multiple best practices as milestones for efficient Eurasian rail operations
• Impressive volume growth in <10 years

Timing is right for middle and southern corridor
• Increased demand
• Need for sustainability and increased environmental awareness

UIC study on the Silk Road identifies needs for action, e.g.
• Increase harmonization & digitization
• Establish integrator
• Establish financial support

Joint effort is now needed to take the step forward
• Next steps drafted
• Collaboration needed

Source: Roland Berger
Running trains through the corridors: a shippers and operators perspective

Sergio Barbarino (P&G)
Alberto Grisone (HUPAC)
Thomas Kargl (ÖBB Rail Cargo Group)
Yekaterina Ryabushko (DB Cargo Eurasia)
Xavier Wanderpepen (Forwardis)
INTEROPERABILITY
Running trains through the corridors: a shippers and operators perspective

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Thomas Kargl (ÖBB Rail Cargo Group)
Yekaterina Ryabushko (DB Cargo Eurasia)
Xavier Wanderpepen (Forwardis)
Running a train through the Southern corridor.
Institutional aspects of corridor development

Roel Janssens (UNECE)
Özgür Algan (TCDD)
Representation from the Iranian Railway authority
Özgür Algan (TCDD)
EURASIAN RAIL TRAFFIC DEVELOPMENT: OPPORTUNITIES AND CHALLENGES FOR THE SOUTHERN AND MIDDLE CORRIDORS
TCDD was restructured as infrastructure manager.

• Sector was re-organized and liberalisation was ensured with Decree No: 655 and Law No: 6461 and new railway operators were included in the sector.

• “TCDD Taşımacılık A.Ş”, which was established as a subsidiary of TCDD to carry out freight and passenger transportation, started its activities as of January 1, 2017.

• There are 5 affiliated companies of our Enterprise.

TCDD Rail Traffic management was given via law to TCDD as monopoly.
## Freight transportation

### 2019/2020 Difference %

<table>
<thead>
<tr>
<th>Years</th>
<th>Net tone (thousand)</th>
<th>Net tone Km (Million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>15.941</td>
<td>8.699</td>
</tr>
<tr>
<td>2018</td>
<td>31.673</td>
<td>14.481</td>
</tr>
<tr>
<td>2019</td>
<td>33.535</td>
<td>14.707</td>
</tr>
<tr>
<td>2020</td>
<td>34.549</td>
<td>15.429</td>
</tr>
</tbody>
</table>

### 2020/2021 (January) Difference %

<table>
<thead>
<tr>
<th>Period</th>
<th>Net tone (thousand)</th>
<th>Net tone Km (Million)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020 Jan.</td>
<td>2.590</td>
<td>1.226</td>
</tr>
<tr>
<td>2021 Jan.</td>
<td>2.968</td>
<td>1.329</td>
</tr>
</tbody>
</table>

### PERIOD

<table>
<thead>
<tr>
<th>MIL TON</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
<th>2021 JAN</th>
</tr>
</thead>
<tbody>
<tr>
<td>28,43</td>
<td>28,74</td>
<td>29,29</td>
<td>29,90</td>
<td>2,97</td>
<td></td>
</tr>
</tbody>
</table>

### Difference %

- Net tone (thousand): 3%
- Net tone Km (Million): 5%

### Railway Transportation

- 34.55 mil. tones freight in 2020
- TCDD Taşımacılık A.Ş.
Uninterrupted Railway Corridor between Asia and Europe

**European Direction**
- Turkey-Germany
- Turkey-Austria
- Turkey-Romania
- Turkey-Slovakia
- Turkey-Switzerland

**Asian Direction**
- Turkey-Iran
- Turkey-Kazakhstan
- Turkey-Russia
- Turkey-China

**Stops**
- Germany
- France
- Greece
- Austria
- Hungary
- Slovenia
- Czechia
- Poland
- Bulgaria
- Bosnia and Herzegovina
- Croatia
- Turkey
- Iran
- Azerbaijan
- Georgia
- Turkmenistan
- Uzbekistan
- Kazakhstan
- China
- Pakistan
- Italy
- Austria
- Germany
- Estonia
- Latvia
- Lithuania
- Belarus
- Ukraine
- Russia
- Syria
- Jordan
- Iraq
- Iran
- Afghanistan
- Pakistan
- China
Uninterrupted Railway Corridor between Asia and Europe
International Railway Corridors and MARMARAY

- Türkiye: 2,323 km
- Gürçistan: 220 km
- Azerbaycan: 430 km
- Hazar Denizi Geçiş: 420 km
- Kazakistan: 3,200 km
- Çin H.C.: 2,100 km
- TOPLAM: 8,693 km
Project route:

Turkey: Kars-Canbaz : 79 km (newly-built line)
Georgia: Kartsakhi - Akhalkalaki : 29 km (newly-built line)
Akhalkalaki - Tbilisi (Marabda) : 160 km (rehabilitation of the existing railway line)
Tbilisi - Gardabani : 70 km (existing railway line)
Azerbaijan: Beyük Kesik - Baku : 504 km (existing railway line)
Total : 841 km (Alat-Baku: 82 km)
It is aimed to carry 1 million ton freight in the short term, 3 million in the medium term, and 6.5 million tons of freight in the long term.
Block Trains from/to China

P.R. China (Xi'an)-Kazakhstan-Azerbaijan-Georgia-TURKEY-Bulgaria-Serbia-Hungary-Slovakia-Czech Republic (Prague): 11,500 km
Block Trains from/to China

トルコ：2,095 km
アゼルバイジャン：260 km
カザフスタン：429 km
ハザールデルト・エッジ：468 km
カザキスタン：3,313 km
中国・H.C.：3,200 km
合計：9,009 km
A New Corridor through the BTK Line

North-South Corridor

The aim is to increase the share of the railway transportation between Turkey and Russia up to 10%.
Southern Corridor and Van Lake Ferry Crossing
## Port Handling and Ferry Operation Management

### Port Operation

<table>
<thead>
<tr>
<th>Ports</th>
<th>YEARS</th>
<th>2019/2020 Diff. %</th>
<th>PERIOD</th>
<th>2020/2021 (February) Diff. %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Haydarpaşa</td>
<td>1.293</td>
<td>829</td>
<td>798</td>
<td>-4%</td>
</tr>
<tr>
<td>İzmir</td>
<td>10.861</td>
<td>10.614</td>
<td>10.435</td>
<td>-2%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>12.154</td>
<td>11.443</td>
<td>11.233</td>
<td>-2%</td>
</tr>
</tbody>
</table>

### Van Lake Ferry Operation Management

<table>
<thead>
<tr>
<th>TRANSPORTATIONS</th>
<th>YEARS</th>
<th>2019-2020 Diff. %</th>
<th>PERIOD</th>
<th>2020/2021 (February) Diff. %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of trips</td>
<td>192</td>
<td>383</td>
<td>99%</td>
<td>40</td>
</tr>
<tr>
<td>Number of Passengers</td>
<td>2.308</td>
<td>758</td>
<td>-67%</td>
<td>230</td>
</tr>
<tr>
<td>Freight (Ton)</td>
<td>222.554</td>
<td>486.788</td>
<td>119%</td>
<td>47.609</td>
</tr>
<tr>
<td>Number of Wagons</td>
<td>9.817</td>
<td>19.535</td>
<td>99%</td>
<td>2.070</td>
</tr>
</tbody>
</table>
Current Status of the Project

- Alan: 441 bin m²
- Kapasite: 1 milyon 500 bin ton
- İskenderun Liman Bağlantısı: 500 Km

Projects:
- Under Construction (2)
- Inaugurated and Completed (11)
- Project Completed (5)
- At Survey and Projecting Phase (8)

Logistics Centers

- Project Cost (Investment Program): 1.785.038.000 TL
- Total Capacity (21): 35,6 Million Ton
- Total Area (21): 12,8 Million m²
- Logistics Center Put into Operation: 11
- Construction Completed Logistics Center: 2
- Logistics Centers Under Construction: 2
- Project Completed: 5
- At Survey and Projecting Phase: 8
For any questions please contact:

did@tcdd.gov.tr

Thank you for your attention…
Representation from the Iranian Railway authority
Linking Eurasian Corridors to the TEN-T network
Asset Assavbayev (TRACECA)
EURASIAN RAIL TRAFFIC DEVELOPMENT
SOUTHERN AND MIDDLE CORRIDOR

CONCLUSIONS
Stay in touch with UIC:

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#UICrail

All Webinar material will be made available in the days to come on www.uic.org

Thank you for your attention.