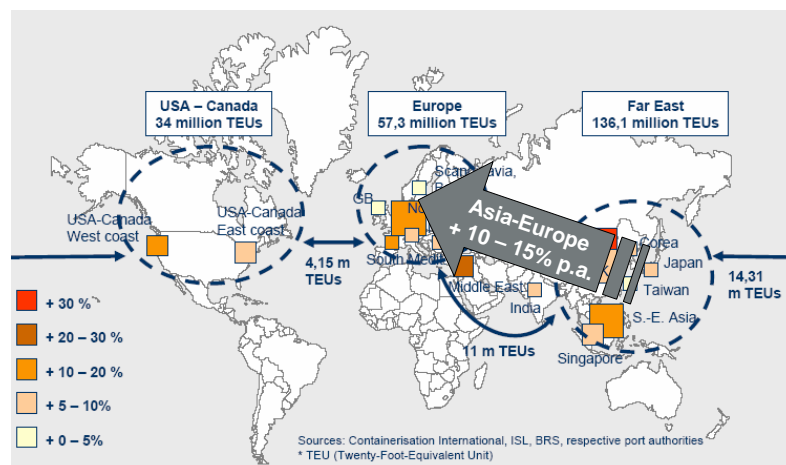


## Results of the COLD-study - Opportunities and risks for container transports on the Danube

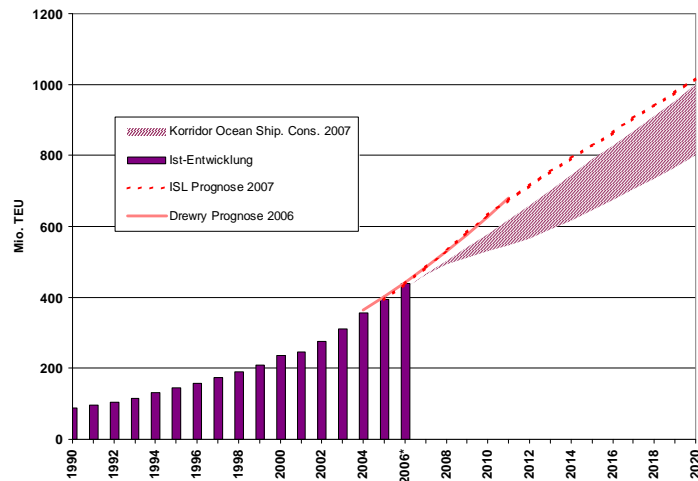
Black Sea Container Summit 2007  
 Odessa, November 15, 2007  
**Gerhard Gussmagg**

### Growing container flows...



Source: Hulocon 2005

## ... and port throughput



\* 2006 vorläufige Schätzung  
Quelle: ISL 2007



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## Austria's Dependence on North Sea Ports

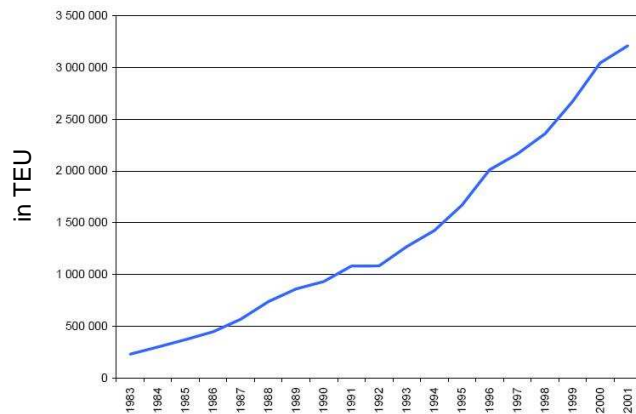
- 95 % of Austria's maritime container flows (approx 400 to 500.000 TEU p.a.) run through North Sea Ports: Hamburg, Bremen, Rotterdam
- Those ports face and will face enormous problems in handling capacity and efficient hinterland connections by rail and road (e.g. Hamburg-Maschen as rail bottleneck)
- Additional sea port options are urgently needed: a Black Sea Port (e.g. Constanta) and the Danube could be a feasible solution!

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## Containers on European inland waterways – an option that works!



Source: VNF - CCNR

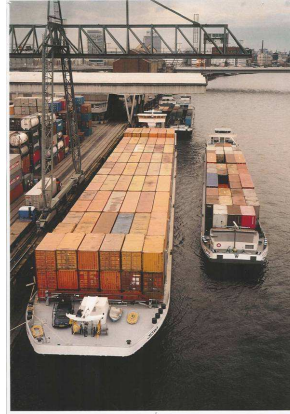
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## European Success Stories

- **Rhine**

- Yearly movements of more than 2 Mio TEU
- Daily services between ARA-ports (Amsterdam-Rotterdam-Antwerp) and German Hubs
- Usage of high-capacity vessels: JOWI etc.



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## European Success Stories (2)

- **France: Seine/Rhône**

- Container market literally booming with an increase of 20% on the Rhône (2005: 55,807 TEU) and 40% on the Seine (2005: 121,584)
- New services from Marseille up to Lyon etc.

- **Belgian waterways**

- Container transport average yearly increase of 31 % between 1994 and 2004



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## Port of Constanta – Black Sea Hub with connection to the Danube waterway

- Constanta can be called a container hub for the Black Sea Region.
- Major part of handled TEUs is for third countries in the region (approx 75 %).
- Constanta has become a port of direct call for major container lines (MSC, CSAV Norasia, ZIM, CMA CGM, Hapag Lloyd, Maersk Line)
- Three main container operators: DP World Constanta, SOCEP, APM; smaller operators UMEX and Romtrans
- The port is connected to Corridor VII the Danube waterway – and subsequently to Austria - via the Black-Sea-Canal (length 64.4km)

Source: constantza port handbook 07-08

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Source: CSCT, Sept. 2007

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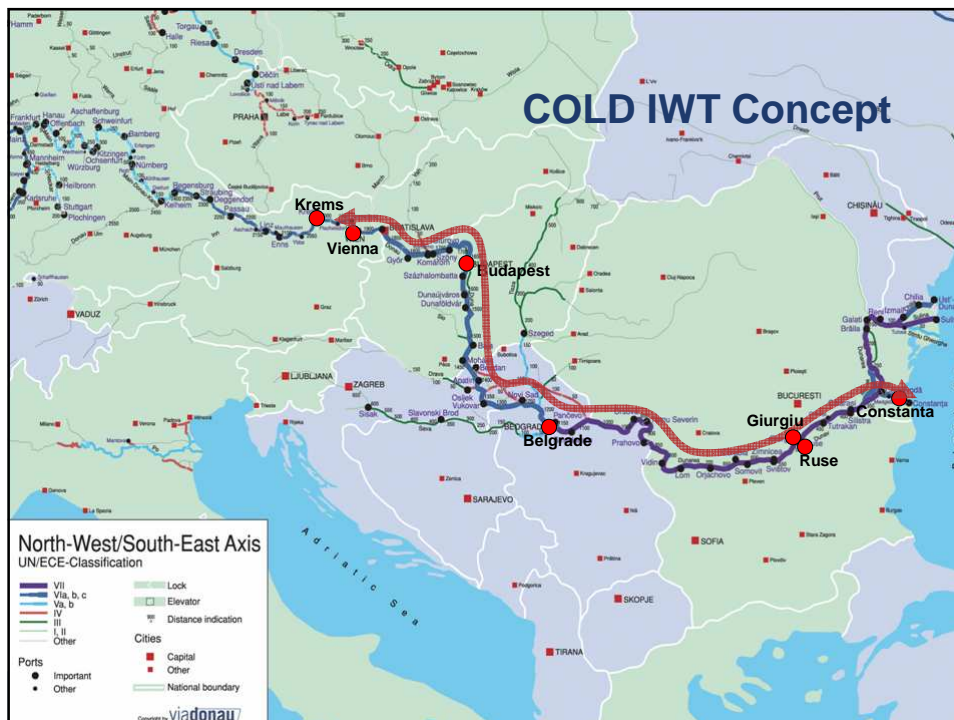
## World Top Container Ports 2006

| Container Port       | Throughput in million TEU |            |             | Growth rate   | Growth rate  |
|----------------------|---------------------------|------------|-------------|---------------|--------------|
|                      | 2006                      | 2005       | 2001        | 2001- 2005    | 2005 - 2006  |
| 1. Singapore         | 24.8                      | 23.2       | 15.6        | + 49%         | + 7%         |
| 2. Hong Kong         | 23.5                      | 22.5       | 17.8        | + 26%         | + 5%         |
| 3. Shanghai          | 21.7                      | 18.1       | 6.3         | + 187%        | + 20%        |
| 4. Shenzhen          | 18.5                      | 16.2       | 5.1         | + 218 %       | + 14%        |
| 5. Busan             | 11.9                      | 11.8       | 8.1         | + 46%         | + 1%         |
| 6. Kaohsiung         | 9.7                       | 9.5        | 7.5         | + 27%         | + 2%         |
| 7. Rotterdam         | 9.6                       | 9.3        | 6.1         | + 53%         | + 3%         |
| 8. Dubai             | 8.92                      | 7.6        | 3.5         | + 117 %       | + 17%        |
| 9. Hamburg           | 8.86                      | 8.1        | 4.7         | + 72%         | + 10%        |
| 10. Los Angeles      | 8.5                       | 7.5        | 5.2         | + 44 %        | + 13%        |
| <b>85. Constanta</b> | <b>1.0</b>                | <b>0.8</b> | <b>0.12</b> | <b>+ 542%</b> | <b>+ 35%</b> |

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Source: "Container Management", August 2007

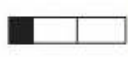
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## Inland Waterway Connection Rhine-Main-Danube vs. Danube

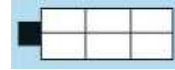
### Vienna-Rotterdam

- 1.547 km & 65 locks
- low bridges  
(2 layers of container)
- Straubing-Vilshofen
- max. dimension of locks: 190x12 m
- theoretical max. convoy: 192 TEU



### Vienna-Constanta

- + 1.685 km & 5 locks
- + faster roundtrip (5 days!) + sufficient bridge clearance (3 layers of container)
- + max. dimension of locks: 280x25 m\* +
- theoretical max. convoy: 864 TEU



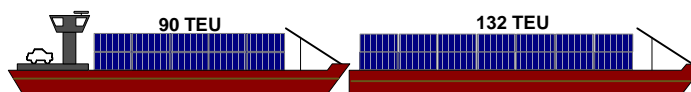
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\*Length of lock chamber Gabčikovo, width of locks at Black Sea Canal

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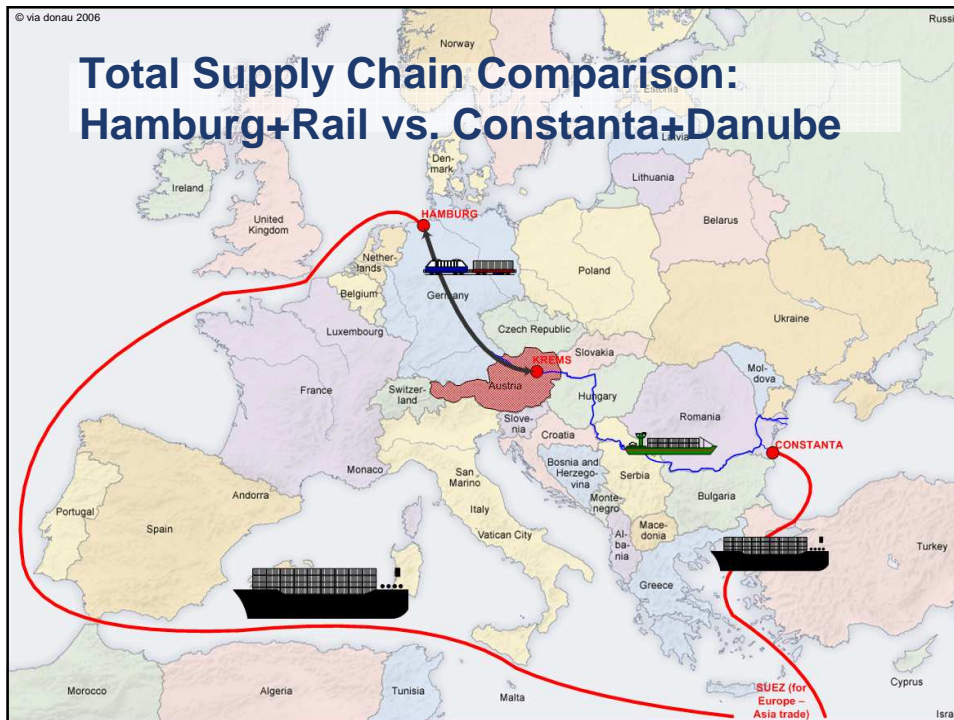
### OPTIMISED SCENARIO: using adapted container vessels and 3 layers

- Roundtrip **Krems-Constanta-Krems** in 16 days
- Structure of convoy: Self propelled vessel (DDSG 'Steinklasse') + 1 Barge adapted for container transport (44 TEU per layer)
- Capacity of convoy: **222 TEU** (90 + 132 TEU, triple stack!)
- Annual capacity per convoy: 10,000 TEU
- **Costs per container (at 75% utilisation ) 1/3 below railway rates to Northsea-Ports!**



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## Conclusions

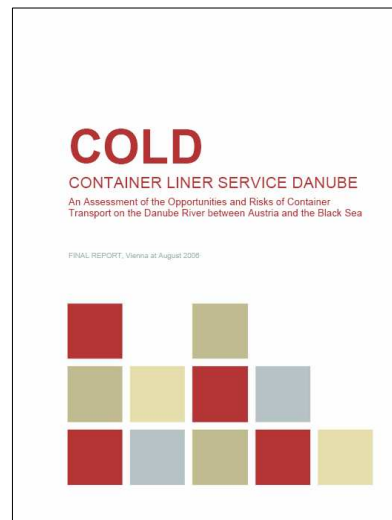
- **Compared to the traditional route via Hamburg and rail, an alternative routing via Constanta and Danube is highly attractive for ASIA-EUROPE container traffic:**
  - ⇒ Significant advantages in total supply chain costs (10-20 %)
  - ⇒ Similar or even better transit time for total supply chain (Austria-Shanghai in < 30 days)
  - ⇒ Environmental balance very positive: 16 % less CO2 per container!

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## Final Report available in German and English language

Download at  
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## Open Questions / influence on implementation of Danube services to Budapest and Vienna

- Ocean rate policy: convergence of Black Sea and North Sea Rates?
- Capacity and performance of container terminals in Constanta – treatment of inland navigation.
- Establishment of railway connections (block trains) Vienna/Budapest – Constanta
- Extension of existing services Constanta-Belgrade (BRP) and Constanta-Giurgiu (Mainrom Line)

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## Soon to come...also on the Upper Danube



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