

## "The Vision of Efficient and Sustainable Urban Transport:



Prof. Peter Klaus, D.B.A./Boston Univ.

Chair Business Logistics, Universität Erlangen-Nürnberg, Nürnberg, and  
Fraunhofer Arbeitsgruppe Technologien der Logistik-Dienstleistungswirtschaft (ATL)  
<klaus@logistik.uni-erlangen.de>

## Where We Stand and Where We Might Go"

© Klaus Prag Citylog 1311-03

Prague, Nov. 13, 2003, Nr. 1

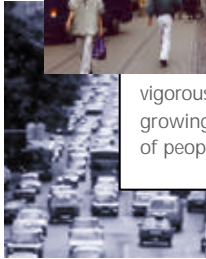
## Overview

- **The „Mobility“-Dilemma and the Vision of Efficient and Sustainable Urban Transport**
- **Past and Current Arenas of Activity - Political and Research**
  - Inner City-Logistics
  - Metropolitan Area (“Ballungsraum”) Logistics
  - Technology and “Hybrid” Solutions
- **(Self-) Critical Assessment: Where We Stand**
- **Towards the Future: A Changing Game**
  - New Demography, a Changing Economic and Ecological Environment
  - Interventions from the “Visible Hand” of Logistics and Supply Chain Management
- **Consequences for the Future of Urban Transport: New Challenges, new Opportunities, and a few Suggestions for Further Research Action**

© Klaus Prag Citylog 1311-03

Prague, Nov. 13, 2003, Nr. 2

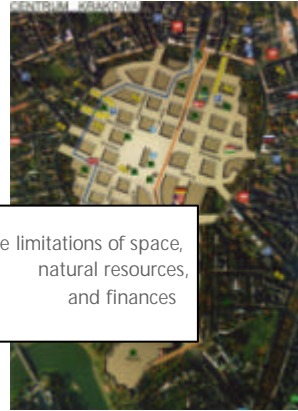
## I. The Cargo „Mobility“-Challenge ...



vigorously and continuously growing demands for mobility of people and goods



absolute limitations of space, natural resources, and finances



## ... and the Vision of Efficient and Sustainable Urban Transport

## I-2. ... to be met under very difficult conditions:



- perennial growth of personal - „people“ and „voter“ - mobility that is competing with cargo mobility needs in the political arenas
- growing environmental sensibility
- scarce public funds for investments
- the heritage of the the public service tradition in transportation: bureaucracy, inflexibility, lack of innovation
- transport technology - in the shadow of current „hi tech“ developments and fascination



## II. Past and Current Arenas of Activity – Political and Research -

### II-1. A Favorite of the 1990's: Variations of „Inner City“ Cargo Logistics

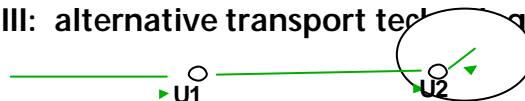
- more than 100 projects just in Germany
- Type I: logistics for difficult receivers of cargo



- Type II: consolidation concepts for inner city cargo



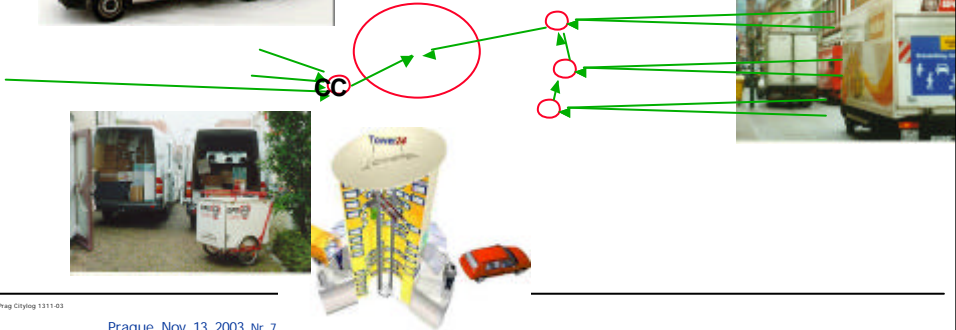
- Type III: alternative transport technologies



## II-2. ... i.e. City-Logistics by „Milkrun“ or „Center“ Consolidation



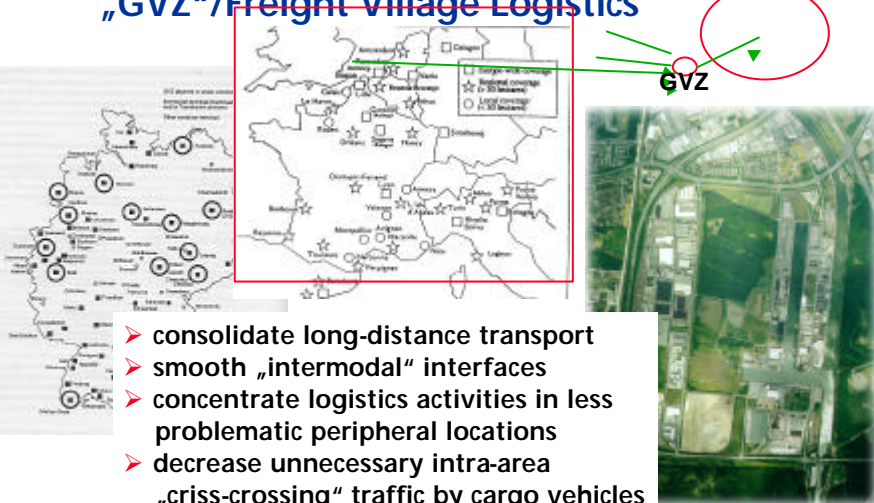
- consolidate shipments from various sources to inner-city destinations (retail),
- increase vehicle capacity utilization,
- reduce number of inner-city „stops“



© Klaus Prag Citylog 1311-03

Prague, Nov. 13, 2003, Nr. 7

## II-3. Metropolitan Area Projects: „GVZ“/Freight Village Logistics

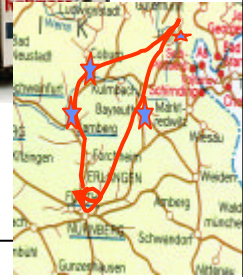


- consolidate long-distance transport
- smooth „intermodal“ interfaces
- concentrate logistics activities in less problematic peripheral locations
- decrease unnecessary intra-area „criss-crossing“ traffic by cargo vehicles

© Klaus Prag Citylog 1311-03

Prague, Nov. 13, 2003, Nr. 8

## II-4. „Metropolitan Area Logistics“ by advanced intermodal technologies – e.g. Short Lines



- consolidate long-distance transport
- smooth „intermodal“ interfaces
- concentrate logistics activities in less problematic peripheral locations
- decrease unnecessary intra-area „criss-crossing“ traffic by cargo vehicles
- further enhance efficiency and attractiveness of intermodal solutions
- potentially including intra-regional intermodal transport

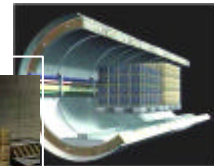
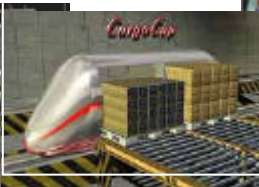
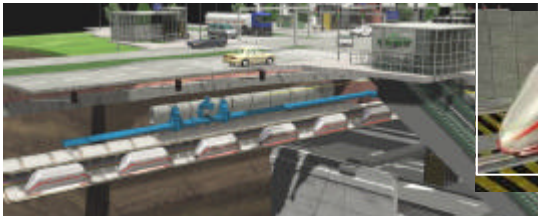
Prague, Nov. 13, 2003, Nr. 9

## II-5. City-Logistics via Non-Conventional Cargo Transport Technologies



- use existing transport infrastructure in unconventional ways: Trams, Subways
- at off-peak (night) hours
- for less environmentally damaging transport ???

... even more visionary approaches:



Prague, Nov. 13, 2003, Nr. 10



## II-6. ... not to forget: Road Pricing and „Telematics“



- monitor and optimize traffic flows
- anticipate/circumvent congestion
- „price“ traffic infrastructure usage by true economic and societal cost
- integrate with „other“ value added services for efficiency and comfort

Prague, Nov. 13, 2003, Nr. 11

## II-7. „Hybrid“ City-Logistics Solutions

... such as

- „ISOLDE“: inbound and outbound consolidation, emissionless vehicle, (simple) telematics



- ... or „Streamline“. „Mob2“:
- a „reengineered“ shopping and household-supply process



© Klaus Prag Citylog 1311-03

Prague, Nov. 13, 2005, Nr. 12

### III. Where We Stand: Assessments and Learnings

#### III-1. A (Self-) Critical Assessment

„Metro“ Logistics	works, but does not carry far
City-Logistics by Milkrun or Consolidation Center	120 projects aborted (more or less)
The „GVZ“/Freight Village Approach	popular as real estate sources for transport operators; limited leverage
Advanced Intermodal Transport/Short Lines	not gone beyond laboratory experiments; questionable economics
Non-Conventional Transport Technologies	not yet tried; in part not practical; who will pay for visionary solutions?
Road-Pricing and Telematics	maybe; it is a beginning
Hybrid Solutions: Isolde, E Shopping	maybe their time will come

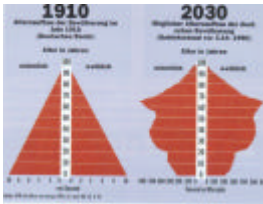
## III-2. Learnings

„Metro“ Logistics	Less of a Problem due to „Inbound“ Retail Logistics
City-Logistics by Milkrun or Consolidation Center	Transaction cost for cooperative solutions are (most often) higher than consolidation synergies
The „GVZ“/Freight Village Approach	Modal shift requires much more „push“ than the convenience of transfer facilities
Road-Pricing and Telematics	<ul style="list-style-type: none"> <li>• Focus on motorways and long distance transport may be counterproductive</li> </ul>
Hybrid Solutions: Isolde, E-Shopping	<ul style="list-style-type: none"> <li>• Broad acceptance requires long term behavior change</li> </ul>

## IV. Towards the Future? A Changing Game



## IV-1. New Demography, a Changing Economic and Ecological Environment



- **Demography and Society :**
  - ... still more people with still more need and access to individual mobility – of work, people and goods
  - the move to „low density“ living – suburbanization, new geographical patterns
  - individualization, customization, the „on demand“ society
- **Politics, the Legal Framework,**
  - deregulation and privatization
  - ever less public money and power ... not the least due to
  - the ambiguity of „green“ politics
- **Business and the Economy**
  - retail concentration, chain-formation „industrialization“
  - the move to low density retail and industry locations

© Klaus Prag Citylog 1311-03

Prague, Nov. 13, 2003, Nr. 17

## IV-2. Causing Interventions from the “Visible Hand” of Logistics and Supply Chain Management



### On one hand ...

- centralization of Stocks in „Hub“ locations
- advancing ECR and Continuous Replenishment practices
- a shift to consolidated „full truck load“ deliveries ...

### On the other hand ..

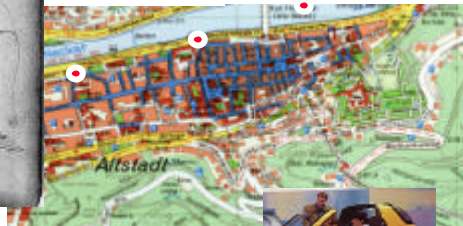
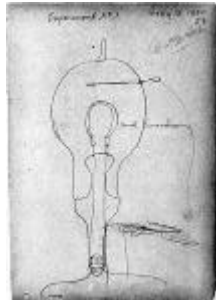
- merging of product movements and services
- increase in commercial traffic

© Klaus Prag Citylog 1311-03

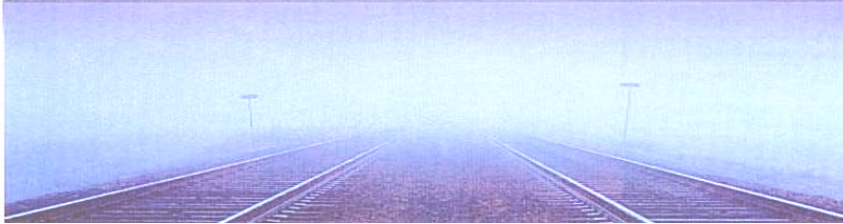
Prague, Nov. 13, 2003, Nr. 18

## V. Consequences for the Future of Urban Transport New Challenges, new Opportunities, and a few Suggestions for Further Research Action

### V-1. New Ideas ...



## V-2. New Questions for Urban Transport Research?



research into „mixed“ people/cargo systems?  
...working on issues of transaction cost and  
new approaches to the management of cooperative ventures?  
...understanding „supply chain“ demands  
by industry and cargo type - finding the niches for intermodal?  
reassessing cargo transport projections?

**Thank You!**