

Intelligent Freight Transportation System

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What is intelligence in transport logistics?

- Paperless digital transport documents that accompany the goods across all transport modes
- Loading units make decisions autonomously in order to ensure optimum transport handling.
- Vastly standardized formats and interfaces for transport tracking, widespread use of planning and control systems.
- Dynamic data sources and real-time information.

Why freight ITS?

- *Increase efficiency and effectiveness*
- *Increase safety and security*
- *Increase environmental performance*



Future

- parcels provided with all essential data that find the route to the customer themselves!
- The cargo is turned into an intelligent shipment which is able to decide what kind of transport service it needs – always closely coordinated with the schedules from material flow and transport management.



Intelligence ↔ Information

1. Traffic and infrastructure information
2. Vehicle and freight location information
3. Freight condition information
4. Freight positioning information
5. Warehouse operations and inventory information
6. Cargo information
7. Vehicle identity information

Freight ITS Trends

- E-commerce
 - Electronic Data Interchange (EDI)
 - Inter-organization, computer-to-computer exchange of business documentation in standard machine process able format
- Commercial vehicle operations (CVO)
 - system wide, regional, national, continental applications
- Advanced Fleet management systems (AFMS)
 - Particular group of firms



Freight systems

1. *Traffic controlling and monitoring systems*
2. *Weight-In-Motion (WIM) systems*
3. *Delivery space booking systems*
4. *Vehicle location and condition monitoring systems*
5. *Route planning systems*
6. *Driving behavior monitoring and controlling systems*
7. *Crash preventing systems*
8. *Freight location monitoring systems*
9. *Freight status monitoring systems*



Mirzabeiki, 2010

Freight ITS

	Transportation information types							Supported transportation functions			Supported transportation performance dimensions		
	<i>Traffic and infrastructure</i>	<i>Vehicle and freight location</i>	<i>Freight Condition</i>	<i>Freight positioning</i>	<i>Warehouse operations and inventory</i>	<i>Cargo information</i>	<i>Vehicle identity information</i>	<i>Transportation Resource management</i>	<i>Ports and terminals operations management</i>	<i>Freight and vehicle tracking and tracing</i>	<i>Efficiency and effectiveness</i>	<i>Safety and security</i>	<i>Environmental</i>
Traffic controlling and monitoring systems	X						X	X		X	X	X	
Weight-In-Motion systems	X					X	X			X	X	X	
Delivery space booking systems		X					X	X		X		X	
Vehicle location and condition monitoring systems	X	X	X			X	X	X	X	X	X		
Route planning systems	X	X						X		X		X	
Driving behavior monitoring and controlling systems	X						X				X	X	
Crash preventing systems	X										X		
Freight location monitoring systems		X		X	X	X			X	X	X	X	
Freight status monitoring systems			X	X	X	X			X	X	X	X	
Total	6	4	2	2	2	4	5	5	3	7	7	7	

Example: DHL smart truck

- First time combined RFID, geo and telematics data with dynamic route planning.
- Pilot: 2 of them in Berlin since March 2012
- Using taxi's travel time for *real time routing* depends on the current order situation and volume of traffic



Conclusion

Information



Intelligence freight

Communication



- Technology is far ahead of software systems
- Emphasis on reducing externalities of freight transportation increase the speed of Freight ITS
- European countries are doing more research on Freight ITS