

Train Monitor

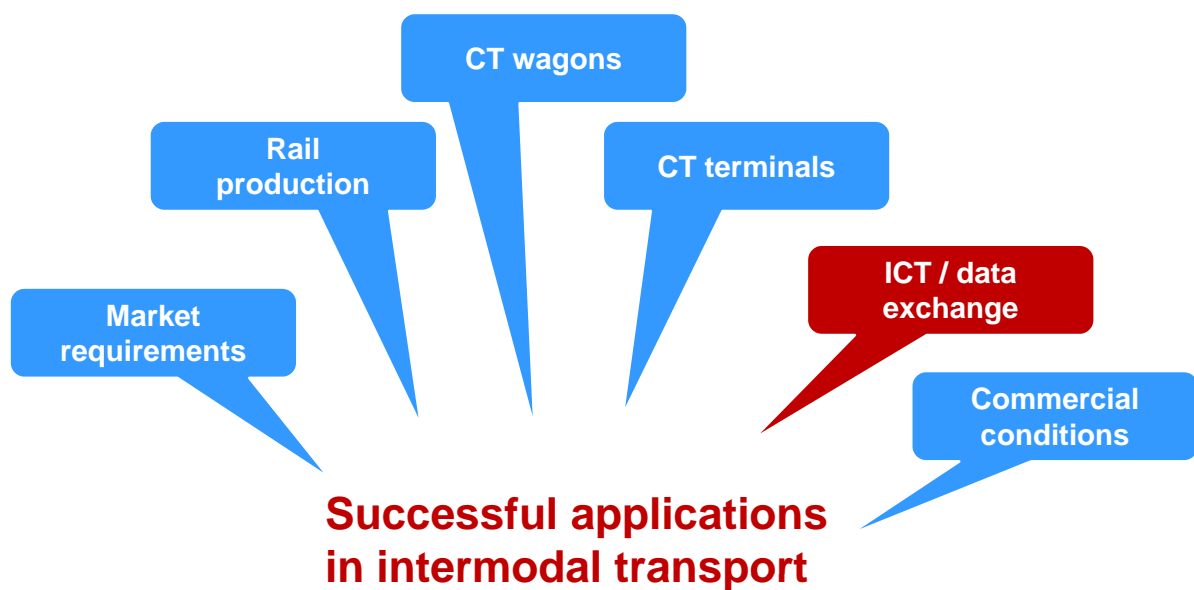
Train monitoring IT-system supporting efficient intermodal transport



Niklas Galonske, HaCon

COSMOS Final Conference
Wien, 12/06/2014

COSMOS “Good practices”



CREAM project (FP7, 2007-2011), identified challenges



- Low quality level of intermodal trains in SEE
- Almost no real time status information provided by IMs
- Information exchange between operating partners often based on fax, telephone and email communication
- No IT system in place for the monitoring of domestic AND international trains
- Elaboration of quality statistics very time consuming
- Information of customers required lots of manual interventions

Train Monitor – RealTime

Overview on currently operated trains (list view)

Train no	Origin terminal Destination terminal	Cut-off time planned / real Departure planned / real	Arrival planned / real Availability planned / real	Last message point Status	Current time (Estimation)	Delay (max)	ETA	Remaining (scheduled) Remaining (ETA)	HMM
40539 Details	Dastava-Paskov Verona-Quadrante Europa	Mon 18:00 Mon 19:03	- Mon 18:00 Tue 23:30				Tue 20:31		New message +
43257 Details	Köln-Eifelhof Ubf Verona-Quadrante Europa	Mon 17:25 Mon 19:34	- Mon 17:25 Tue 17:00				Tue 17:46		New message +
41858 Details	Trieste Campo Marzio Rive MOLO VJ Köln-Eifelhof Ubf	Mon 12:30 Mon 14:20	- Mon 12:30 Tue 11:45	Arnoldstein at message point	Mon 18:02	+00:12 (+00:12)			New message +
41859 Details	Köln-Eifelhof Ubf Trieste Campo Marzio Rive MOLO VJ	Mon 10:15 Mon 11:15	- Mon 10:15 Tue 08:00	Süßen through at message point	Mon 18:01	+03:14 (+05:55)			New message +
41856 Details	Trieste Campo Marzio Rive MOLO VJ Köln-Eifelhof Ubf	Mon 07:30 Mon 08:52	- Mon 07:30 Tue 05:30	Kirchseeon through at message point	Mon 18:00	+02:24 (+03:08)	Tue 05:08		New message +
41860 Details	Ljubljana-Deutschland	Mon 14:00 Mon 17:25	- Mon 14:00 Wed 02:15	Jesenice Arrival transfer station	Mon 17:40	-01:26 (-01:57)	Tue 21:34		New message +
41860 Details	Ljubljana KT Duisburg-Ruhrort Hafen Ubf DUSS	Mon 14:00 Mon 17:25	- Mon 14:00 Wed 02:15	Jesenice Arrival transfer station	Mon 17:40	-01:26 (-01:07)	Tue 21:34		New message +
41860 Details	Ljubljana KT Köln-Eifelhof Ubf	Mon 14:00 Mon 17:25	- Mon 14:00 Tue 23:40	Jesenice Arrival transfer station	Mon 17:40	-01:26 (-01:07)	Tue 18:23		New message +
41860 Details	Ljubljana KT München-Riem Ubf	Mon 14:00 Mon 17:25	- Mon 14:00 Tue 06:15	Jesenice Arrival transfer station	Mon 17:40	-01:26 (-00:39)	Tue 05:30		New message +

Train identification

Train real-time status

Train ETA

Irregularity messages

- Status information of your current train operations at a glance;
- Colour classification for delay status (green – yellow – red)
- Individual configuration possible (train filter / column sorting).

Train Monitor – RealTime

Overview on currently operated trains (map view)



- Short info for each train;
- Zoom in/out for your individual map view.

Train Monitor – RealTime

Arrival board

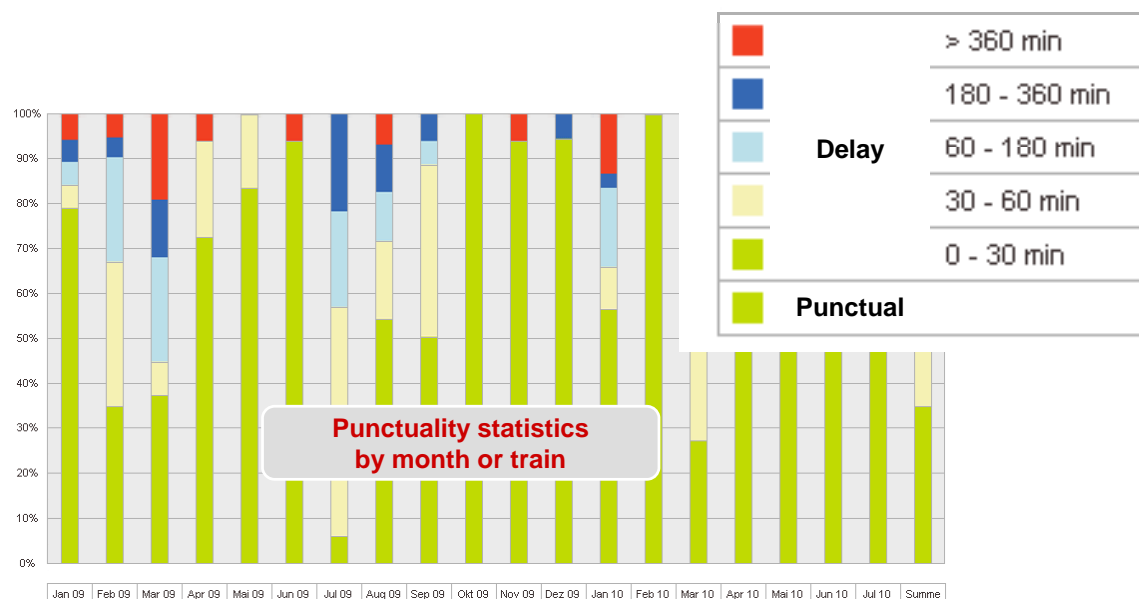
Status	Train no.	Origin terminal	Arrival [planned]	Train availability [planned]	Status	Last message point	Delay	HM
DE Ludwigshafen (Rh) BASF Ubf Close Full screen Delete								
	41211	Bayonne C.E.F. Intermodal	01:31	02:15	arrived	Saarbrücken Rbf Nord	+08:28	
	41201	Irún	01:31	02:15	arrived	Ludwigshafen (Rhein) BASF Ubf	-06:30	
	50216	München-Riem Ubf	02:36	03:15	Train ready for unloading	Ludwigshafen (Rh) BASF Ubf		
	50215	Duisburg-Ruhrort Hafen Ubf DUSS	02:36	03:15	Train ready for unloading	Ludwigshafen (Rh) BASF Ubf		
	50221	Hamburg-Billwerder Ubf	04:11	04:45	Train ready for unloading	Ludwigshafen (Rh) BASF Ubf		
	50231	Dörpen Ubf	04:34	05:15	arrived	Ludwigshafen (Rhein) BASF Ubf	+04:57	
	50231	Coevorden BE	04:34	05:15	arrived	Ludwigshafen (Rhein) BASF Ubf	+04:57	
	42134	Verona Quadrante Europa	05:29	06:00	Train ready for unloading	Ludwigshafen (Rh) BASF Ubf		
	41255	Port Bou	06:01	07:00	arrived	Ludwigshafen (Rhein) BASF Ubf	+06:37	
	43086	Busto Arsizio (Gallarate)	08:08	09:00	Train ready for unloading	Ludwigshafen (Rh) BASF Ubf		
	50249	Lübeck-Scandinavienkai Ubf	09:28	10:30	Train ready for unloading	Ludwigshafen (Rh) BASF Ubf		
	41956	Wels Vbf CCT	10:56	11:30	Train ready for unloading	Ludwigshafen (Rh) BASF Ubf		

- Train status information: on the way, arrived, train ready for unloading
- ETA information allows optimised dispatching of last-mile trucks.

Information Management

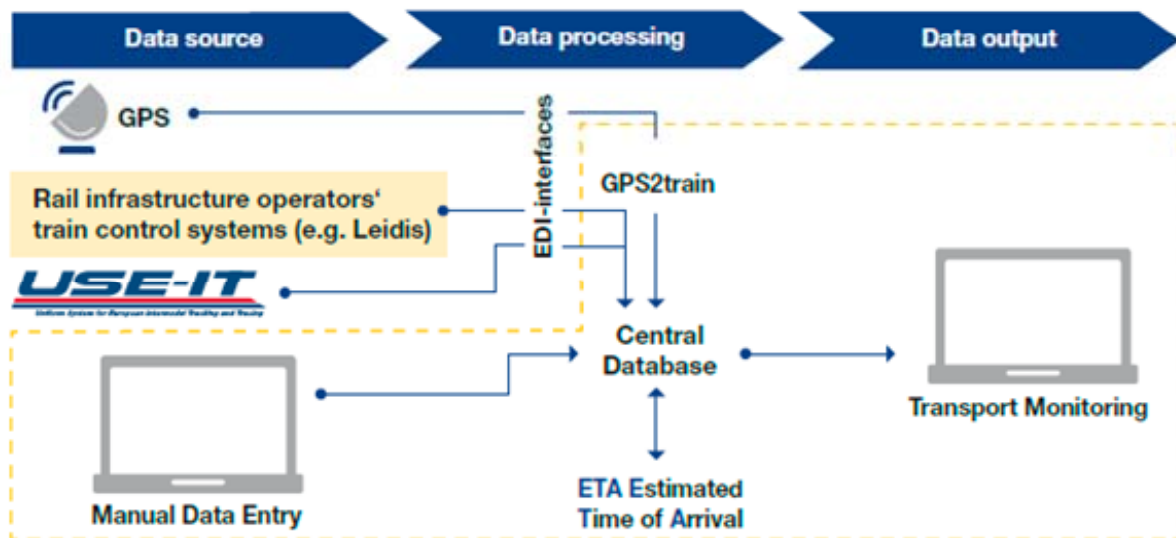
- Exchange of further train operation information, e.g.
 - Irregularities;
 - wagon detachments.
- Data storage in the joint Train Monitor database
- Information channels
 - Display of data within Train Monitor;
 - Email notifications to recipients;
 - Interfaces to other IT systems.

File&View



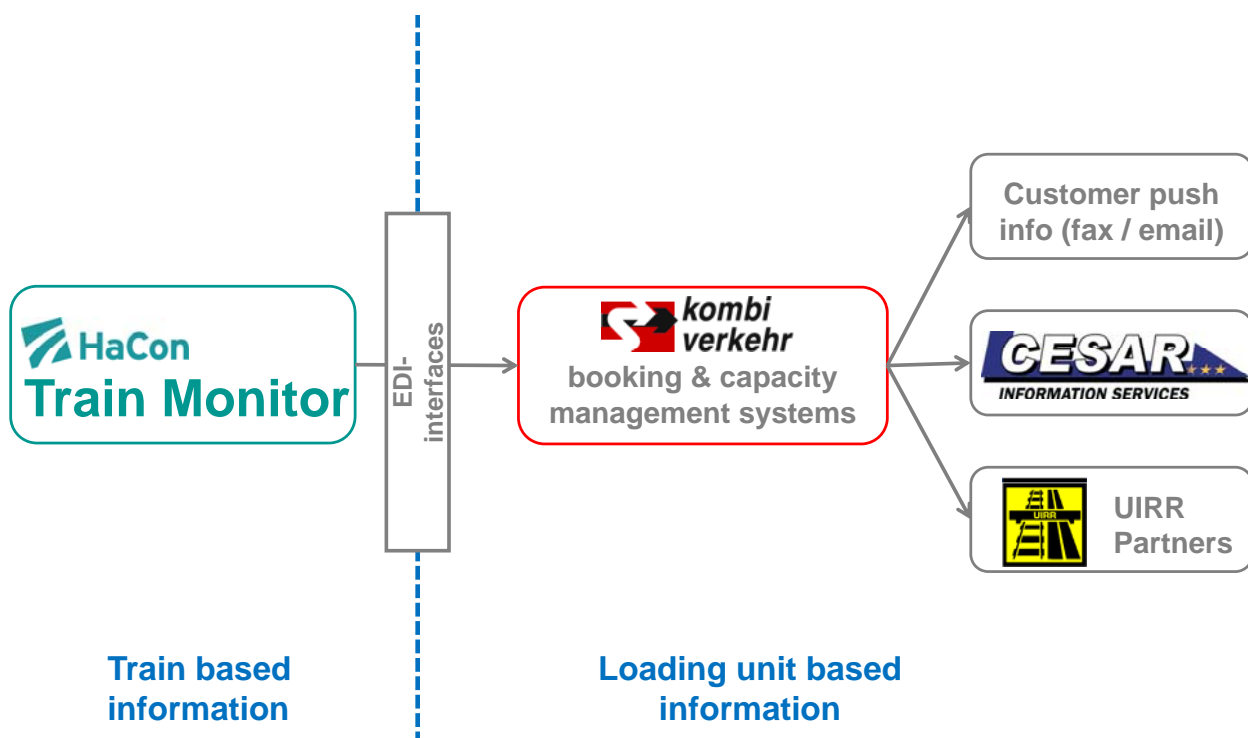
- All data of operated trains is stored in a database
- Detailed analyses of previous train runs/operations;
- Individual quality statistics (for single trains or for groups of trains).

Train Monitor – EDI concept



- Further data sources possible, e.g. from RNE TIS

Real-time customer information

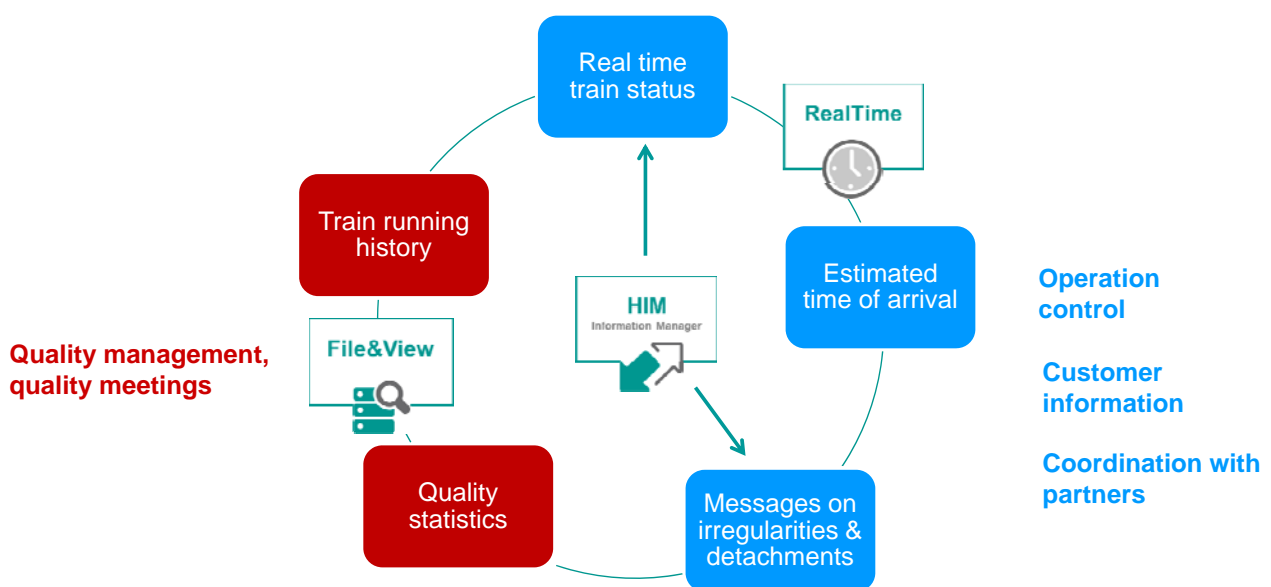


Train Monitor implementation

Kombiverkehr

- Pilot system developed and operated within the CREAM project (2007-2011) in collaboration with Kombiverkehr
- Monitoring of roughly **160 trains per day**.
- Train Monitor is mainly used by the employees in the Kombiverkehr **transport monitoring centre**.
- Train Monitor enabled a partial automation of processes e.g. for the generation of quality statistics, data gathering and distribution.
- After full implementation of Train Monitor these employees are able to organise their daily work more efficient. Consequently they can concentrate their efforts on other purposes e.g. for resolving specific problems in the operation.

Train Monitor components and purposes



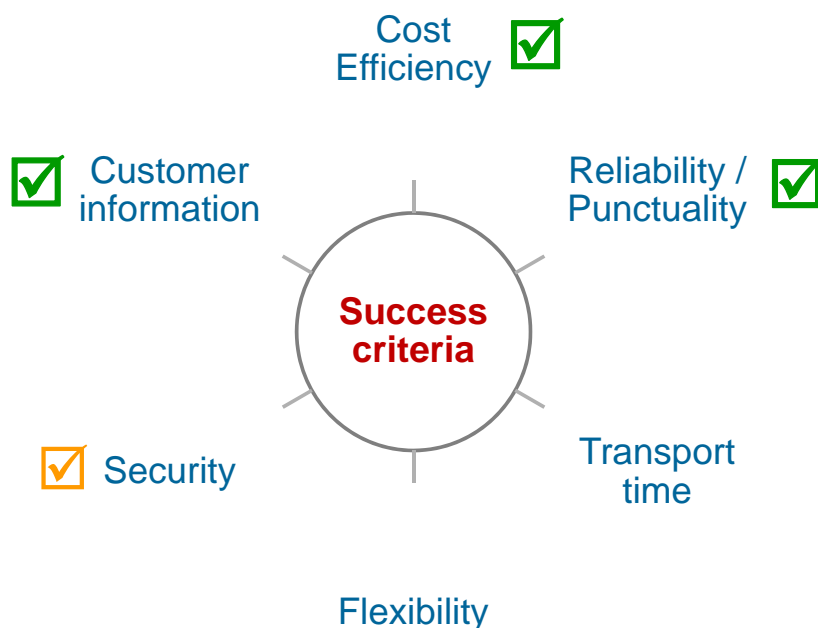
Train Monitor implementation

Requirements for full exploitation of system capabilities

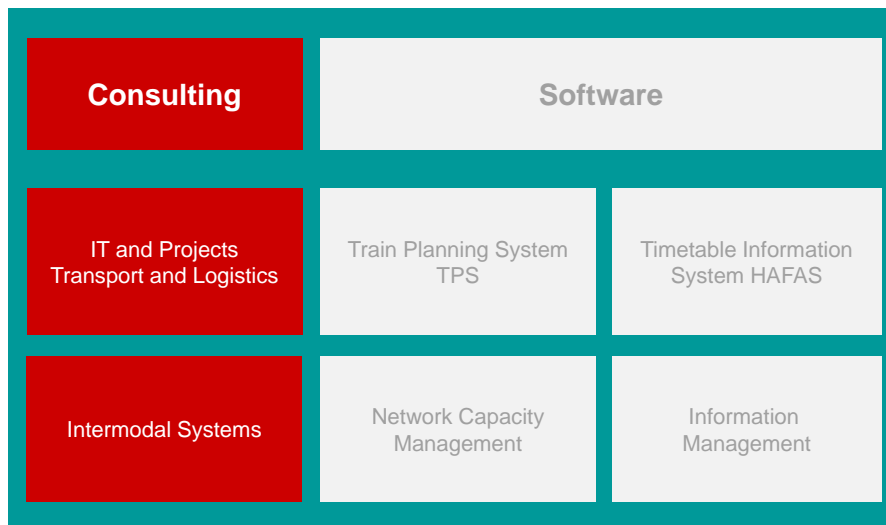
- Secure reliable data feeding of system
- Coordinate information procedures with operating partners; prevent alternative information flows
- Integrate system in working / QM processes; if necessary amend processes
- Ensure continuous system developments according user needs and changing framework conditions, e.g. TAF-TSI, Apps, further features and viewing options,...

Main mode decision criteria

Contributions with regard to market requirements / success criteria



HaCon company profile



Contact:



Niklas Galonske
Consulting Transport & Logistics

HaCon Ingenieurgesellschaft mbH
Lister Str. 15
D-30163 Hannover
Germany

Fon: 0511/3 36 99-134
Fax: 0511/3 36 99-99
niklas.galonske@hacon.de
www.hacon.de