

Some Information Aspects of Railway Infrastructure Charging in Czech Republic

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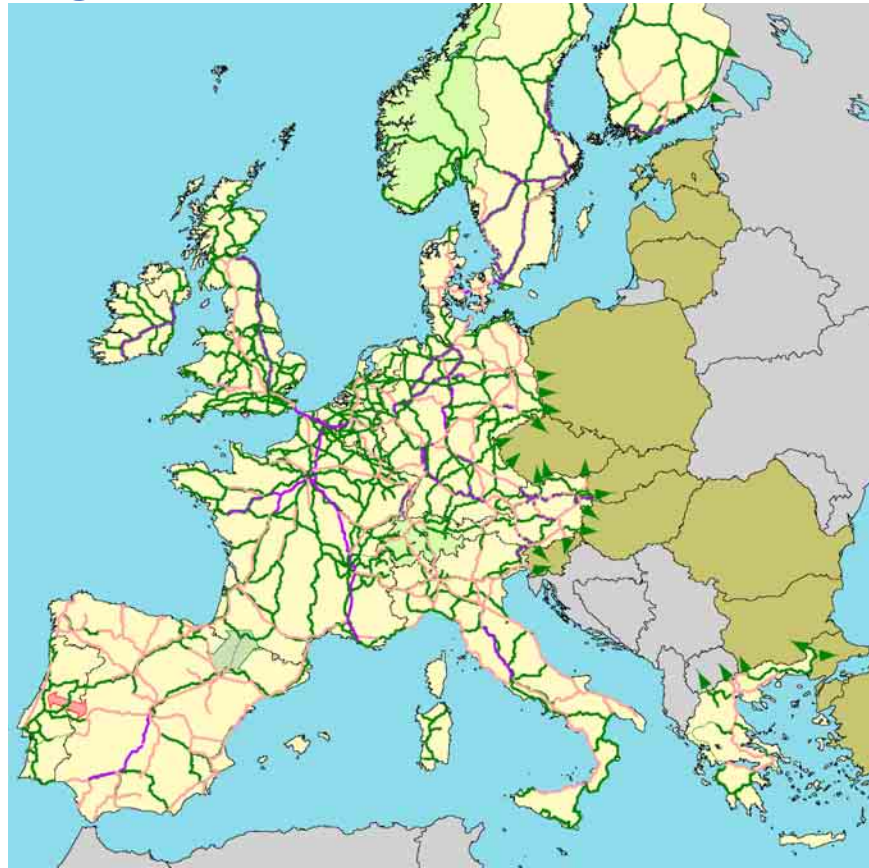
Introduction

- České dráhy, joint stock company (ČD a.s.) - Czech Railways
- DATIS o.z. – separated institution for the data and information services and telecommunication
- IS ČD – ČD's computer-based information system
- railway infrastructure IS, superstructure
- international projects EICIS, TER

Charging as the information problem

- information = data for decisions making
- charging: railway infrastructure x transport, for whom, end query user
- organization – subjects: OSS, ČD, SŽDC, other business and inf. partners
- interaction – with whom and how?
government assessments, EICIS, TER, IS ČD etc.
- interdependence – coordination by whom?

Trans-European Transport Network Railways ~ Outline Plan till 2010





České dráhy a.s.

1

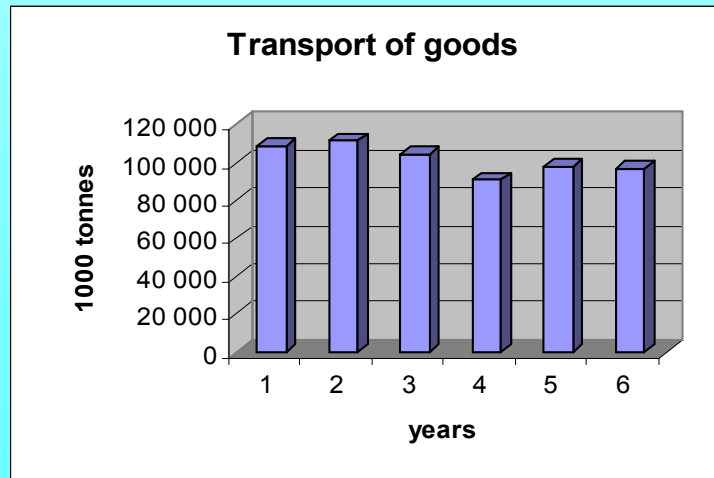
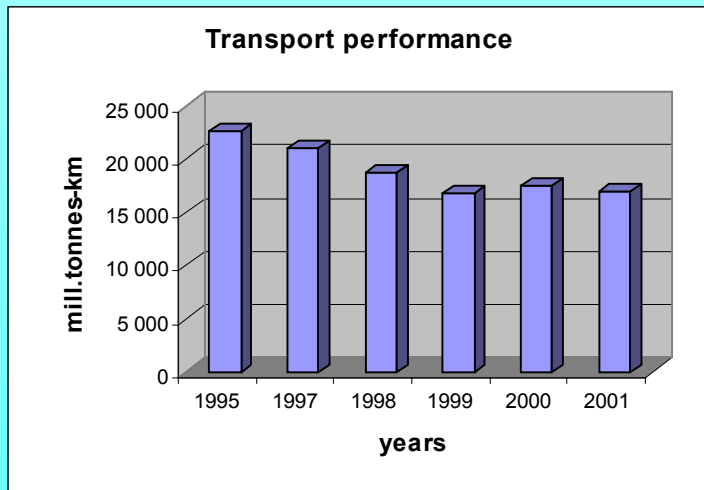
- successor of the former Czechoslovak Railways (ČSD – since 1918, 1st railway since 1832 – horse, 1839 – steam, 1903 – electrified line)
- the greatest amount of railway activities among all railway operators in ČR
- joint stock company : Act No.266/1994 Coll. changed by Act No.77/2002 Coll. – I. 2003
- since January 2003 the economic operation of ČD a.s. is no longer burdened with operating expenses and costs on maintenance and development of the route



České dráhy a.s.

2

- the government held a 100% interest in ČD
- length of operated state lines - 9 523 km
- electrified lines - 2 893 km
- **MDS's transport statistics 2001**



Project PHARE CZ 02-03-01

the network for the international transport AGC,
AGTC, TER, EICIS, EU interoperability, etc.

Správa železniční dopravní cesty

- Railway Route Administration, state organization (SŽDC s.o.)
- action on behalf of the government in performing the duties of the owner with respect to the railway route
- management of assets that constitute the railway lines
- administration of payables and receivables discharged from former ČD s.o.

Other subjects

- leased regional railway lines owned by the State and private railway lines
- Regional Authorities – transport services
- Railway Office – licences etc.
- Ministry of Transport
- Ministry of Finance
- Parliament, Government
- international institutions etc.

Infrastructure Charging System 1

- the computational formula

$$C_m = S_1 \times b \times L + \frac{Q}{1000} \times S_2 \times [L - L_e (1 - e^p)]$$

- **S_1** - a price for *1 train km* ,
- **b** – a coefficient taking into account the weight of trains,
- **Q** - the gross weight of a train, in tons
- **S_2** a price for *1000 gross tkm* for a particular type of train
- **L** - the distance of trains running, in kilometers
- **e** - coefficient taking into account active motive power units of independent traction on electrified lines
- **p** - the number of motive power units referring to the coefficient **e**

Infrastructure Charging System 2

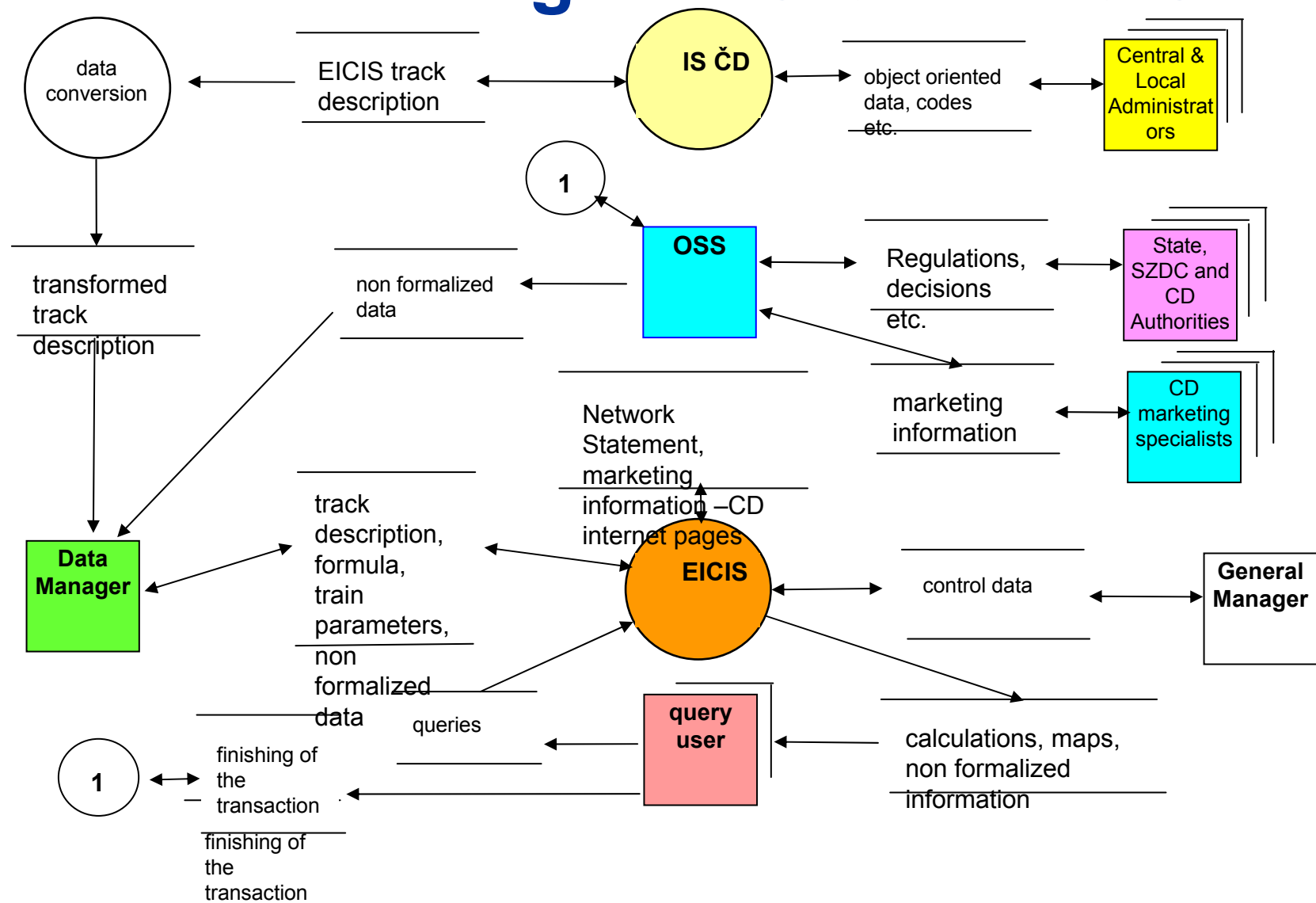
- internal method using for the international purposes
- track categorization (3 categories based on construction and operational principles)
- transported good categorization (8 categories based on universal statistical principles)
- other charging possibilities – train categorization, station time, transport time,
- possibilities of the choice (route, speed etc.)

EICIS

European Infrastructure Charging Information System

- the project especially focused on OSS functions
- purchase order was done by UIC
- supply house is TLC GmbH, subsidiary of DB Systems GmbH in Austria
- ČD international part of the network : 113 line sections with their length (accuracy 1 meter and GPS latitude and longitude coordinates of the nodes, 3 main line attributes etc.)
- coefficients for the formula

Data flow diagram IS ČD - EICIS





Trans European Railway (TER)

- construction and operational state of the Pan – European Transport Corridors and building processes realized on them monitoring
- ECE UN, Steering Committee and Project Central Office, resident in Budapest
- network database and its computer-based support
- railway infrastructure and transport operation description

Conclusions

- law basis of the railways behaviour and their organizational structure are all over the Europe reformed
- necessity of the railway charging methods standardization for computer-based IS
- railway infrastructure charging system needs attention not only from the operational or economical point of view, but from the information one too
- international co-operation and experience exchange is very useful