



XIII
INTERNATIONAL
WINTER ROAD
CONGRESS

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Québec 

SUSTAINABLE WINTER SERVICE FOR ROAD USERS

*Potential of Automatic Field Data Capture in
Winter Maintenance on Roads*

Rainer Hess

Durth Roos Consulting GmbH,
Karlsruhe, Germany

Partner and authorised signatory

rainer.hess@durth-roos.de

Durth Roos Consulting GmbH 

Possible Goals

tasks of operational data capture:

- operational documentation to produce evidence
- documentation of work for accounting services
- analysis for economic control

expectations of automatic capture:

- simplification of the documentation and evaluation process
- reduction of work load and increase of accuracy



Requirements by German Law

tasks and obligations of public bodies

- availability of traffic infrastructure
- maintain safety of the existing traffic infrastructure
 - ⇒ necessity of winter road maintenance



How it is Done Today

- manually planned or software-based modeling
- handwritten reports
- manually evaluation and archieving
- software-based accounting

calculation of salaries

Hess:
Verkehrsverwaltung

Pol. Kennzeich
Fahrer:

invoice to the public authorities

Datum Uhrzeit km - Stand

Einsatz Ende
Einsatz Anfang
..... Std. km

WINTERDIENSTBERICHT

working hours, additional charge...

Einsatzzeit			Zuschläge			
Streustd.	Räumstd.	Wartezeit	Üb.	Na.	So.	Fel.
B/L						
K	time of operation...					

Salzverbrauch: to.
Nach salt consumption is auf
seinem Straßenschnittst die Iv. der Straße
festzusetzende Literzahl eintragen.
Das Gleiche gilt für die Zentren.
Berechnungsdienst = B. - Räumen = R.

salt storage and procurement

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WETTER

trocken
 Nieselregen
 Regen, gefrierend
 Schnee
 Schneetreiben, leicht
 Schneetreiben, stark

STRASENZUSTAND

Rauhref
 Neuschnee
 Schneeglätte
 Schneematsch
 Schneeverwehung
 Glätteis

Bemerkungen:

Für das ASV / Für die Firma - der Fahrer
Für das ASV - der Beifahrer

Operational Documentation

record of:

- tour (time and position)
- operational status of the accessory equipment
- weather and road surface condition

⇒ produce of evidence

⇒ combination of different data



Accounting Services

automatic operational data capture accelerates the financial (post-) processing of:

- employees' salaries
- private haulage companies
- service on roads of other public bodies

⇒ possibility of vehicle- and individual-related evaluation



Operational Management

economic control of operational road maintenance

⇒ to assess the resources of personnel, vehicles, equipment and grit

various levels supporting the management:

- operative level
- analysis of the work process and optimisation of the costs
- strategic level



Automatic Field Data Capture

contemporaneously recording:

- driver concentrates on his core duties
- complete and accurate records

offered by winter maintenance equipment manufacturers and independent telematics companies



Position Determination

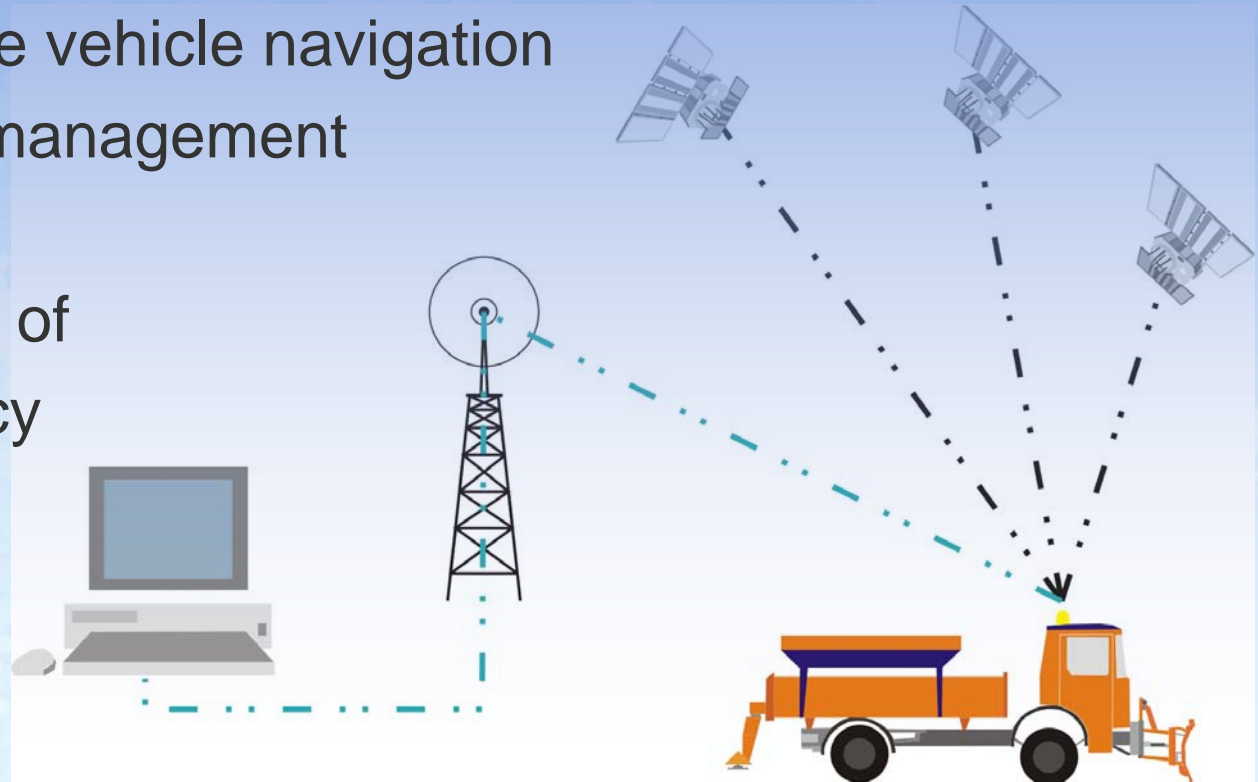
recording of the tour (automatic vehicle location)

⇒ basis of operational data capture

examples and experience:

- private vehicle navigation
- fleet management

reduction of
inaccurecy



Operational Data

technical workflow:

1. coupling of time and position
2. recording of the operational status of the accessory equipment
3. archiving of information

⇒ documentation and evaluation

⇒ very different solutions on the market

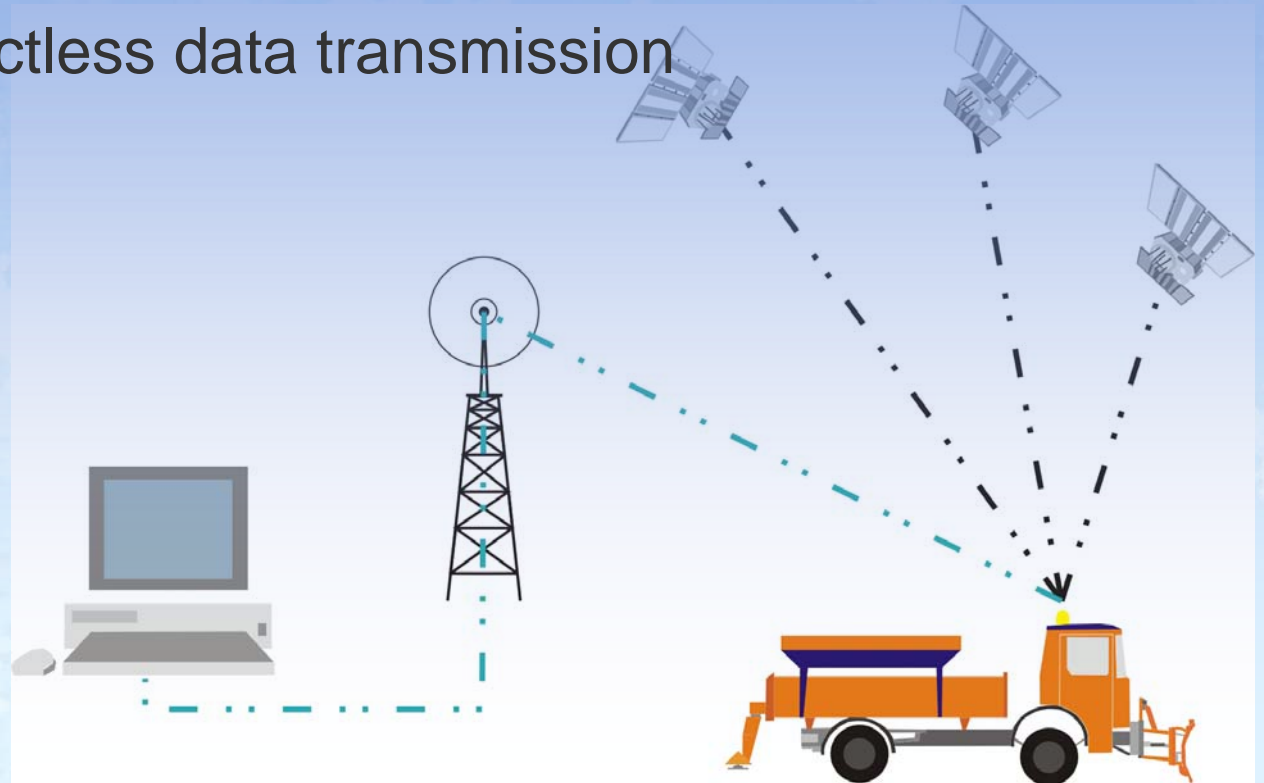
⇒ care for long availability



Data Transfer

transmission from the vehicle to a central data processing system

- physically connected transmission paths
- contactless data transmission



Compatibility and Robustness

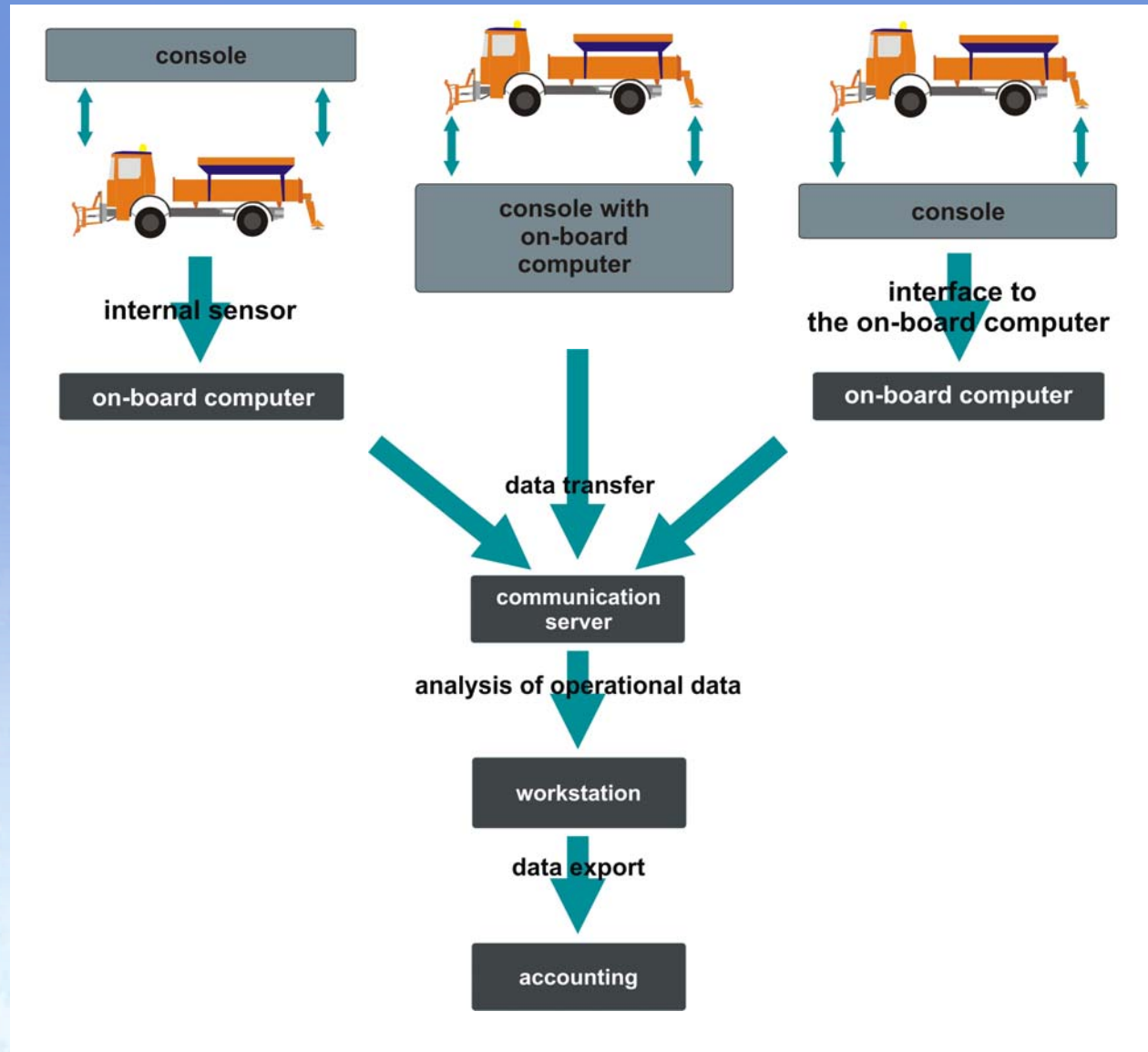
accessory equipment

- interfaces integrated
- interfaces can be retrofitted
- independent sensors

intention of CEN/TC337:

standardization and simplification of the exchange of data from accessory equipment and systems for operational data capture

System Principle



Experiences in German States

a few federal states have actual experience:

- use on regular basis
- test projects

different expectations result in different ratings of the (test-) operations



Experiences in German States

difficulties

- compatibility problems
- transmission difficulties
- scepticism on the part of employee representatives

technical possibilities and limitations as well as acceptance among the employees



Recording Workers Activity

individual-related evaluation:

recording of certain parameters is unwanted

⇒ for fear of data abuse

⇒ accurate consideration of the specific parameters



System Requirements

- uniform system
 - simple equipment and software
 - web-based
 - compatibility
-
- ⇒ data availability
 - ⇒ accuracy of data
 - ⇒ robustness of technology

Summary

recording of time, position and additional parameters (during operation):

- ⇒ result in a very specialized system
- ⇒ independent data transmission

data evaluation (after operation):

- improvement
- support
- storage

⇒ **benefit for traffic safety and state budgets**



Thank you for your attention!

