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Verband der Baubranche,
Umwelt- und Maschinentechnik e.V.



Standardisation of construction equipment telematics data

ERA Convention, Rome

03th - 04th June

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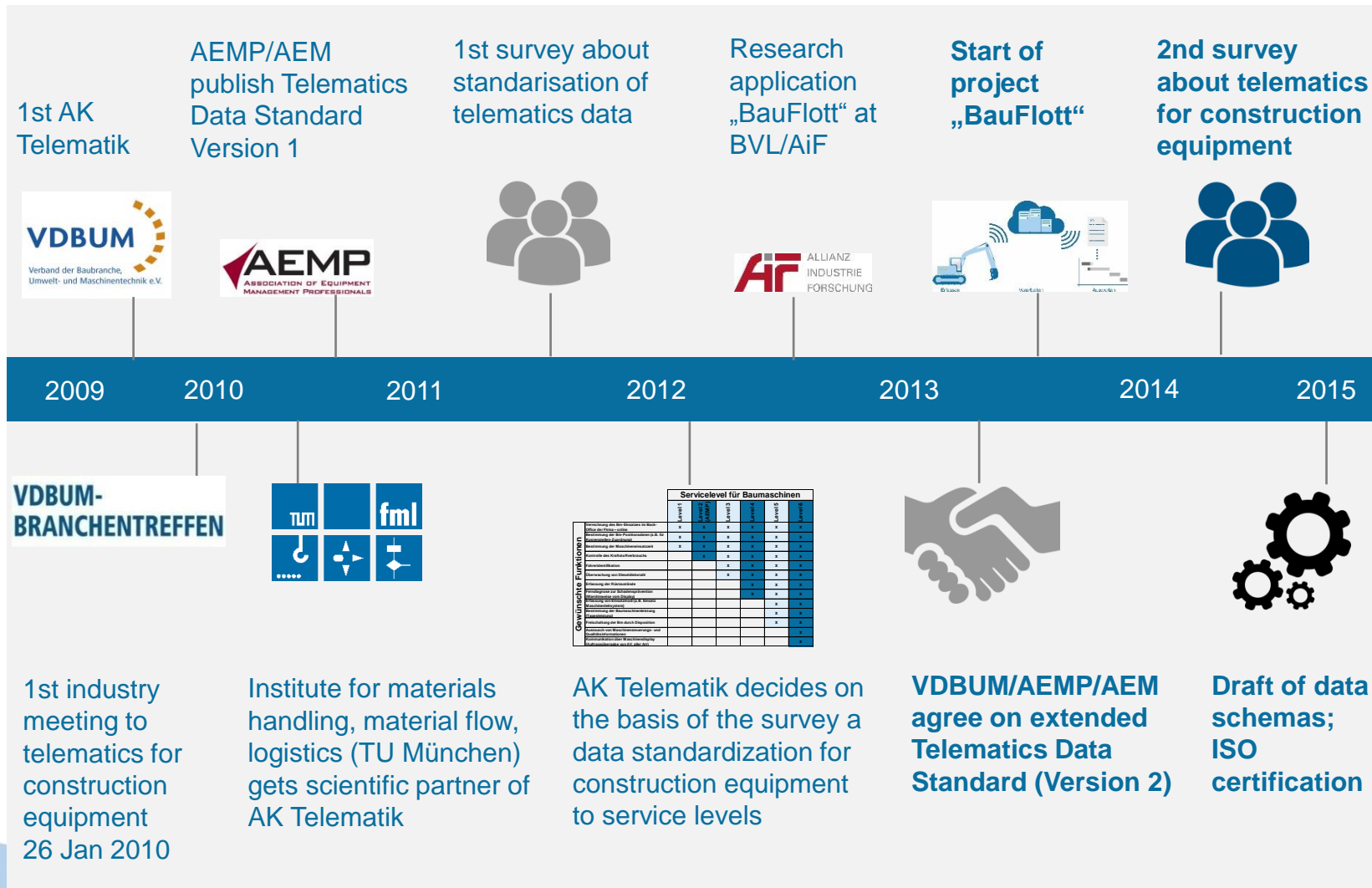
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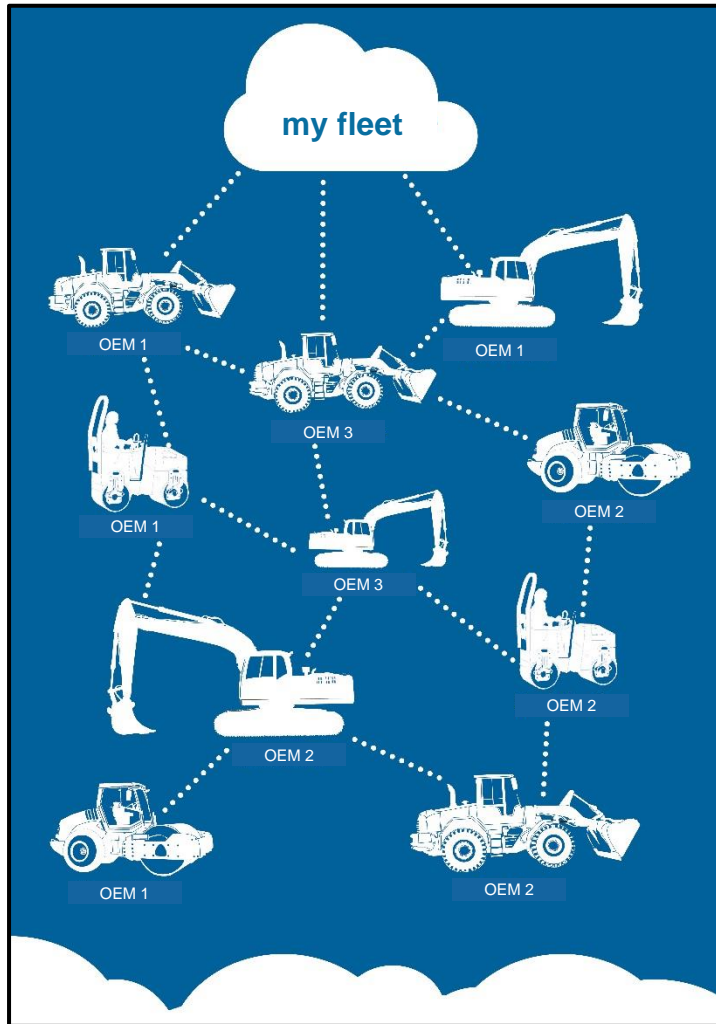
Agenda:

- **Background**
- **AEMP Telematics data standard version 2.0**
- **Research project „BauFlott“**

History of telematics data standardisation in Germany



AEMP/AEM Telematics Data Standard



Standardization of telematics data

What?

- Definition of condition and performance data for the purpose of providing data from the OEM to the equipment owners
- The aim is to develop fleet management systems for mixed construction machines

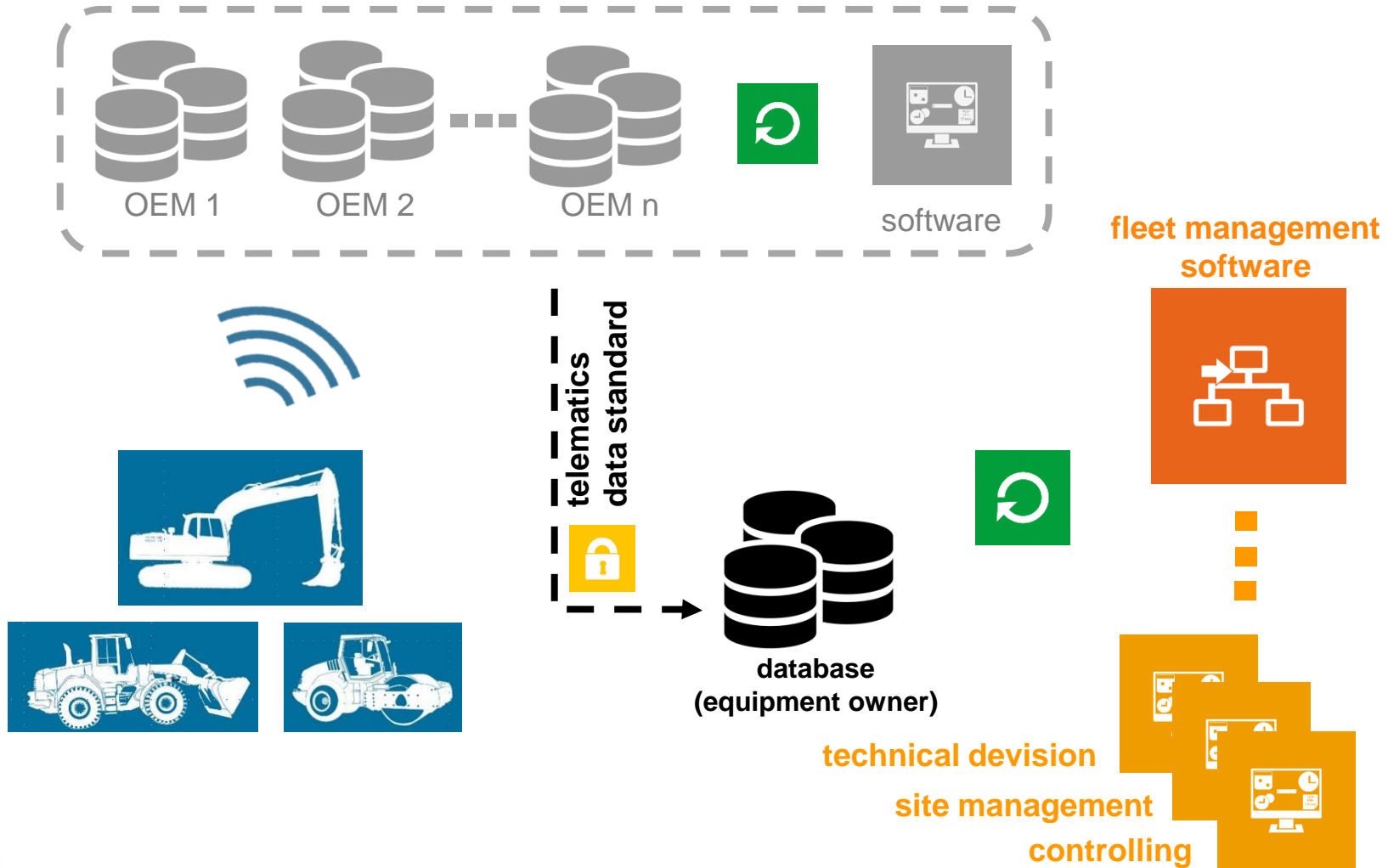
How?

- follows on the next slide

Who?

- Caterpillar/Zeppelin
- John Deere
- Volvo
- Wacker Neuson
- Liebherr
- Vögele
- BOMAG
- Kiesel

AEMP/AEM Telematics Data Standard – technical implementation



AEMP/AEM Telematics Data Standard – Version 1

Data	Specification
asset header Information	Telematics unit installation date; name of manufacturer; model; ID; serial number
last known location	Geographical latitude, longitude and altitude of the last known location
cumulative operating hours	Current total lifetime operating hours
cumulative fuel used	Amount of fuel the asset has used during the lifetime
fuel used in the last 24 hours	Amount of fuel the asset has used during the last 24 hours
cumulative distance travelled	Distance the asset has travelled during the lifetime

AEMP/AEM Telematics Data Standard – Version 2



Data	Specification
cumulative idle operating hours	Defined by the OEM
percent of fuel remaining	Fuel level remaining % in the fuel tank of the asset
is engine running	Indicator of the current status of the engine
is switch on	Current status of a digital input of the telematics device (e.g. sensor on the accelerator pedal → Information if the accelerator pedal is pushed or not during a defined period)
cumulative power take off hours	Cumulative lifetime of power take off hours in relation to the cumulative operating hours
average daily load factor	Ratio of the average load factor to the assets maximum possible load
Maximum daily travel speed	Maximum travel speed of the asset per day
Cumulative load count	Cumulative amount of loads the asset has performed
Cumulative payload total	Cumulative amount of payloads the asset has moved in „tons“ or „kilograms“
Cumulative active regeneration hours	Current lifetime of total active regeneration hours
fault codes	Fault codes defined by the OEM; fault severity; description of fault; ambient air temperature

Research project „BauFlott“

Title: Development of a fleet management system for construction equipment

Research: Institute for materials handling, material flow, logistics (Technische Universität München)

Founding: German Federal Ministry of Economic Affairs and Energy

Initial situation:

- In the commercial vehicle sector, telematics and fleet management systems are already widespread.
- Fleet management systems for mixed fleets of construction equipment are currently only limited available.
- low transparency by the use of construction equipment
- a lot of paper-based processes



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Supported by:



Initiative of a decision
German Bundestag

Objectives

Main objective

- recording and analysis of equipment data in fleet management systems from assets in a mixed fleet
- enables equipment owners to plan and manage the use of their equipment efficiently

Technical objectives

- recording of daily performance on the basis of the production data
- monitoring of machine status
- disposition of construction equipment

Economical objectives

- process controlling
- paperless billing in the back-office
- analysis of machine use across sites

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Results of survey about telematics data applications for construction equipment



Objectives of the survey:

- Overview about the current usage of telematics applications in the construction industry
- Determination of practical requirements in terms of functions of a fleet management system

Umfrage zu standardisierten Telematiksystemen

Seite 2 von 6 | Fragebogen speichern

Allgemeine Informationen

1 Nutzen Sie bereits ein Telematiksystem?

☐ ja ☐ nein

Falls Sie ein Telematiksystem nutzen, beantworten Sie bitte die Fragen 2-5, ansonsten weiter mit 6.

2 Welchen Typ eines Telematiksystems nutzen Sie?

(Mehrfachnennungen sind möglich)

☐ Eigenes System eines Baumaschinenherstellers

☐ Telematikdienstleister

☐ Sonstiges

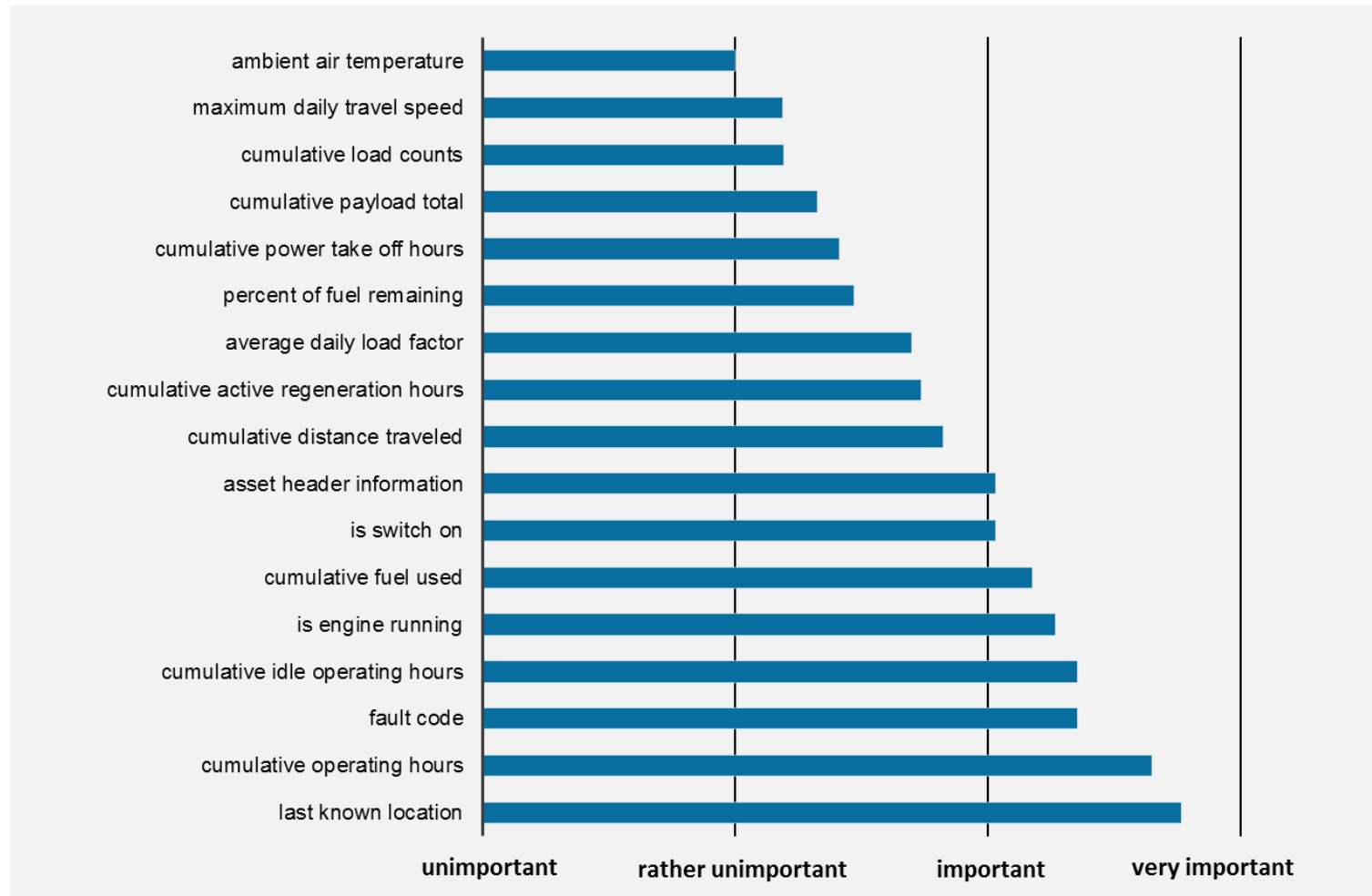
3 Von welchem Unternehmen ist Ihr Telematiksystem und wie heißt dieses?

Mehrfachnennungen sind möglich

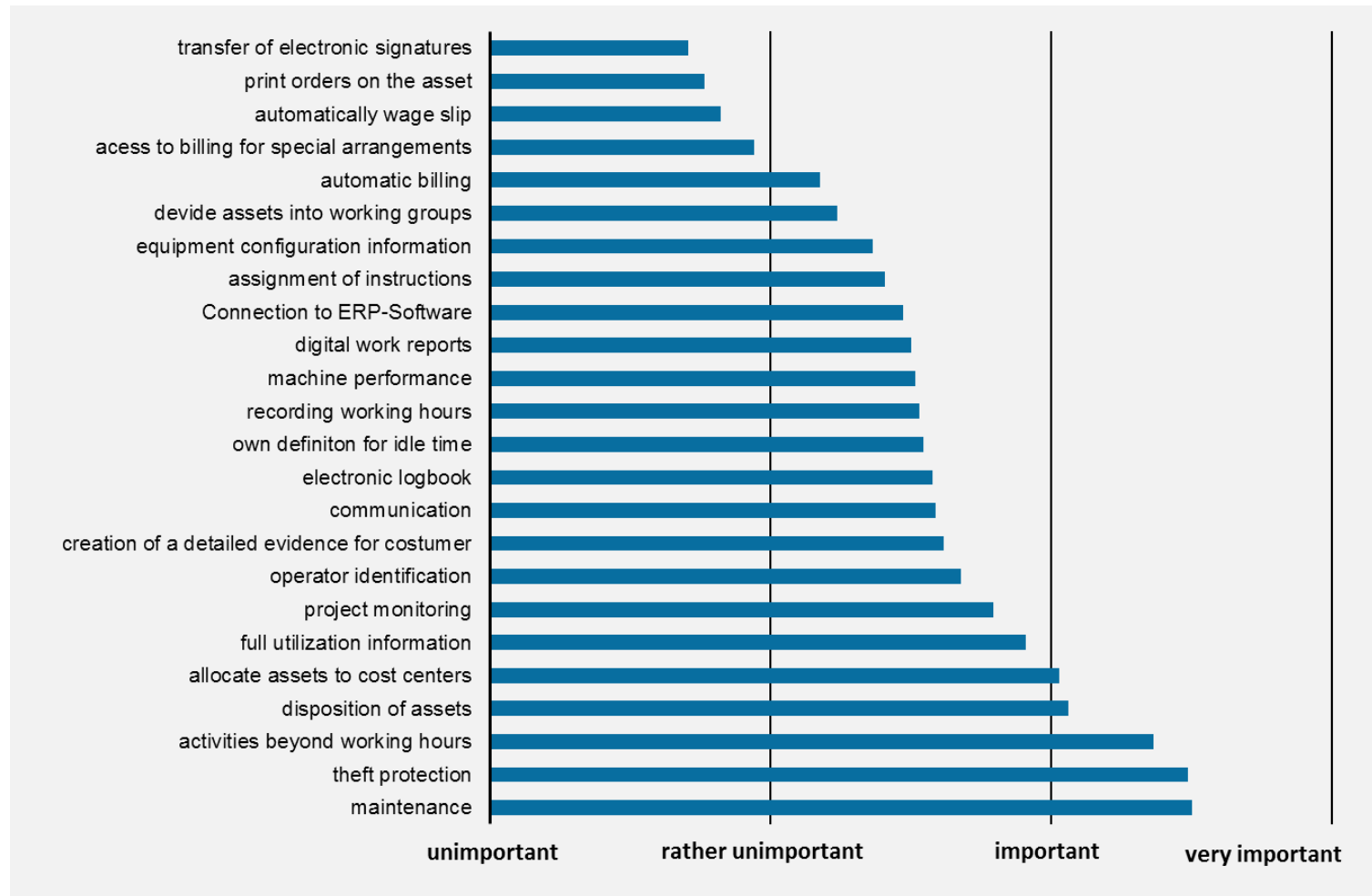
Results of the survey:

- use of telematic systems is widespread in the construction industry
- mainly used for monitoring of machine status, disposition of construction equipment, controlling
- Less used for further activities (e.g. project monitoring)
- Contractors focus currently to survey the machine status
- Outlook: Link of machine operations and the work tasks on site for project monitoring

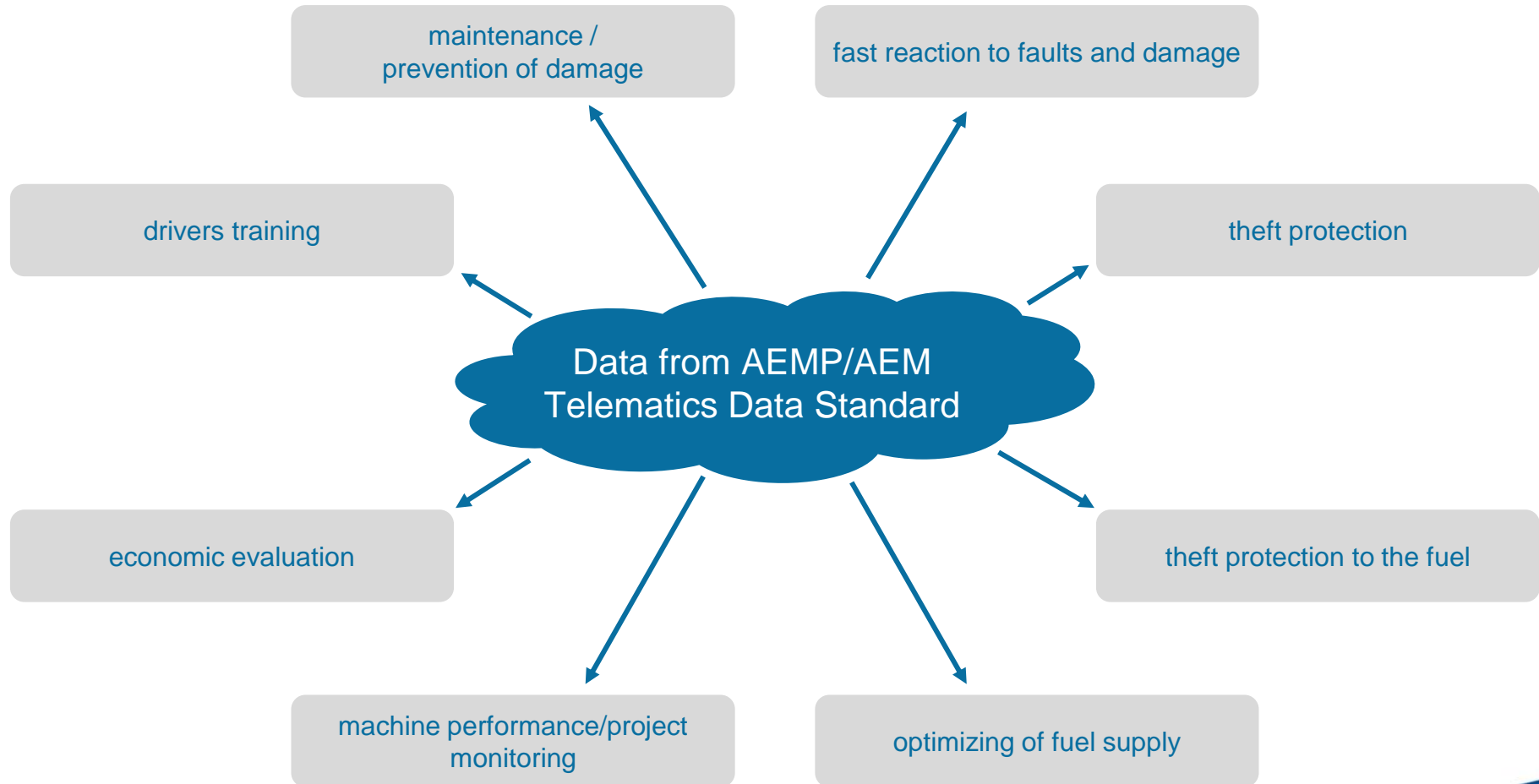
Results of survey – valuation of telematics data standard



Results of survey – valuation of further necessary functions



Possible applications of the currently telematics data standard



Thank you for your attention!

For more information about the reasearch project „BauFlott“ please contact:

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