



## Development and Implementation of Services for Sustainable Timber Supply Chain Planning and Control

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### Timber Supply Chain

- ▶ 11.1 million hectares of forest (approx. 31% of the total area)
- ▶ 2 million forest owners
- ▶ 185,000 enterprises with more than 1.3 million employees
- ▶ Primarily micro, small and medium-sized enterprises



(Source: <http://www.wald-zentrum.de/pdf/projekte/Clusterstudie.pdf>)

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### Enterprises in the Wood and Biomass Sector (Overview)

	Enterprises	Employee	Ø Number of Employees/Enterprise
<b>Forestry</b>	<b>36 111</b>	<b>98 009</b>	
Forestry	28 821	75 000	2.5
Forest service providers	7 290	23 009	3.2
<b>Wood Processing Industry</b>	<b>2 128</b>	<b>40 978</b>	
Sawmill industry	2 010	24 118	12
Timber products industry	118	16 860	168
<b>Paper Industry</b>	<b>999</b>	<b>139 563</b>	
Pulp manufacturers	8	1720	215
Paper manufacturers	195	43 881	
Paper processing	796	93 962	
<b>Timber Trade and Transport</b>	<b>2 850</b>	<b>35 500</b>	
Timber trade	1 850	32 500	
Timber transport	1 000	3 000	3

(Source: Federal Statistical Office)

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### Challenges for the Landesforstbetrieb Sachsen-Anhalt

- ▶ Structural reform of the Landesforstbetrieb
  - ▶ Fewer forestry workers and staff to manage, control and monitor logistics processes
  - ▶ Larger area to manage

▶ **Solutions to implement electronic information exchange in the timber supply chain**


Forestry worker/1000 ha	6,5	3,0	1,0
Administration/1000 ha	3,5	2,2	0,7
No district director	2,4	1,6	0,4
District area	1.100	1.650	2.700
Cut per district	4.000	6.500	13.000
Cut per forest office	30.000	50.000	120.000

Source: Landesforstbetrieb Sachsen-Anhalt

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### Solutions




**Industry Solution**

- ▶ Complex, since individual enterprises normally have a larger scope of operations
- ▶ Necessitates use by a large number of actors
- ▶ Other industry examples do not function



**Integrated Solution**

- ▶ Difficult to integrate in heterogeneous IT systems
- ▶ High (follow up) costs and running expenses
- ▶ Service provider is dependent on operator (model)




**Integrative Solution**

- ▶ Modular customized solutions
- ▶ Coexistence of solutions available and in use
- ▶ Integration through interfaces

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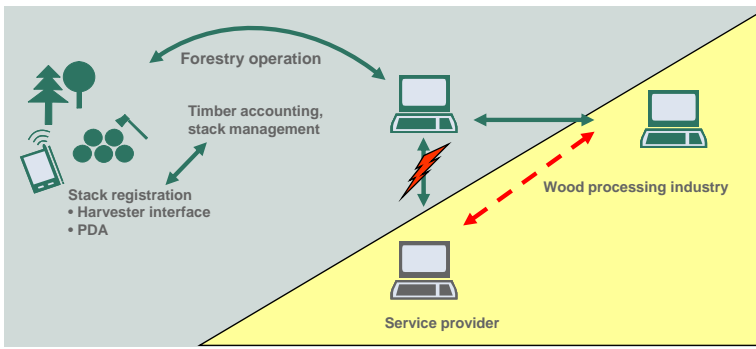
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### Opportunities and Risks of an Integrative Infrastructure

- ▶ The rapid use of technical options through appropriate models accessible by every (direct) partner presents an opportunity
- ▶ Shifting the expenditures holds risks

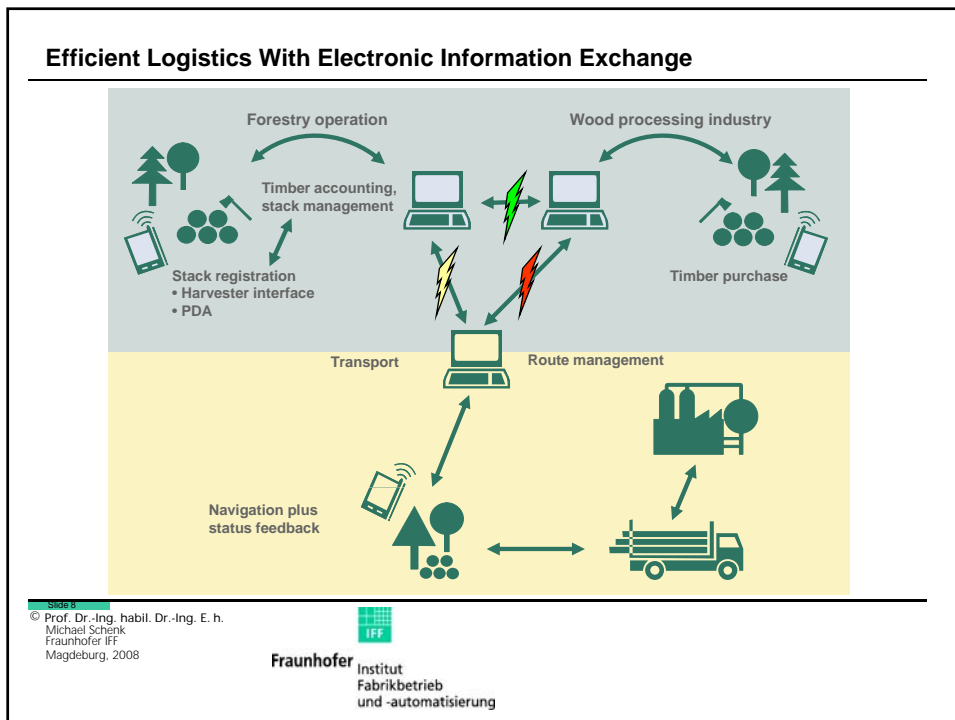
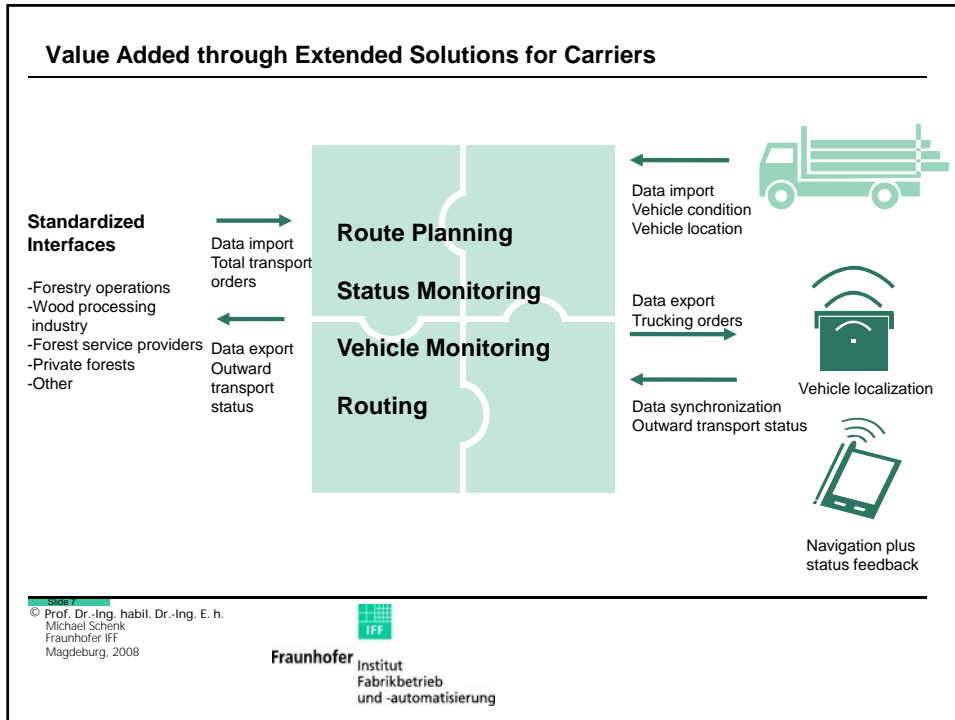


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## Conclusion and Outlook

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- ▶ Implementation of electronic data exchange is necessary for state forests
- ▶ Success only by integrating all actors
- ▶ Establishment of a basic infrastructure particularly among the smallest actors in the timber supply chain
- ▶ Well considered IT concepts matched to the processes and parties involved (internal staff, service providers, customers, etc.)
- ▶ Definition and/or extension of industry standards (ELDAT, Geodat)
- ▶ Minimization of risks by shifting expenditures

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