

Wir machen Schifffahrt möglich.

Inland Waterway Transport

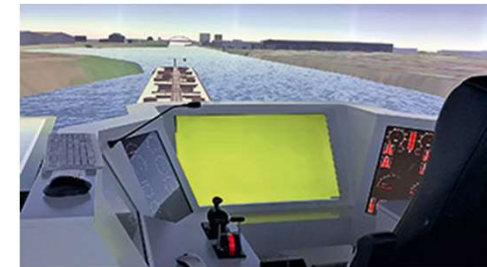
Projects, Regulations and possibilities



Wir machen Schi

Content

- Current funded and associated Projects
- Legal regulations
- Technical regulations



Current funded and associated Projects



Goal: Increasing the future viability of inland shipping in the competition between modes of transport

Content: Development and testing of automated and autonomous driving and associated innovative transport concepts

To date:

- 15 projects
- approx. 27 million € funding
- Duration 06/2020 to 12/2027

Legal Regulations (1/3)

multiple parallel regulatory Frameworks:

- **Rhine Navigation**

- Traffic- and policing-regulations in RheinSchPV
- Regulations are issued and ammended by ZKR/CCR

- **Extra-Rhine Navigation**

- Traffic- and policing-regulations in BinSchStrO
- Regulations are issued and ammended by BMDV



Legal Regulations(2/3)

Further regulatory Frameworks:

■ Moselle Navigation

- Traffic- and policing-regulations in MoselSchPV
- Regulations are issued and ammended by Moselle-commission

■ Transport of dangerous Goods

- Only Few special Traffic- and policing-regulations in ADN
- Regulations are issued and ammended by UN-ECE

■ Maritime Waterways Navigation

- All Waterways classified as „Zone 1“ or „Zone 2“
- Traffic- and policing-regulations in SeeSchStrO
- Regulations are issued and ammended by BMDV

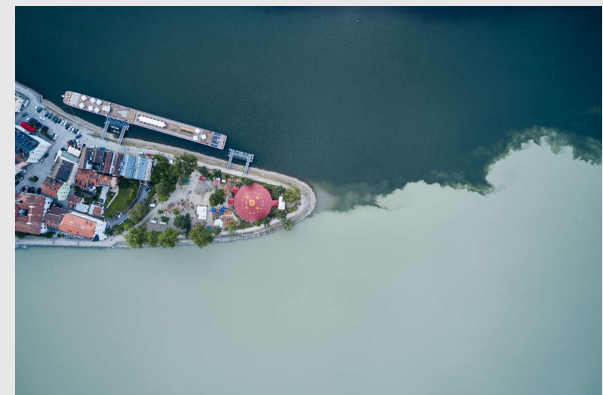


Legal Regulations(3/4)

- Mayor Issues in most Traffic- and policing-regulations
- Examples:
- Who is responsible Skipper?
- i.e. Who is liable?
- Who has policing Jurisdiktion?
- etc.
- ZKR/CCR ammended RheinSchPV to counter.

Art. 1.26 was created

- mandates the competent Authority to allow pilot-projects when a recommendation of the CCR is issued.
- Similar for Extra-Rhine Waterways and soon Moselle



Legal Regulations(4/4)

Waterway	Projects Possible	Regulation	Article	Competent Authority	Remarks
Rhine	YES	RheinSchPV	1.26	ZKR/CCR	Until LoA2
Extra-Rhine	YES	BinSchStrO	1.28	GDWS	Until LoA2
Moselle	NOT JET	MoselSchPV	Coming soon	NN	
Maritime Waterways	NOT JET	SeeSchStrO	Coming soon	NN	
Dangerous Goods	NOT JET	ADN	-/-	GDWS	Deemed inappropriate

Technical Regulations (1/4)

Two parallel regulatory Frameworks:

- **Rhine Navigation**

- Technical-regulations in ES-TRIN
- Exemptions and/or deviations only possible with „recommendation“ of CESNI-committee

- **Extra-Rhine Navigation inkl. Moselle**

- Technical-regulations in ES-TRIN
- Less strict requirements or reliefs possible for vessels, only navigating Waterways, within federal Republik of Germany
- Exemptions and/or deviations only possible with „recommendation“ of BMDV

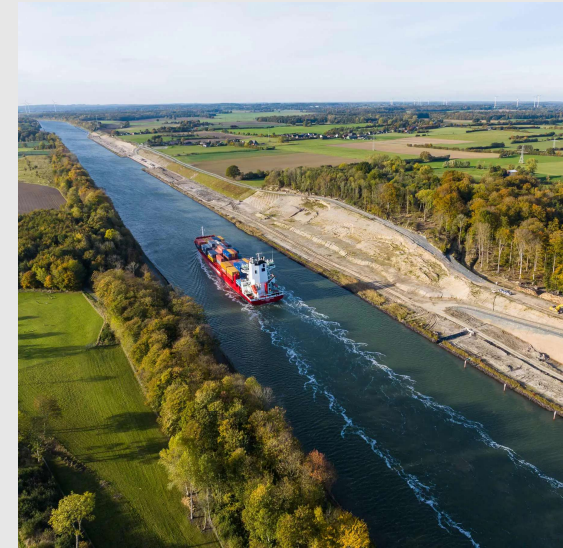


Technical Regulations (2/4)

Two parallel regulatory Frameworks:



















- **Maritime Waterways** Technical-regulations in BinSchUO
- Exemptions and/or deviations only possible with „recommendation“ of BMDV

- **Dangerous Goods**
 - Technical-regulations in ADN-Regulation
 - Exemptions and/or deviations only possible with „recommendation“ of recommendation“ of Dept S12 of the GDWS (as competent Authority)



Technical Regulations(3/4)



	Level of automation ¹	Designation	Craft command (steering, propulsion, wheelhouse, etc.)	Monitoring of and responding to navigational environment	Fallback performance of dynamic navigation tasks
BOATMASTER PERFORMS MOST OR ALL OF THE DYNAMIC NAVIGATION TASKS	0	NO AUTOMATION the full-time performance by the boatmaster of all aspects of the dynamic navigation tasks, even when supported by warning or intervention systems			
	1	STEERING ASSISTANCE the context-specific performance by a <u>steering automation system</u> using certain information about the navigational environment and with the expectation that the boatmaster performs all remaining aspects of the dynamic navigation tasks			
	2	PARTIAL AUTOMATION the context-specific performance by a navigation automation system of <u>both steering and propulsion</u> using certain information about the navigational environment and with the expectation that the boatmaster performs all remaining aspects of the dynamic navigation tasks			
SYSTEM PERFORMS THE ENTIRE DYNAMIC NAVIGATION TASKS (WHEN ENGAGED)	3	CONDITIONAL AUTOMATION the <u>sustained</u> context-specific performance by a navigation automation system of <u>all</u> dynamic navigation tasks, <u>including collision avoidance</u> , with the expectation that the boatmaster will be receptive to requests to intervene and to system failures and will respond appropriately			
	4	HIGH AUTOMATION the sustained context-specific performance and <u>fallback performance</u> by a navigation automation system of all dynamic navigation tasks, <u>without expecting a boatmaster responding to a request to intervene</u> ²			
	5	AUTONOMOUS = FULL AUTOMATION the sustained and <u>unconditional</u> performance and fallback performance by a navigation automation system of all dynamic navigation tasks, without expecting a boatmaster			

Technical Regulations (4/4)

- Current Projects between LoA 2 and 3
- GAP-Analysis showed only minor deviations for Rhine Navigation. Solved by exemption of CCR.
- LoA 3+ and crew reduction might require additional technical regulations.



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Many Thanks for your Attention!

