



LEGAL CHALLENGES REGARDING AUTONOMOUS SHIPPING IN INLAND WATERS

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OVERVIEW



Introduction



Autonomous vessels



Legal framework



Legal challenges



Other challenges



Recommendations



Key Takeaways



Introduction



Introduction

- ‘Autonomous’ vs ‘unmanned’
- IMO – four degrees
 1. Automated processes and decision support
 2. Remotely controlled with seafarers on board
 3. Remotely controlled without seafarers on board
 4. Fully autonomous



Introduction

“A ship, which to a varying degree, can operate independent from human interaction”

(Maritime Safety Committee)

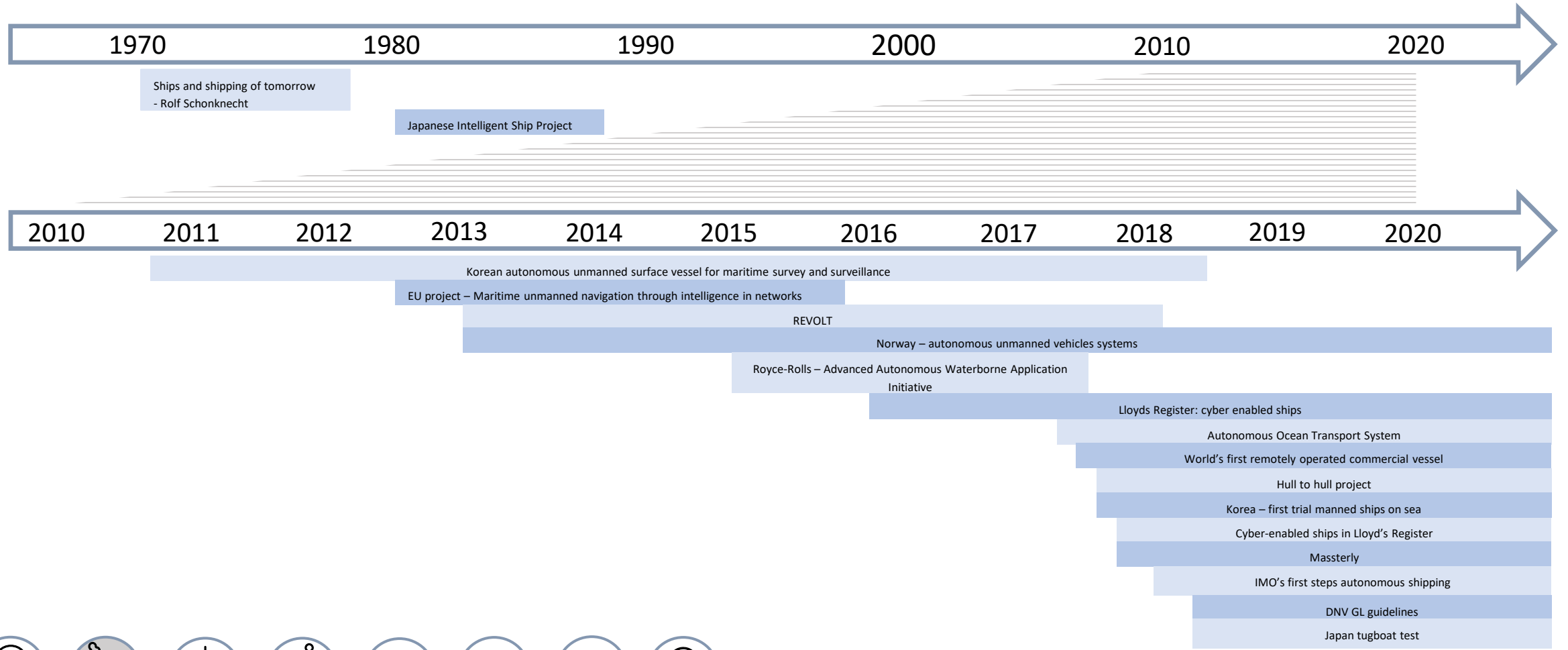




Autonomous vessels



History of autonomous vessels



Timeline based on Roberts, 2018

Need for autonomous vessels

Four main drivers:

- Work environment
- Increased safety
- Reduction of emissions
- Cost reduction



Autonomous vessels on inland waters

- Efficiency
- Shortage skippers
- New job profiles
- New opportunities
- European Green Deal



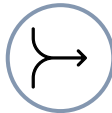


Legal framework



Legal framework

International framework	Belgium	Flanders	Wallonia
<ul style="list-style-type: none">• 1910 Collision Convention• 1952 Brussels Civil Jurisdiction Convention• COLREG• CEVNI• UNECE• Salvage Convention• CMNI• AND• CLNI• ES-TRIN	<ul style="list-style-type: none">• Royal Decree of October 25th 1935• Royal Decree of September 24th 2006• Royal Decree of March 9th 2007• Belgian Shipping Code	<ul style="list-style-type: none">• Royal Decree of September 23rd 1992 (police regulation)• Royal Decree of September 23rd 1992 (Shipping Code)• Law of March 15th 2022• Decree of July 6th 2012• Decision of the Flemish Government of May 21st 2021• Decree of April 26th 2019• Collective Decree	



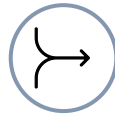
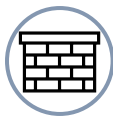


Legal challenges



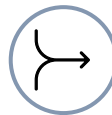
Scholars

- Liability
- Master's role
- On board crew
- Response to emergencies
- Insurance



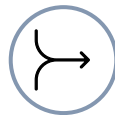
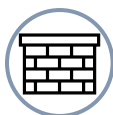
International legislation

Force majeure	“Master’s duty to render assistance” → Personal obligation master → Assist without endangering ship, crew, passengers... → Degree 4? → Notification?
Pilots	
Master’s duty to render assistance	
Good seamanship	
Proper look out by sight and hearing	
Boatmaster	
Crew	
On board documents	
Seaworthiness	
Ship standards	



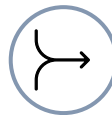
National legislation

Captain	Mandatory crew → Certain number → To guarantee safety → Safety without crew?
“on board”	
Documents	
Good seamanship	
Mandatory crew	
Access to the vessel	
Direct communication	

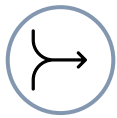


National legislation

Report infrastructure	<p>Art. 19 §1 De waterwegbeheerder of het havenbedrijf kan toelating geven voor het uitvoeren, binnen het gebied dat de waterwegbeheerder of het havenbedrijf beheert, van experimenteren of pilootprojecten, waaronder het uitvoeren van proefreizen, waarbij gebruik wordt gemaakt van innovatieve systemen. Dergelijke systemen omvatten onder meer geautomatiseerde systemen in vaartuigen of aan wal [...]</p>
Communication	
“listen and watch”	
Captain and crew	
Diverting and signalling	
Registration	



Other challenges



Other challenges

- Safety
- Connectivity
- Infrastructure
- Human behaviour
- Costs





Recommendations

-  A lightbulb icon inside a circle, representing an idea or innovation.
-  A ship icon inside a circle, representing maritime transport.
-  Scales of justice icon inside a circle, representing law or regulation.
-  A person sitting at a desk with a computer, representing labor or industry.
-  A keyboard icon inside a circle, representing technology or digital infrastructure.
-  A factory icon inside a circle, representing manufacturing or industry.
-  A right-pointing arrow icon inside a circle, representing direction or flow.
-  A question mark icon inside a circle, representing uncertainty or a question.

Recommendations

1. Create a legal framework
2. Define the concept 'autonomous shipping'
3. Captain and crew on shore
4. Create a legal framework regarding liability
5. Improve communication
6. Emergencies
7. Digital documents
8. Technical requirements





Key takeaways

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Key takeaways

- **Flanders as frontrunner**
- Abundance applicable rules
- Advantages
 - Skipper shortage
 - Increased safety
 - Reduction of emissions
 - Cost reduction
- Issue: vessels of the 4th degree





Questions?

