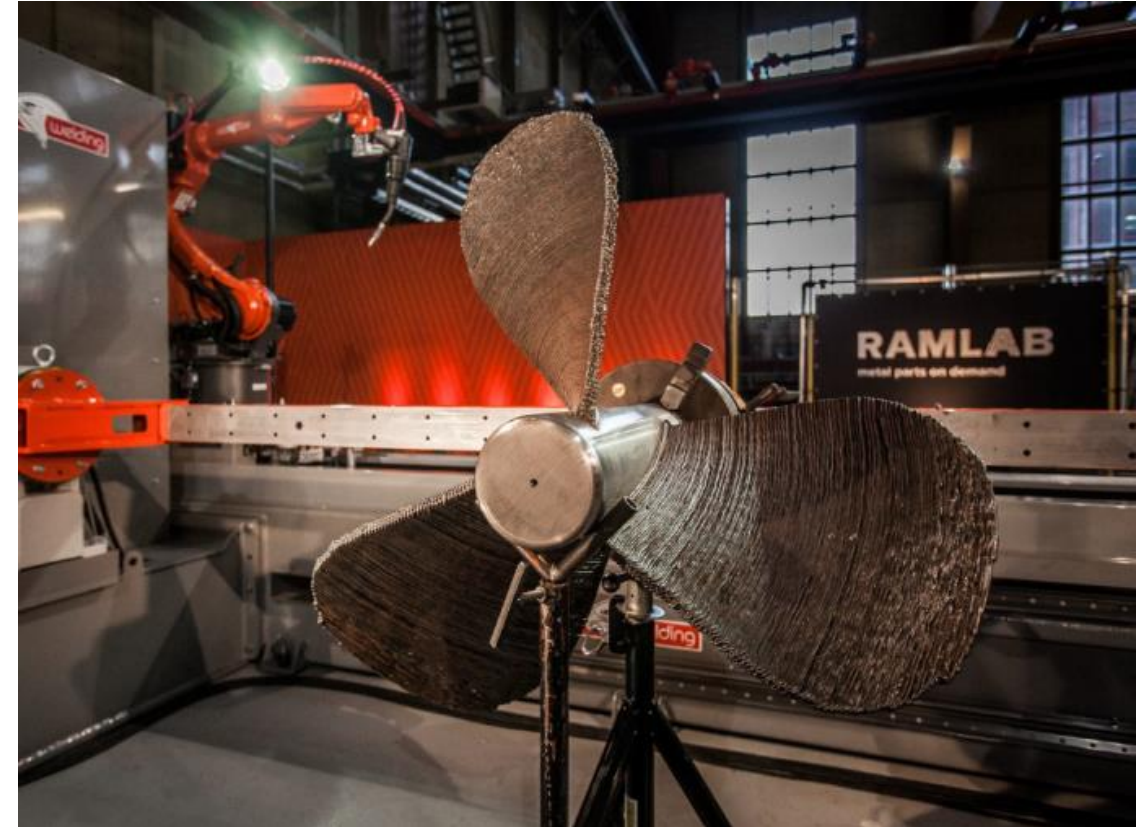
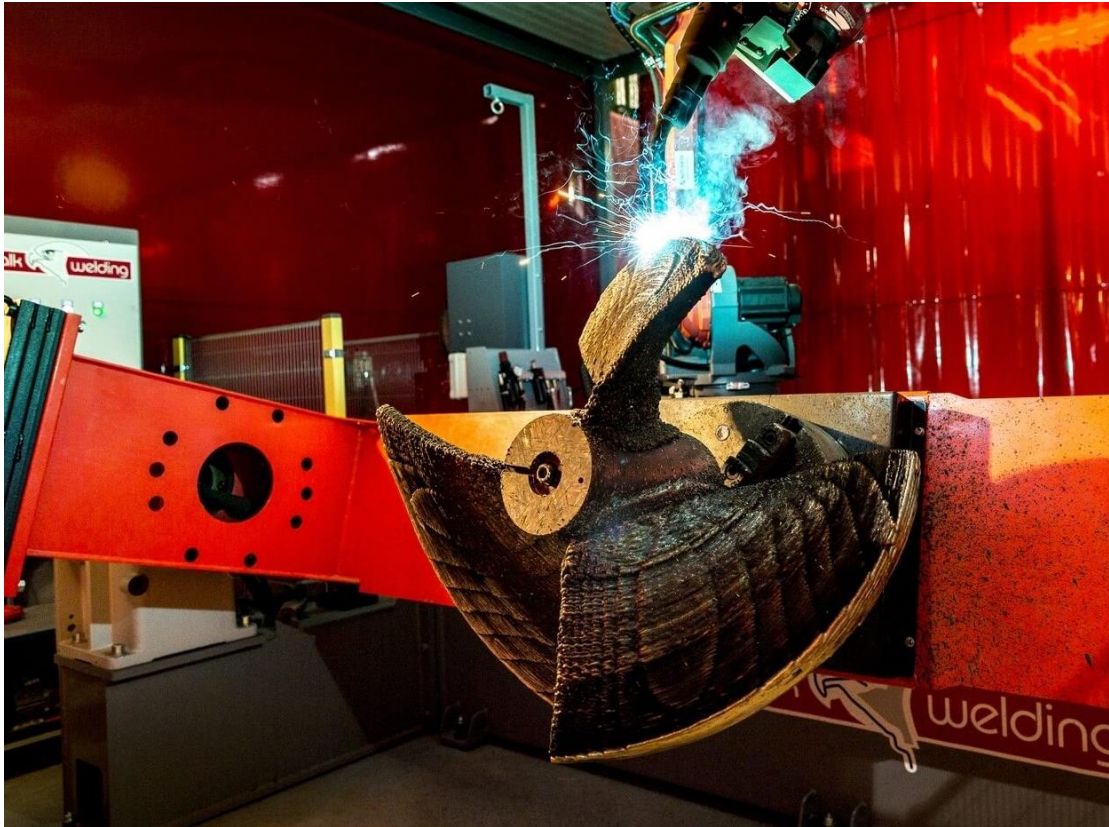




REVIEWING THE IMPACT OF DIGITALISATION AND CYBER THREATS ON THE SHIPPING SECTOR

Capt. Alfred Hartmann, President, VDR - German Shipowners' Association



<http://www.ramlab.com/>

> **RAMLAB (Company in Rotterdam)**



Auf der Kommandobrücke.

R. P. D. „GENERAL“.

On the bridge.



Digital Mindshift



A Vessel's Life Cycle





> Remote Monitoring



> Port Entry



> Fleet Operations Centers

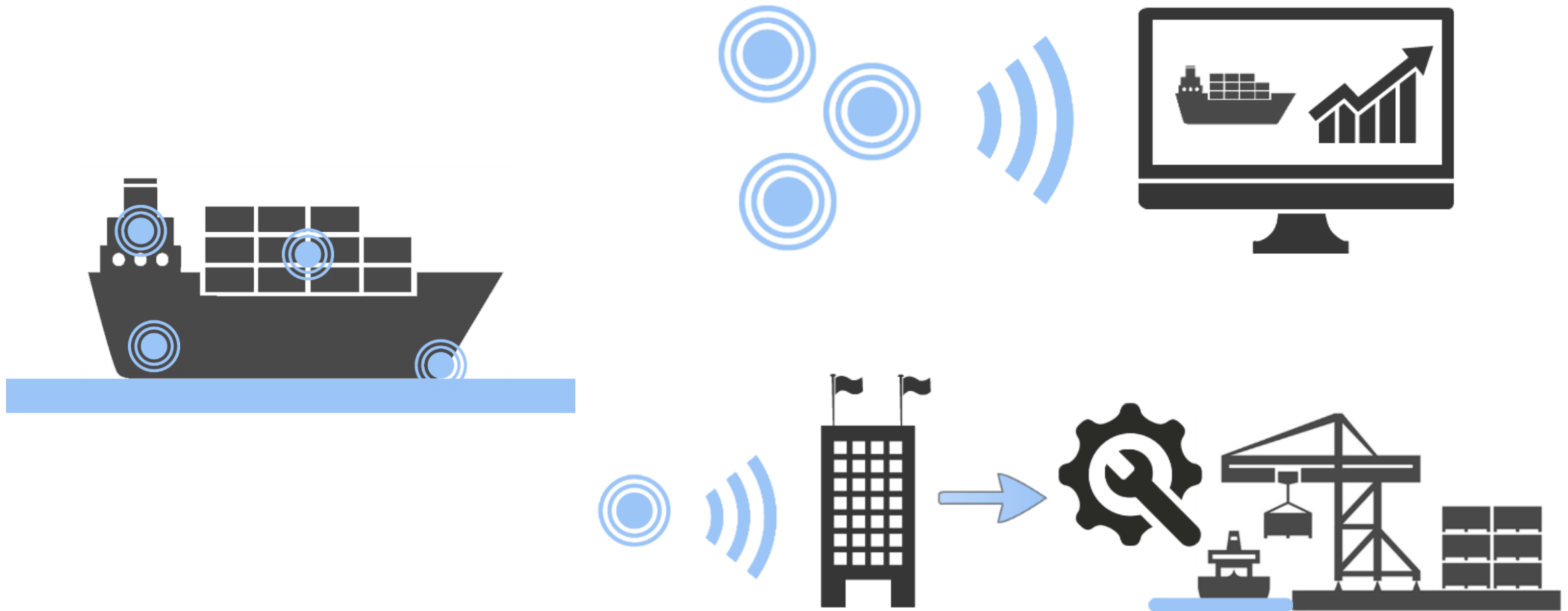


> Sensors / Big Data





Monitoring by Sensors

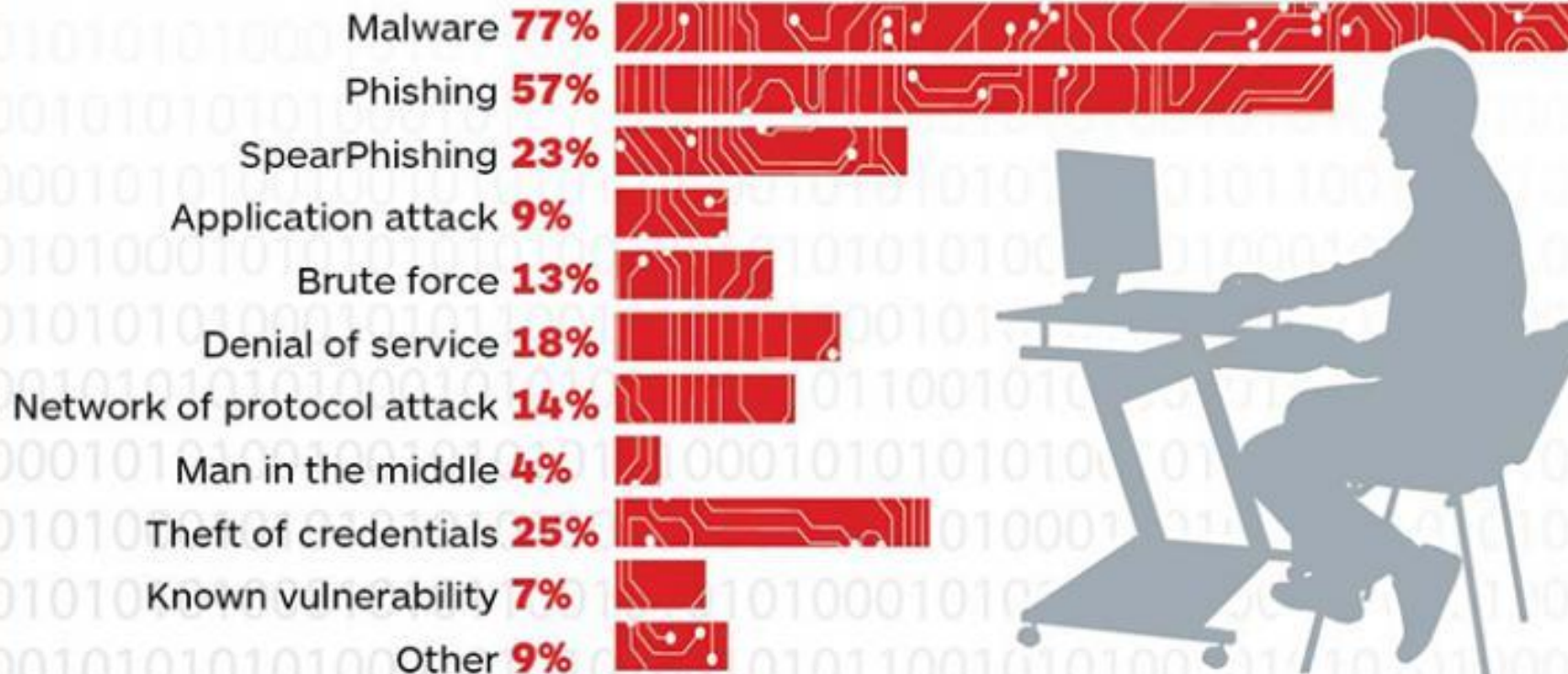




Industrie Initiative „be cyber aware at sea“



What was the nature of the attack?



Source: IHS Maritime & Trade

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What was the extent of the attack?



48%

Loss of corporate data



21%

Financial loss



67%

IT system functionality



4%

Shipborne systems
functionality

Source: IHS Maritime & Trade

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„What leads you to the assumption that a ship would sail against the wind and against the current if one only were to light a fire below deck? I don't have time to such nonsense.“

Napoleon Bonaparte



LET US THINK FORWARD!

Capt. Alfred Hartmann, President, VDR - German Shipowners' Association