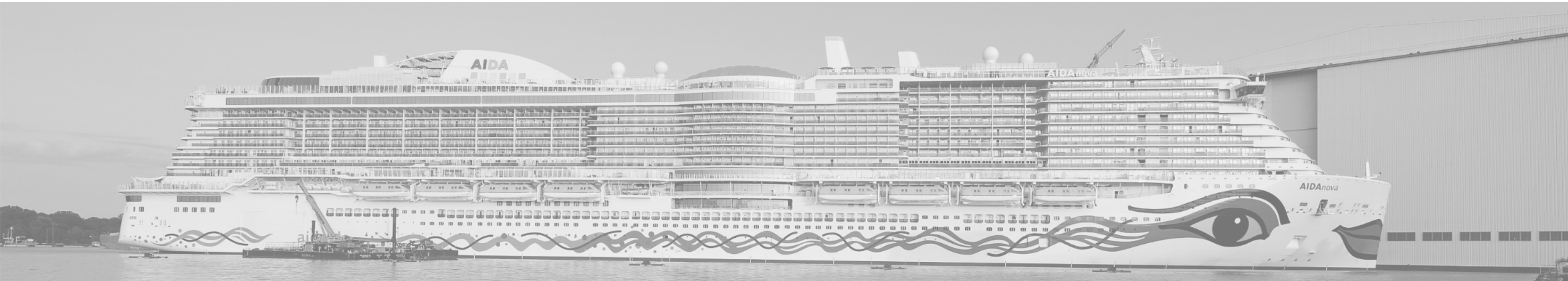
“Cruise Ship Construction – A Very Special Segment of Shipbuilding ”

Senior Maritime Forum of Marintec in Shanghai
Luxury Cruise Session
December 6, 2023

By Eero Mäkinen
Adviser MEYER WERFT GmbH & Co KG, Germany
December 2023

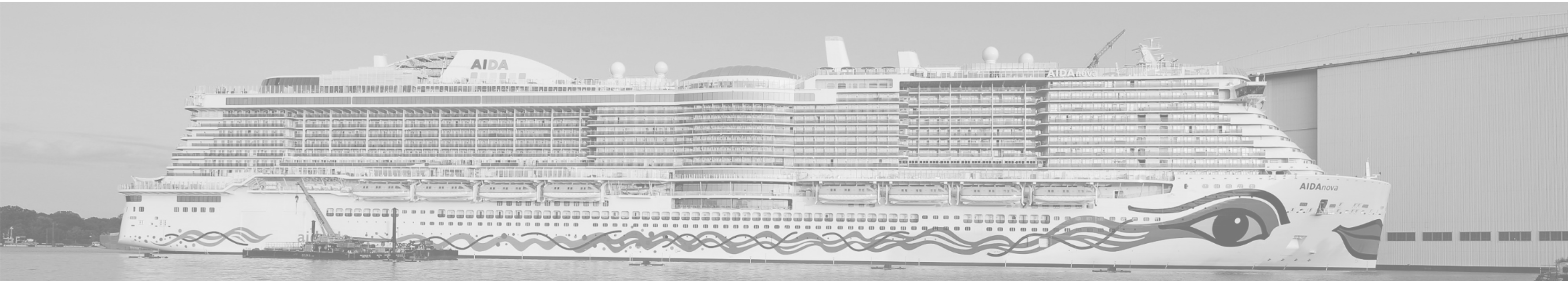
Cruise Business 1|3

- “Birth” and growth of modern cruising started in the late 1960’ies
- History of 55 years
- Overall a steady growth in spite of “disturbances”
- 30 million passengers (pax) per year reached in 2019
- Predominantly American and European passengers - still today



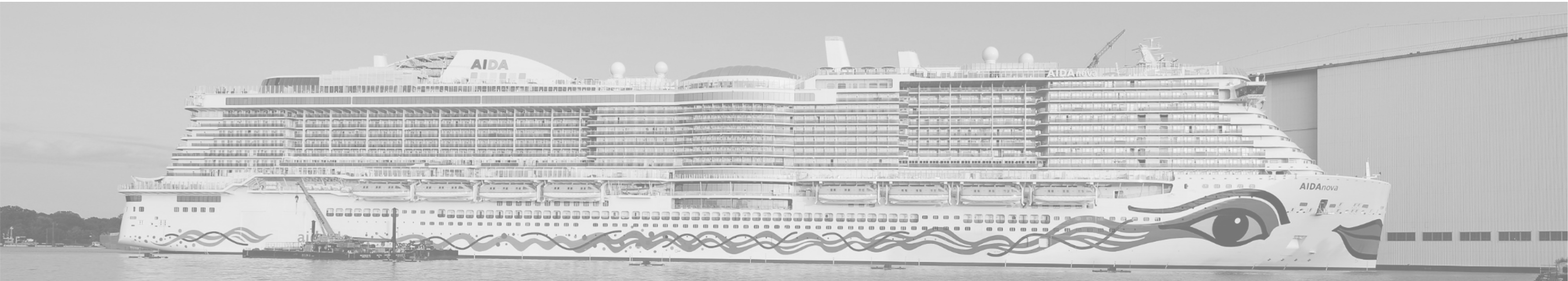
Cruise Business 2|3

- Disruption due to COVID-19
- Quick recovery after that – however, slow in China
- Pax account already now above that in 2019
- Resulting huge debt load of cruise companies seems to affect the recovery – particularly in the ship construction side
- Effect of wars (Ukraine, Middle East) - marginal, supply chain hick-ups
- Resiliency – many examples



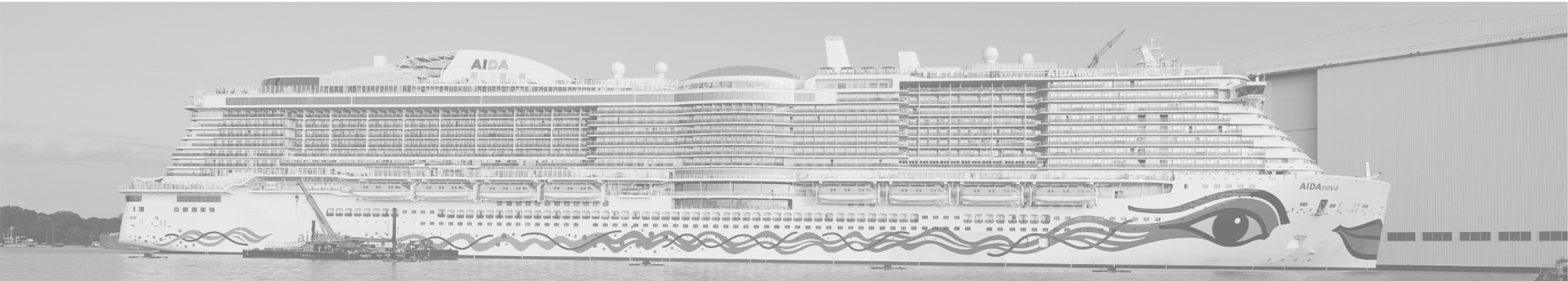
Cruise Business 3|3

- “In total less than 400 specialized vessels operating
- Varying from small 100 pax to huge 5600 pax ships
- Product evolution (cruise product and ships) – increase in GT/pax, diversification
- Cultural diversification - future potential
- Bright future – why? Three major elements



Cruise Ship Construction 1|2

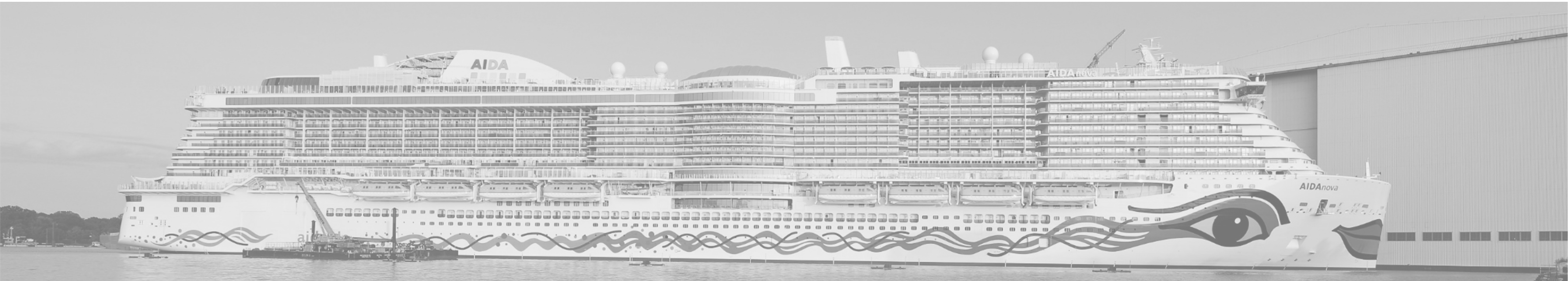
- Passenger ships dedicated to cruise activities
- Started in Europe, in the late 1960'ies
- Yards specialized in ferries stretched out to cruise vessels
- Well over 10 shipbuilding companies have played an active role
- Extent (and need) of SPECIALIZATION was slowly understood and appreciated - through mistakes and challenges



Cruise Ship Construction 2|2

- Today three European companies dominate the segment building cruise vessels at eight yards:
  - Chantiers de l’Atlantique (France)
  - Fincantieri (Italy)
    - Ancona
    - Marghera
    - Monfalcone
    - Sestri
  - Meyer Group (Germany and Finland)
    - Meyer Turku
    - Meyer Werft
    - Neptun Werft

  - Two product “´segments”: small ships-medium size/large ships (borderline 20.000 GT)
  - Attempts to build in other parts of the World (USA, Japan, South Korea, China), no success so far, even dramatic failures



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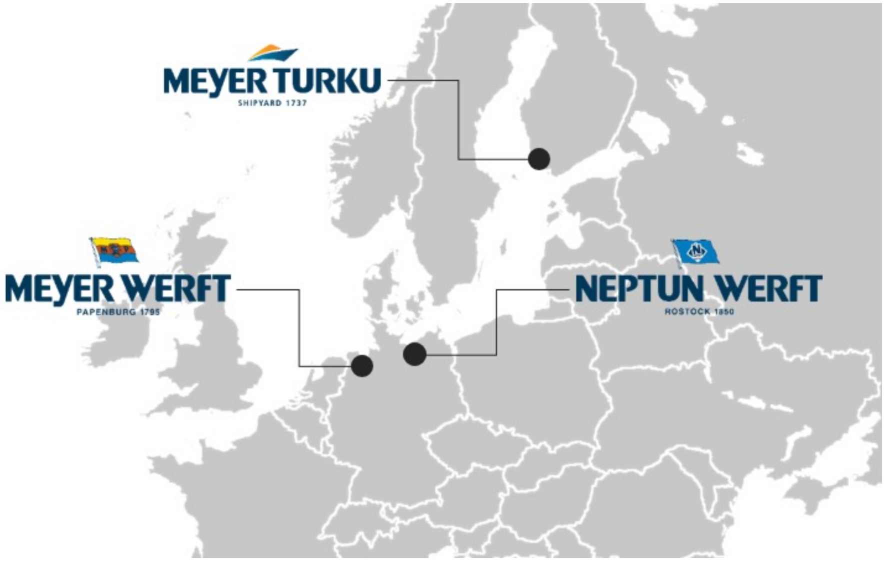
MEYER WERFT (Group)

Three yards – two in Germany, one in Finland



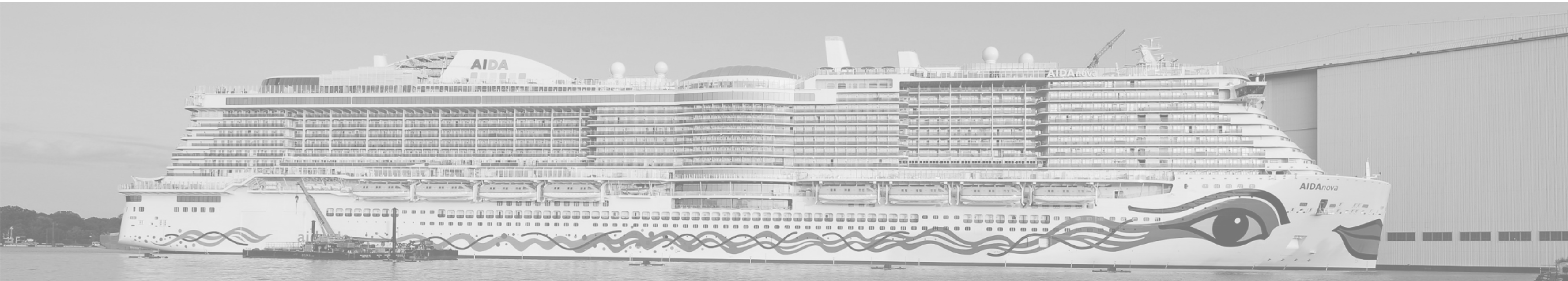
No size limit – Icon of the Seas as an example

Since 1970'ies:

- 115 cruise vessles delivered
- 10.872.000 GT delivered
- 344.000 LB delivered

Orderbook today:

- 9 cruise vessels
- total 1.358.000 GT
- total no. of passengers (LB) 31.600



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Meyer Yards

MEYER WERFT
PAPENBURG 1795

EMPLOYEES: 3 300

SPECIALISATION: Cruise ships

CAPACITY: 320 kGT/year

HALL 6 DIMENSIONS: 504 m x 125 m x 75 m

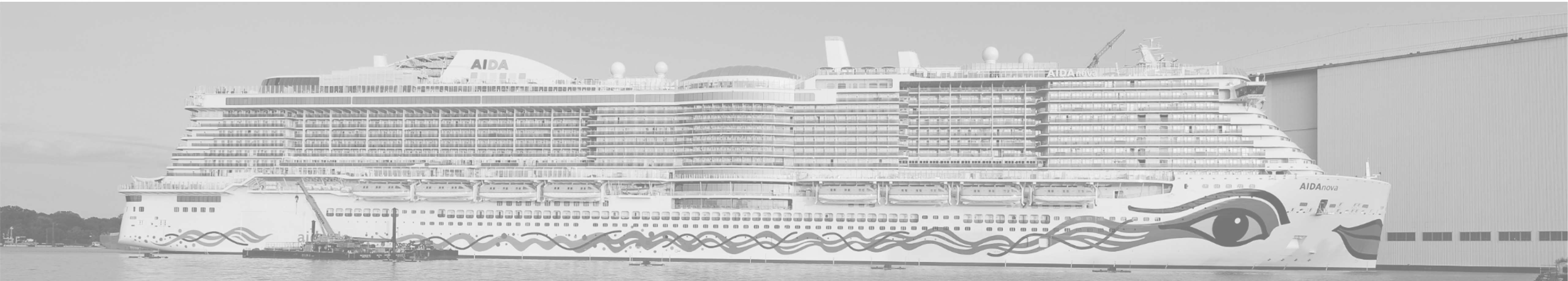
DOCK DIMENSIONS: 482 m x 45 m x 10.8 m

CRANE CAPACITY: 800 t

HALL 5 DIMENSIONS: 370 m x 102 m x 60 m

DOCK DIMENSIONS: 358 m x 40 m x 9.0 m

CRANE CAPACITY: 600 t



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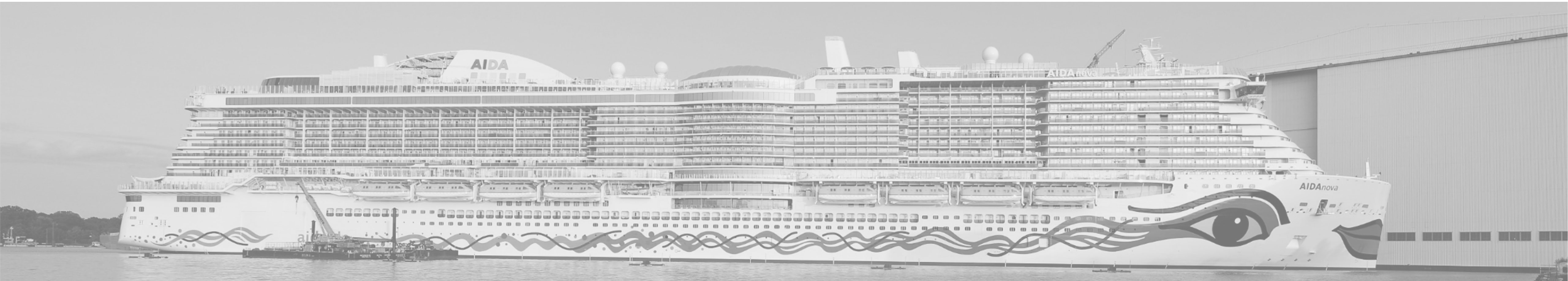
Meyer Yards

NEPTUN WERFT
ROSTOCK 1850

EMPLOYEES:	450
SPECIALISATION:	Floating Engine Room Units (FERUs), River cruise ships, Gastanker
CAPACITY:	3 FERUs/year, 12 River cruise ships

PRODUCTION HALL DIMENSIONS:	180 m x 43 m
PONTOON DIMENSIONS:	150 m x 55 m
CRANE CAPACITY:	600 t

STEEL CONSUMPTION PER YEAR:	33 000 t
LNG TANKS PER YEAR:	6 – 8/year



Meyer Yards

MEYER

MEYER TURKU
SHIPYARD 1737

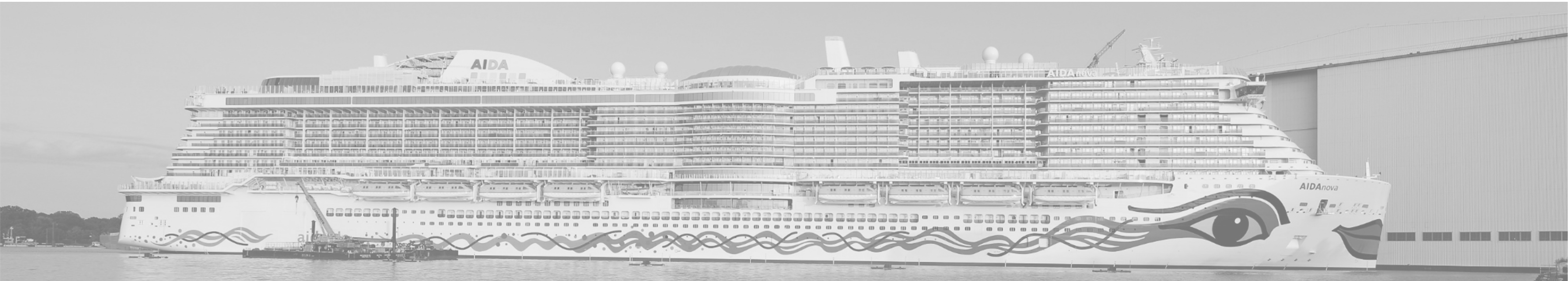
EMPLOYEES: 2 000

SPECIALISATION: Cruise ships. Passenger Ferries

CAPACITY: 250 kGT/year

BUILDING DOCK DIMENSIONS: 365 m x 80 m

CRANE CAPACITY: 1 200 t



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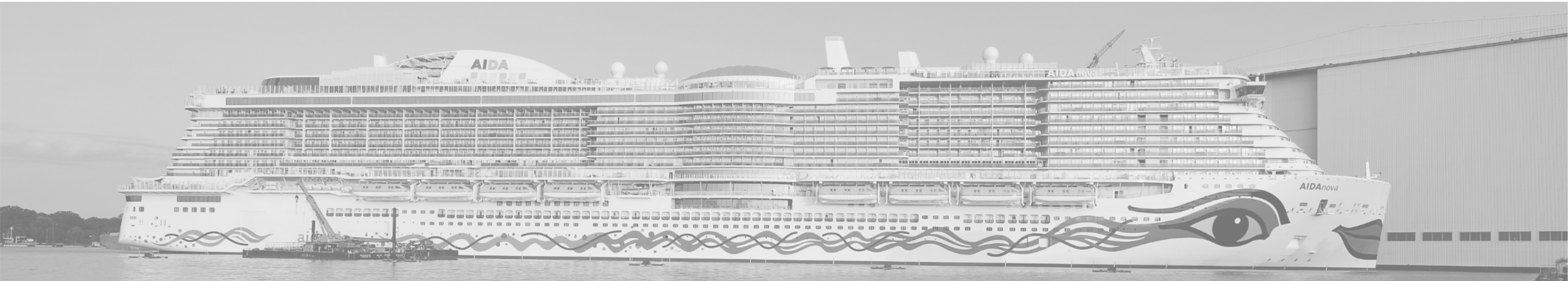
What is special and different compared to “main line” shipbuilding? 1 | 5

For reference: „Main line“ shipbuilding = production of e.g. bulk carriers, container ships, tankers, supply boats etc. in series –often based on „standard designs“

Market is limited, max. **10 to 15** large ships (+ a couple of small) delivered per year (a very small part of the World’s commercial shipbuilding of 1500 deliveries per year)

Short series of ships (typically 2 to 5) - benefits of platform philosophy not easy to realize

Also super-large ships (like 250.000 GT, 100.000 t lightweight, price well over 1 BUSD)



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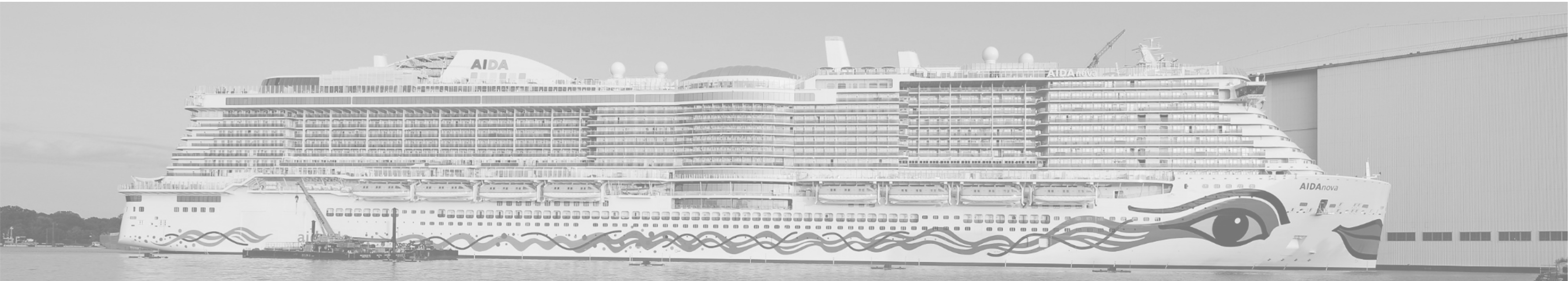
What is special and different compared to “main line” shipbuilding? 2|5

No size limit from technology - but from operation, yes

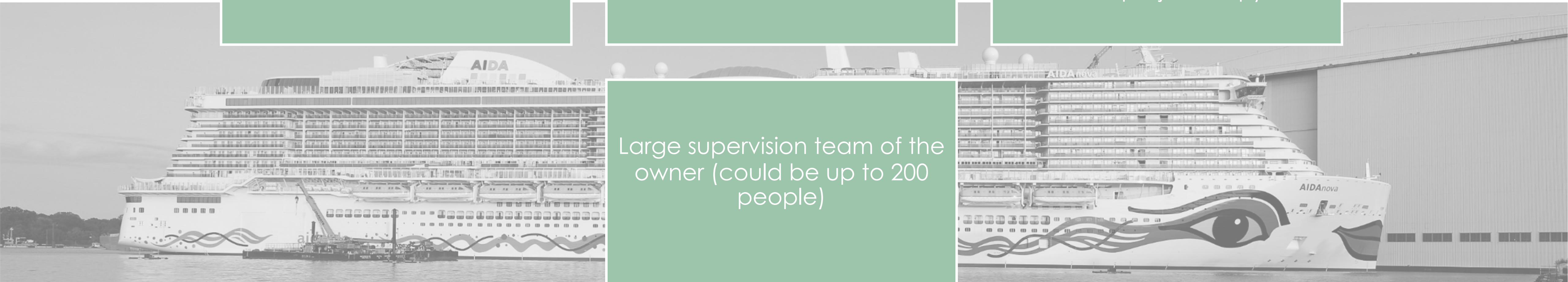
Maximum size reached - as for many other ship types today?

Construction to be completed in 2,5 years!



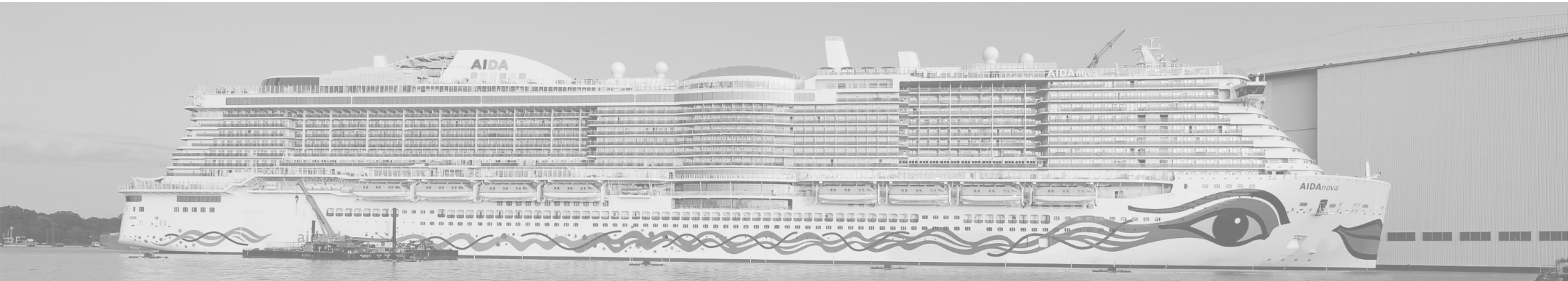
What is special and different compared to "main line" shipbuilding? 3 | 5

- Brand identity extremely important in the product
- Ship specific identity, changes within one "series" of ships
- Heavy involvement of the shipowner
- "Joint creation" of concept design
- Influencing regulatory framework – super-large lifeboats (450 pax) as an example
- Huge number of architects/consultants involved (could be 10 different architectural firms in one project/ship)
- Large supervision team of the owner (could be up to 200 people)



What is special and different compared to “main line” shipbuilding? 4|5

- Only about **2 -3 % of ship design** completed at the time of contract signing – challenge to the yard
- Up to 2 million design hours for a large prototype
- Interior accommodation covers 25% of the product cost
- Huge number of subcontractors
- Emphasis in Europe, technology - equipment - systems
- Superb finish required in all areas – “five star for people who used to two”
- Specialization and dedication are musts - “one to two cruise vessels every 15 years” along bulk carrier construction does not work for a yard
- In spite of increased diversity the shipyard covers full responsibility - a must to cruise companies



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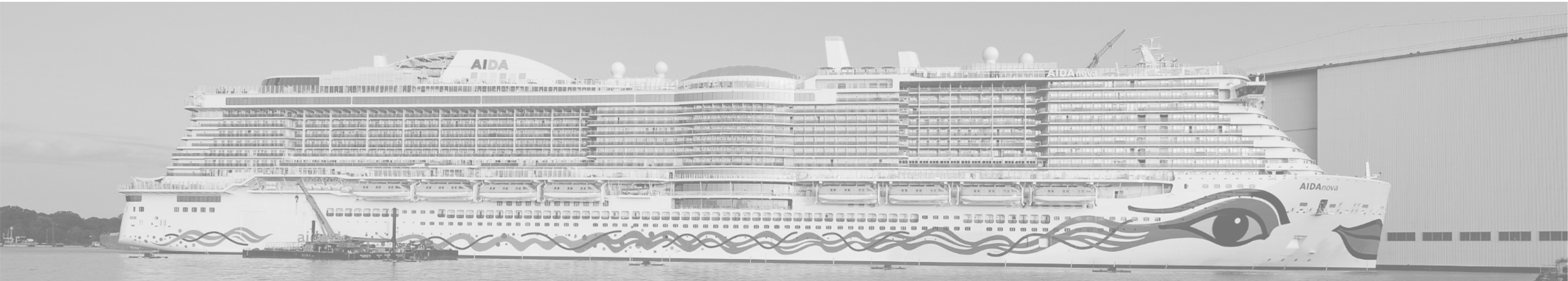
What is special and different compared to “main line” shipbuilding? 5|5

- Building cruise vessels and building only cruise vessels - name of the game today
- Requirements to facilities (even building under cover)
- Extreme in block outfitting is a necessity for efficient operation
- Relevance of supplier network - demonstrated experience (technology, equipment, systems etc.) is the key
- Extremely demanding planning, operation and management systems
- Dedicated people with true experience – of 10+ years, a fundamental demand



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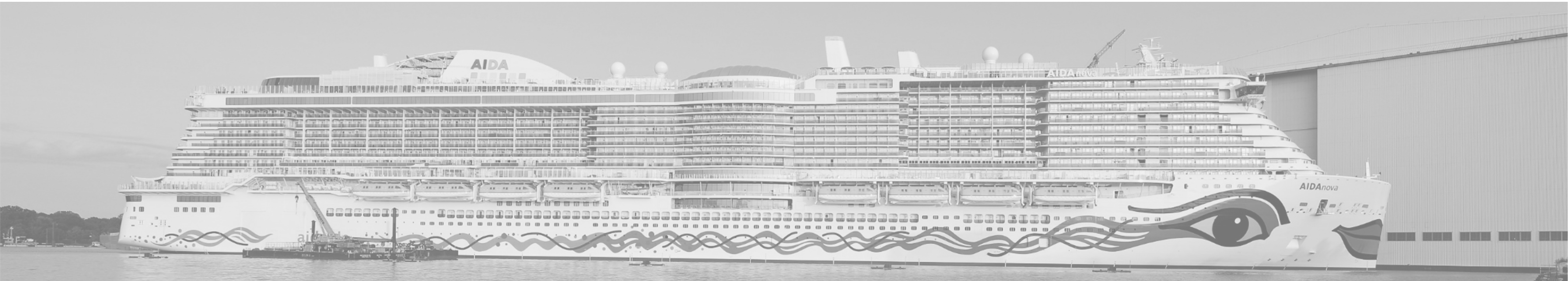
Future and challenges

- Continuation of cruise business growth very likely - but only modest expected
- No boom anticipated but controlled growth
- Attitude to (over)tourism is an issue in some areas – a challenge
- Further diversification will be seen (pax, cruise product, ship)
- Product differentiation/diversity - China as a likely example in the future
- Regulatory framework - cooperative approach, are regulations developing fast enough for the overall targets?
- Climate change - challenges, but the industry is ready (requirements and image)
- Future fuel is the key "near term issue"
- Very challenging for newcomer yards because of accumulated experience required
- Differentiation from "main line " shipbuilding will widen further



THANK YOU!