

1. Classification Societies and Cooperation with Ship Yards

2. Classification Societies

2.1. What is a “Classification Society” ?

What is a “Classification Society” ?

- A **classification society** is a non-governmental organization that establishes and maintains technical standards for the construction and operation of ships and offshore structures. The society will also validate that construction is according to these standards and carry out regular surveys in service to ensure compliance with the standards.
- To avoid liability, they explicitly take no responsibility for the safety, fitness for purpose, or seaworthiness of the ship.

2-2 Birth of Ship Classification (1/4)

Edward Lloyd's
Ocean voyages are in
Coffee House
along the river
Thames in
London in the
1680's



2-2 Birth of Ship Classification (2/4)

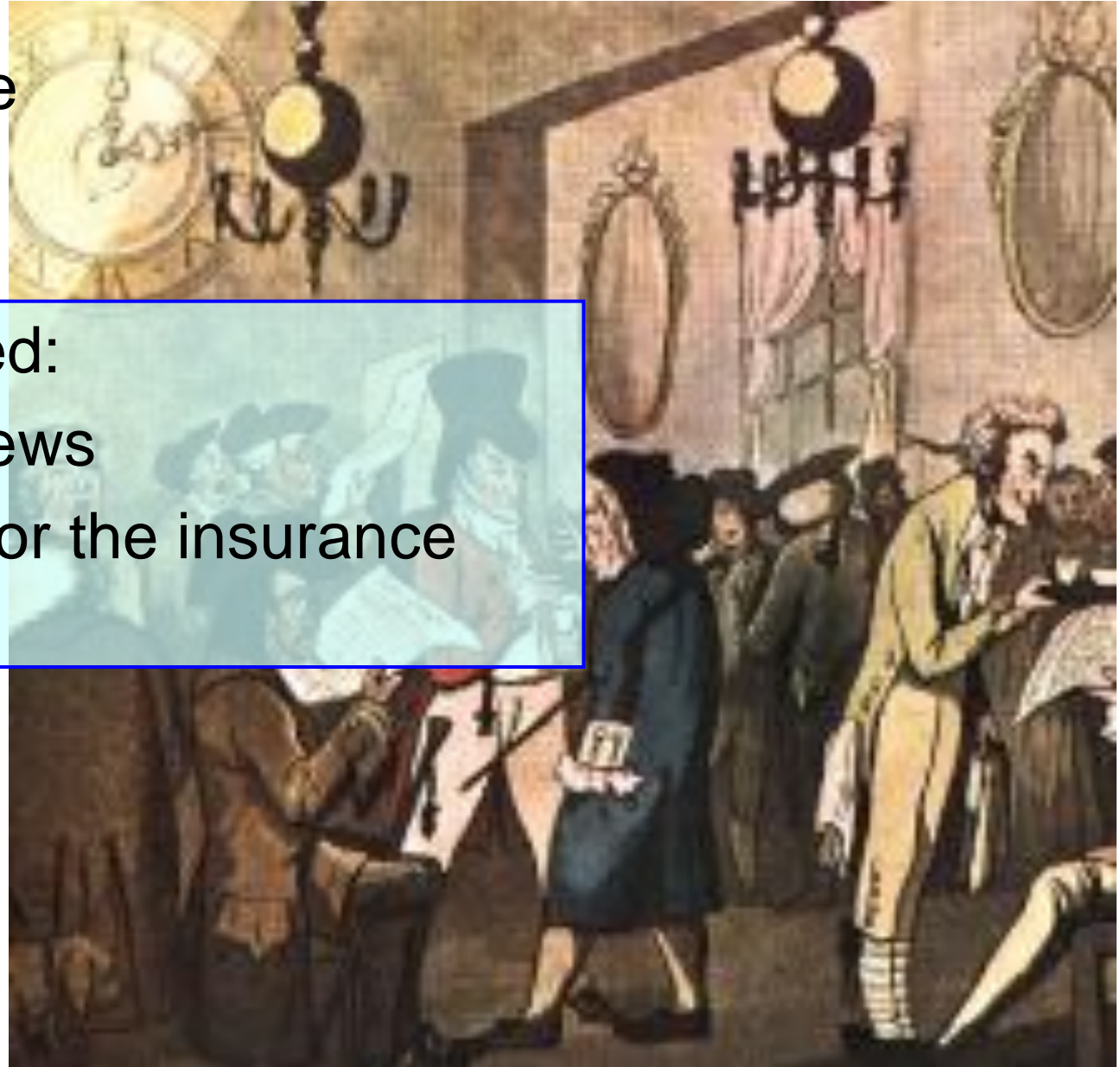
Edward Lloyd's Coffee House along the river Thames

Edward Lloyd provided:

- Reliable shipping news
- Variety of services for the insurance business



Center for
Marine Insurance



2-2 Birth of Ship Classification (3/4)

The Register Society
Need to assess
established in 1760

- ✓ Survey
- ✓ Classification
- ✓ Register



1764: First Register of Ships published

1834: First Rules for the Survey and Classification
of Vessels published.



2-2 Birth of Ship Classification (4/4)

Major Classification Societies established before 1900

Name	Abbr.	Est.	HQ
Lloyd's Register of Shipping	LR	1760	London
Bureau Veritas	BV	1828	Paris
Registro Italiana Navale	RINA	1861	Genova
American Bureau of Shipping	ABS	1862	Houston
Det Norske Veritas	DNV	1864	Oslo
Germanischer Lloyd	GL	1867	Hamburg
Nippon Kaiji Kyokai	NK	1899	Tokyo

2-3 Classification Society (1/2)

Primary Mission of Class Societies:

Safety of Life and Property

A Classification Society:

- Surveys ships;
- Evaluates the ships fairly and registers them;
- Issues the Certificates of Classification; and
- Publishes a Register of Ships.

In order to do this, the Classification Society also:

- Develops necessary standards for the survey and classification of ships; and
- Publishes such standards.

2-3 Classification Society (2/2)

Impartial and Fair Classification

- Independence from any party such as ship owners, ship builders, insurance companies, etc.
- Development and amendment of standards:
 - transparent procedures
 - grounded in clear technical background
- Surveys carried out in accordance with published standards

2-4 Activities on behalf of Third Parties

Class Societies conduct activities on behalf of other organizations, such as:

- ✓ Inspections of ships under national regulations
- ✓ Inspections of material and equipment for ships or products for ships registered to be registered to other societies.
- ✓ Inspections of material and equipment in accordance with standards other than those for classification



Activities as a Recognized Organization

2-5 Roles of Classification Society

➤ SOLAS Regulation 1/10.1

Purposes:

- **Safety of Life and Property at Sea**
- **Protection of the Marine Environment**

recognized by the Administration ...

✓ Develop standards that contribute to:

- the structural strength and integrity of the ship's hull
- the reliability and the function of the ship's systems (propulsion, steering, power generation, etc.)

➤ *ICLL (1988 Protocol) regulation 1(2)*
A ship which is designed, constructed and maintained in compliance with the appropriate requirements of an organization, including a classification society, which is recognized by the Administration, may be deemed to provide an acceptable level of strength.



2-6 What is “IACS” ?

International Association of Classification Societies (**IACS**)

IACS member societies (12):

IACS member societies in 1968:

- American Bureau of Shipping (**ABS**)
- Bureau Veritas (**BV**)
- China Classification Society (**CCS**)
- Det Norske Veritas (**DNV**)
- Det Norske Veritas (**DNV**) } **DNV-GL**
- Germanischer Lloyd (**GL**) } **DNV-GL**
- Germanischer Lloyd (**GL**) } **DNV-GL**
- Lloyd's Register of Shipping (**LR**)
- Korean Register (**KR**)
- Nippon Kaiji Kyokai (**NK**)
- Lloyd's Register of Shipping (**LR**)
- Registro Italiano Navale (**RINA**)
- Nippon Kaiji Kyokai (**NK**)
- Registro Italiano Navale (**RINA**)
- The Russian Maritime Register of Shipping (**RS**)
- Indian Register of Shipping (**IRS**) – May 2010
- Croatian Register of Shipping (**CRS**) – May 2011
- Polish Register of Shipping (**PRS**) – June 2011

3-1 Classification survey

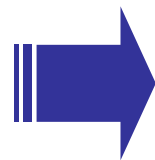
Inspection by shipyard:

- Shipyard's Quality control standards
- Quality Assurance for customer

Inspection by ship owner:

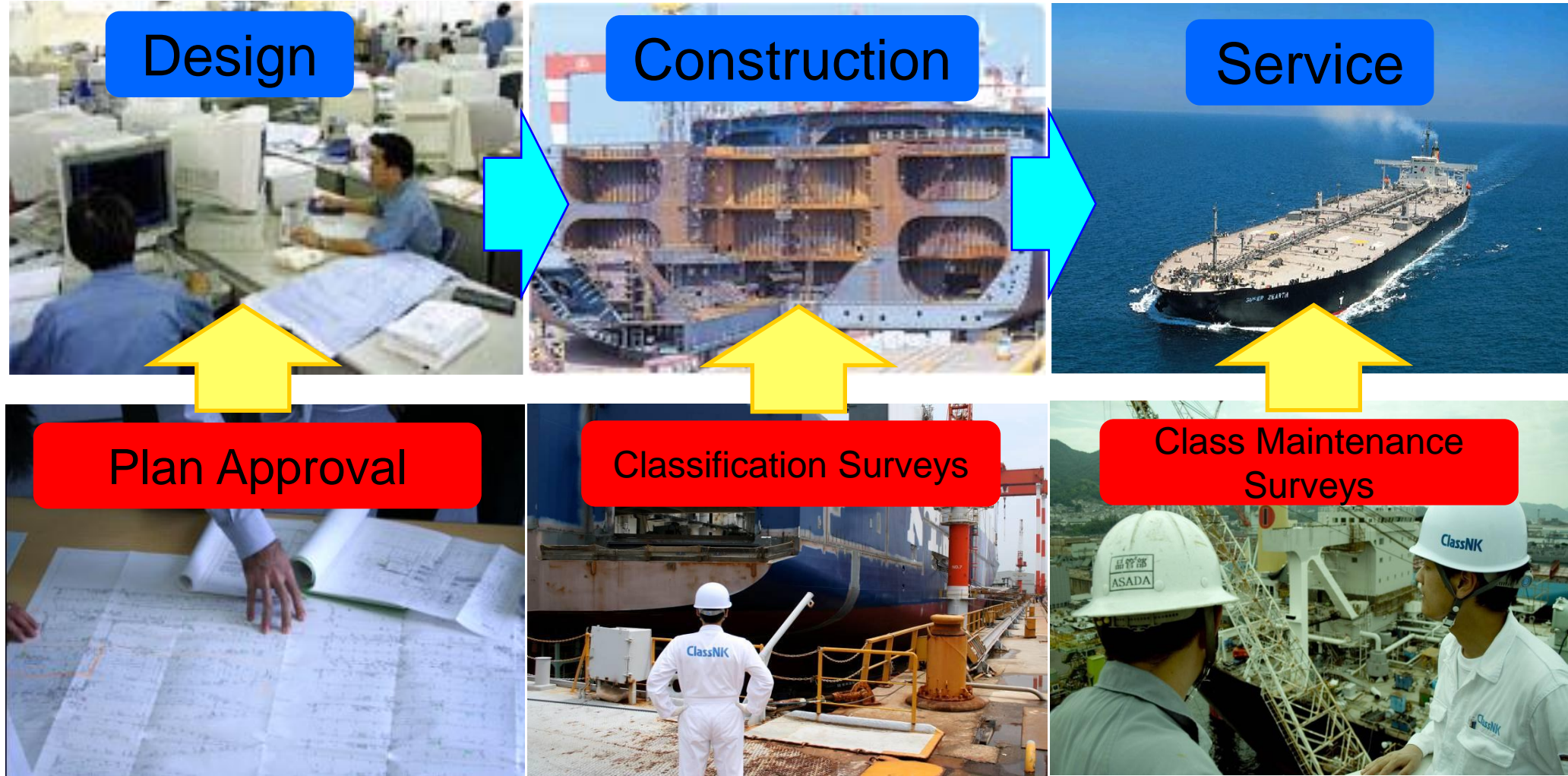
- Owner's specifications.
- Considerations towards usability and maintenance

Classification
Survey

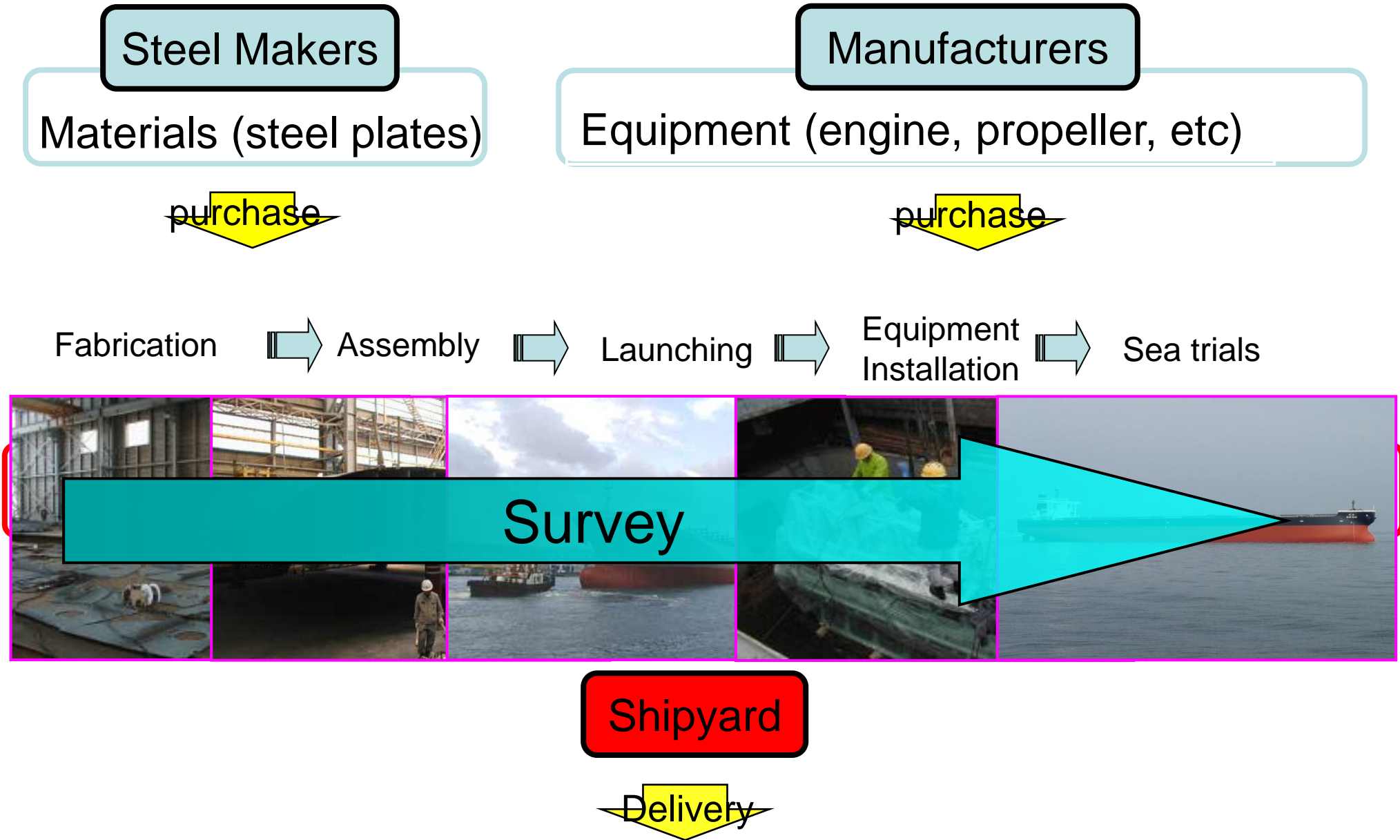


Class requirements and international
regulations

3-2 Life of ship

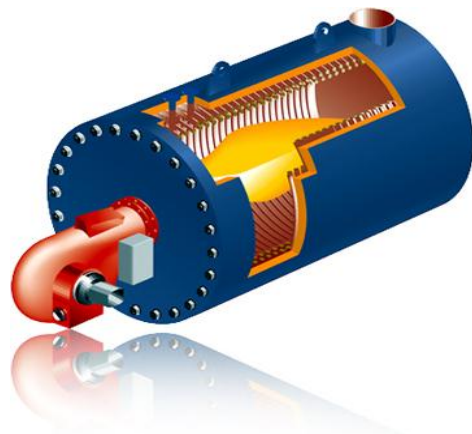


3-3 Construction stage

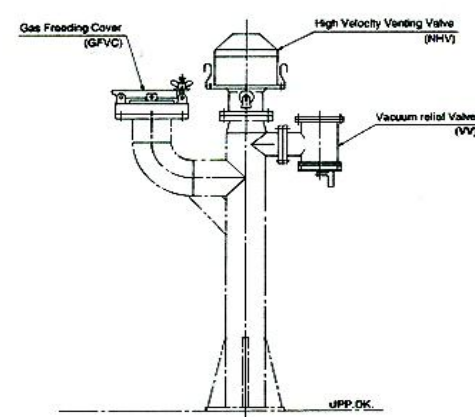
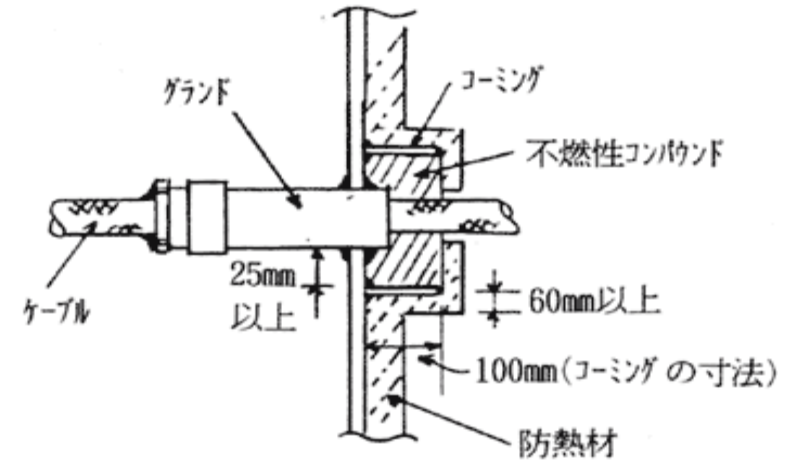


4. Acceptance Inspection

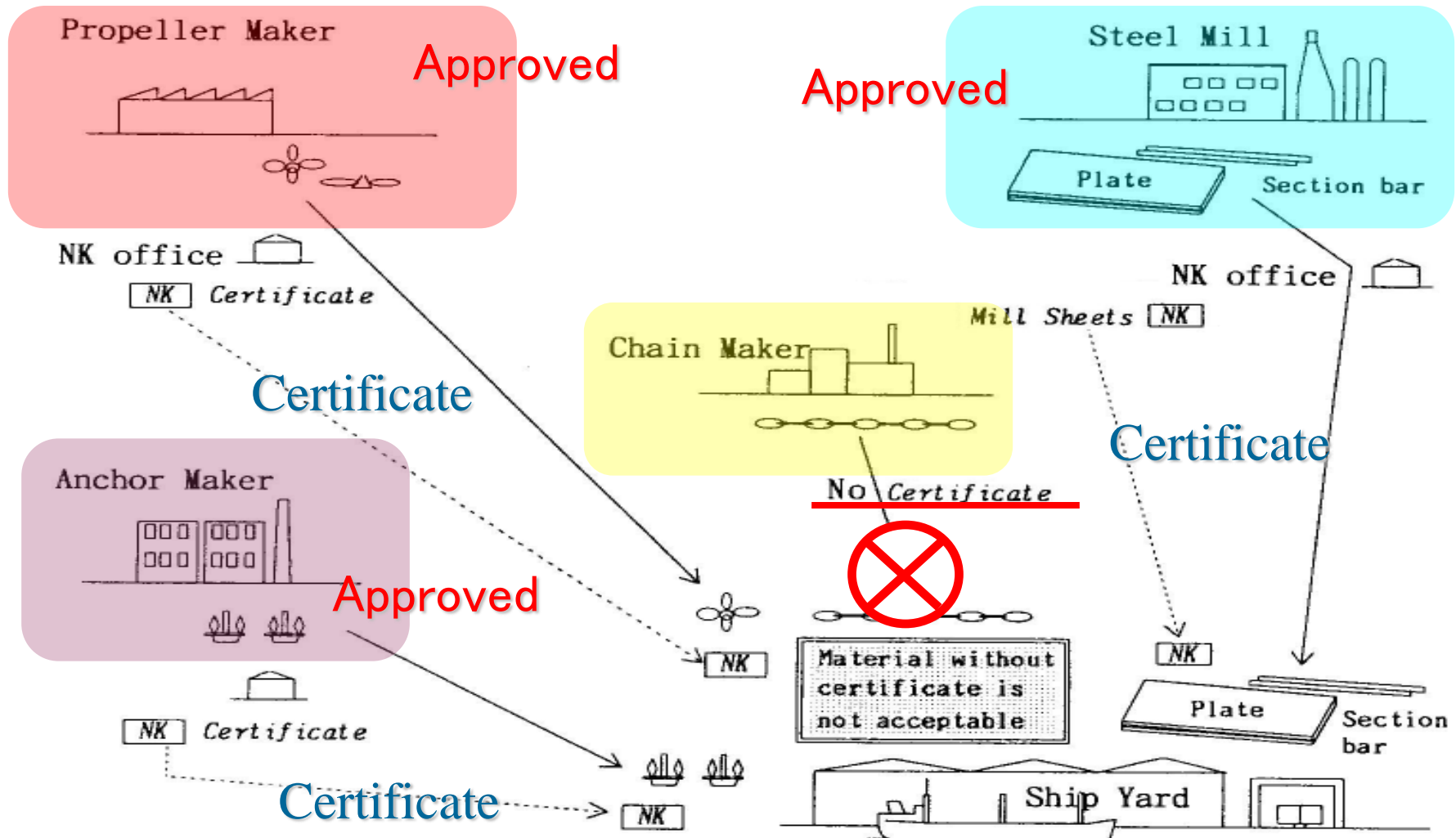
Object of inspection -acceptance inspection



Object of inspection - acceptance inspection



Outgoing inspection and Acceptance inspection



Purpose of Acceptance inspection

1. To confirm that the parts or material, which are outside manufacture, have been **inspected by the classification society** or other appropriate body.
2. To confirm that they have not been damaged **during transportation**

Confirmation of scantling members

Block assembling system

- For **quick building**, hull construction is divided into the bigger blocks
- The size of blocks depend on the crane capacity and size of block bay etc.
- Working drawings (Name and information of members, Sequence of assembling)
- Importance of control for building schedule
- **Increase of building rotation** and leveling of amount of building



Block Construction



Deep Tank



Stern Block



Super Structure

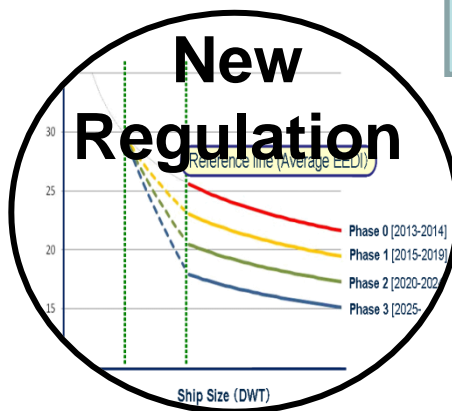
Block Construction



Block of Engine Room

Situation of Maritime Industry

New costs/reduced revenues
Shipowners and yards need....



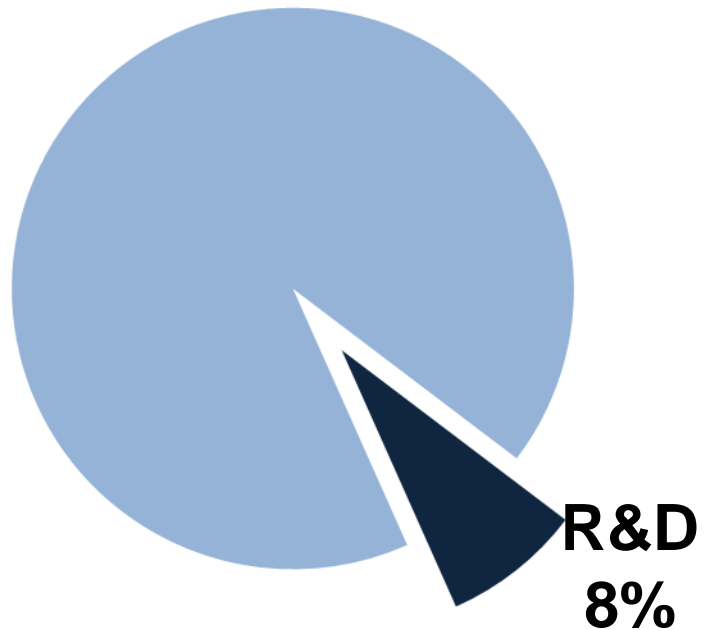
**A Need for
“Solution”**



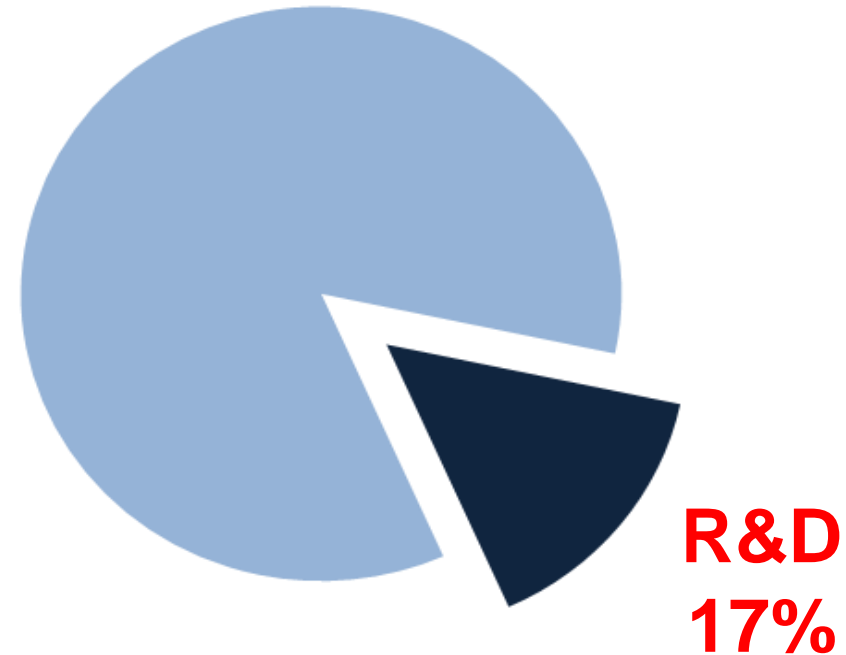
**But...
Who can provide
Funds & Support?**

ClassNK R&D Spend as % of Annual Revenue

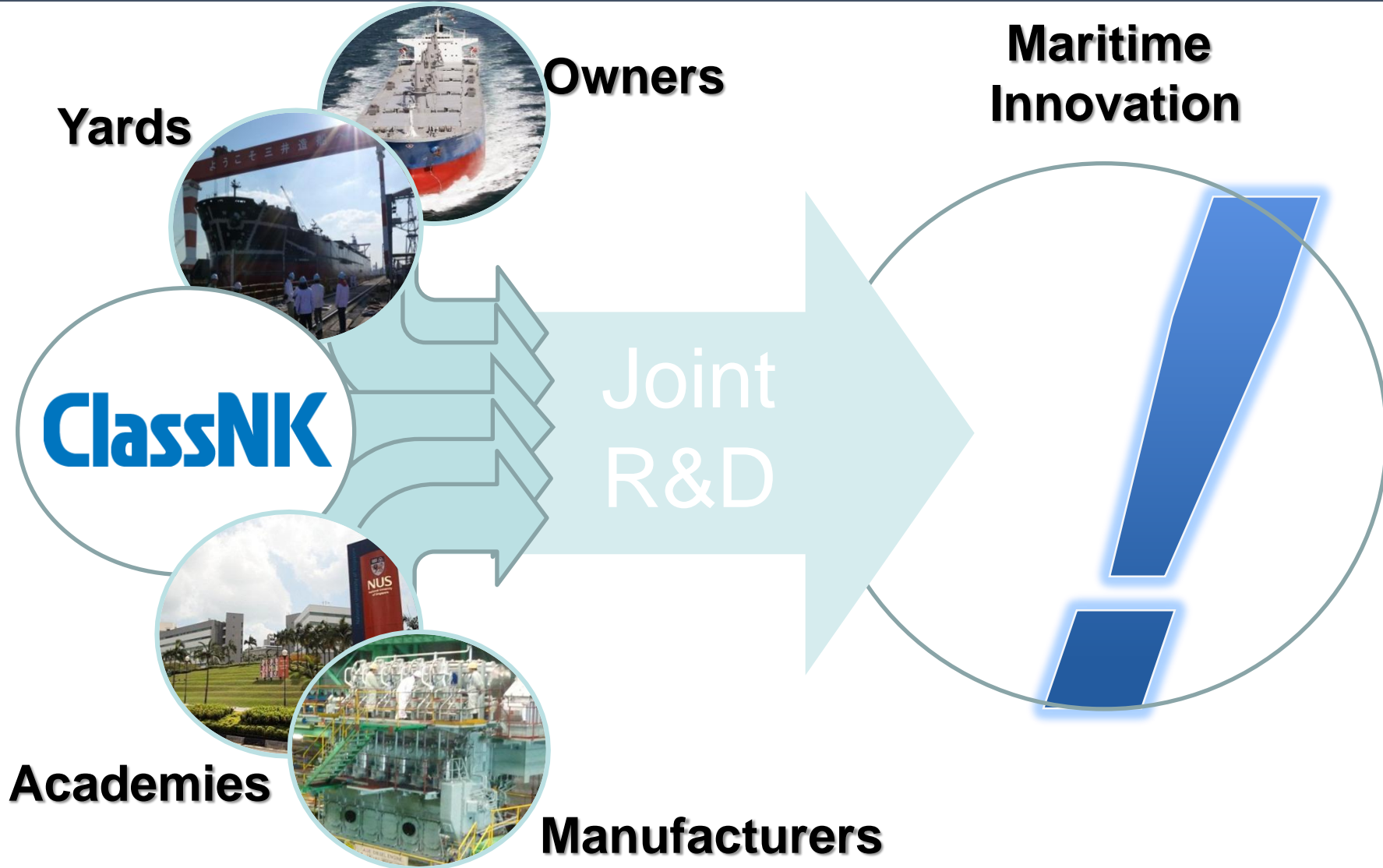
2008



2013



But not only by ourselves...



The Key is Collaboration with Industry

Joint R&D for Industry Program

- Founded in **2009** -
now our largest R&D
Expense

- Projects proposed &
carried out by industry
w/ support & funding
from NK

157 Completed
Projects

125 Projects
In-Progress

55 Projects
in planning



Combining World's Best Potentials

Partners from Industries

NYK GROUP
MOL Mitsui O.S.K. Lines
K LINE KAWASAKI KISEN KAISHA, LTD.
MAERSK LINE
Wilhelmsen Maritime Services
MITSUBISHI HEAVY INDUSTRIES, LTD.
MES MITSUI ENGINEERING & SHIPBUILDING CO., LTD.
JMU
Kawasaki
HYUNDAI
DSME
YANMAR Solutioneering Together
JFE Engineering Corporation
Nippon Steel Corporation
KOBELCO KOBE STEEL GROUP
POSCO
GTT
IHI Realize your dreams
IBM
DAIHATSU
DU DIESEL UNITED
Fuji Electric

Academic Partners

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NANYANG TECHNOLOGICAL UNIVERSITY
HIROSHIMA UNIVERSITY
THE UNIVERSITY OF TOKYO
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NMRI
NUS National University of Singapore
MARIN
TOKAI UNIVERSITY
OSAKA UNIVERSITY
PUSAN NATIONAL UNIVERSITY
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YNU 横浜国立大学
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NAS 長崎総合科学大学
Nagasaki Institute of Applied Science

The above are some of our partners in R&D projects.



Thank you for your attention.