



# ***Corporate Vision For Smart Shipping And Autonomous Vessels***

13<sup>th</sup> November 2019 at ASEF Forum

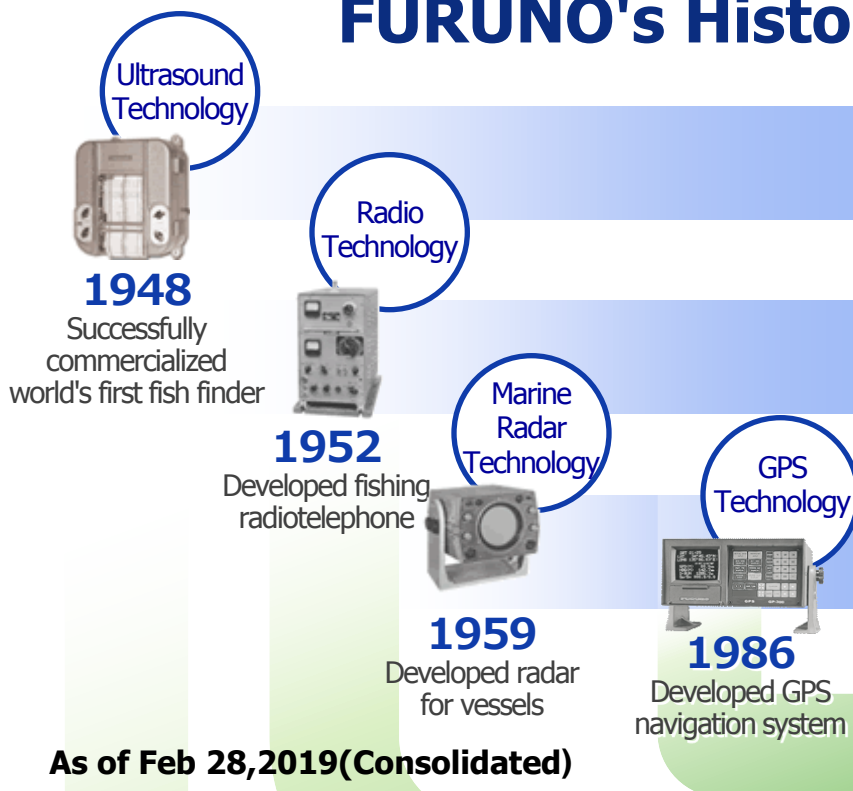
FURUNO ELECTRIC Co.,LTD.  
Kazuma Waimatsu

- 1. Corporate Profile**
- 2. Mission**
- 3. Regulatory Scoping Exercise**
- 4. MASS trail in Japan**
- 5. FURUNO's roles for MASS**
- 6. Summary**

# 1. Corporate Profile

**FURUNO**

## FURUNO's History and Business Domains



<b>Headquarters</b>	Nishinomiya City, Hyogo, Japan
<b>Incorporated</b>	May, 1951
<b>Paid-in Capital</b>	75 million US\$ approx.
<b>Number of Employees</b>	2,957
<b>Net sales</b>	820 million US\$ approx.

<p>Sonar</p>	<p>Fish Finder</p>	<p>Doppler Sonar Current Indicator</p>	Fishing Equipment	Maritime Electronics Products
<p>VHF Radio Telephone</p>	<p>Inmarsat</p>	<p>AIS</p>	Wireless Communication System	
<p>Radar</p>	<p>GPS Plotter</p>	<p>INS</p>	Navigation Equipment	
<p>GPS/GNSS receiver</p>	<p>GPS(GNSS) Disciplined Oscillator</p>	<p>ETC2.0/ETC Road antenna</p>	GPS(GNSS)	Industrial Electronics Products / Others
<p>Handheld Terminal / Wireless LAN products</p>	<p>Wi-Fi access point</p>		Other	
<p>Clinical Chemistry Analyzer</p>	<p>Ultrasound Bone Densitometer</p>		Healthcare	

# 1. Corporate Profile

**FURUNO**

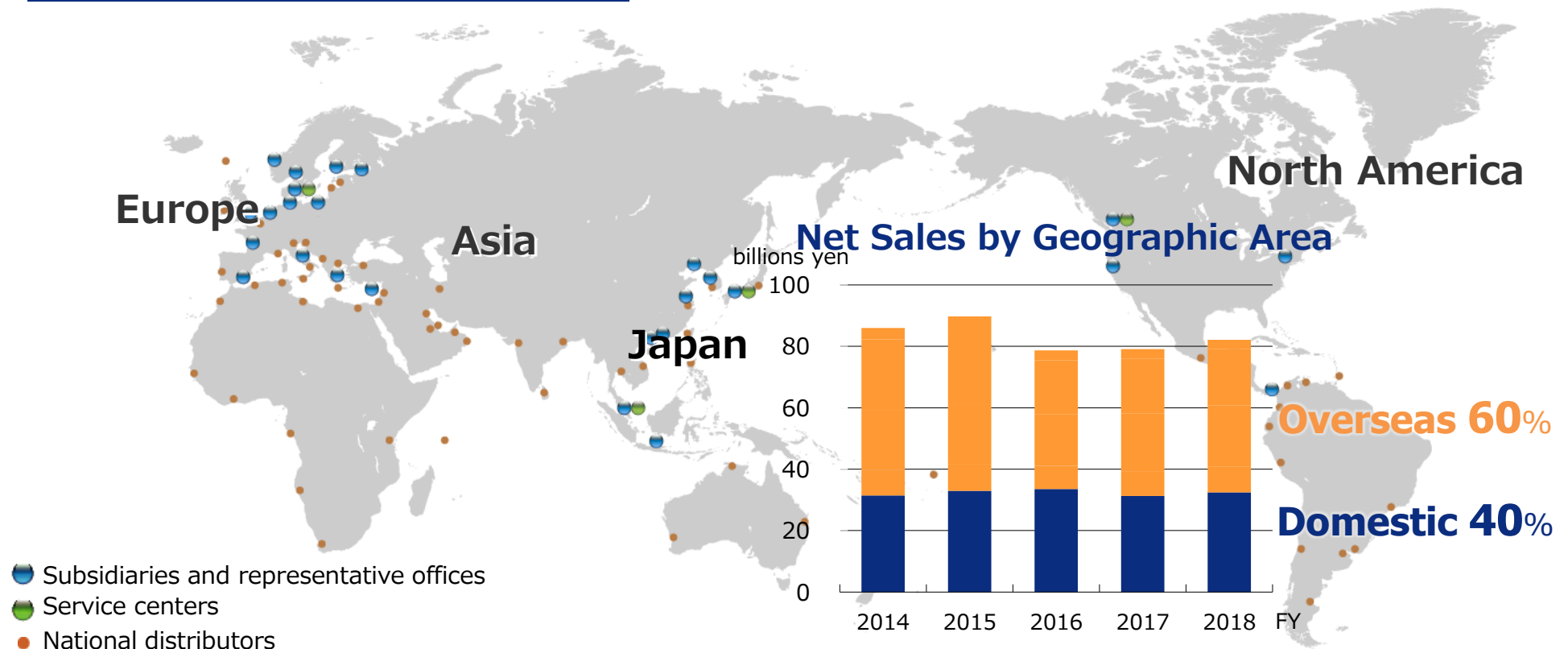
## FURUNO'S Global Network

Domestic **8** offices

Overseas **30** subsidiaries

Distributors in **83** countries

As of March 1, 2019



# 1. Corporate Profile

**FURUNO**

## FURUNO'S Navigation Package, No.1 in the world

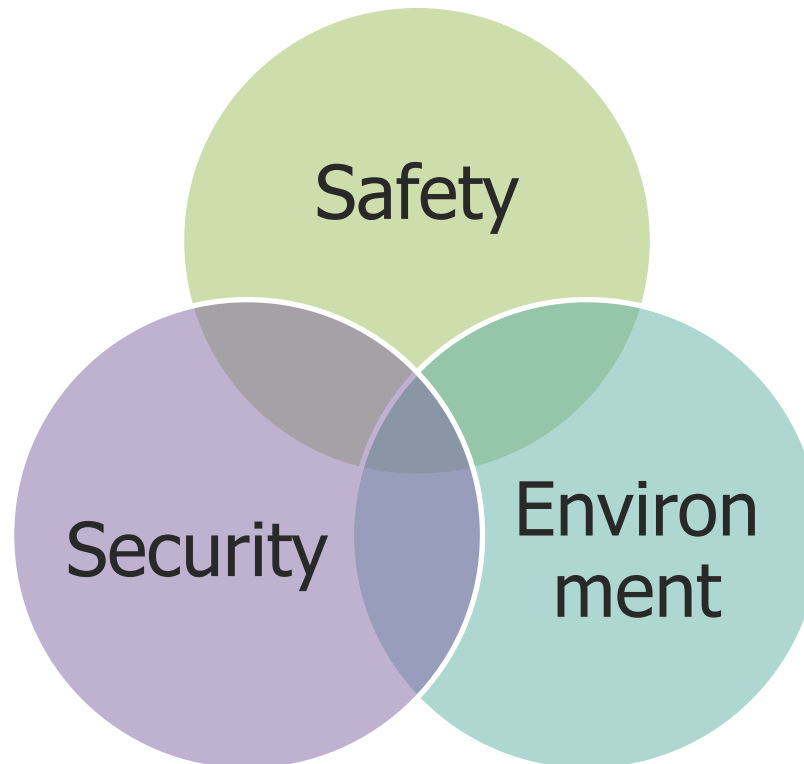


- ◆ **Safety**, always of utmost importance
- ◆ Focus on **legal framework** as well as business model
- ◆ **Cooperation** from the early design stage with shipyards for creation of customers' value

## Interim guidelines for **MASS (Maritime Autonomous Surface Ship) trials**

**(Approved at MSC 101, June 2019)**

The trials are done in a safe, secure and environmentally sound manner.



## 4. MASS Trial in Japan

**FURUNO**

### FURUNO Supported World's First Maritime Autonomous Surface Ships Trial





# 5. FURUNO's roles for MASS

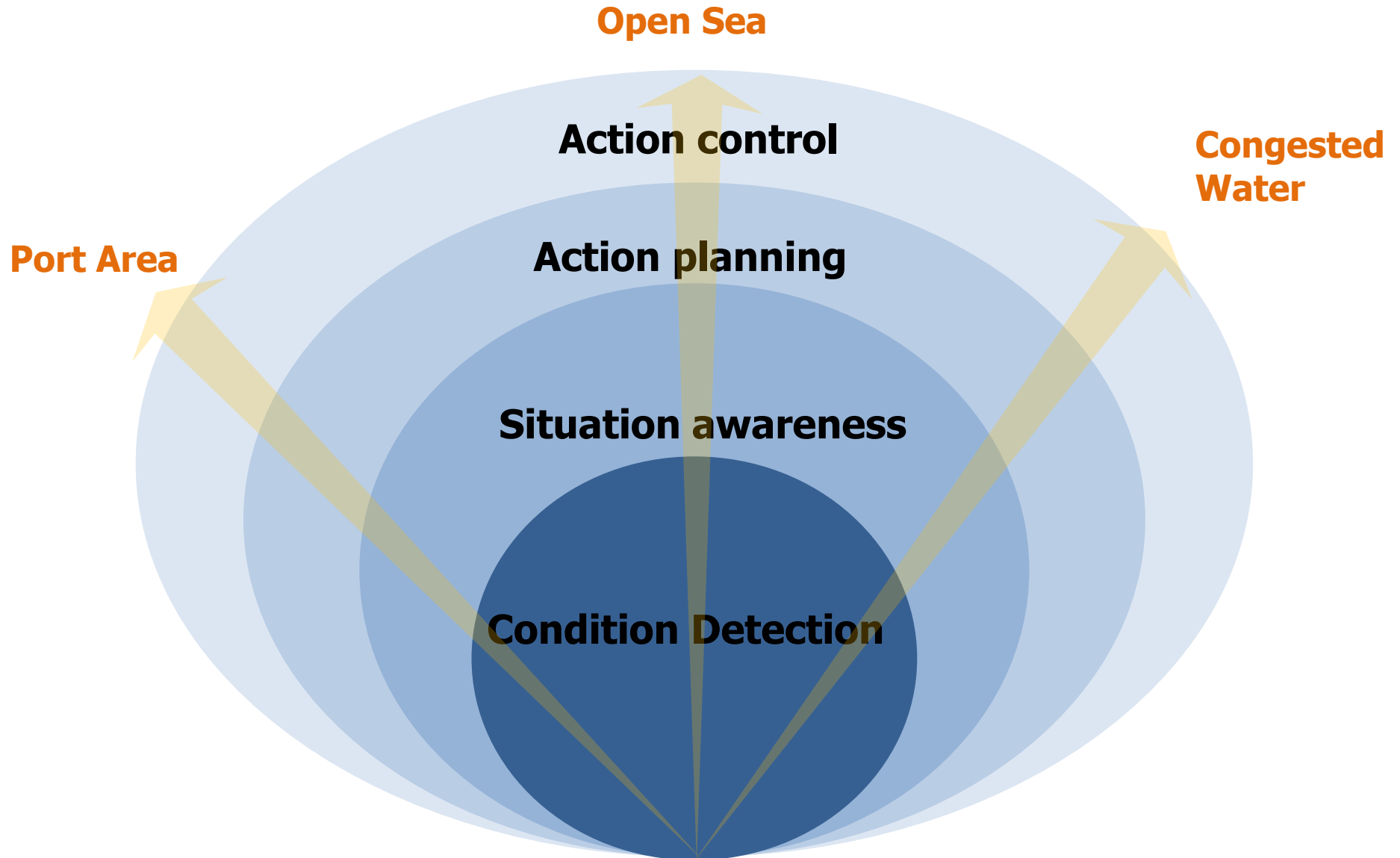
**FURUNO**



Aiming at Zero maritime casualty

# 5. FURUNO's roles for MASS

**FURUNO**



# 5. FURUNO's roles for MASS

**FURUNO**

## AR Navigation System -Beyond Reality-

To alleviate:

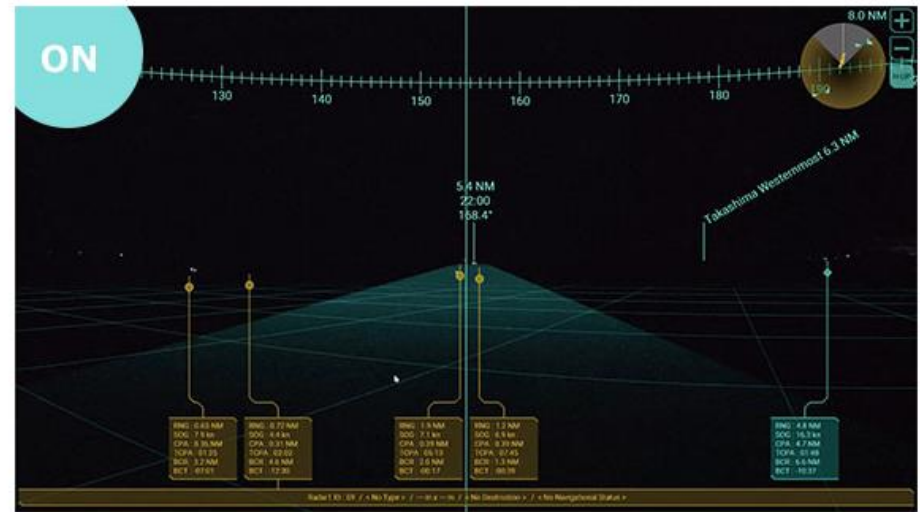
- ◆ the stress of Navigators
- ◆ the risk of human errors



# 5. Furuno roles for MASS

## Situation awareness

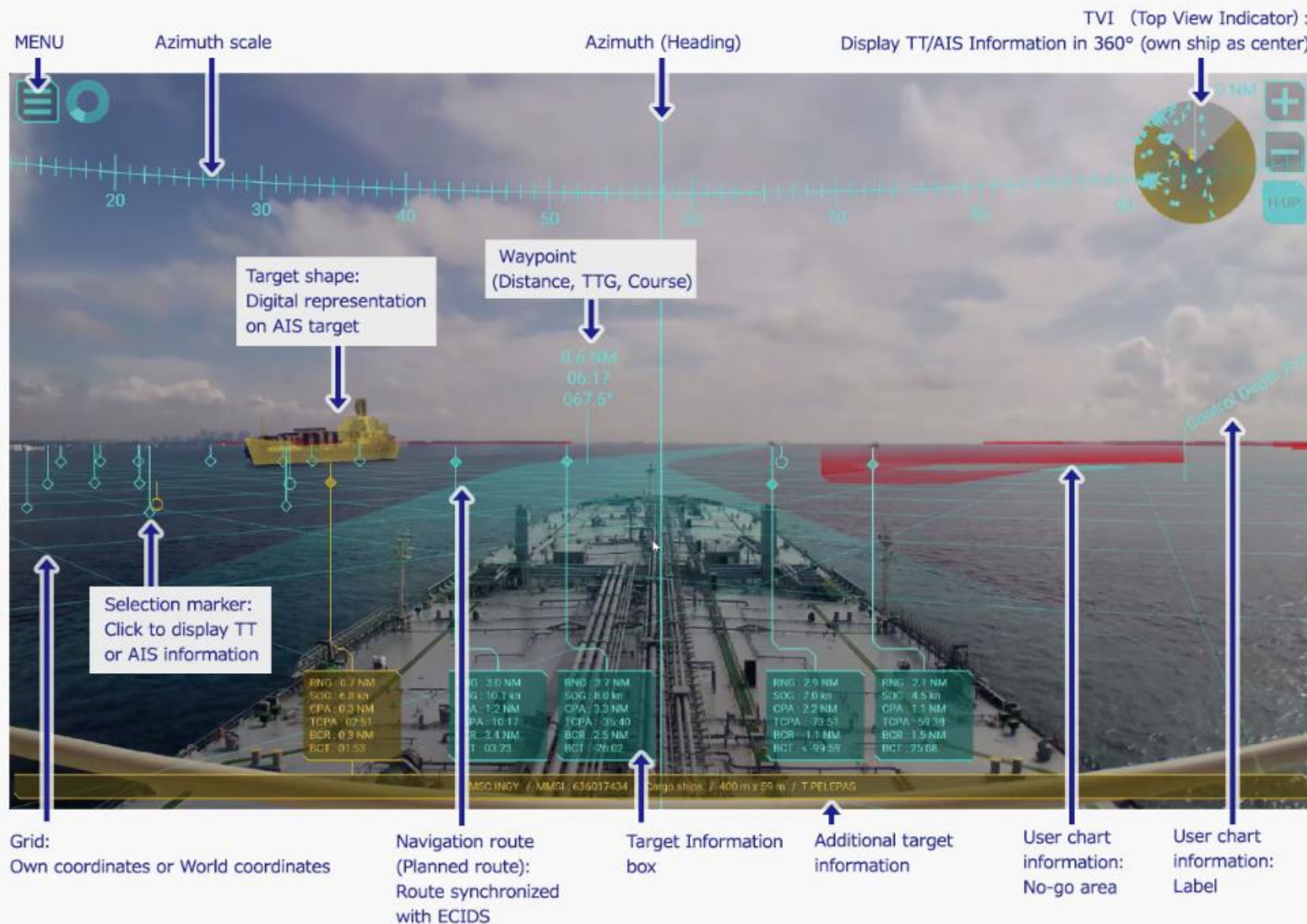
- ◆ Useful in poor visibility conditions
- ◆ Share the information between the captain and the bridge team.



During nighttime navigation

# 5. Furuno roles for MASS

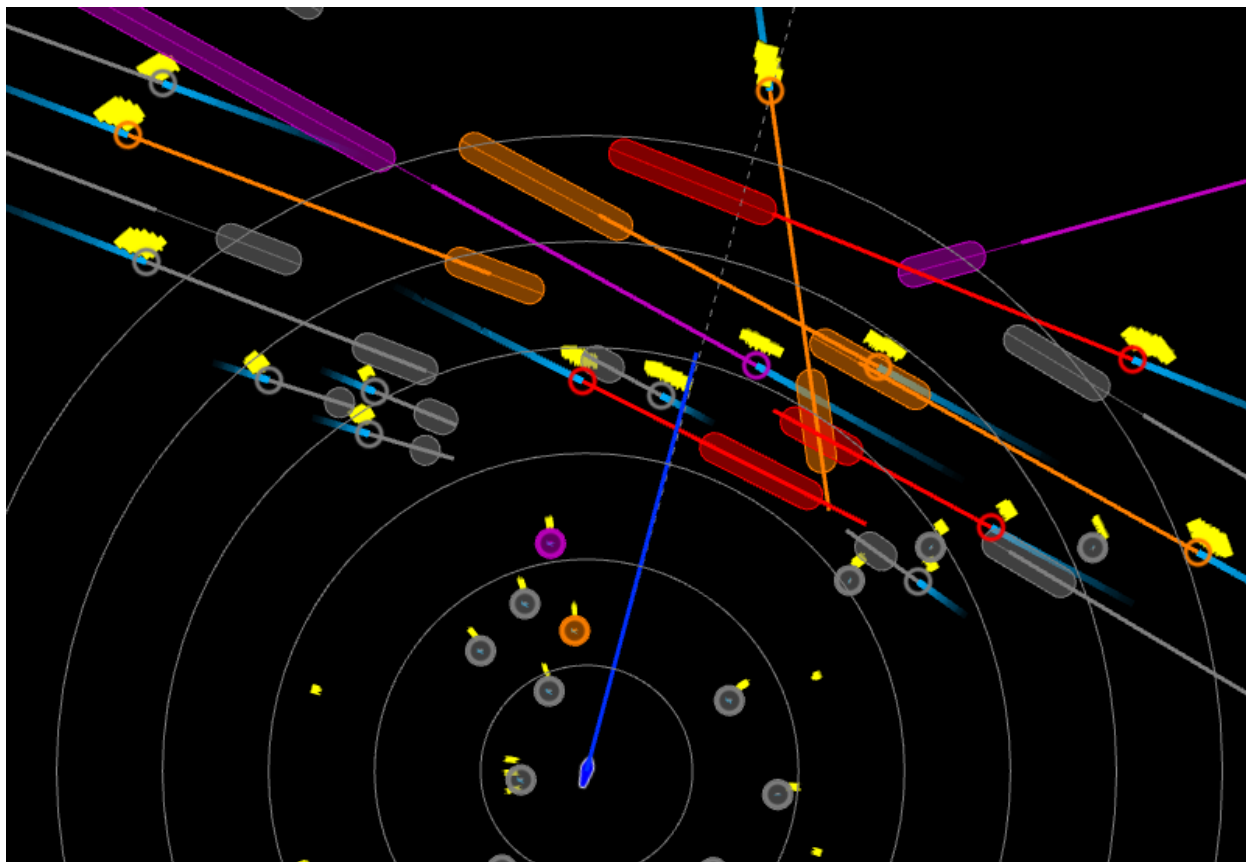
**FURUNO**



# 5. Furuno roles for MASS

## Analyze and Judgment

Risk level is totally optimized with use of experiences by captains and watch officers.



 **Possible Area for Collision**

### Risk Level

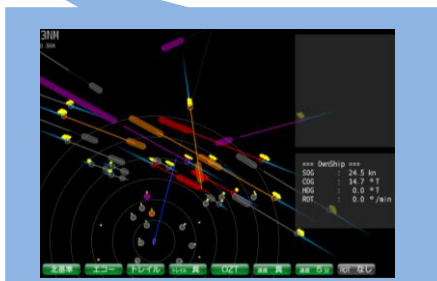
 Danger  
 Warning  
 Caution  
 Safe



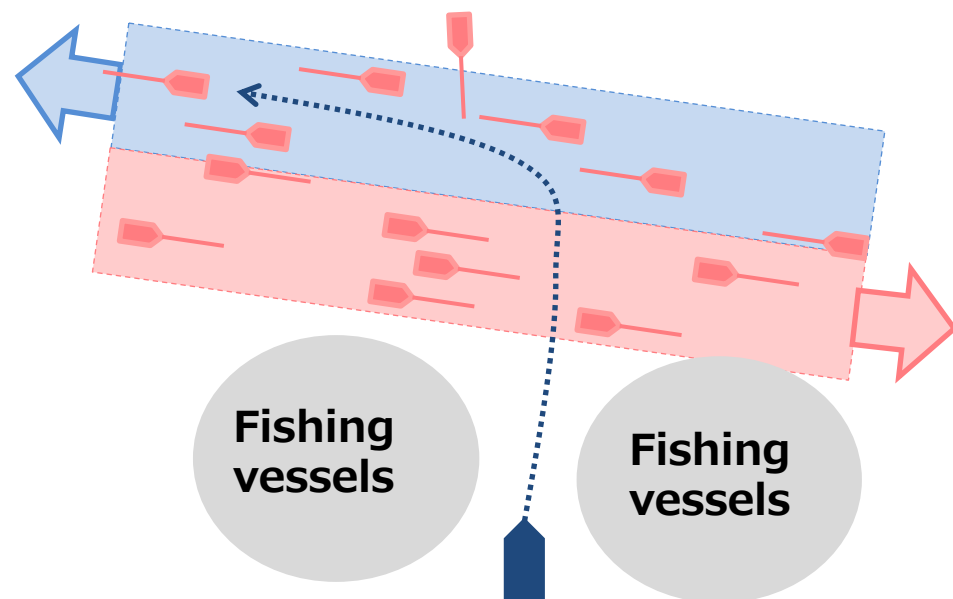
# 5. FURUNO's roles for MASS

## Analysis and Judgment

Verification test of anti-collision maneuvering with use of simulator



(Test by captains, C/Os, 2/Os, 3/Os)



Simulator Scenario: Off the coast of Singapore

- ◆ **Safety**, always of utmost importance
- ◆ Focus on **legal framework** as well as business model
- ◆ Cooperation from the early design stage with shipyards for creation of customers' **value**



*Let's go beyond reality  
with **FURUNO!***