The e-Navigation strategy of Korean government

SMART-Navigation

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Ministry of Oceans and Fisheries
Republic of Korea
1. GICOMS
* General Information Center On Maritime Safety and Security

Background

- 72.5% of marine accidents are caused by fishing vessels
- 65% of total life losses are caused in fishing vessel
- 459 peoples died in fishing vessels accidents during 2008-2012
- 50% of the fishing vessel involved in accidents are less than 20 G/T
- 67% of marine accidents occurred in the coastal waters
- 72.2% of marine accidents involved ships of less than 100 G/T
1. **GICOMS**

**Vision**

To establish a National Marine Crisis Management System

**Goals**

- To manage marine accidents and dangerous situations
- To monitor all flagged ships in the world
- To monitor all foreign ships in Korean coastal waters
- To manage fishing vessels and small crafts
- To exchange information between government agencies
- To provide public information services
1. GICOMS

**Project Period**

1st Phase : 2003 ~ 2008
2nd Phase : 2008 ~ 2012

**Output**

- Nationwide AIS network system
- Vessel Monitoring System based on Mobile, RF, AIS and Satellite
- GICOMS Data Center with Integrated System
- Data Exchange among Government Agencies
- Marine Situation Management System
Architecture of GICOMS

GICOMS Data Center
- Maritime Traffic Info.
- Navigational Safety Info.
- Ship & Seafarers Info.
- Marine Accident Info.
- Int’l Maritime Info.

GICOMS Operation Centre

Global VMS
- RADAR
- MF/HF DSC
- VHF DSC
- AIS
- Mobile Phone
- Satellite

Data Exchange
- Information Services
- Int’l Cooperation
- Web VMS Service

Situation Management System
- MRCC
- LRIT
- SSAS
- SAR system

Architecture of GICOMS
Piracy Warning
N 2°23′34″, E108°12′21″
03-04-2014
09:00 GMT
GICOMS is a pre-model of e-Navigation.
2. SMART-Navigation

* Korea’s Initiative for future e-Navigation

SMART-Nav is ...

SMART-Nav = IMO’s MSPs + E-Nav Services for Non-SOLAS ships

Taking into consideration special maritime environment in Korean coastal waters
2. SMART-Navigation

Key Elements of SMART-Nav

Ship
- New generation’s ECDIS
- Integrated Bridge System
- Ship Area Network
- Device for small craft

Network
- Maritime LTE Network
- Digital GMDSS Network
- Maritime Satellite Comm.

Shore-based
- Single Window Reporting
- Maritime Cloud service
- Maritime Big-Data
- Ship Monitoring Center
## SMART-Nav Services

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### Korea’s specially designed service

For safety, economy, security and environmental protection in Korea.

Essentially required service for Korea.

Specialized service for Korea.

Additional service not included in the preliminary list of MSPs but necessary for Korea maritime safety management.

- Remote monitoring of ship’s on-board systems.
- e-Navigation services for coastal small ships, fishing vessels and leisure boats.
3. Strategy for SMART-Nav

**Vision**

To establish a framework that provides a platform for seamless information exchange between ships and ship and shore

**Goal**

- To enhance the safety and security of navigation
- To improve efficiencies of shipping
- To overcome an information gap at sea

* through harmonization of marine information and breaking communication barrier
3. Strategy for SMART-Nav

**Strategy**

- **S1** Development of core technologies
- **S2** Expansion of national infrastructure
- **S3** International cooperation
- **S4** Partnership with stakeholders

**Implementation**

- Government led R&D projects (220M USD from 2015 to 2020)
- SMART-Nav operation center
- Marine LTE and Digital-GMDSS
- Global e-Nav test-bed projects
- SMART-Navigation Forum
- Responses to compelling needs from users
Within 100Km = Marine LTE
$100 \sim 300\text{km} = \text{Digital GMDSS}$
3. Strategy for SMART-Nav

**R&D Projects for ...**
- Technologies for IMO’s e-Nav services (MSPs)
- Technologies for information exchange
- Technologies for marine information services for non-SOLAS ships
- Maritime network technology based on land infrastructure

**Infrastructure for ...**
- SMART-Nav operation center for marine information services
- Maritime cloud service and big-data
- ENC comply with S-100
- Marine LTE and Digital GMDSS
- Portable Device for small crafts
Architecture of SMART-Nav

Total Maritime Safety Management (SAMRT-Nav)

- Pilot Assist
- Med. Assist
- Emergency Assist
- VTS Assist
- Chart & Pub. Update
- Small ship Assist

Maritime Network (LTE, Digital GMDSS)
- ENC with S-100
- Common Maritime Data Structure
- Maritime Cloud Service and Big-data
- Software Quality Assurance
- Resilient PNT
3. Strategy for SMART-Nav

Decisions at the Government Level

- Ministry of Oceans and Fisheries (MOF) was revived (Mar. 2013)
- Draft SMART-Nav Strategy was reported to the President (Oct. 2013)
- The Economic Ministers’ Conference decided as a national strategy (Nov. 2013)
- 2014 work plan of the President Office (Feb. 2014)
- Feasibility Study for national R&D projects will be carried out by the Ministry of Planning and Finance (~ Jul. 2014)
4. Roadmap and Organization

Project Roadmap


- R&D
  - Developing relevant core Tech. & Services

- Infrastructure

- Conceptual design
  - Architecture of SMART-Nav
  - Organizing Governance

- Implementation
  - Applying Systems developed
  - Expending to Non-SOLAS

- Operation

2025
Project Organization

• Sustainability at the Government level
• Co-work with relevant Ministries
• Reflect of compelling needs of Users
5. Conclusion

• Many issues on fishing vessels and small-sized ships
• GICOMS will be a pre-model of an e-Navigation
• SMART-Nav is a Korean version of e-Navigation
• MOF will carry out a R&D project for SMART-Nav
• MOF wishes to play a key role in global implementation of e-Navigation
Thank you

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