

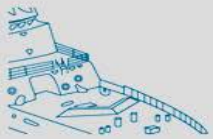
CONGRESO INTERNACIONAL DE
IV DISEÑO E INGENIERÍA NAVAL
11 - 13 DE MARZO DE 2015

*March 11th 2015
Cartagena de Indias, Colombia.*

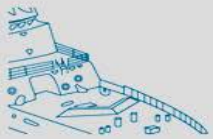


**Development of technological capabilities in the
Colombian Naval Industry/
*Desarrollo de capacidades tecnológicas en la
Industria Naval Colombiana***

*Rear Admiral / Contralmirante JORGE ENRIQUE CARREÑO MORENO
Cotecmar CEO / Presidente de Cotecmar*



Agenda



Outline

CONTEXT Knowing Colombia



Colombia

31st world economy (IMF 2013).
4th largest economy in Latin America
(one of **CIVETS** emerging economies).

The population of Colombia is
approximately **47.7 million**
(2nd largest population of any Spanish-
speaking country in the world).

A member of the Pacific Alliance.
Combined GDP of U\$ 2 trillion - 35%
of the Latin American GDP.



Colombia

Territory extension of around
1.1 million km²

Coasts in both Oceans
(Pacific and Atlantic).

Maritime extension of
928.660km²

2.900 km of coasts

180 miles from the Panama
Canal.

24.725km of
rivers (75% is
navigable)



Magdalena River
1.500kms

Amazonas River
6.800kms (BRA-PER-COL)

Orinoco River
2.140kms (VEN- COL)



Oil&Gas Industry
Growth in
Colombia.



INTERNACIONAL DE
ENGINIERIA
VAL
MARZO DE 2015

Panama Canal Expansion will
change the dynamics of the
Caribbean maritime routes.



Projects
encouraging the
tourism sector

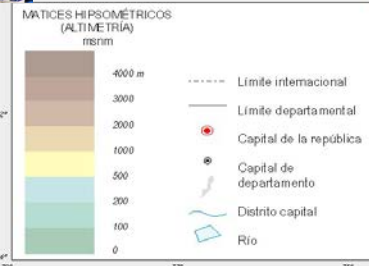


Market Opportunities

Free Trade
Agreements (USA,
Korea, etc.)



Domestic and Latin
American needs regarding
Riverine and Maritime
combatants and law
enforcement vessels



Outline

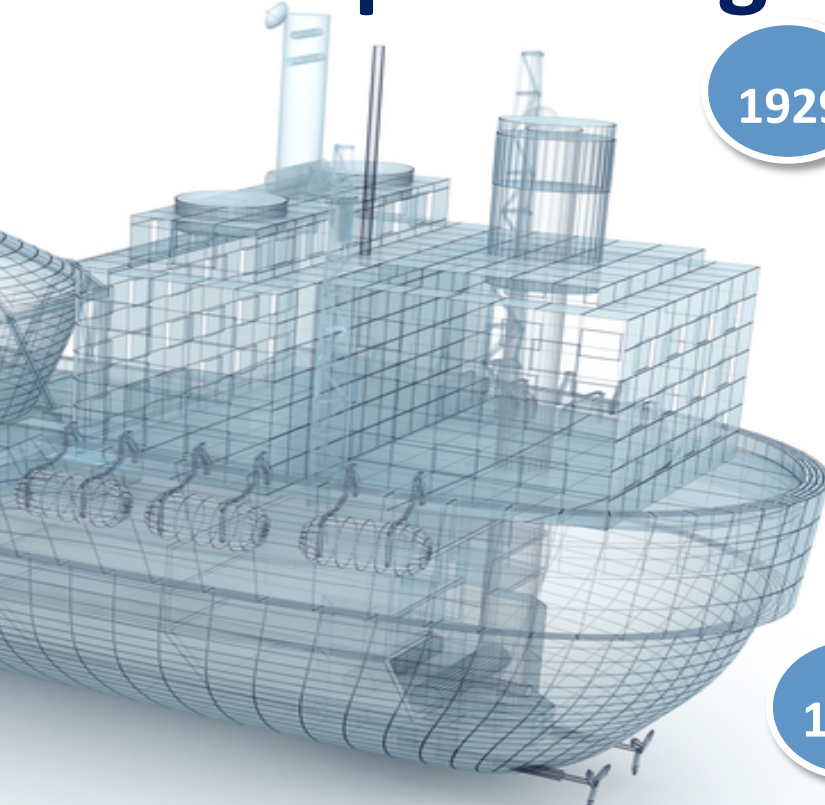
**PAST:
How we
started...**



BEGINNING THE STORY



Colombian Shipbuilding Industry History



1929

UNIAL creation. First Modern Shipyard

1934

Navy Department reorganization

1956

EDANSCO – BN1 Set Up

1969

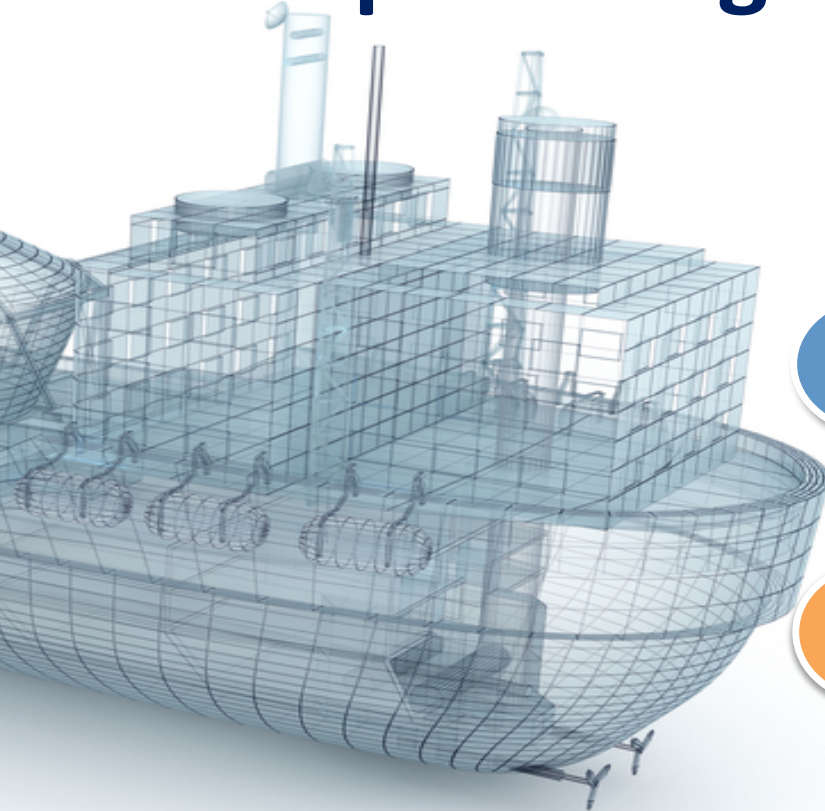
CONASTIL S.A. - Floating dock

1977

Mamonal Plant expansion (3600 TLC) Sincrolift, ARC 20% Equity Stake



Colombian Shipbuilding Industry History



1981
1983

CONASTIL Expansion

1994

CONASTIL bankruptcy

1997

Shipyard Recovery Program

1997

Sincrolift Operation Recovery

2000

Cotecmar Set Up



2001

Cotecmar begins operations

15 AÑOS
INNOVANDO
POR COLOMBIA

COTECMAR



Academy – Industry – State

**No Government budget
allocated!**

A Science and Technology Corporation

Colombian Constitution, Law 29 of 1990, Decree 393 of 1991.

Science and Technology Law.

NON FOR PROFIT

MIXED (STATE OWNED + PRIVATE)

S&T FOCUSED

SHIPBUILDING INDUSTRY DRIVEN

INTEGRATED MODEL



UNIVERSIDAD
NACIONAL
DE COLOMBIA



Outline

PRESENT *Cotecmar:* **Capabilities & Products**





Mamonal Shipyard

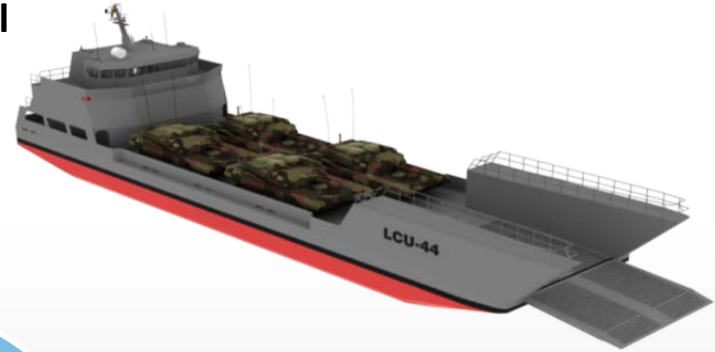


Bocagrande Shipyard

Capabilities

Research and Development Programs

Design & Naval
Architecture



D&A

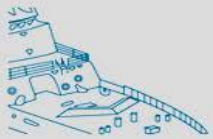
**COTECMAR
Research
Programs**

IC2

SMP

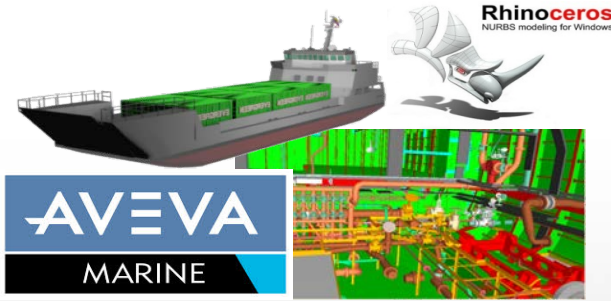
Informatics, Communication &
Control Technologies

Shipbuilding Materials and
Production Technologies

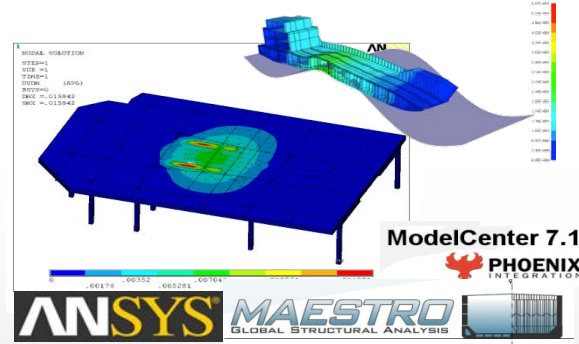


Ship Design and Naval Engineering

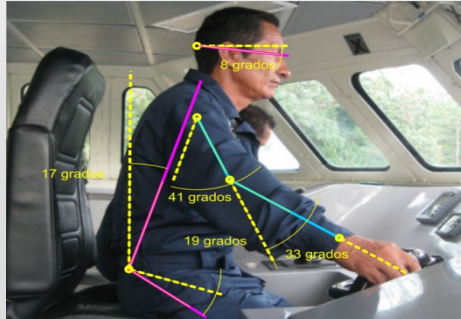
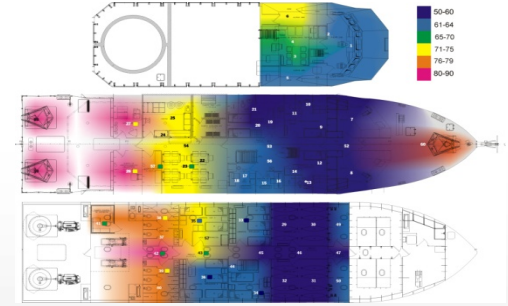
Ship Design



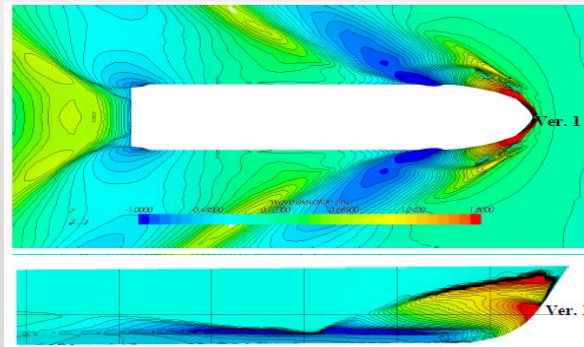
Structures & Materials



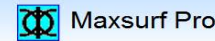
Noise & Vibrations



Ergonomics & Human Factors



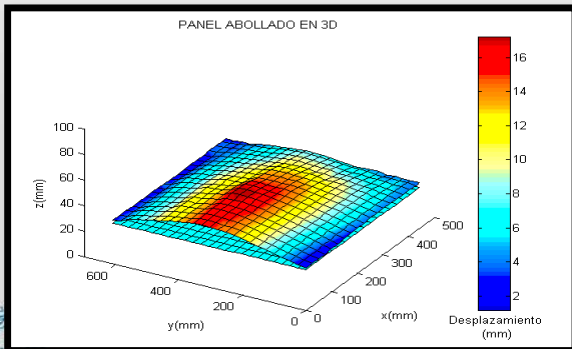
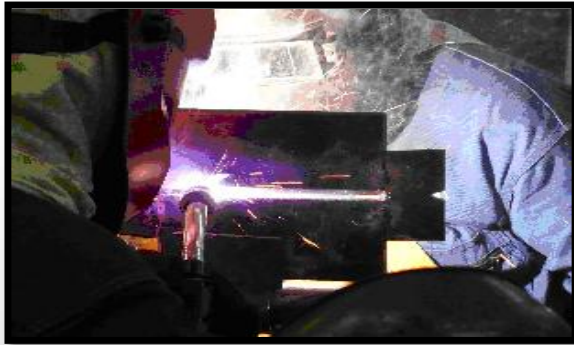
Hydrodynamics



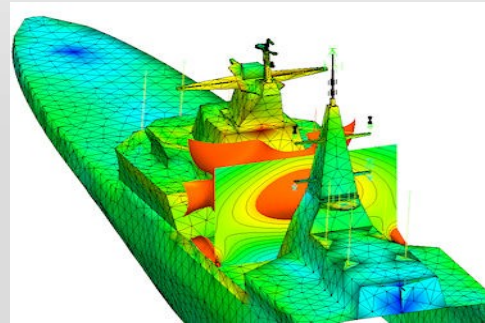
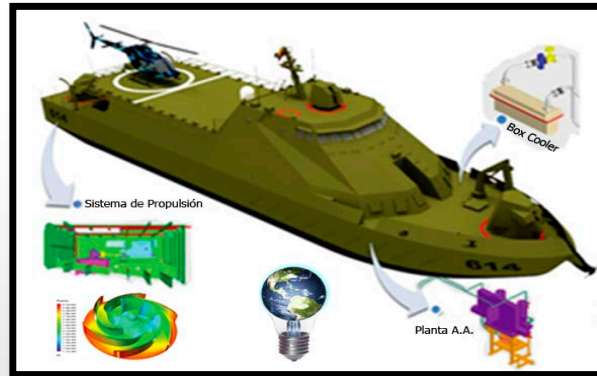
Pollution control

Ship Design and Naval Engineering

Ballistic Welding & Structural Impact Loads

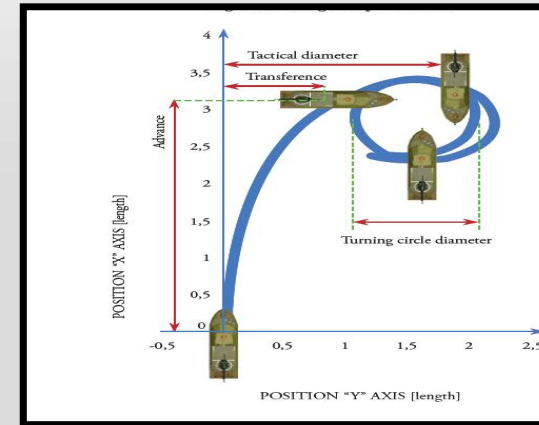


Energetic Optimization



Electromagnetic Compatibility

Maneuverability in Shallow Waters



Product Innovation

LAW ENFORCEMENT



MILITARY



DUAL-USE TECHNOLOGY



Video

Law Enforcement



OPV - ARC 20 de Julio



OPV - ARC 20 de Julio



OPV - ARC 7 de Agosto





Coastal Patrol Vessel - CPV



Military



Riverine Support Patrol Vessel - H



**COMBAT
PROVEN**



Riverine Support Patrol Vessel - L



**COMBAT
PROVEN**



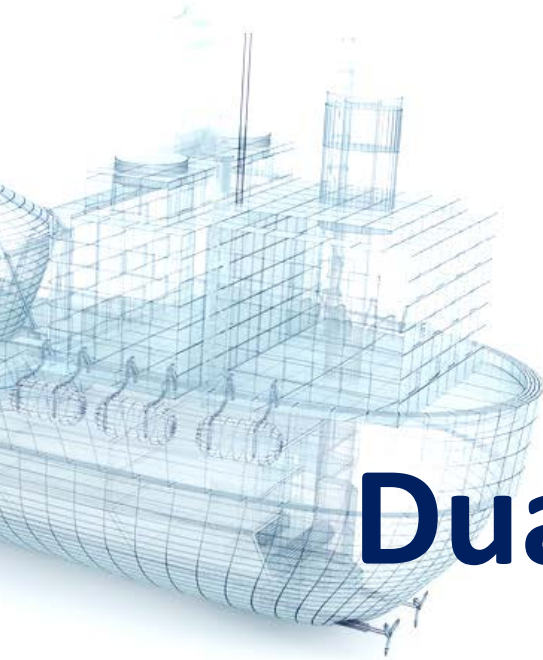
Riverine Patrol Craft

COMBAT
PROVEN



Riverine Patrol Craft

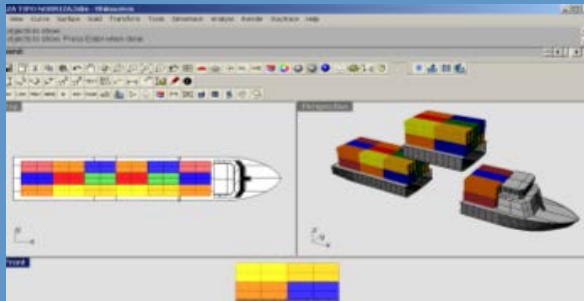




Dual-use Technologies

Dual-use Technologies

Riverine Containership



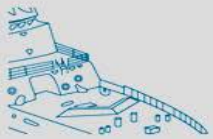
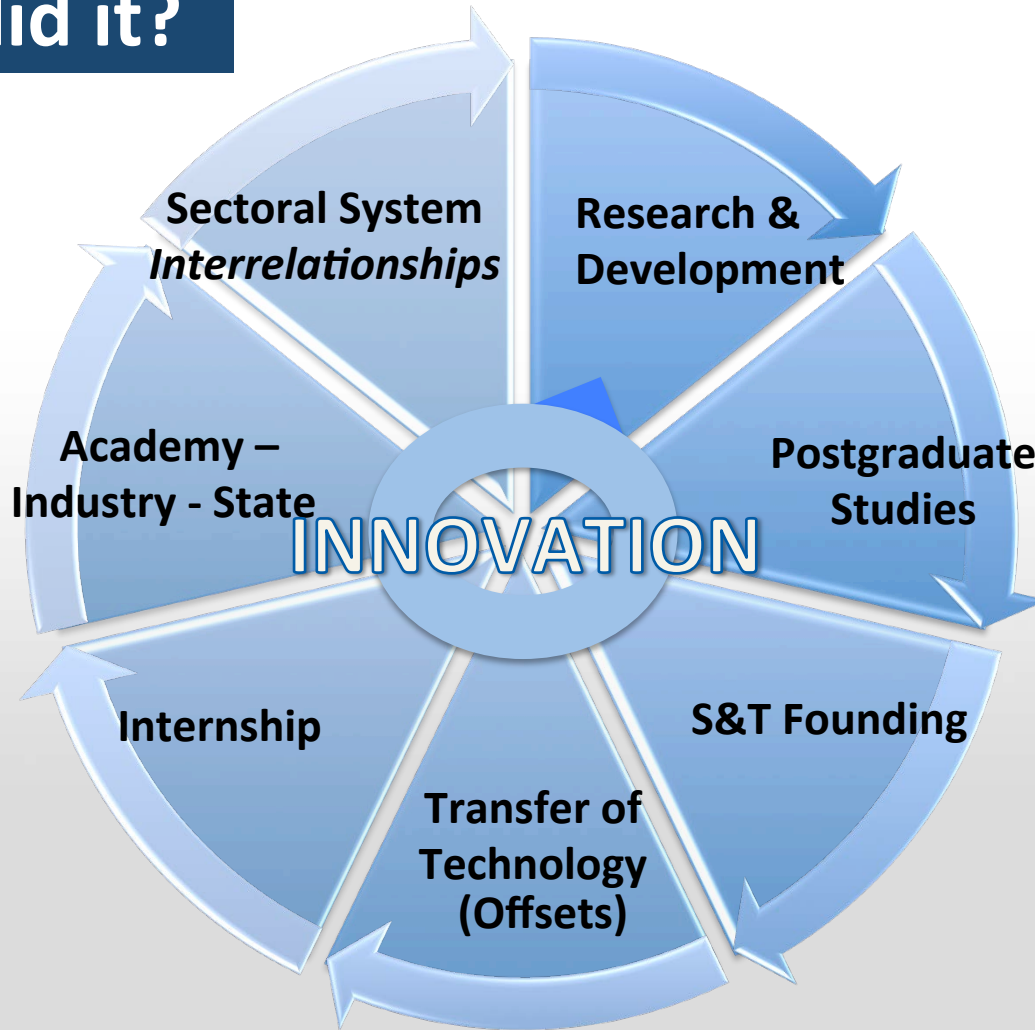
LOGISTIC SUPPORT



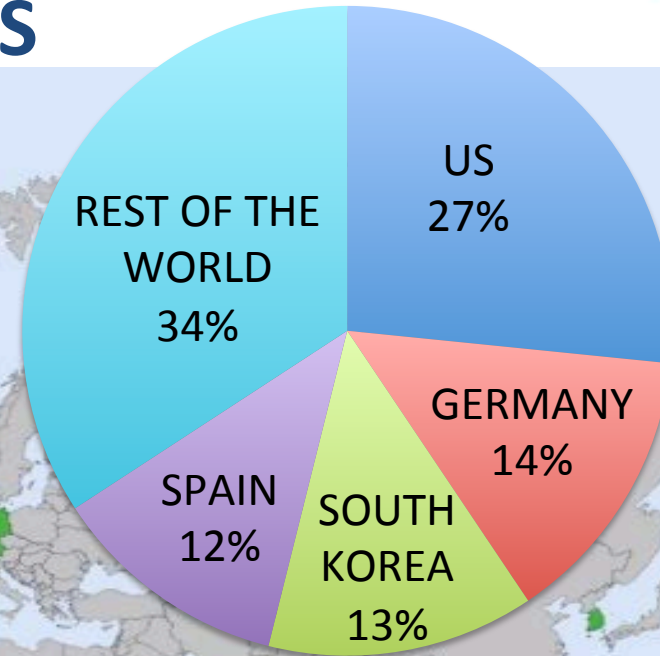
Landing Craft Utility – LCU (BDA)



How we did it?



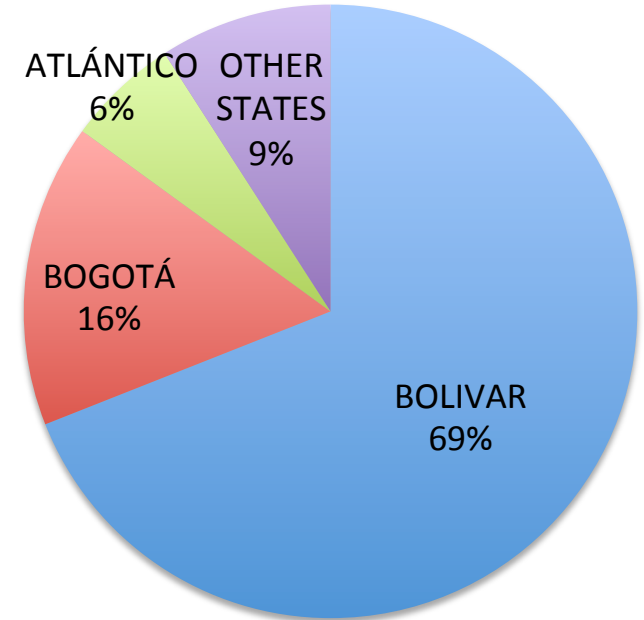
INTERNATIONAL SUPPLIERS



REST OF THE WORLD

PANAMA
BRAZIL
CANÁDA
CHILE
NETHERLAND
ARGENTINA

DOMESTIC SUPPLIERS



OTHERS STATES

ANTIOQUIA
VALLE DEL CAUCA
SANTANDER
CUNDINAMARCA

Outline

**How we
see...
The FUTURE**



Future Vision

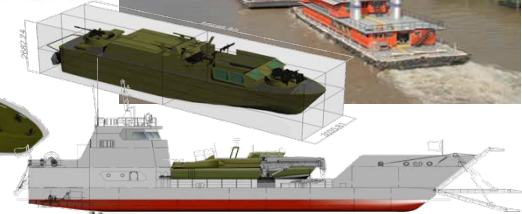
DOMESTIC &
INTERNATIONAL

OFFSHORE

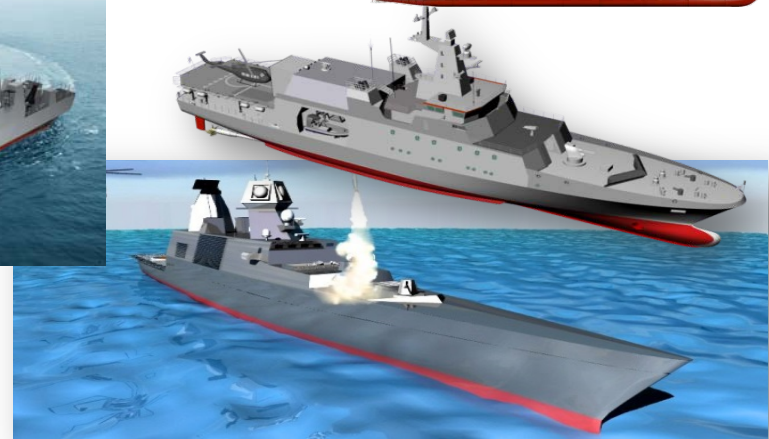


THREE MARKETS INTEGRATED IN THE
SHIPBUILDING SECTOR

RIVERINE



NAVY



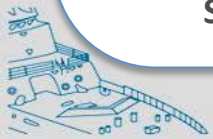
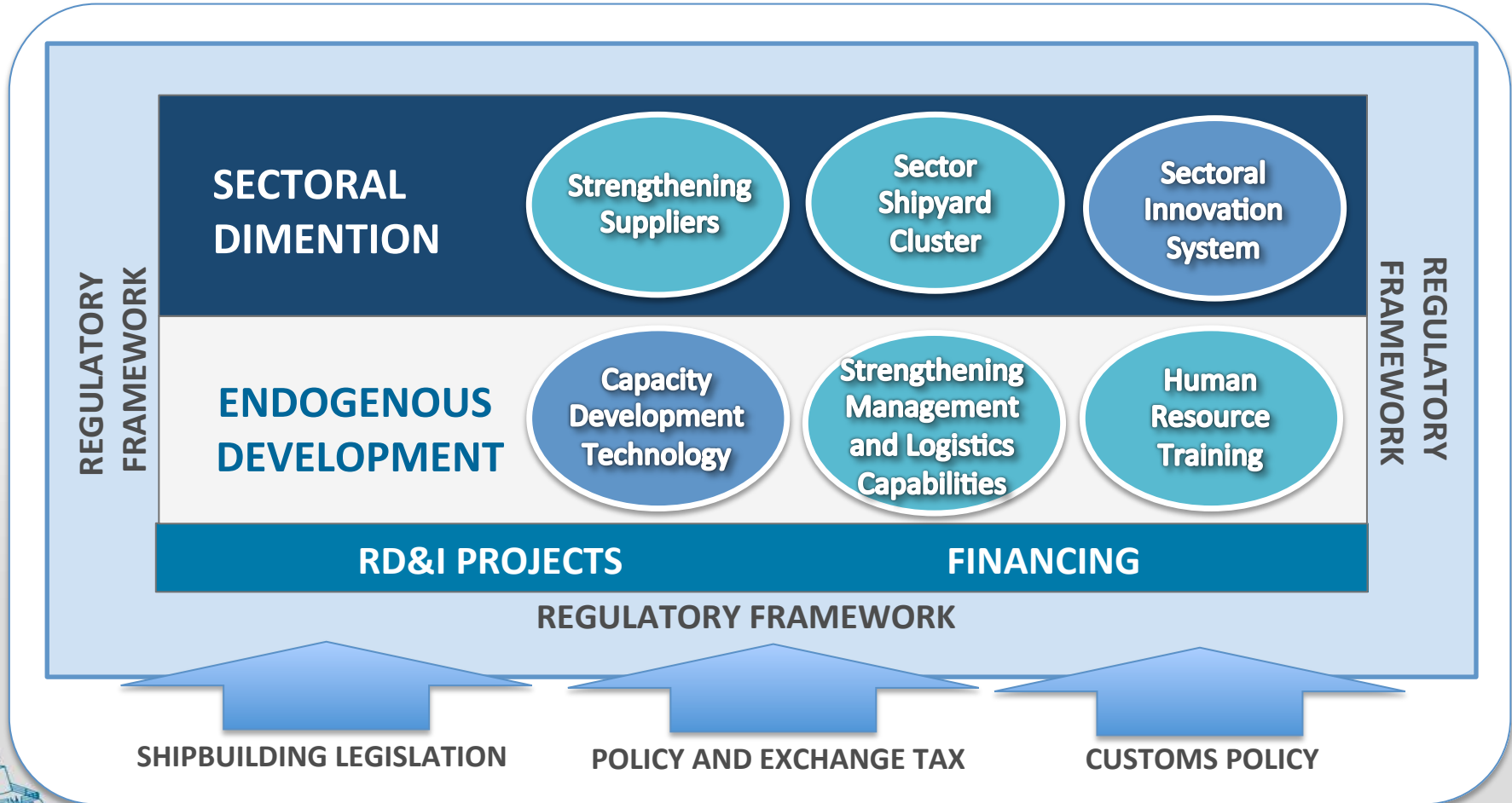


Productive Transformation Program

Program Perspectives



STRATEGIC CHALLENGES



International Collaboration



**Sector Strengthening
Headquarters in Colombia
International Internship**

International Collaboration

¿What does Cotecmar offer to other Navies?

With Colombian Navy and MoD Support

- ① Complete Solutions
- ② Cooperation
- ③ Knowledge and Technology Transfer
- ④ Integrated Logistic Support, Maintenance
- ⑤ Riverine control and Coastguard Experience
- ⑥ Anti Narcotics Experience
- ⑦ Navy Training Schools: Coastguard, Riverine Combat, and Surface School.



Thank You



CONGRESO INTERNACIONAL DE
IV DISEÑO E
INGENIERÍA
NAVAL

11 - 13 DE MARZO DE 2015