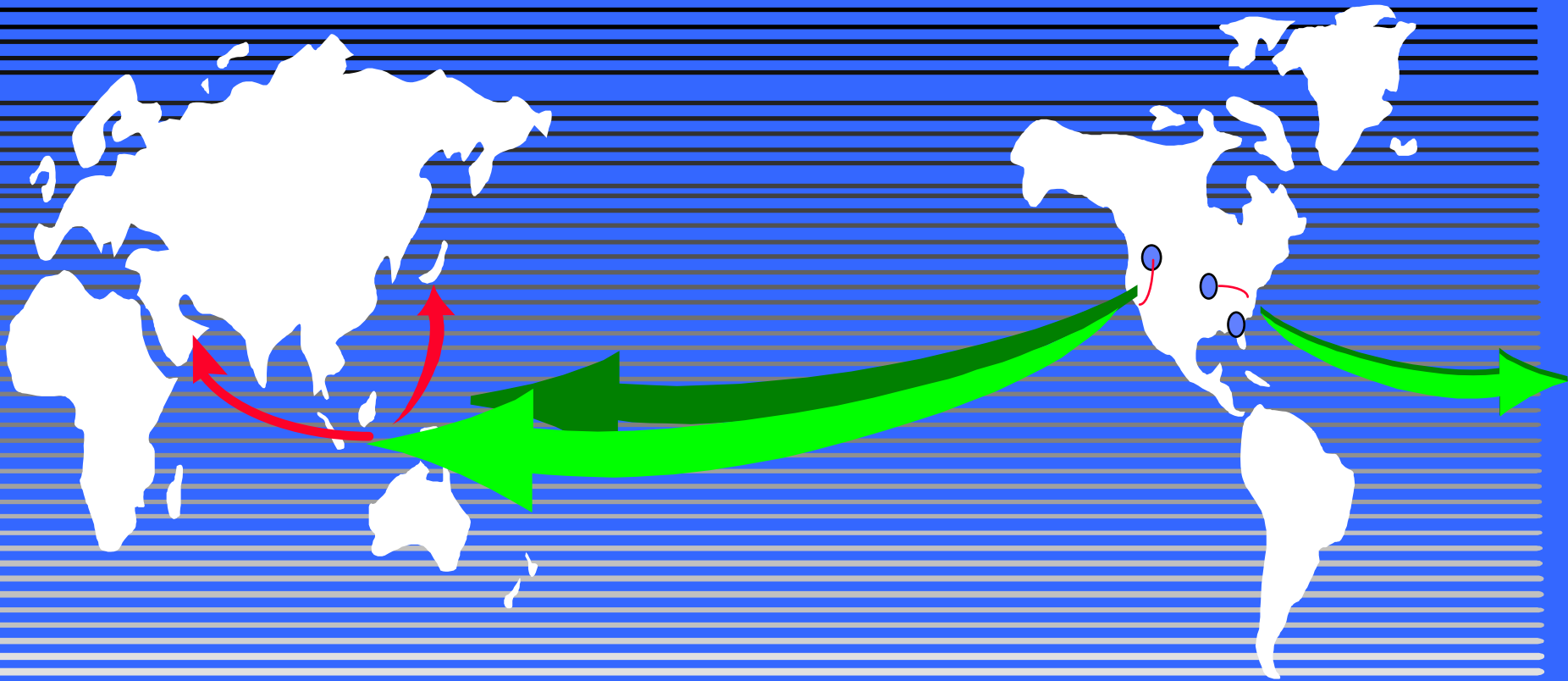


CCDoTT

Center for the Commercial Deployment of Transportation Technologies

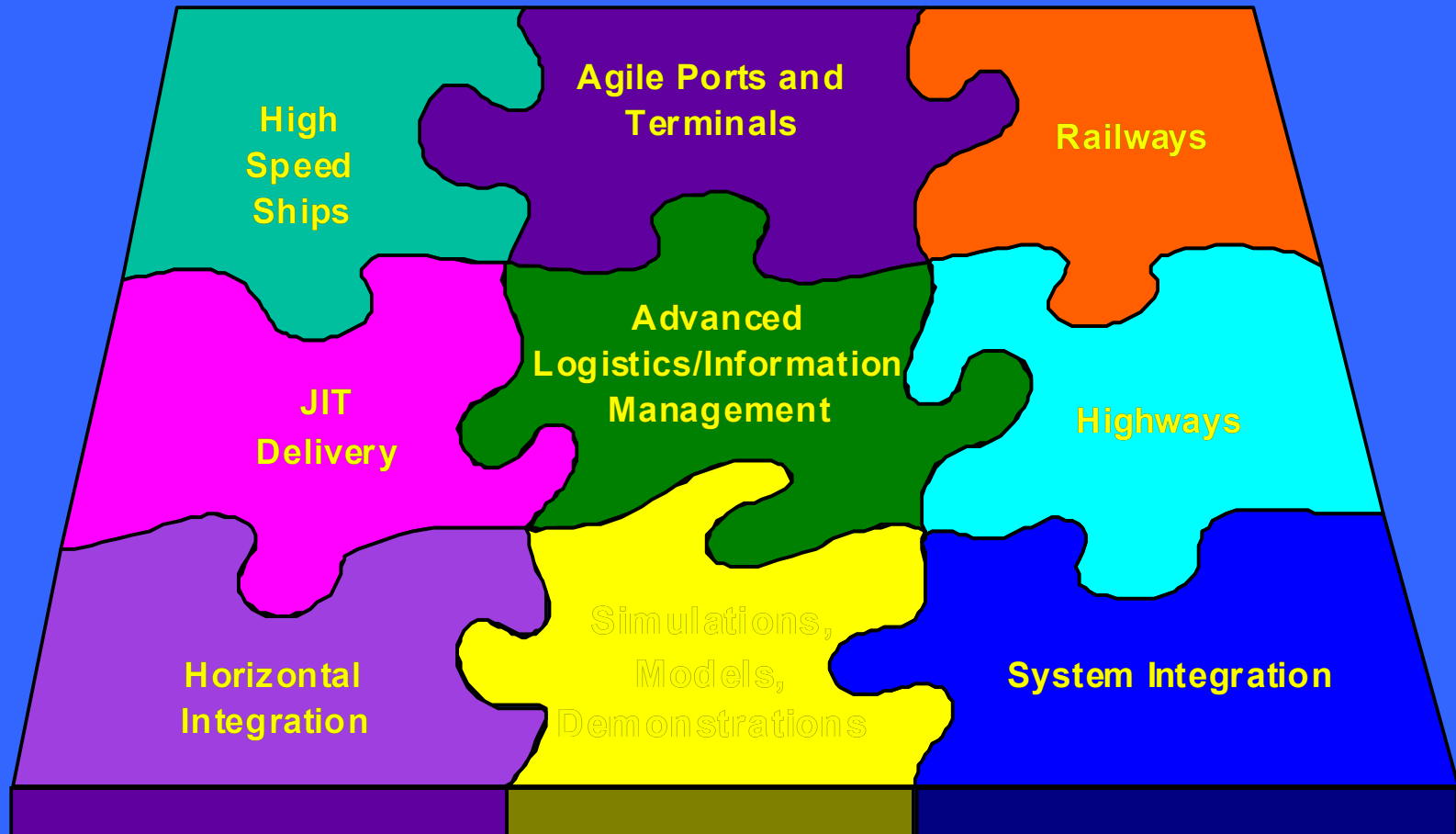
HIGH SPEED SEALIFT



***“Give me a fast ship,
because I intend to go in
harm’s way”***

John Paul Jones, 1777

CCDoTT's PRIMARY MISSION: Rapid Deployment



CCDoTT GOAL: Leverage Partnerships of Private Sector/Commercial, Public Sector, and DoD Intermodal Research

STATE-OF-THE-ART HIGH SPEED HULLS

- **High-speed multi-hull vessels**
 - Catamaran
 - Tri-maran
 - Quadramaran
- **High-speed monohull craft**
 - Monohull with outriggers
- **SWATH (Small-Waterplane-Area-Twin-Hull)**
(Semi-Submerged Catamarans (SSCs))
- **Air cushion vehicles (ACV)**
- **Hydrofoils**
- **Wing-in-ground-effect craft (WIG)**

HERE'S WHERE THE INDUSTRY IS TODAY:

The commercial state-of-the-art in 1997 is a large modified catamaran aluminum vessel, with water jet propulsors, power by gas turbines, carrying 300 cars/buses and 1000 passengers traveling at 45 knots over a distance not greater than 500 nautical miles.



NQEA Designed SeaJet

Sealift speed
is an important aspect for
Joint 2010 &
AAN's Power Projection
considerations on
out to the year 2025.

HSS STATE OF THE ART

Name	Hull Type	Speed (knots)	Payload (tons)	p=pass. c=cars	Engine	Power (kW) (hp)
Stena Line Norway	Cat.	40+	1,600	1,500p 375c	GE-GT	78,000 110,000
InCat Condor Express	Cat.	44	330	800p 200c	4 x Diesel	28,000 38,000
JSC Meteor Norway	Cat.	40	1433	1500p 400c	4 x GT	60,000 82,000
BC Ferry Vancouver Yard	Cat.	35	530	1,000p 250c	4 x Diesel	34,000 46,000
Auto Express Austal	Cat.	43	320	1,000p 250c	4 x Diesel	24,000 33,000
Fincanterri	Mono Hull	40	400	600p 170c	4 x Diesel	24,000 33,000
INMA Corsica Ferry	Mono Hull	36	800	540p 85c	4 x Diesel	24,000 33,000
Fincantieri	Mono Hull	41	1,200	1,800p 450c	2 x Diesel 1 x GT	67,000 91,000
SL-7	Mono Hull	33	33,000 (2,200 TEU)		Steam	89,000 122,000

HSS -- NOW AND THE FUTURE

	Monohull Cargo	Catamaran	Sea Jet (Modified Cat./SWATH)	Techno- Superliner (SEV)	Projected Catamaran Cargo	Projected Sea Jet Cargo
Speed (knots)	40	45	40 54 (trials)	54	50	100
Cargo (tons)	1,200	1,600	330	200	1,600	2,000
Power (hp)	91,000	106,000	41,000	40,000	106,000	1,200,000

Point: Technology is Available -- Major Risk is to Operators, Shippers & Financers

Challenge: Get Operators, Shippers & Financers Involved

WHO IS OWNING THEM?

- Civilian Operators of High-speed Craft**
- Military Operators**

HERE IS WHERE WE CAN BE IN THE NEAR TO MID TERM:

When asked, industry says that with today's technology, a modified catamaran (with some composites materials); it is possible to:

- carry 2,000 tons usable payload (on 200,000 square feet of deck area),
- load and unload in four (4) hours,
- travel over 3,500 miles,
- at speeds approaching 60 knots,
- in up to sea state six (6).



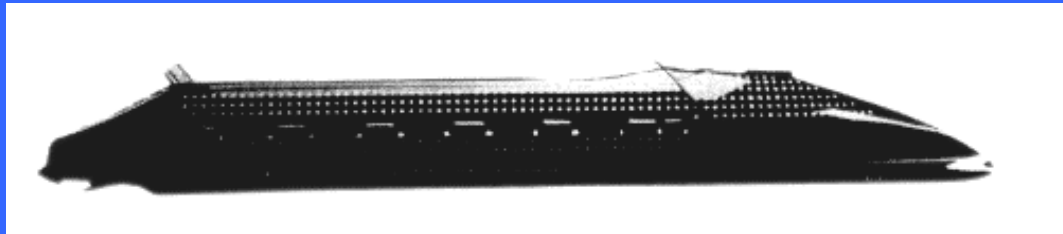
Austal Cargo Carrier Design



Incat Cargo Design

HERE IS THE FUTURE:

In the year 2025, we envision that the vessels will be made of mostly composite and/or combination metals, have some form of dynamic lift capabilities, will carry 5,000 tons usable payload, traveling 8,000 miles, at speeds approaching 100 knots in most sea states, that can be loaded and off loaded in one (1) hour, and will not burn fossil fuel.



Bathmax 4000
Kvaerner Masa / Bath Iron

KEY TECHNOLOGY AREAS

- **Materials**
 - Aluminum
 - Composites
- **Propulsion**
 - Water Jets
 - Gas Turbines (Marinized)
 - Shafts (composite)
 - Pump Housing
- **Manufacturing**
 - Global Virtual/
Collaborative Design
 - CIM
- **Structure**
 - Welding
 - Robotics
 - Extrusions
- **Hull Form**
 - Monohull
 - Multi-hull
 - Hybrid
 - Air Cushion/SES

RELATED ISSUES:

- Regulatory**
- Construction Incentives**
- Construction Materials**
- Manufacturing Techniques**
- Human Factor**

***WHAT MUST HAPPEN IN,
THE NEAR TO MID TERM (3 TO 5 YEARS),
AND THE LONG TERMS (10 TO 20 YEARS).***

- US Army must define needs and requirements further-
(i.e.. Weight Light Armored Brigade, or the “tip of the spear”).
- Must help CCDoTT convince the commercial shipping sector that there is a “middle market” both commercially and militarily.
- At the CINC level and The Joint level: must develop a MNS and an ORD.
- Must participate in short term ATD (April 98) and a long term (5 years) ATD or ACTD
- Must provide funds for RDT&E Technology Advancement Developments.
- Must continue to work to lighten the force.

High Speed

SEDRE

in Spring 1998