The littoral environment and product development

Patrik Selling,
Head of Sales for Bofors in Japan

2 December 2015
Agenda

- The littoral environment and how it affects requirements
- Looking back: How Bofors have developed guns in the past
- Is there a future for guns?
Littoral Warfare: the Baltic Sea

Complex and Complicated environment

- Confined
- Politically complex
- Economically important
- Shipping and fishing
- Valuable infrastructure
  - Cables
  - Pipe lines
- Demanding geography
- Islands and straits
- Variable depths,
- Currents
- Salinity
Aspects of the littorals: conclusions

- Favorable for the Defender
  - The defender can develop adapted materiel and concepts

- Limited Operational Depth
  - Short reaction times
  - Very short time from detection to engagement
  - Priority on defensive measures

- Multiple Threats
  - Optimised systems with multirole capability
  - Human factor is important

- A Systems Approach
  - Range is not everything: Accuracy, Reaction time, Effect!
  - Identification
WEAPON SYSTEMS

A Navy has two basic missions

• In cooperation with other entities over time support the economic system and the human society with safe sea lines of communication. This is a regional and global support to populations and industry.

• Nationally or in cooperation with other forces or authorities contribute to a robust security regime with a focus on defence of its own country or alliance.
WEAPON SYSTEMS

Criterias for success: What have we done?

Very close dialogue with end user
- Requirements are well known
- Lessons Learned through advanced training

Prioritiy to Air Defence: will give good capability in other roles

Systems approach
  Concept of Kill Chain:
  Close cooperation with FCS manufacturer
  Specialised ammunition

Very rapid reloading

Short time to start and move gun: less than 3 seconds

Low LCC and user friendly

Useful system in all conflict levels, from peace to war.
WEAPON SYSTEMS

Evolutionary Design Philosophy

Big Navies can Afford Two Paths

• More of the same
  • DDG Arleigh Burke
  • CVN Nimitz / Gerald Ford
  • Etc.

• Giant-leap development
  • Littoral Combat Ship (LCS)
  • DD-X / Zumwalt
  • USS Nautilus
  • Seawolf SSN

© BAE Systems 2015
Evolutionary Design Philosophy

- Continuous development
  - Proven technologies
  - Extensive training
  - Maintain competence and know-how

- Novelty introductions
  - Step-by-step
  - Evolutionary thinking
  - Mid-life modernisations

- Risk mitigation
  - Parallel system development
  - Demonstrators
  - Cooperation
The gun in the future? Yes!

The littoral environment:

Several tasks from peace to war will remain

Priority to defensive role: Air Defence!

New threats/ targets: UAVs, USVs

Potential for development

A Systems approach: The Kill Chain

Cooperation
What can be done?

- Increase caliber! 40mm to 57 mm!
  - More explosives
  - More sensor technology
  - Longer range

- Higher velocity! (Pressure, Railguns etc)

- The Ammunition:
  - Better propellants! Higher velocity! Lower dispersion
  - Better ballistics: Higher velocity!
  - Better fuzes and better electronics
  - Better explosives: fire, pressure and pre-fragmentation

- Simulation and training: More effective doctrine.

- More affordable ammunition: More training and lessons learned.

- Lower LCC: A more affordable system over time.
Thank you!

Questions?