LAWS in the Maritime Domain: An Asia-Pacific Scenario

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Contemporary Naval Weapons Systems
Naval Armaments in Peace and War

**Left:** amphibious assault ship carrying out offensive beach landing exercise

**Right:** amphibious assault ship ready to embark humanitarian aid for disaster relief
## Skyrocketing Warship Costs

<table>
<thead>
<tr>
<th>Destroyer Class</th>
<th>Year</th>
<th>Unit Cost (US$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Charles F. Adams</td>
<td>1958</td>
<td>200 million</td>
</tr>
<tr>
<td>Kidd</td>
<td>1978</td>
<td>325 million</td>
</tr>
<tr>
<td>Arleigh Burke Flight IIA</td>
<td>2015</td>
<td>1.84 billion</td>
</tr>
<tr>
<td>Zumwalt</td>
<td>2016</td>
<td>3.96 billion</td>
</tr>
</tbody>
</table>
Asymmetric Countermeasures

MM-38 Exocet
1973
US$200,000

MM-40 Exocet
1993
US$3.4 million
“One Hit” Ships, First-Shot Shot Premium?
Sea Hunter ACTUV

Cost of initial unit: **US$22-23 million**
Projected serial production unit cost: **US$20 million**
Note: above figures do not include program costs including development, design and software
Daily operating cost: approx **US$15,000 – US$20,000**
Influencing Factor #1: Maritime Security Threat Perceptions

Types of security threats, whether traditional (state-centric) or non-traditional (non-state), shape the way the militaries are equipped, trained and organized. Militaries confronting primarily traditional security threats are more likely to employ LAWS in the future than those confronting mainly non-traditional security threats.
Influencing Factor #2: Military Employment of Unmanned Systems

This factor is dependent on the financial and manpower capacities to acquire and absorb such technologies. Militaries which have already operated a range of unmanned systems, especially lethal ones, have a higher tendency to acquire LAWS in the future compared to those which do not employ unmanned systems as extensively.
Influencing Factor #3: Access to Technologies

Because LAWS technologies may be restricted to only a few advanced countries, their access may be confined to those capable of developing their own. Therefore, especially countries which have already possess their own industrial capacities to develop unmanned systems, or have secure access to the technologies of advanced countries, may have a higher chance of acquiring LAWS through foreign purchases or domestic development.
Influencing Factor #4: 
Operational Deployment of Unmanned Systems in Maritime Domain

The tendency of militaries to deploy unmanned systems in real operations in the maritime domain may indicate the likelihood of similar deployment of LAWS in the future.
World Seaborne Trade, 2014 (as % of World Total)

<table>
<thead>
<tr>
<th>Region</th>
<th>Loaded</th>
<th>Unloaded</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia</td>
<td>41</td>
<td>58</td>
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<tr>
<td>Americas</td>
<td>22</td>
<td>16</td>
</tr>
<tr>
<td>Europe</td>
<td>18</td>
<td>20</td>
</tr>
<tr>
<td>Oceania</td>
<td>12</td>
<td>2</td>
</tr>
<tr>
<td>Africa</td>
<td>8</td>
<td>5</td>
</tr>
</tbody>
</table>
Density of World Shipping Lanes