Costs and Benefits of Investing in Supply Chain Security Measures: Case Studies of Successful Experiences by Private Sector

Submitted by: World BASC Organization
Voluntary supply chain security programs, such as BASC and C-TPAT, have had important impacts in the global trade environment.

Several studies have been done in order to understand the different points of views and perceptions that companies have towards these programs.

In 2006, the Crossborder Research Association held a study, whose main objectives were to identify which supply chain security standards have been implemented by security leading companies in Latin America in order to establish which are the most efficient and analyze the direct and indirect costs and benefits relationship.

On the other hand, in 2007 a similar research was conducted by the Center for Survey Research (CSR) at the University of Virginia in order to have a better close up of the C-TPAT Costs of investment, benefits and the relationship between them.

It is important to know the different experiences members are having, as it provides an important guideline for future development and globalization of supply chain security standards.
Costs and benefits of Investing in Supply Chain Security Measures: Case Studies of Successful Experiences by Private Sector

Sixth ‘Trade in the APEC Region’s Conference (STAR VI)
“Security and Vulnerabilities of the Global Supply Chain”
Peru, 2008

AGENDA
- Global Security Environment
- Voluntary Supply Chain Security Programs Impacts: an Empirical study with BASC members
- C-TPAT Cost / Benefit Survey
- Summary & Conclusion
- Q & A
Cross Border Research and two Swiss universities: Empirical Study With Basc Members Companies

Study description

- The study was coordinated by Cross-border research association a research team, working in supply chain security management and sponsored by its member companies and two Swiss universities and
- BASC was selected as an interesting case due to its long experience in supply chain security.
- Carried out from January 05 – February 06 (Before AEO programs)
- Cost of the study assumed by Ecole Polytechnique Fédérale de Lausanne, HEC University of Lausanne and the Swiss National Science Foundation
- The study was carried out with a 20-questions survey, which reached 800 BASC member companies in 10 different countries. The survey was written in collaboration with BASC’s direction and fined-tuned in a validation exercise with 5 BASC chapter directors from different countries.
What is BASC?

- **BASC** (Business Alliance for Secure Commerce), is a business-customs partnership created to promote a safe international trade in cooperation with governments and international organizations.
- It is a non-profit organization.

### Findings – Sample characteristics

#### Country of main operations
- Costa Rica: 10%
- Colombia: 61%
- Equador: 12%
- Mexico: 8%
- Panama: 5%
- Dominican Republic: 1%
- USA: 1%
- Guatemala: 1%
- Other: 1%

#### Company Size
- Large: 40%
- Small Medium (<250 employees): 60%

#### Commercial activity
- Manufacture: 42%
- Traders: 6%
- Port Operators: 4%
- Logistics service providers: 34%
- Other: 14%
- Other: 14%

#### Annual turnover in USD
- < 50,000: 5%
- 50,000 - 500,000: 16%
- 500,000 - 1 Million: 13%
- 1 Million - 5 Millions: 24%
- > 5 Millions: 41%
Findings – Security measures degree of implementation

Security measures Implementation

- Employee hiring / exit process
- Organizational roles and responsibilities
- Facility protection
- Protection of business information
- Personnel training process
- Information dissemination process
- Recordkeeping of shipping information for potential security audits
- Business partner evaluation system
- Warehouse/terminal layout design
- Company security management system
- Security culture development
- Quality information/data management
- Facility monitoring
- Logistics system designed to reduce risks
- Establishment of collaborative relationships with Customs administrations
- Prevention, detection and reporting of shipping process anomalies
- Inventory management and control
- Inspections during the shipping process
- Data exchange with Customs administrations
- Logistics system designed for quick eventual disaster/failure recovery
- Exploitation of cargo and vehicle anti-tampering technical solutions
- Exploitation of cargo tracking technical solutions
- Exploitation of cargo inspection technical solutions
- Use of international standards for data management
- Use of international standards for data management
- Exploitation of cargo inspection technical solutions

Implemented as part of BASC certification
Mainly implemented before starting BASC certification
Short term implementation plans
Applicable, but no implementation plans
Not applicable for my company

The most implemented measures

The least implemented measures

Findings – Benefits of investing in security

Companies reported the attainment of multiple benefits, although they had difficulties to quantify them

Importance of Benefits

- Improve company image and credibility
- Anti-smuggling
- Anti-theft
- Reduce supply chain vulnerability
- Improve supply chain performance
- Anti-loss and damage
- Facilitable/predictable border crossing process
- Quick recovery from direct disasters
- Anti-counterfeit
- Quick recovery from general disasters
- Better Customs regulations & processes compliance
- Preferential treatment in post-disaster situations
- Preferential treatment in alert situations
- Direct cost savings
- Indirect cost savings
- Reduction of insurance premiums

Average 70% agreed they are highly important

Disagreement

Average 60% agreed they are not so important or N/A

The most important benefits

The least important benefits
**Findings – EMPIRICAL STUDY WITH BASC MEMBERS COMPANIES: Benefits of investing in security**

<table>
<thead>
<tr>
<th>Benefit</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avoid smuggling</td>
<td>90%</td>
</tr>
<tr>
<td>Improve company Image</td>
<td>82%</td>
</tr>
<tr>
<td>Reduce theft</td>
<td>81%</td>
</tr>
<tr>
<td>Reduce supply chain vulnerability</td>
<td>78%</td>
</tr>
<tr>
<td>Improve supply chain performance</td>
<td>77%</td>
</tr>
<tr>
<td>Reduce loss &amp; damage</td>
<td>61%</td>
</tr>
<tr>
<td>Fast border crossing</td>
<td>60%</td>
</tr>
<tr>
<td>Reduce counterfeit</td>
<td>56%</td>
</tr>
<tr>
<td>Quick recovery from direct disasters</td>
<td>52%</td>
</tr>
<tr>
<td>Quick recovery from general disasters</td>
<td>50%</td>
</tr>
<tr>
<td>Preferential treatment in post-disaster situation</td>
<td>49%</td>
</tr>
<tr>
<td>Better customs compliance</td>
<td>48%</td>
</tr>
<tr>
<td>Direct operations cost savings</td>
<td>48%</td>
</tr>
<tr>
<td>Preferential treatment in alert situations</td>
<td>47%</td>
</tr>
<tr>
<td>Indirect operations cost savings</td>
<td>44%</td>
</tr>
<tr>
<td>Insurance cost reduction</td>
<td>39%</td>
</tr>
</tbody>
</table>

**Certification and maintenance average cost for different turnovers**

<table>
<thead>
<tr>
<th>Annual turnover</th>
<th>Number of companies</th>
<th>Implementation Cost USD</th>
<th>Annual Maintenance cost USD</th>
<th>Maintenance / certification cost %</th>
<th>Certification cost / Turnover %</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 50,000</td>
<td>4</td>
<td>28'625</td>
<td>2'888</td>
<td>10%</td>
<td>≥ 57%</td>
</tr>
<tr>
<td>50,000 -500,000</td>
<td>13</td>
<td>17'176</td>
<td>8'539</td>
<td>50%</td>
<td>3% -34%</td>
</tr>
<tr>
<td>500,000 -1 Million</td>
<td>13</td>
<td>13'585</td>
<td>6'698</td>
<td>49%</td>
<td>1% -3%</td>
</tr>
<tr>
<td>1 Million -5 Million</td>
<td>25</td>
<td>61'820</td>
<td>15'826</td>
<td>26%</td>
<td>1% -6%</td>
</tr>
<tr>
<td>&gt; 5 Million</td>
<td>35</td>
<td>52'742</td>
<td>28'484</td>
<td>54%</td>
<td>≤1%</td>
</tr>
<tr>
<td>Total</td>
<td>90</td>
<td>34'790</td>
<td>12'487</td>
<td>38%</td>
<td></td>
</tr>
</tbody>
</table>
### Results of the research

- **BASC study presented for the first time** empirical data about the cost, efforts required and effectiveness of supply chain security programs.
- **Qualitative benefits** were proven to exist, but respondents were hardly able to establish the quantifiable gains of these achievements.
- Results show that they not only improve their image but they also got various security direct benefits and some contributions to supply chain efficiency.
Results of the research

- The current biggest concern for BASC companies was the compatibility or mutual recognition of BASC with the new supply chain security programs, especially with those promoted by their main exports' destination countries (US and Europe).

- BASC has a strong established organization. The companies and the organization are possessors of valuable experience that needs to be exploited in the current supply chain security environment.

- BASC companies, although based in risky countries, have shown that it is possible to enhance security even with difficult conditions. Their experience provides important guidelines for the future development and globalization of supply chain security standards.

Case II:

WELDON COOPER CENTER FOR PUBLIC SERVICE

Customs-Trade Partnership Against Terrorism
Cost/Benefit Survey
2007

WELDON COOPER CENTER FOR PUBLIC SERVICE
University of Virginia
What is CTPAT?

U.S. Customs Response to 9/11:
- Voluntary
- Establishes Security Standards
- Requires ISO Seals
- Key Feature: Business Partners
- Benefits
- Participants: Carriers, Brokers, Freight Forwarders & NAFTA Companies

C-TPAT business participants

- Importers: 53.8%
- Carriers: 22.8%
- Services: 18.4%
- Manufacturers: 5.0%
Location of company's headquarters

- United States: 62.1%
- Canada: 25.0%
- Mexico: 3.2%
- Others: 9.7%

Company's annual revenue

- Less than 1 million: 10.3%
- 1 to less than 10 million: 21.4%
- 10 to less than 100 million: 24.7%
- 100 to less than 1 billion: 14.7%
- 1 to less than 10 billion: 5.7%
- 10 billion or more: 23.2%
Potential benefits for all businesses

Implementation costs by business size

<table>
<thead>
<tr>
<th>Potential Implementation costs</th>
<th>Small (1-4)</th>
<th>Medium (5-10)</th>
<th>Large (11+)</th>
<th>Very Large (12+)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improving physical security</td>
<td>$46,579</td>
<td>$23,130</td>
<td>$45,734</td>
<td>$56,979</td>
</tr>
<tr>
<td>Improving internal processes</td>
<td>$2,030</td>
<td>$1,200</td>
<td>$12,974</td>
<td>$20,068</td>
</tr>
<tr>
<td>Salaries and expenses of personnel</td>
<td>$0,808</td>
<td>$4,210</td>
<td>$89,523</td>
<td>$67,479</td>
</tr>
<tr>
<td>Improving computer security</td>
<td>$5,488</td>
<td>$14,090</td>
<td>$18,577</td>
<td>$13,619</td>
</tr>
<tr>
<td>Improving personnel security procedures</td>
<td>$2,028</td>
<td>$10,670</td>
<td>$18,728</td>
<td>$20,744</td>
</tr>
<tr>
<td>Improving identification system</td>
<td>$2,871</td>
<td>$6,971</td>
<td>$9,574</td>
<td>$23,349</td>
</tr>
<tr>
<td>Improving personnel security procedures</td>
<td>$2,093</td>
<td>$6,842</td>
<td>$13,117</td>
<td>$13,671</td>
</tr>
<tr>
<td>Improving IT systems and databases</td>
<td>$6,187</td>
<td>$57,160</td>
<td>$83,909</td>
<td>$84,868</td>
</tr>
<tr>
<td>Improving use of security for personnel</td>
<td>$7,988</td>
<td>$16,982</td>
<td>$38,419</td>
<td>$37,806</td>
</tr>
</tbody>
</table>

WELDON COOPER CENTER FOR PUBLIC SERVICE
University of Virginia
Benefits & Results

- C-TPAT benefits outweighed the costs.
- Major impacts: workforce security, time to release cargo by CBP, time in CBP inspection lines, and predictability in moving goods.
- Decreased number of inspections.
- Increased their supply chain visibility.
- 68.7% of non-Importers: number of customers has stayed the same, 17.0% has increased number of customers.
- Non-Importers (17.4%) has increased their sales revenues.
- Overall, since becoming C-TPAT certified, non-Importers who reported an increase in customers have gained 35.2% new customers.

Summary

- BASC and CTPAT members' experience provides important guidelines for the future development and globalization of supply chain security standards.
- Security Investment = Competitiveness
- Relationship between cost-benefit
- Security Investments Produce Tangible Benefits
- Long Term Direction: WCO/AEO Program
Thank you

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