

# The Impact of European Customs Certifications on Risk Management and 3PL Performance: First Observations and Thoughts

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With increasing globalization, supply chains accordingly become more and more international in nature. They become more complex and so assume higher risks, for both businesses and governments. These risks are varied. Since the terrorist attacks of September 11, 2001, many countries have implemented new rules for freight traffic flows. Now with these more secured flows, this paper examines the impact of one of these new security programs in Europe, the Authorised Economic Operator (AEO). By studying of the academic literature, the paper explains in particular the impact of the AEO custom certification on risk management, and on performance of 3<sup>rd</sup> party-logistics within the supply chain.

**Keywords:** Customs, certification, effectiveness, risk, security, supply chain.

## 1. INTRODUCTION

In the last thirty years, the flows of goods have become ever more international. This is a consequence of the saturation of internal markets, increasing competitive pressure and cost optimization programs. Further factors are: the volatility of demand; customer pressure on price, specifications and time; shorter product life cycles; the rise of e-commerce [1]. For all businesses, the adoption of a cross-oriented supply chain approach would undoubtedly have a beneficial impact. This is especially true because competition between firms is more and more a competition between similar supply chains [2]. But this internationalization of flows has been accompanied by new operating rules for security and safety, because risks are more numerous in international supply chains (stock shortage, supply problems, transportation problems ...). For instance, after September 11, 2001, the risk of terrorism has become an unavoidable addition to security policies. New security measures have been put in place to limit these kinds of risks and have altered operational procedures and effectiveness of supply chain actors.

Although there have been various academic works on concepts of risk, safety and security in supply chain management [3] [4] [5] [6] [7], this paper occurs in a field still largely unexplored by researchers. In this paper, we try to understand effects of these new rules on the performance of 3<sup>rd</sup> PL, key players of supply chains. We centre our analysis on the Authorised Economic Operator status, introduced in the European Union on January 1<sup>st</sup>, 2008. In the first part of the paper, we give a general presentation of the various security programs in the world, those designed to improve risk management in the supply chain. Then, we describe the AEO status and its variants. In the third part, we try to explain the consequences of AEO certification on 3<sup>rd</sup> PL effectiveness.

## 2. MANAGING RISKS ON THE SUPPLY CHAIN: AN OVERVIEW OF DIFFERENT SECURITY AND SAFETY PROGRAMS

Risk management within supply chains has radically changed. Therefore, this is a current point of interest for academic research in logistics and

supply chain management. Before 2001, security and safety decisions were taken mainly by each individual company. Interaction with other supply chain players or governmental agencies was very limited. The situation changed after the events of September 11, 2001. Governmental agencies and in particular, customs and frontier administrations, have put into place more far-reaching regulations to protect their nations against terrorism and other crimes [8].

The first country to implement these new processes was the USA. The USA introduced the Customs-Trade Partnership Against Terrorism program (C-TPAT) in 2002. Other countries followed this example, and the European Union set up its own security program in January 2008 with the Authorised Economic Operator certification (AEO). This first part tries to describe what risks are indeed present within any given supply chain, and gives an overview of the different security programs and their particularisms.

### 2.1. RISK MANAGEMENT RELATED TO THE SUPPLY CHAIN

Various factors affect the efficiency of supply chains. Many supply chain networks have started to implicate an increasing number of players, and correspondingly affect other networks [9] [10]. Therefore, multiple disturbances can arise from causes like natural disasters, terrorist attacks, industrial incidents, accidents, or operational difficulties [11]. Their effects can be the delay or unavailability of material from suppliers, the violation of the integrity of freight [12] or disorders in communication infrastructures [13]. To combat this, to protect their human resources and their physical assets, firms prioritize improvements on their own internal safety and security processes.

After 2001, disturbance caused by international terrorism, has exposed the vulnerability of global supply chains and general security procedures. This is now seen as the most serious potential supply chain problem, and therefore requires a coordinated response by governments and international organizations [14]. Improving general global supply chain security through regulation, and yet maintaining profitability, requires synergies between governments or international

organizations, and all of the various companies. These regulations now exist and give the players within supply chains reason to be reassured. But for Gutierrez and Hintsä [14] p. 2, "*these regulations represent only a small part of all the potential security measures that could be implemented by these and other supply chain actors in order to secure the global movement of goods*". Just after the September 11 attacks, Sheffi [3] was one of the first authors to clarify the role of regulation and inter-organizational relationships for an efficient management of risks within supply chains. The author said that firms need to adjust their relations with their partners (suppliers, customers, third-parties). But this leads players to revise their transportation planning and their inventory management strategies.

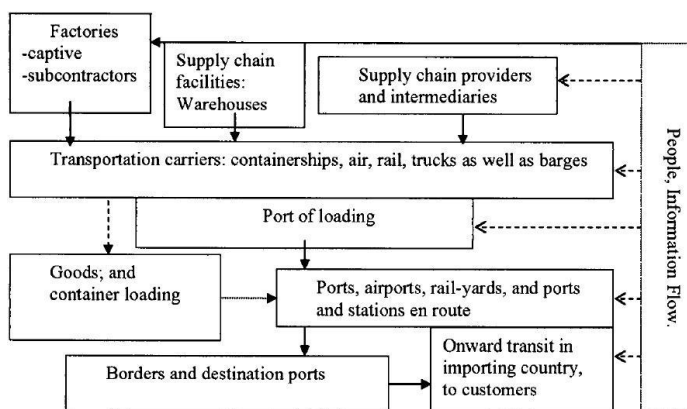
In their research, Rice and Caniato [13] identify a set of security measures implemented by international companies from different industrial sectors. This entails rudimentary initiatives such as controls on employee access to goods, and more complex ideas such as the creation of emergency control centres and a comprehensive security strategy. In addition to these individual reactions from the private sector, some governments and border agencies promote voluntary security programs that are clearly supply chain-oriented. This seems to offer the most logical starting point for public-private co-operation to ensure security in the supply chain. Most of these programs consist of a set of security procedures endorsed by a government or a border agency as "best practice" to guarantee safety and security within the supply chain. Firms implementing and adopting these voluntary security programs are then considered to be a "secure player" and then receive privileged treatment when their flows cross borders. For Gutierrez and Hintsä [14], these types of programs can be interesting options for organizational and economic reasons. If a company chooses not to apply the program, the cost can become very significant (because of more inspections, higher taxes...). Firms may be obliged to implement these measures on their own account, if they want to benefit from favourable conditions when their flows cross a border. Additionally, companies involved in these programs will face the quandary of evaluating any benefits and real cash-back from initializing their own procedures, because sources of cost are numerous (training of human resources, reorganization, investments...).

But Rice and Caniato [13] claim that investment in security can create opportunities and important skill sets producing supplementary benefits in addition to those directly connected to safety and security. If a company decides to invest in different security initiatives, their compatibility and mutual recognition among governments and border agencies from different countries must be guaranteed for it to carry any value. This is essential for international operations of multinational firms, but is essential even for small and medium sized companies, that might ostensibly lack the means to implement the different mandatory security measures.

As presented in the second paragraph above, there are several voluntary security programs linking business and public players. The first security regulations were put in place to combat typical supply chain disruptions (loss, damages, theft...). Today, all these regulations have been widened to include measures against terrorist attacks. Although they appear to be quite varied, they all consist of a collection of security measures which do indeed create a global supply chain “security management system” [8].

Risk management focuses on identifying the sources and nature of risk, considering the consequences, and on installing measures to avoid or moderate risk [4] [5]. For Sarathy [6], three steps correspond to risk management in a company: risk specification, risk assessment, and risk mitigation. In his works, the author explains that this process can be used to analyze any global supply chain. But the difficulty is that so many risks exist because of the plethora of logistics activities. Figure 1 shows different points of weakness inside the supply chain.

Figure 1. Points of vulnerability of the supply chain



Source: Sarathy [6] p. 33.

To deal with this complexity and to avoid being confronted with these risks, security programs have been created during the last decade. The following section is an inventory of these programs and their particularities.

### 2.2.DIFFERENT SECURITY PROGRAMS AND THEIR PARTICULARITIES

Faced with increased complexity in the supply chain and its numerous risks, various security programs have been proposed by various organizations or State agencies during the last ten years. The academic research of Gutiérrez and Hintsa [14] are particularly relevant regarding this subject. Using different sources, the authors identified four types of voluntary supply chain security program: customs compliance programs; pure security programs with a governmental origin; security standards programs from international organizations; pure security programs with private initiative. The table 1 below recapitulates the central inspiration for each type. It gives examples of existing certificates and programs in each category with their geographical limits.

Table 1. An overview of different supply chain security programs

Type of program	Customs compliance programs	Government initiative: pure security programs	International organization initiative: security standards programs	Private initiative: pure security programs

<b>Inspirations</b>	Customs administration aiming to streamline. Customs processes for compliant importers / exporters. Due to new security concerns, programs adding a security layer.	Governments and border agencies motivated by recent terrorist attacks. Security measures aiming to transfer some of the customs control responsibilities to importers/exporters, in order improve the capacity to detect illegal activities.	International organizations pointing to create supply chain security standards that can be generalized for the trading community.	Private companies exposed to high risk of suffering from illegal activities in their freight operations. Security measures aiming the protection of freight.
<b>Examples</b>	PIP (Canada) StairSec (Sweden) AEO (EU)	C-TPAT (USA) Secured Export Partnership (New-Zealand)	WCO framework of standards ISO	BASC (Latin America) TAPA (technology companies)
<b>Geographical perimeter</b>	Any country to import (PIP, Stairsec) Any country to region import and export (AEO)	Any country to import (C-TPAT)  One country to any country export (SEP)	Any to any	Region to region (BASC)  From and any region and country (TAPA)

Source: adapted from Gutiérrez and Hintsa [14].

This table shows that many solutions have been developed to improve trade security. Our hypothesis is that these initiatives inevitably have an influence on the effectiveness of Third-party logistics providers. This also implies a major change in their own approach to risks within the supply chain.

Because of this diversity of initiatives, it is difficult to draw a precise conclusion on the effects of all these security programs. For this reason, we will focus only on the AEO status. The next part is a description in detail of this customs certification.

### 3. AEO CERTIFICATION IN EUROPE

Our main goal here is to discuss the potential effects of the AEO on the effectiveness of 3<sup>rd</sup> PL and on their resulting risk management in the supply chain. To understand these impacts, we propose first, to precisely describe the AEO and

these different programs of certification. Then, based on the work of Comte [15], we recommend a ten-step approach to choose the best status.

#### 3.1. WHAT IS AN AEO?

AEO certifications give companies an official recognition of quality and reliability by Customs of the European Union [16]. Put into force for all EU countries on 1 January 2008, the AEO is part of international intra-EU flows out. Carriers, logistics providers, customs forwarding agents, but also importers and exporters, are likely to seek this certification. Theoretically, it provides firms with a formal recognition of quality and reliability by EU customs authorities. It gives a guarantee of a minimum of customs controls. The implementation of the AEO is the EU response to the demand for more secure international trade, promoted by the World Customs Organization (WCO). Following the events of September 11, 2001, that raised

awareness of the vulnerability of national States against terrorism, the USA quickly took a series of measures to protect their territory against these attacks. Their thinking led to the implementation of the C-TPAT program. Meanwhile, the WCO outlined a framework of security procedures in order to ensure safe international trade (SAFE Standards). Adopted by the European Council in June 2005 and repeated in Regulation 648/2005, it amended the Community Customs Code, incorporating the AEO implementation on January 1st 2008, within the entire territory of the EU.

All companies registered in the European Union and subject to Community customs rules may apply for the certification. However, there is no legal obligation to acquire it. For the European Commission, with more certified AEO players in logistics networks, supply chains will become more reliable and secure. AEO certification is a voluntary process attributed by Customs Services of EU States. An AEO is recognized most importantly by its national customs administration. It is seen to be a sign of reliability, and a willingness to conform to AEO standards or equivalent standards in safety and security for an international supply chain. This recognition implies heightened security requirements and facilities for operators who hold a validated certification. In fact, there are three certifications:

- Authorised Economic Operator Customs (AEOC) requiring compliance with customs and logistics procedures. the company can facilitate and simplify the implementation of its customs operations;
- Authorised Economic Operator Security and Safety (AEOS) claiming, in addition to compliance with previous procedures, criteria for safety and security. This is the only one which has truly international recognition outside the European Union;
- Full Authorised Economic Operator (AEOF), this is the “complete” certificate involving all criteria of the

above-mentioned two. It is particularly useful for companies carrying out their own customs clearance.

All these certificates are valid for a period of three years after submission of an application. They are accompanied by a self-assessment questionnaire and an audit of national customs. These must be chosen according to the company's business and its place in the supply chain. The criteria for the granting of an AEO certification include:

- a favorable track record with respect to customs requirements;
- an efficient system of transportation and documentary customs management to facilitate customs controls;
- financial solvency;
- respect of given standards in safety and security.

Obtaining status allows a quick and easy access to simplifications such as: centralized clearance, a guarantee waiver, a significant reduction of customs controls, a significant limitation of the transmission of information allowed by Bonds safety / security (only if the firm has the status AEOS).

### 3.2. *THE STRATEGY TO WIN*

Safety and security have a price. A company should never forget this point before engaging in an AEO certification process. Moving towards AEO status requires a targeted strategy. Investment in time and money is significant. It is however difficult for companies to exactly calculate the overall cost of an AEO certification. Further, any benefits will only appear after a long period. It is therefore necessary at the outset to have ample financial resources, yet to proceed step by step, and ask the right questions at the right time. Comte [15] suggests a ten-step approach to choose the right status for each company, to succeed in obtaining the targeted certification, and then to use it correctly. The paragraph below is a description of this procedure.

The first step is to learn about certification. For this, the customs authorities of the European Union

have many sources of information (books, websites...) and they can help companies face to face. Staying informed is the solution to avoiding the pitfalls and misinterpretation of the rules of operation of each certification. The second step is a decision step. The AEO project must be credible and involve all hierarchical levels starting from top management down to operational staff. This implies that top management demonstrates clearly its "desire" to move towards certification. This is a not so easy to demonstrate for top-managers since it will be a new field for them. The company must take its time in choosing the type of certificate (the three mentioned in the previous section), and in selecting the constitution of the steering committee of the project. The diagnosis of their supply chain is the third stage. This will ultimately determine the success of the project. The company must set up a project team, have meaningful contact with the customs authorities, draw up process mapping, analyze procedures, and define staff skills and risks. The fourth step is the establishment of the action plan following this diagnosis. The fifth and sixth stages are respectively the realization and implementation of the certificate compliance plan following any recommendations from the customs authorities. Then the company must submit a final application to the administration. This is also the right time to prepare audits. The ninth step is to react decisively when problems arise during the audit. Responsiveness is a key success factor here. A firm must stay true to its original strategy, because changes might have to be made to the business in order to conform with certification. After obtaining the certified status, it is essential to maintain the any revised processes, because final certification can only be seen as temporary.

#### 4. THE IMPACT OF THE AEO STATUS ON 3<sup>RD</sup> PL

This third section describes the potential impacts of AEO status on 3<sup>rd</sup> PL logistics performance, particularly in terms of risk management. Initially, we present the role of these actors in risk management within the supply chain. Then we discuss benefits and costs of a 3<sup>rd</sup> PL holding this certification.

#### 4.1. THE MAJOR ROLE PLAYED BY 3<sup>RD</sup> PL ON RISK MANAGEMENT WITHIN THE SUPPLY CHAIN

Security issues (preventing voluntary acts) and safety (preventing involuntary incidents) are now a central concern of the players within supply chains. They have therefore become a priority for logistics services providers. The globalization of trade and the increasing complexity of supply chains [17], in which the PSL are integrated, only reinforce the need for efficient risk management at the same time as ensuring the fluidity of freight. Interest in a global risk management approach is growing among logistics practitioners. If efficient and safe customs operations are at the heart of these issues, it is also an opportunity for them to construct even more fluid processes, learn new skills, and improve further their performance and so sustain competitive advantage internationally. This is especially important for logistics services providers who feel particularly vulnerable to fierce competition in their sector [18].

As we have seen, logistics services providers and carriers are rightly concerned with safety and security in the supply chain. Risk management activities have become central to their business. Encouragingly, their customers want to work with them in order to benefit from their high level of expertise in risk management, and reduce varied impacts of these risks. Since the 90s when significant outsourcing of transport and logistics started, 3<sup>rd</sup> PL have become directly exposed to all categories of risks: stock-outs, supply problems, transportation problems, but also other less definable risks such as environmental hazards or terrorist attacks. 3<sup>rd</sup> PL will continue to be vulnerable in the supply chain, at seaports, airports, warehouses and platforms. And of course, this vulnerability will be present during transport operations, and even in plants and warehouses where they might be directly associated with logistics operations for their customers [6]. Thus, their own ability to manage security and safety risks might give a 3<sup>rd</sup> PL a competitive advantage.

Among the three certificates, the Authorised Economic Operator Security and Safety (AEOS) is the most appropriate certification for third-party logistics player. To obtain this status, in addition to complying with specific customs procedures, guarantees of safety and security will have to be assured. This mainly concerns carrying companies

or logistics services providers performing warehousing operations. But if the 3<sup>rd</sup> PL offers customs clearance services too, the Authorised Economic Operator Full certificate (AEOF) will be more appropriate. The status named Authorised Economic Operator Customs (AEOC) is much less obvious for a 3<sup>rd</sup> PL. However, it is important to mention the dilemma existing in the world of transportation and logistics services. If the third-party has no activities (or just a few) outside the borders of the EU, an AEO status has limited value. For example, this is true for many parcel services companies, whose market is limited to their own country or the European Union. Because of the costs of obtaining the status and the time required to get it, it may not be justifiable. The problem is that, while most financial partnerships of these firms depend on obtaining AEO certification, these 3<sup>rd</sup> PL have no choice but become certified. In many cases, their partners wish to work only with players embedded in a certified secure supply chain, they may even construct a supply chain containing only AEO certified “links”. For that reason, for a 3<sup>rd</sup> PL, the decision whether to go for certification will be very difficult to take, because the financial consequences could be significant, indeed critical.

#### ***4.2. BENEFITS AND COSTS OF AEO CERTIFICATION: DISCUSSION ABOUT 3<sup>RD</sup> PL PERFORMANCE***

All certification processes are today central issues for businesses. They provide benefits to firms, but sometimes drawbacks. Third-party logistics, certified with AEO, are no exception to this observation. Their final economic performance is always affected by their AEO status on their own supply chain. Based on the works of Sarathy [6], data from a literature review, and a discussion with logistic managers from two AEO certified players, it appears that beneficial and negative effects can cause structural changes.

As to potential efficiency improvements, an AEO status can positively impact on security and administration of inbound and outbound logistics. We can imagine a reduction on buffer stock inventories due to better information. It can improve shipment tracking and reduce risk of theft. But the major impact is the improvement to customer service, due to a reduction of delays through standardized security processes. In

addition, AEO certification can help the firm to more clearly link market demands with manufacturing planning, and thereby reduce the time from production to market. More generally, where most players have acquired the AEO certificate, the supply chain can be redesigned, it can become stronger, and this can only reduce the occurrence of risks.

There are some negative aspects of AEO certification. The cost of implementation at the outset is significant, and furthermore it is difficult for a 3<sup>rd</sup> PL to determine, at any point, a measurable return on this investment (ROI). Frequently, the firm must fund additional personnel training costs, and the purchase of additional equipment (new information system, security related technologies ...). Where multiple certifications have been put in place (with different partners and countries), communication complications can arise, one of the essential skills for efficient supply chain management.

Similarly there are numerous impacts on contractual relationships. The supply chain partner choices can be constrained by an unfavorable security profile and capabilities. The security-related process time can be increased, and have a negative impact on the service provided to the customer. Compliance with more complex government-mandated security measures and regulations can bring new costs.

## **5. CONCLUSIONS**

After demonstrating the importance of managing risk in the general supply chain for companies, this paper concentrates first on its impact on 3<sup>rd</sup> PL performance. Although it might seem obvious that risk management through security and safety certification is a fundamental element of supply chain management, this paper introduces some perspective to this issue. Although certainly bringing benefits, AEO certification may also, in some cases, lead to associated difficulties for a logistics services provider. Our first conclusion about the acquisition of AEO status, gives a somewhat mixed assessment, some negative, some positive. But we also believe that deeper research must be undertaken to detail and complete our conclusions. One area might be to establish the real-life mechanisms leading a 3<sup>rd</sup> PL

to wish to acquire AEO status, to find out how a company finally evaluates a real and general competitive advantage on AEO certification. We need firm answers to the question “to be or not be AEO?”, by offering well-researched conclusions and reflections that can serve the strategic decision making process for third-party logistics providers.

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