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Annex to the

**COMMUNICATION FROM THE COMMISSION TO THE COUNCIL,
THE EUROPEAN PARLIAMENT, THE EUROPEAN ECONOMIC AND
SOCIAL COMMITTEE AND THE COMMITTEE OF THE REGIONS**

on enhancing supply chain security

and

Proposal for a

REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL

on enhancing supply chain security

- IMPACT ASSESSMENT --

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EXECUTIVE SUMMARY

It is a political demand to increase the security level of freight transport. Land transport is the remaining security gap not covered by EU measures. With millions of land transport supply chain operations in the EU each day, to address the issue of cargo and transport security is very difficult. Therefore an intensive consultation process was carried out. In consultation the policy directions for possible EU action have been formulated by Member States and industry, i.e.:

- There is a need to establish a legal framework which is cost beneficial (providing facilitations), meets current risks and complements and elaborates on transport security procedures and measures already in place. This framework should help to increase the – presently low- security awareness in land freight transport. A supply chain approach is necessary as all operators contribute to a secure supply chain, thus have to take up their security responsibility for their part of the chain. An increasing number of companies, including shippers, are establishing their own security management standards to protect their own operations and the quality of their outsource activities.
- Maintaining a level playing field is an important condition for further action. This requires for all-embracing measures in freight transport which establish minimum security requirements applicable and valid in the EU market from the same date on (mutual recognition). For that reason a Regulation is the most appropriate legal instrument.

For the development of an EU framework on land supply chain security three key policy options have been researched, i.e.:

- **No action** – The political mandate calls for action. This call is justified by security considerations and the necessity to find a Community solution instead of allowing a variety of national solutions to develop which would compromise the internal transport market.
- **Mandatory scheme** – Minimum security requirements to be implemented in all 4.7 million companies involved in the supply chain. The costs for compulsory measures would be € 60 billion for all companies involved in the supply chain and would cost the Member States € 235 million per year to inspect.
- **Voluntary scheme** - Member States to develop national schemes in a Community framework to challenge companies to introduce security measures and be awarded ‘secure operator’ when these minimum requirements are fulfilled. It is up to industry to comply with these minimum requirements. It is expected that within 5 years 900.000 companies shall apply for the award covering 75% of all freight flows. The costs would be about € 2.1 billion a year over a 5 year period, provided “fast track facilities, like facilitation and simplification, can be offered.

A voluntary scheme as proposed is the most cost beneficial option. It seems practically impossible to establish, for all operators in the supply chain, in one single all-embracing operation (mandatory) security rules and measures comparable to those in air and maritime transport and ensure their implementation. It is more realistic to set up a supply chain security framework which is allowed gradually to evolve and whose minimum requirements are step-by-step and often in line with operational and technological developments, brought to a satisfactory overall security level. This is the voluntary scheme proposed.

1. PROCEDURAL PROCEDURES AND CONSULTATION OF INTERESTED PARTIES

Protection against terrorism activities is a priority for the European Union. The European Council called for “the strengthening of all forms of transport schemes, including the enhancement of the legal framework and the improvement of preventive mechanisms. The Commission’s Anti-Terrorism programme equally covers transport security.

To develop EU initiatives on land freight transport security an extensive consultation process has been designed which took place from December 2003 - December 2005.

In 2003 the Commission started a consultation process with Member States and industry. A consultation paper was written and published. 65 reactions were received (10 Member States, 35 associations and 20 companies). These reactions covered the views of all operators in the supply chain (forwarders, express services, manufacturing industry, shippers, multinational companies, ports, global operating transport companies, railways, inland waterways, and road transporters). Two formal consultation meetings took place on 25 May 2004, one for industry (45 associations were represented) and one meeting for Member States (7 Member States participated) and international organisations (UNECE, WCO, CCR and CEMT). Trade unions did not participate in the consultation process, although being invited.

The main responses (including % reactions) were:

- There is a need to increase awareness (100%);
- EU involvement is necessary (90%);
- Risk Assessment and Cost Benefit Analysis are necessary (90%);
- New EU legislation is necessary (80%);
- Mandatory character of measures of basic minimum requirements is necessary (80%);
- Technology can be helpful, i.e. seals, data protection/flows, RFID (80%);
- Definition intentional unlawful act necessary (80%);
- Security is of strategic importance to the EU (60%);
- Scope needs further development (50%);
- Infrastructure needs attention (40%);
- More focus on seals necessary (30%);
- Exemptions on special cases necessary (20%).

A brief outline of the reactions is published on the website, including the consultation paper. Link: http://europa.eu.int/comm/dgs/energy_transport/security/intermodal/consultation_en.htm

External Impact study

Nearly all respondents indicated the need for a risk assessment and cost benefit analysis. Therefore a ‘Study on the impacts of possible EU legislation to improve transport security’ was executed by a consortium chaired by DNV Consulting in 2005. The execution of the study was accompanied by consultation with industry. Member States were asked to assist DNV Consulting (hereafter DNV) in gathering information on best practices in their countries.

During the research two industry sessions took place, on 20 January and 9 June 2005. Associations representing the various land transport modes, express services, shippers, terminal operators, insurers and forwarding companies participated in these meetings. They were also consulted by DNV during their research. The DNV study¹ consists of a confidential part (dealing mainly with risk assessment and sensitive infrastructures) and a non-confidential part. The non confidential part of impact assessment is published on the DG TREN website: http://europa.eu.int/comm/dgs/energy_transport/security/intermodal/doc/2005_finalreport_impact_assessment_transport_security.pdf#pagemode=bookmarks.

The results of the study were presented by DNV Consulting in a stakeholders meeting on 1 December 2005, in which 12 Member States and 26 organisations participated, representing manufacturers, shippers, terminal operators, forwarders and all transport modes.

Consultation during the drafting of the EU legislative proposal, including communication.

The major outcome of the consultation process has been incorporated into a Communication and a proposal for a Regulation on enhancing supply chain security, designed by the Commission. During the drafting process tailor made consultation with various stakeholder associations took place to judge whether the proposal was sufficiently realistic and could add security value to land freight transport. The drafting process allowed to incorporate the results of the ‘Study on the impacts of possible EU legislation to improve transport security’ executed by DNV. It was decided not to include aspects of critical infrastructure in the proposal, as this required more research and additional extensive consultation with stakeholders not directly related to the supply chain.

The Communication sets out the need for and the rationale behind the Commission’s initiative. The proposal takes into account the major concerns expressed in the consultation process. This impact assessment further identifies the security risks, the policy options and alternative measures to mitigate the risks, including their costs.

This data used in this impact assessment are based on the DNV study results.

2. IDENTIFYING THE PROBLEM OF TRANSPORT SECURITY

From 2002 onwards, various elements of EU security legislation have been implemented. The EU measures relating to aviation, maritime transport and ports - if even fully satisfactorily implemented and the risk of human error eliminated - only cover certain parts of the transport

¹ The sections of the study are (1) the assessment of security risks, (2) current initiatives, (3) securing the supply chain (i.e. cost benefit analysis of measures), (4) securing the infrastructure and (5) required EU framework.

network as a whole, although high-risk parts. They do not cover the entire land transport supply chain. This gap should be closed.

Security risk is defined as the combination of:

- Vulnerability to attack, which reflects the possibility of a terrorist attacking the transport network successfully, compared to the possibility of protecting it through inherent or managed safeguards.
- Consequences of a successful attack, relating to:
 - The possible number of fatalities; and
 - The economic impact which is calculated with the following factors:
 - (a) The reconstruction costs of the destroyed transport element;
 - (b) The disruption time of the transport flow;
 - (c) The volume of the transport flow.

All transport is at risk. This is a major conclusion of the systematic assessment by DNV into the transport security risks, based on the identification and assessment of a full range of foreseeable possible terrorist intervention scenarios (Source: DNV Study).

The transport security risks can be classified into:

- Infrastructure risks:

The terrorist has the objective to damage or destroy transport elements in order to disrupt the supply chain. The transport elements are in this case the terrorist's target.

- Supply chain risks:

The terrorist has the objective to misuse the supply chain as a means to creating damage or fatalities. The transport elements are in this case not the target but the means.

The misuse of the supply chain relate to:

- Cargo or mobile units to conceal and transport various explosives, incendiary or nuclear devices to a location where they are unloaded or detonated;
- Cargo or mobile units are misused as a weapon.

A Community proposal must strike a balance between highly prescriptive total security and the need to ensure a free flow of trade whilst allowing for a gradual tightening of minimum requirements whilst keeping administrative requirements to a minimum. Highly prescriptive new security measures for all operators would lead to a breakdown of the supply chain.

A Community proposal should take account of the following:

- Transport security is an ongoing concern for the coming years, also in the transport among the modes;
- The public and private sectors are both involved in transport security – they are stakeholders and interdependent;
- To countervail terrorist risks effectively;
- Public authorities need a systematic approach – a framework/model – to avoid incident-driven policies;
- Private industries need to include security measures in their daily operations – to avoid putting the responsibility on to others;
- Including security thinking into the daily business routines (awareness) helps to upgrade the quality of performance and resilience to incidents;
- In international trade, the success of a policy on sustainable transport security depends on reciprocity.

In wide-ranging consultations industry representatives have accepted the necessity to introduce supply chain security measures, whilst putting the emphasis on the need to find the most cost-effective approach which must not interrupt trade.²

While security risks relating to terrorism exist in all modes of transport and freight flows, not all are at present covered by security legislation. The security level of various transport modes and freight flows therefore varies significantly. A supply chain perspective is missing.

For transport security the assets at stake are:

- EU population. A misuse of the supply chain could result in a very substantial number of fatalities;
- Economy - the EU industrial base. All economic activities in the supply chain are at risk. Everyday cargo is shipped and transported to serve the needs of industry and consumers. Possible terrorist intervention can result in billions of Euros of economic damage to the EU. It is estimated that the cost of any terrorist attack on a European transport corridor could reach a maximum of 2% of the original investment. The economic damage could tally up as high as 6.6 billion Euros for major existing transport corridors by taking out a single piece of infrastructure. However, a misuse of the supply chain to conceal and transport weapons of mass destruction to industrial and densely populated areas can result in even higher economic damages.

Protection against terrorist risks costs money. Whilst a number of large and medium-sized companies have implemented certain security measures for their own supply chain operations, others have not. The majority of the medium and nearly all small sized companies in the supply chain, including their employees, have neither implemented security measures nor are

² http://europa.eu.int/comm/dgs/energy_transport/security/intermodal/policy_en.htm

they fully aware of terrorist risks. The risk awareness of the majority of companies within the supply chain is only marginally developed.

3. DEFINITION OF THE OBJECTIVE

The objective of transport security policy is to counter any terrorist threat. The conditions under which this objective can be achieved are:

1. A Community measure should consist of a framework for supply chain security. It should not limit itself to addressing specific points of the supply chain but include all these points in an appropriate way and should complement already existing EU measures in place.
2. A Community measure should cover all cargo, thus all operators, and the infrastructure which directly relates to the functioning of the supply chain, i.e. terminals, distribution centres and inland ports.
3. Security is a state responsibility. Leaving supply chain security fully to self-regulation by industry would be irresponsible for any state, as also concluded by the Heads of State (March 25, 2004). On the other hand supply chain management is an industry's responsibility and therefore public/private partnership is necessary.
4. The only way to countervail terrorism in transport security is to enhance the quality of the supply chain. It must be acknowledged that secure supply chains can never be fully guaranteed. However, there are many opportunities for operators in the supply chain to enhance the security of freight transport.
5. Any EU measure must strike a balance between highly prescriptive total security and the need to ensure a free flow of trade whilst allowing for a gradual tightening of minimum requirements.
6. EU measures can only be effective when taking account of the interdependency of:
 - Various activities of companies in the market, relating to freight flows in the supply chains from manufacturer to destination;
 - Existing security measures (EC No. 2320/2002, EC No.725/2004, EC No. 648/2005, EC No. 65/2005) and other initiatives.
7. Measures must be credible. Rules which are not implemented or whose implementation cannot de facto be monitored are not credible.
8. The market makes a strong case for a Community framework open for regular and speedy adaptation to developments. Common rules amongst the Member States are needed. They should be applicable from the same date onwards.
9. Transport security is an evolutionary process.
10. The security performance of operators has a market value.

4. THE MAIN POLICY OPTIONS

The main policy options are based upon the results of the consultation process. The consultation process defined the **general conditions** to be met by possible EU legislation on land freight transport, being:

- A framework approach is necessary;
- Giving the transnational threat of terrorism a common EU approach is favoured;
- Measures should be enforceable and cost effective;
- Maintenance of the level playing field;
- Security should be included into the sustainable transport policy concept (including public/private partnerships);
- Various standards should be compared and harmonized;
- Further development of Single Window approach;
- Inspections should be EU wide accepted;
- Limited number of security levels;
- A win-win situation should be established;
- Non interference with the national jurisdiction of the Member States.

In the consultation process several **specific conditions** were indicated to be met by possible new EU legislation/initiatives on land freight transport:

- Focus on terrorism. Anti-terrorist measures also mitigate crime, rather than the other way around;
- Integrating various legal EU initiatives, thereby elaborating the concept of ‘known shipper/operator’ to the whole supply chain, making use of already existing concepts like ‘consigned agent’, ‘known consignor’. ‘known shipper’ and authorised economic operator’;
- Supply chain perspective necessary, i.e. concentrate on links, freight flows, location, and transport modes, including ICT;
- Harmonised approach in relation to other security regulations (i.e. Customs);
- Adherence to international security standards ;
- Enforcement (Inspections) is necessary.

In developing an EU legal framework for land transport security the following options have been considered:³

1. No action.

This option was excluded at an early stage as the political mandate calls for action. This call is justified by security considerations and the necessity to find a Community solution instead of allowing a variety of national solutions to develop which would compromise the internal transport market.

2. A limited number of measures focusing on specific freight flows or transport modes, which could and would have to be complemented if and when the need arises. It was suggested to introduce security measures for containers only and, in this context, for container seals only.

This option was excluded at an early stage as not replying satisfactorily to security concerns and to industry aspirations, but only offering a patchwork approach. It would not give guidance to companies wishing to invest in comprehensive security measures and open the door to sudden and costly changes and new, unexpected rules. Both operators and public authorities require an integrated approach.

3. A mandatory scheme where certain security requirements are introduced for all participants in the supply chain. It could be comparable to a general speed limit which everybody has to respect. In such a scheme an enforcement scheme is needed to ensure that operators implement and comply with the security requirements: security rules without effective control lack credibility both domestically and internationally. They are of little use.

4. A voluntary scheme encouraging the supply chain operators to introduce common security measures into their operations. Companies can be awarded 'secure operator' status when fulfilling the standard security requirements⁴ in exchange for simplification and facilitations. This scheme is implemented by auditors, who validate those companies which want to be awarded 'secure operator' status. The national authorities would have to ensure the functioning of the scheme.

An EU framework for supply chain security can only function on the basis of identical minimum security requirements, identical award procedures, identical and practical legal consequences of an award and the application of the rules from the same date on in all Member States. To avoid any possible friction by the implementation of the minimum requirements a Regulation is the appropriate instrument.

³ A detailed analysis of mitigating measures is attached in annexes I and II. These measures are recommended by DNV Consulting in their 'Study on the impacts of possible EU legislation to improve transport security', to be issued in October 2005

⁴ See Annexes 1 – 4 of the proposed Regulation on enhancing Supply Chain Security

5. ANALYSIS OF THE IMPACT OF THE POLICY OPTIONS

In their very nature, for industry security investments first and foremost appear to be cost elements and do not directly increase revenue. However, this simple short term approach disregards the considerable risks run by operators if and when security incidents happen:

- Disruptions to commercial activities;
- Product adulteration;
- Brand destruction.

It is widely recognized that security investments may often give collateral benefits, i.e. reduced theft, efficiency improvements and commercial benefits⁵.

An analysis of the impacts of common security measures relate to the following facts⁶.

1. General:

- The EU supply chain consists of an estimated 4,7 million companies⁷.

Companies	Micro	Small	Medium	Large	TOTAL
	< 10 employees	<50 employees	<250 employees	>250 employees	
Total number	4.208.300	424.800	98.000	19.300	4.750.400

- The benefits of transport security measures are difficult to measure where no incidents occur. Operators can make these investments when they know in advance whether their investments are warranted and that requirements in the various Member States are as uniform and predictable as possible.

Costs

- The average costs for a company to introduce a security management system are estimated at:
 - Micro company € 5.000
 - Small company € 50.000
 - Medium company € 135.000

⁵ i.e. James B. Rice, Jr. and Philip W. Spayd, 'Investing in Supply Chain Security: Collateral Benefits', May 2005 (Massachusetts Institute of Technology) and Hau L. Lee and Seungjin Whang, 'Higher supply chain security with lower cost: Lessons from total quality management', International Journal of Production Economics, 2004

⁶ See annex III. Estimated implementation costs by industry over expected period of 5 years.

⁷ For a breakdown between shippers, transport companies, forwarders and terminal operators see table in Annex IV, 2

- Large company € 300.000

In companies where certain security measures have already been implemented, costs would be accordingly lower.

- In addition, costs to ensure implementation of security measures include:
 - Auditing in the case of a voluntary scheme;
 - Enforcement costs for voluntary and mandatory schemes.

Benefits

For Member States the benefits of common security measures are:

- Increased security;
- Reduced risk of fatalities;
- Reduced risk of crime and banditry, as a collateral benefit;
- Reduced risk of economic damage;
- One common approach throughout the EU and across transport modes;
- Equal confidence in the security of different transport modes in different Member States;
- Shared responsibility with industry.

For industry the benefits of common security measures are:

- Increased awareness and security;
 - Companies show they are highly motivated to excel in security performance and take a responsibility to do so;
 - Increased quality, sustainability and resilience of organisations;
 - Reduced risk of brand and reputation damage;
 - Increased efficiency and transparency, as a collateral benefit:
 - Reduced number of cargo inspections;
 - Reduction of cargo theft and banditry.
 - Level playing field.
2. Mandatory scheme:
- A mandatory scheme would cover all companies in the EU supply chain, i.e. **4,7 million companies.**

- **Implementing costs.** A mandatory scheme would require all companies to invest in security measures, at a total cost of **€ 60 billion**, which should be done in a limited time frame not to jeopardize the common market.

	Number	Costs*	Maximum costs
Micro company	4.208.300	€ 5.000	€ 21 billion
Small company	424.800	€ 50.000	€ 21 billion
Medium company	98.008	€ 135.000	€ 13 billion
Large company	19.335	€ 300.000	€ 5 billion
Total	4.750.400		€ 60 billion

* In companies where certain security measures have already been implemented, costs would be accordingly lower.

- **Auditing.** A mandatory scheme would not require auditing costs
- **Enforcement.** For a mandatory scheme to be credible, both nationally and internationally, at least 10% of all companies should be inspected each year (i.e. 470.000 companies). The inspections are estimated to cost the Member States **€ 235 million per year**. In view of the size, it is unlikely that inspections of such volume could be carried out by existing inspection staff; instead 4.700 new inspector posts would have to be created and inspectors trained. Inspection costs would amount to **€ 0,55 per EU inhabitant per year**.

Conclusion:

The introduction of a mandatory scheme has a negative trade-off, because:

- It needs huge investments;
- Will cause a big bang in the supply chain;
- Covers many companies which have hardly any importance for security;
- Can easily disrupt the normal functioning of the supply chain.

3. Voluntary scheme

- A voluntary scheme could attract **904.500 companies**, including 128.100 companies already covered by existing EU security legislation.
- 75% of all freight flows are estimated to be covered (1% micro, 4% small, 13% medium and 57% large companies). Divided per group of operators:
 - Shippers, 718.825 companies (17%);
 - Transporters, 165.365 companies (32%);

- Forwarders, 12.050 companies (20%);
 - Terminal operators, 8.300 companies (30%).
- The maximum participation would be **776.440 companies** investing a maximum **€ 12 billion** in security measures. Divided per size:

	Number	Costs*	Maximum costs
Micro company	661.740	€ 5.000	€ 3,3 billion
Small company	86.225	€ 50.000	€ 4,3 billion
Medium company	24.907	€ 135.000	€ 3,4 billion
Large company	3.568	€ 300.000	€ 1,1 billion
Total	776.440		€ 12,1 billion

* In companies where certain security measures have already been implemented, costs would be accordingly lower.

- The time for the maximum amount of companies to participate in the scheme is estimated to be 5 years.
- The total **implementing costs for industry** is maximum **€ 2,42 billion per year** (155.288 companies). In particular a number of large and medium sized companies have certain security measures already in place, thus making the investment substantially lower (not possible to estimate).
- **Auditing.** The auditing costs are based on an auditor's yearly salary of € 50.000 per year. An auditor can audit on average 80 companies per year. Total audit costs are therefore **€ 97 million per year** (1941 auditors being required for 155.288 companies to be audited per year over a 5 year implementation period), or € 0,21 per EU citizen per year.

Auditing could be delegated to already existing specialized companies and paid for by operators wishing to become 'secure operator', the cost being approx. € 630 per operator.

- **Enforcement.** Member States would have to ensure the functioning of the scheme. However, in view of the ex-ante auditing process this process can be limited in scope: inspecting 10% of 'secure operators' per year could be considered sufficient. On the assumption of a 5 year phase-in the annual costs to Member States would initially be € 7,8 million and then increased to **€ 39 million per year** (77.640 companies to be inspected; 100 companies per inspector per year; average annual salary of € 50.000), or **€ 0,09 per EU citizen per year**.

Conclusion:

The introduction of a voluntary scheme has a positive trade-off, because:

- It allows for moderate investments;
- Will not cause a big bang in the supply chain;
- Covers only companies which have major importance for security;
- Does not disrupt the normal functioning of the supply chain;
- Can increase security without negative side effects.

6. CONCLUSIONS

All freight transport in the EU is at risk. Terrorism is thinking about the unthinkable. For transport security the assets at risk are the EU population and the EU economy. It is imperative to close the existing security gap in land freight transport. Giving the transnational nature of terrorism a practical and cost beneficial solution to mitigate the risks is required. Intermodal security can best be achieved through a supply chain perspective.

A voluntary security framework scheme is advocated, reaching up to 75% of all land freight flows in intra EU trade. This will cost industry an estimated total of maximum € 2 billion per year. The benefits are various, i.e. service, quality, green lane treatment, branding and resilience. The cost for the Member States is to establish a national system and to monitor it is estimated to cost € 39 million. If auditing of transport companies is executed by Member States this will cost them € 90 million per year. This could also be paid for by industry, average € 630 per company.

Based on the experiences in the first phase and the terrorist threat, it should be decided whether a second phase is necessary, making the introduction of common security measures in companies mandatory. This decision should be taken in 2011, after the first evaluations.

The recommended measures cost money but bring rewards. Measures for transport security help to make Europe more secure. Credible measures pre-empt the risk that other measures are imposed on European companies. For industry, transport security measures are not only investments in security but also in the quality of their operations. They improve sustainability and resilience of organisations and enhance their business performance through improved commercial positioning and business efficiency.

ANNEX 1

The assets to protect with transport security measures

Transport security can protect the assets either by reducing the consequences of a possible successful terrorist attack or by reducing the vulnerability of the transport system and supply chain to the attack.

The transportation elements, which make up the transport systems and supply chains, most vulnerable to terrorist interventions are the following:

		Transport modes			
		Rail	Road	Shipping	
				Inland	Short Sea / Non - ISPS
Infrastructure	Connecting infrastructure	* Tracks * Tunnels * Bridges/viaducts * Switches/Rail junctions	* Highways * Tunnels * Bridges/viaducts * Junctions	* Waterways * Ship locks / lifts * Aqua ducts	n/a = open sea. (Connecting infrastructure to the short sea port is included in other transport modes)
	Nodes (transaction point)	* Cargo terminal * Rail marshalling yards	* Logistic terminal	* Inland ports/terminals	* Ports/Terminals
Operational elements	Control Systems	* Central Rail Traffic Management * Local Rail Traffic Management	* Road traffic management systems	* Vessel traffic management * Traffic signs	* Vessel traffic management
	Communication Systems	* Communications network	* Communications network / mobile network	* GPS/VHF/AIS network	* GPS/VHF/AIS network
	Power supply	* Catenaries * Power supply national grid * Diesel stations	n/a (self powered vehicles)	n/a (self powered vessels)	n/a (self powered vessels)
	Staff	* Driving personnel * Handling personnel * Maintenance personnel * Information processing personnel	* Driving personnel * Handling personnel * Maintenance personnel * Information processing personnel	* Driving personnel * Handling personnel * Maintenance personnel * Information processing personnel	* Driving personnel * Handling personnel * Maintenance personnel * Information processing personnel
	Mobile units	* Locomotives	* Trucks	* Vessels	* Vessels
		* Rolling stock	* Trailers	* Barges	n/a
Cargo		* Non-dangerous * Explosive * Toxic * Flammable			

(Consumers have been excluded)

Of the above elements, cargo and mobile units are particularly vulnerable to misuse by terrorists as a weapon or transportation means for malicious cargo, because of the large number and variety of operators active in the supply chain.

ANNEX 2

Measures for mitigating transport security risks

Measures have been identified which mitigate the terrorist risk relating to both the infrastructure and the supply chain.

1. Securing the infrastructure

In the table below twenty mitigation measures for securing transport infrastructure are identified and sorted according to their expected cost range. For each measure, the applicability and effectiveness per critical infrastructure is defined.

Mitigation Measure	Rail & Road Tunnels	Road & Rail Bridges	Multi Modal Terminals	Marshalling Yards	Rail CRT Management	Logistics Terminals Road	Waterways	Ship Locks	Terminals – Short Sea	Power Supply Rail Systems	Cost Range
M03 - Perimeter Fencing Standard		X	X	X	X	X			X	X	Low
M08 - Access Control Manual			X		X	X			X		Low
M06 - Security Lighting			X	X	X	X		X	X	X	Low
M01 - CCTV Manual	X	X	X		X	X		X		X	Low
M05 - Portal Protection Automated	X	X									Low
M02 - CCTV Motion Detection	X	X	X		X	X			X	X	Low
M07 - PIDS Motion Detectors			X		X	X				X	Low
M14 - Hazchem Management	X		X			X		X	X		Low
M17 - Security Awareness/Exercise Programme	X	X	X	X	X	X	X	X	X	X	Low
M20 - Computer Security Measures	X		X	X	X	X			X	X	Low
M04 - Perimeter Fencing Alarmed			X		X	X			X	X	Medium
M09 - Access Control System – Automated			X		X	X			X	X	Medium
M10 -Traffic Inspection Manual	X		X			X			X	X	Medium
M11- Traffic Inspection - Explosive Detection			X			X			X	X	Medium
M15 – Risk Management System	X	X	X	X	X	X	X	X	X	X	Medium
M16 - Staff Vetting & Training	X	X	X	X	X	X	X	X	X	X	Medium
M18 - Security Guard Force			X	X	X	X			X		Medium
M13 - Breakdown Recovery	X	X						X			Medium
M19 - Security Dogs			X	X		X					Medium
M12 - Traffic Inspection - X-Ray Screening			X			X					High

Note: X = Most likely sites for deployment

Based on the applicability of the mitigation measures, cost bands have been set up on minimum / maximum basis for both simple and complex variants of the 10 most vulnerable infrastructure types (on the assumption that no security measures have been taken; where such measures have already been taken the solvent sum would be smaller).

Euros

		Minimum		Maximum	
		1 st year	2 nd year	1 st year	2 nd year
1. Rail/Road tunnels	Simple	148,000	18,000	265,000	45,000
	Complex	5,215,000	1,015,000	10,607,500	1,907,500
2. Rail/Road bridges	Simple	204,000	54,000	411,000	81,000
	Complex	3,897,500	797,500	8,755,000	1,605,000
3. Multimodal terminals	Simple	145,000	45,000	676,000	126,000
	Complex	4,637,500	887,500	10,157,500	1,907,500
4. Rail marshalling yards	Simple	116,000	36,000	530,000	90,000
	Complex	4,042,500	842,500	9,562,500	1,862,500
5. Rail CRT Mgt	Simple	-	-	-	-
	Complex	3,157,500	707,500	7,480,000	1,430,000
6. Logistic terminals (road)	Simple	373,000	153,000	1,606,000	396,000
	Complex	4,117,500	667,500	8,117,500	1,517,500
7. Waterways	Simple	85,000	45,000	292,000	72,000
	Complex	1,100,000	400,000	4,675,000	825,000
8. Ship locks	Simple	143,000	63,000	557,000	117,000
	Complex	3,072,500	622,500	7,395,000	1,345,000
9. Terminals (Short sea)	Simple	373,000	153,000	1,606,000	396,000
	Complex	3,667,500	667,500	8,117,500	1,517,500
10. Power supply to rail	Simple	114,000	54,000	411,000	81,000
	Complex	2,927,500	577,500	6,715,000	1,215,000

2. Securing the supply chain

Based on the inventory of security risks the following feasible and effective generic mitigation measures for operators in the supply chain have been defined.

Mitigation measures to be taken by all:

- (1) Make an assessment of the risk that their operations are the target of terrorist interventions to determine the appropriate countermeasures, effective for the type and size of their supply chain operation.
- (2) Apply their mind to security.
- (3) Deny unauthorised access to their organisation through employee vetting.
- (4) Deny unauthorised access to critical working areas, like maintenance areas, loading areas, storage areas, transportation areas, rooms where critical information is processed etc.
- (5) Implement training and awareness programmes to identify suspect behaviour.
- (6) Prevent use of bogus sub-contractors.

Mitigation measures to be taken where appropriate:

- (1) Deny unauthorised access to means of transport
- (2) Deny unauthorised access to cargo
- (3) Deny unauthorised access to confined spaces in means of transport
- (4) Deny unauthorised access to steering houses in means of transport
- (5) Deny unauthorised access to traffic control systems
- (6) Deny unauthorised access to information about cargo/ routes
- (7) Inspect confined spaces in the means of transport and cargo
- (8) Separate dangerous goods from other cargo
- (9) Reroute dangerous cargo

For each of the generic measures above, detailed functional measures, including their applicability to the different transport modes, have been defined and translated into the requirements of the Annexes 1-4 on the various operators, attached to the proposal for a Regulation on enhancing supply chain security.

ANNEX 3

Estimated implementation costs by industry over expected period of 5 years

The following data have been provided for by DNV Consulting⁸. A division has been made between an mandatory and a voluntary scheme.

1. Mandatory scheme

A. COMPANIES COVERED BY A MANDATORY SYSTEM	Micro	Small	Medium	Large	TOTAL
	< 10 empl	<50 empl	< 250 empl	>250 empl	
Total number of companies	4.208.300	424.800	98.000	19.300	4750.400
Share of the total freight flow*	6.0 %	13.5%	20.6%	59.9%	100%

B. COMPANIES ALREADY AFFECTED BY EXISTING EU LEGISLATION	Micro	Small	Medium	Large	TOTAL
	< 10 empl	<50 empl	< 250 empl	>250 empl	
Companies	40.800	33.500	39.000	14.800	128.100
Share of the total freight flow*	Negligible	1,1%	8,2%	44,5%	53,8%

C. AVERAGE IMPLEMENTATION COSTS	Micro	Small	Medium	Large
	< 10 empl	<50 empl	< 250 empl	>250 empl
Typical implementation cost per company	5.000	50.000	135.000	300.000

D. COSTS OF A MANDATORY SCHEME (A – B) x C – 5 YEAR	Micro	Small	Medium	Large	TOTAL
	< 10 empl	<50 empl	< 250 empl	>250 empl	
Implementation costs for industry	20,7 Billion	19,6 Billion	8 Billion	13,5 Billion	61,8 Billion

⁸ DNV Consulting in their 'Study on the impacts of possible EU legislation to improve transport security', to be issued in October 2005

2. Voluntary scheme

The percentage of participating companies in a voluntary scheme is determined using the following “motivating” criteria:

- (10) **Brand reputation:** Possible brand damage a company may suffer in case it is involved in a terrorist attack. Resulting in loss of business and revenue.
- (11) **Anti theft and vandalism:** Implementation of security measures to protect against terrorist interventions also secures the supply chain and its cargo against theft and vandalism. Operators responsible for the cargo will experience a reduction in losses. Manufactures will reduce market competition of stolen goods which are introduced on the market at bargain prices.
- (12) **Brand profile (business to business):** Implementation of security measures creates positive brand profiling in business to business relationships. Operators can present themselves as resilient organisations and reliable partners. Implementation of security management can guarantee a license to operate in secure supply chains
- (13) **Green lane:** Secure operators shall enjoy preferential treatment through facilitation and simplification of security control measures during inspections.
- (14) **Social responsibility:** Implementation of security management in the organisation can positively contribute to an organisation’s social responsibility policy.
- (15) **Cost:** The cost of implementing security management in the organisation (in relation to turnover) should be considered as a inverse motivator.

The influence of each criteria on both the type and the size of company has been determined. Certain criteria have strong relationship with the size of the company, meaning that the size of the company determines whether the criteria motivate the company.

In the table below the following categories have been grouped:

- Shippers/manufacturers represent the manufactures, construction and the rail repair / maintenance shops
- Transporters represent road transport, rail transport and inland shipping
- Forwarders represent the other logistic support
- Terminal operators represent warehousing and conventional terminals.

	MICRO			SMALL			MEDIUM			LARGE			Total		
	# companies	% participants	# participants	# companies	% participants	# participants	# companies	% participants	# participants	# companies	% participants	# participants	# companies	% participants	# participants
SHIPPERS	3693000	15	553950	345500	25	86375	93000	65	60450	19000	95	18050	4150500	17	718825
TRANSPORTERS	458300	30	137490	50300	50	25150	3008	80	2406	335	95	318	511943	32	165365
FORWARDERS	54000	20	10800	5000	20	1000	1000	25	250	0	0	0	60000	20	12050
TERMINAL OPERATORS	3000	10	300	24000	30	7200	1000	80	800	0	0	0	28000	30	8300
	4208300	16,69%	702540	424800	28,18%	119725	98008	65,21%	63906	19335	95,00%	18368	4750443	19,04%	904540

Based on Eurostat Statistics

Companies already affected by EU security legislation (estimated)

	Percentage	Numbers
Micro	1%	40.800
Small	8%	33.500
Medium	40%	39.000
Large	77%	14.800
Total	3%	128.100

Difference (voluntary participating companies minus companies already affected by EU legislation)

	Percentage	Numbers
Micro	16%	661.740
Small	20%	86.225
Medium	25%	24.907
Large	18%	3.568
Total	16%	776.440

Percentage of the freight flow covered

	Percentage
Micro	1%
Small	4%
Medium	13%
Large	57%
Total	75%

ANNEX 4

Architecture of the EU proposal for a Regulation on enhancing supply chain security

ARCHITECTURE OF THE EU PROPOSAL FOR ENHANCING SUPPLY CHAIN SECURITY

