



# SKEMA

Grant Agreement No. TREN/FP7/TR/218565/"SKEMA"

## ***"Weathering the Economic Crisis"***

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| <b>Commenced:</b>       |                              | November 2009                  |                          |
| <b>End Date:</b>        |                              | 19 <sup>th</sup> February 2010 |                          |
| <b>Study Leader:</b>    |                              | Nautical Enterprise            |                          |
| <b>Deliverable No:</b>  | 2                            | <b>Document type:</b>          | Report                   |
| <b>WP No:</b>           | 3                            | <b>W P Leader:</b>             | University of Gothenburg |
| <b>Due date:</b>        | 31 <sup>st</sup> January'10  | <b>Dissemination Level:</b>    | Public                   |
| <b>Submission date:</b> | 19 <sup>th</sup> February'10 | <b>Distribution Group:</b>     |                          |

***A Project supported by the European Commission.  
Directorate-General for Energy and Transport.***

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## ***Introduction***

Trade and wealth generation are inexorably linked, a factor that has been understood from the earliest evidence of human commercial transactions. A formal specification of this relationship is attributed to Ricardo in terms of the Theory of Comparative Advantage, which recognises that trade linked to specialisation in production benefits trading partners, irrespective of their relative productivities. In recent times the ratio between GDP and Trade has been approximately 1:2<sup>1</sup>, with a 1% increase in GDP associated with a 2% increase in trade, with some lead and lag between the two. Trade has become the recognised engine for growth in world economies, made possible by World Trade Organisation (WTO) agreements that progressively dismantle barriers to trade. World trade is facilitated by maritime transport, which makes possible the massive movement of dry bulk, liquid bulk and unitised cargoes throughout the world.

The current world credit crisis has caused a sharp fall in GDPs in most states, especially in the West. This in turn has resulted in an approximate twofold decline in trade, as the growth engine went into reverse, and a further magnified fall in the demand for shipping services. All elements of shipping are adversely affected, some more so than others, with those that operate in short term or voyage charters being severely affected. As an example of the uncertainty in the market, Bloomberg reports that the charter rate for a Cape-size dry bulk vessel fell from \$234,000 / day in June '08 to \$2,316 / day in December '08 and rose to \$93,197 / day in June '09.

The objective of this study, therefore, is to identify actions that may be taken by the Commission that would help the European maritime industry to weather the current economic crisis and to be in good condition to avail of opportunities in the recovery.

Twelve remedial measures for the European maritime industry were presented at a meeting of the Short Sea Shipping (SSS) and Motorways of the Sea (MoS) Focal Points and the Short Sea Promotion Centres (SPCs) in July '09. These measures provide the focus for this study. A number of Actions are proposed for weathering the economic crisis based on the remedial measures. The Actions have been ranked in order of their potential benefits, as well as the realization times of the benefits and the estimated incremental costs of the Actions.

The study was carried out by Nautical Enterprise within the SKEMA project, with all SKEMA participants contributing, as well as a select group of others who were approached because of their specialist expertise within the maritime, transport and logistics sector.

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<sup>1</sup> Ref. 'Maritime Economics', 3<sup>rd</sup> Ed., Michael Stopford, Routledge (2009)

## **1.0 Impact of Recession on the Transport Industry**

### **1.1 Impact of the Recession on World Aviation, Rail and Shipping Sectors**

An overview of the impact of the recession on world aviation, rail and shipping is provided by a study<sup>2</sup> carried out by the Norton Rose Group in which 961 individuals engaged in world transport responded to a survey to determine the state-of-health of the different sectors.

The following is a summary of the findings:

#### **Aviation Sector:**

- The aviation sector is the most pessimistic about the economic climate, with 46% of aviation respondents expecting the downturn to take another two to three years to dissipate.
- 73% of aviation respondents expect fleet sizes to decrease in 2009.
- 90% think it is likely that there will be a significant number of cancellations or deferrals of large aircraft orders up to the end of 2010.
- 58% would consider entering into a cooperation agreement or forming an alliance with a strategic partner in the next 18 months, with consolidations most likely to occur in Europe.
- Nearly 60% expect up to 20 air operators to cease trading during 2009.

#### **Rail Sector:**

- Around 80% of respondents in each sector view the rail industry as the most protected from the current economic turmoil. This is because of the strength of their passenger business and because they generally have state support in some form.
- 68% of rail industry respondents are optimistic of an upturn in business within 12 months.
- 76% expect there will be new opportunities to invest in rail assets as a result of the recession and new equity will be attracted to the industry.

#### **Shipping Sector:**

- Container ships appear to be the biggest victim of the liquidity crisis. 85% of respondents suggested that the container market is suffering most from the economic downturn, probably because the recent shipping boom produced a major spike in container tonnage, with the delivery of many very large vessels. Container capacity has more than doubled since 2000. With the increased size and number of ships on order, it is reckoned there is excess container tonnage in a declining market and charter rates have dived.
- Large dry bulk carriers are experiencing severe difficulties following the collapse in demand for raw materials.
- Car carriers are deemed to be the third most vulnerable ship type, not necessarily from over-ordering ships, but from a decline in demand for new cars.
- Approximately 60% of respondents reckoned that ship market values could bottom out in six-to-twelve months from the time of the survey. Much is dependent on the recovery of the consumer

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<sup>2</sup> “The Way Ahead for Transport” – The impact of the Global Financial Crisis on the Aviation, Rail and Shipping Sectors (September '09)

societies of North America and Europe and on the giant manufacturing countries such as China, India and Brazil. Once global trade resumes, the issue of oversupply of shipping tonnage may diminish.

## 1.2 Impact of the Recession on Road Freight

Road Freight is a major industry, employing 2.8 million people in Europe (32% of the people engaged in transport) and had a turnover of € 256 billion per year in 2005<sup>3</sup>. It is a large user of auxiliary transport services that employ 2.1 million people in Europe, with a turnover of € 350 Billion per year. In addition, Road Freight accounts for 70% of European manufactured transport equipment, which in total employs 3.2 million people and generates value added of € 182 billion/year.

The recession has had an avalanche effect on Road Freight and its associated industries. The sharp drop in GDPs that occurred in European states was accompanied by a fall in demand for road haulage, resulting in a magnified reduction in demand for auxiliary services and for new transport equipment, with a combined loss of an estimated 140,000<sup>4</sup> jobs in the industry as a whole.

The International Road Transport Union (IRU), in conjunction with the European Transport Workers Federation (ETF), have put forward to the European Commission and to Member States a number of measures that they reckon would help mitigate the impact of the economic crisis on Road Freight:

- a. Encourage financial institutions to reopen credit lines to road transport companies;
- b. Adopt employment schemes enabling skilled labour to stay in road transport rather than lose their jobs;
- c. Reduce fuel costs and stop on adding external charges;
- d. Ensure, through the provision of incentives, that company investments in training are continued throughout the crisis;
- e. Ensure, through the provision of incentives, that company investments in newer, cleaner and safer vehicles are sustained during the crisis;
- f. Reinvest more than ever in infrastructure - including safe parking facilities – to stem the flow of unnecessary costs incurred from congestion and crime.

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<sup>3</sup> 'Panorama of Transport 2009' Eurostat.

<sup>4</sup> Estimate of International Road Transport Union (IRU).

## **2.0 Economic & Environmental Comparison of Transport Modes**

### **2.1 Background**

In considering the effects of the recession on shipping, there is an implied assumption that a serious setback to shipping can be particularly damaging to the European economy and to the environment because of shipping's positive contributions to these fundamental factors. For that reason it is relevant to compare the performance of shipping with that of other transport modes, specifically road haulage and freight trains. The objective is to establish the general conditions under which the different transport modes are most economical and environmentally friendly in order to avoid unsubstantiated claims being made on its behalf of each, which would undermine their positive attributes in the longer term. The economic and environmental assessment includes RoRo, LoLo, bulk shipping, freight trains and road haulage. The analysis includes delivery costs, delivery times, environmental costs, congestion costs and carbon footprint and it identifies the relative strengths of the different transport modes in a European context.

### **2.2 Methodology used in the comparison of Unitised Transport Modes**

A simple Point-to-Point (P2P) comparison is made between the various transport modes and long-haul trucking. There are several assumptions:

- The same points of origin and destination are used in the comparisons. The points of origin and destination are ports in which the ships are loaded and discharged.
- Distances and ship speeds are selected in order to simulate regular ship schedules. This is a constraint on ship services. That is, ship specifications should ideally be appropriate to the distances between ports and should be such as to ensure regular schedules without too much ship down-time or requiring excessive speeds. In contrast, trucks do not suffer from such constraints.
- The RoRo ship that is considered is a substantial vessel of 230 trailers capacity and 19 knots service speed. A second, smaller RoRo vessel is also considered, but its data is not displayed as it adds little to the overall picture.
- The LoLo vessel that is considered has 868 TEU capacity and 14 knots service speed. A second, smaller vessel is also examined but its data is not displayed.
- One dry bulk ship is considered, a relatively small vessel of 2,000 dwt capacity and service speed of 10.5 knots. This is the ubiquitous coaster that is a direct descendent of John Masefield's 'Dirty British Coaster'<sup>5</sup>

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<sup>5</sup> Dirty British coaster with a salt-caked smoke stack,  
Butting through the Channel in the mad March days,  
With a cargo of Tyne coal,  
Road-rails, pig-lead,  
Firewood, iron-ware, and cheap tin trays.

John Masefield, Poet Laurette, (1878 – 1967)

- The train service that is used is modelled on the top-of-the-market freight trains that operate between Gothenburg and Stockholm, powered by Swedish generated electric energy, which is particularly ‘green’.
- The ship fuel used is Marine Diesel Oil (MDO) at sea and Marine Gas Oil (MGO) in port, assuming that it is post-July 2010 and that the next phase of MARPOL Annex V1 has come into force; no exhaust scrubbers are used.
- For each RoRo & LoLo ship, two average ship utilisations are used – 45% and 65%.
- Trailers are used for comparison purposes, with TEUs converted to equivalent trailers on the basis of their respective pallet carrying capacities; dry bulk is converted to trailer-equivalents using 25t per trailer.
- For the trucks, EURO V trucks are used throughout. The Euro vignette costs per truck have two components – an infrastructural toll cost, which is assumed to be a maximum of € 0.009 / km for EURO V trucks, and an environmental toll cost, which includes emissions, congestion and noise and is assumed to be a maximum of €0.034 /km for EURO V trucks. Both these toll costs are included in the Point-to-Point (P2P) truck cost computations. It should be noted that a EURO V truck is similar to the commonly used EURO IV truck, except that its maximum environmental toll cost is less (€0.034 per km vs. €0.059 per km for the EURO IV)  
Truck driver Working Time Directive requirements are built into truck delivery times.

### **2.3 Comparison of RoRo, LoLo, Dry Bulk & Trains with Long Haul Trucking**

In the comparisons between RoRo, LoLo, Dry Bulk Shipping, Trains and Trucks, trucks are used as a reference because they set the standard with which other modes have to compete. The quantifiable criteria used in comparing the different modes are:

- Point-to-Point (P2P) cost to the shipper per trailer (€ / trailer),
- P2P delivery time per trailer (hours / trailer),
- CO2 emissions per trailer (t / trailer). CO2 emissions are important because of European environmental policies, and emissions trading will probably be applicable to shipping eventually.
- SO2 emissions per trailer (kg / trailer).



**Distance 300 Nautical Miles (556 km)**

| <b>Comparison Criteria</b>         | <b>EuroV Truck<br/>75% Utilisation</b> | <b>EuroV Truck<br/>100% Utilisation</b> | <b>RoRo Ship<br/>45% Utilisation</b> | <b>RoRo Ship<br/>65% Utilisation</b> | <b>LoLo Ship<br/>45% Utilisation</b> | <b>LoLo Ship<br/>65% Utilisation</b> | <b>Bulk Ship<br/>75% Utilisation</b> | <b>Freight Train<br/>20 Trailers</b> |
|------------------------------------|--|---|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| P2P Cost/ Trailer<br>(€ / Trailer) | € 900                                  | € 680                                   | € 671                                | € 562                                | € 446                                | € 404                                | € 300                                | € 245                                |
| P2P Delivery Time<br>(hours)       | 8.7                                    | 9                                       | 24.2                                 | 26.5                                 | 33.8                                 | 37.6                                 | 47.5                                 | 13                                   |
| CO2 / Trailer<br>(t)               | 0.7                                    | 0.5                                     | 1.8                                  | 1.2                                  | 0.4                                  | 0.3                                  | 0.5                                  | 0.02                                 |
| SO2 / Trailer<br>(kg)              | Negligible                             | Negligible                              | 10.8                                 | 7.5                                  | 2.1                                  | 1.5                                  | 4.5                                  | Negligible                           |

**Distance 800 Nautical Miles (1,482 km)**

| <b>Comparison Criteria</b>         | <b>EuroV Truck<br/>75% Utilisation</b> | <b>EuroV Truck<br/>100% Utilisation</b> | <b>RoRo Ship<br/>45% Utilisation</b> | <b>RoRo Ship<br/>65% Utilisation</b> | <b>LoLo Ship<br/>45% Utilisation</b> | <b>LoLo Ship<br/>65% Utilisation</b> | <b>Bulk Ship<br/>75% Utilisation</b> | <b>Freight Train<br/>20 Trailers</b> |
|------------------------------------|--|---|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|--------------------------------------|
| P2P Cost/ Trailer<br>(€ / Trailer) | € 2,280                                | € 1,712                                 | € 1,197                              | € 922                                | € 661                                | € 551                                | € 425                                | € 462                                |
| P2P Delivery Time<br>(hours)       | 50                                     | 50.3                                    | 52.6                                 | 55.0                                 | 72.3                                 | 76.1                                 | 98.9                                 | 26                                   |
| CO2 / Trailer<br>(t)               | 1.8                                    | 1.4                                     | 4.3                                  | 3.0                                  | 0.9                                  | 0.6                                  | 1.1                                  | 0.06                                 |
| SO2 / Trailer<br>(kg)              | Negligible                             | Negligible                              | 26.9                                 | 18.5                                 | 5.3                                  | 3.7                                  | 10.3                                 | Negligible                           |

*Comments on the comparison between the RoRo vessel with 19 knot service speed and 230 trailer capacity and a EURO V truck:*

- For relatively short distances, a truck has no competitor, except under special circumstances, such as transport to islands.
- For relatively long distances a RoRo vessel compares favourably with a EURO V truck in delivery cost to the shipper and is about equal in delivery times.
- The environmental criteria of carbon footprint and SO2 footprint of a RoRo vessel are significantly worse than those of a EURO V truck.
- A RoRo vessel with a relatively small carrying capacity compares poorly with a larger RoRo vessel on all criteria, except delivery times for which it is marginally better because of its shorter port turnaround times. It therefore compares badly with a EURO V truck, especially on environmental factors.

*Comments on the the LoLo vessel with 14 knot service speed and 868 TEU capacity:*

The most notable positive features of LoLo vessels are:

- a. Over medium-to-long distances they provide low transport cost per TEU or per trailer-equivalent, lower than trucking or RoRo. Over short distances they are not so economical because of their relatively long port turnaround times.
- b. They have low carbon and SO2 footprints, which makes them an environmentally friendly mode of unitised transport.
- c. LoLo vessels are sensitive to economies of scale; they can achieve significant reductions in unit transport cost and carbon footprint with increasing capacity. This is offset by increased delivery times due to increased turnaround times in port. Distance, ship capacity and ship average utilisation are determining factors in achieving an optimal balance.

Against this, LoLo vessels have a number of notable negatives:

- d. Their delivery times over short-to-medium distances are dreadful-to-poor because of their long port turnaround times. This reduces their suitability to certain market segments for these distances, primarily low-to-medium value durable goods for which delivery times are not of the essence.
- e. A further weakness of intra-European LoLo services that does not appear in the above quantifications is that they can be unreliable in their deliveries. Reliability is an assumed attribute of modern transport and logistics; unreliability is damaging to the reputation of a service and reduces it to commodity status. Feeder services, especially, are notoriously unreliable because of uncertainties in delivering and collecting cargo in large hub ports. This adversely affects berth availability in regional ports; it contributes to the unreliability of deliveries and is damaging to the reputation of intra-European LoLo services.

*Comments on the dry bulk vessel with 10.5 knot service speed & 2,000 dwt capacity:*

Small-to-medium dry bulk ships service a myriad of small tidal ports all over Europe. They carry such cargoes as coal (a staple cargo of the not-too-distant past), fertilizer, animal feed, scrap, stone, aggregates and timber. Their costs per unit of cargo are the lowest amongst the ships examined. Their delivery times are the longest. They service a particular niche in the transport industry in which they excel. Their scale economies are legendary; hence, the world fleet of massive dry bulk carriers that move steam coal & coking coal, iron ore, minerals and grains around the world.

*Comments on Freight Trains:*

The example that is used is based on trains that carry unitised and bulk freight between Gothenburg and Stockholm. Gothenburg, including its surroundings, has a population of about one million people and is the largest port in the Nordic states. Stockholm, with a metropolitan population of approximately two million people, is the capital of Sweden and accounts for approximately 28% of its GDP. The distance between the two cities is 448 km. The train services connecting the two cities are therefore hugely important for the economic and social wellbeing of the two populations and for all of Sweden. The trains are electrically powered. With approximately 90% of Sweden's electricity generated from nuclear and renewable sources, the trains have negligible carbon footprints. The freight train example that is used is therefore in the top echelon of European freight trains and may not readily be mimicked in different circumstances. Its unit costs are only equalled by the bulk ship for medium and long distances and its delivery times by the Euro V truck for the medium distance.

*Conclusion:*

For each of the five transport modes that are considered in the analysis – long-haul trucking, RoRo, LoLo and bulk shipping and freight trains – there are particular advantages as well as disadvantages. Even the Swedish freight trains between Gothenburg and Stockholm, which provide a superlative service, have the disadvantage of being difficult to replicate in completely different circumstances.

In summary, optimality involves selecting, adapting or designing a service or combination of services that use the best features of available modes and that meet the requirements of targeted freight markets.

### **3. Recommended Actions for Weathering the Economic Crisis**

#### **Introduction**

Shipping services that efficiently link European regions with each other and, hence, facilitate trade between the regions, or that efficiently link Europe's multiple regions with its hub ports and hence with international trade routes – such services facilitate the primary mechanism for wealth generation throughout Europe and contribute significantly to the alleviation of the recession. In that regard, addressing difficulties in maritime transport is not just the problem; it is also an integral part of the solution.

Nine of the twelve remedial measures proposed at the meeting of the Short Sea Shipping (SSS) and Motorways of the Sea (MoS) Focal Points and the Short Sea Promotion Centres (SPCs) in July '09 require some form of financial assistance or funded research to advance the interests of European shipping. Accordingly, it is suggested that, at the outset, supports for shipping should have as a precondition that any proposed solution would significantly, quantifiably and efficiently improve trade either within Europe or with international markets. Such a precondition would complement requirements for meeting European energy policies, as energy efficiency and operational efficiency are two sides of the same coin.

The headings that follow are the Measures that were proposed to alleviate the impact of the recession on the maritime industry. The elaborations that follow each heading are the trigger Actions suggested by the study authors & contributors to help realize the ambitions of each Measure. Many of the trigger Actions are studies that will help unlock much greater resources, activities and benefits than are proposed by the initial action.

#### **1 Implement a stimulus to promote Motorways of the Sea and Short Sea Shipping**

The funding mechanisms that are in place to stimulate developments in Motorways of the Sea and Short Sea Shipping are the Trans-European Transport Network (TEN-T) programme, which is established under the EC Treaty (in Articles 154-156), and the Marco Polo programme.

The TEN-T programme dedicates financial support towards the realisation of important transport infrastructure projects – promoting the wider European objectives of competitiveness and job creation, together with social and economic cohesion. TEN-T funding is particularly relevant to infrastructural developments in ports and to connecting ports & terminals to road and rail networks. Grants are allocated to works and also to studies, including feasibility studies, comprehensive technical and environmental studies and costly geological explorations, thus helping to overcome early stage project difficulties. Given the substantial grants available for studies, it would be prudent for port authorities to avail of such funding to better position themselves for development. Studies can highlight the soft value benefits of a port and provide vital information on the feasibility of a proposed development programme. Studies can be used to assess the support of local businesses and the potential societal benefits of port developments prior to

port authorities investing unquantifiable amounts of money in complicated confrontations for planning authorisation.

Some € 8bn has been attributed by the EU to the TEN-T programme for 2007-2013, in order to support works and studies that contribute to the TEN-T programme objectives. In addition, an ad hoc work programme, the **European Economic Recovery Plan Work Programme** (EERP) was adopted in 2009 in response to the financial crisis. The EERP is designed specifically to support works and attributes €500 million of existing funds in order to support works that can start in 2009 or, at the latest, in 2010 and be largely implemented over this two-year period, or which have already started but can be accelerated over 2009 and 2010.

Other EU funding sources include: European Community funds (ERDF, Cohesion Fund), loans from international financial institutions (e.g. the European Investment Bank), and private funding. Community funding can also facilitate the promotion of pilot schemes for sustainable public-private partnership solutions. It must be emphasised that Community grants are extremely important for both project preparation and implementation and have a significant catalytic effect. Some of the most challenging and complex projects (geologically, technically, financially, legally and administratively) have been facilitated through the provision of EU grant assistance.

TEN-T Guidelines were developed to help implement the Treaty provisions and facilitate applications for funding. The Guidelines envisage support for a comprehensive network layer (outline plans for rail, road, inland waterway, combined transport, airport and port networks) and for 30 priority projects. The Motorways of the Sea (MoS) Programme is one such priority project. The MoS programme is particularly relevant at the present time. It enables two or three states to provide financial support over a specified period of time for a new service that meets certain requirements. It would help fill trading gaps that may be identified between states and would be a boost to the economies of the affected states.

## Suggested Actions to help realise the ambitions of Measure 1

### **1.1 Simplify and clarify the funding measures that are available through the TEN-T and Motorways of the Sea (MoS) support structures.**

#### **How can the proposed action be carried out?**

- Explain the purpose of the supports in terms of EU policies and the needs of potential applicants;
- Provide examples of successful implementations that availed of EU support funding;
- Provide material that will hand-hold applicants through the proposal preparation process;
- Provide a check-list for proposals in terms of what is required in the assessment process.

It would be best if such clarifications were carried out at arms-length from the Commission, possibly under the aegis of a currently funded project, such as PROPS (Promotional Platform for Short Sea Shipping and Intermodality).

#### **Who pays?**

If carried out within an existing project, the cost would be borne by the project.

**Who benefits?**

- All participants in the transport industry would be encouraged that some action is being taken to address the plight of their industry.
- The direct beneficiaries would be ports and terminals for infrastructural projects, ship operators and intermodal transport operators for ship services.
- The principal beneficiaries for both infrastructural developments and new services over time would be regions and states that would benefit from the wealth generated from increased inter-regional or international trade.

**Time scale for realising the benefits?**

The Action could be initiated almost immediately.

The clarification documentation could be carried out in approximately three months.

A promotional campaign would take a further three months.

Applications, assessments, negotiations and implementations would take further one-to-two years.

Trading benefits would start to be realised in a further six months to a year.

In summary, perceptual benefits could be realised almost immediately. Quantifiable benefits to all stakeholders would be evident in approximately two-to-three years, but would be difficult to attribute to the initial action at that stage. Accordingly, promotion of the initial action would be advisable both to raise expectations and to help expedite the whole process in Europe.

**1.2 Promote the advantages of TEN-T and MoS support funding for port developments and new shipping services respectively**

**How can the proposed action be carried out?**

- Within the remit of current European projects, such as PROPS, request that themes be included in scheduled workshops / conferences relating to the purposes, advantages and catalytic effects of TEN-T and MoS supports. It would be important to include member state officials as targeted stakeholders in such events as they have a role in both TEN-T and MoS programmes.
- The explanatory / promotional material prepared under # 4.1.1 could be disseminated through the SPC<sup>6</sup> network to the maritime industry in member states. Assistance could also be provided by the SPCs in preparing applications.

It would be best to implement the action within the remit of an existing project or projects, with Commission Officers making presentations and providing necessary inputs to workshops / conferences.

**Who pays?**

Most of the cost would be borne by the project / projects.

**Who benefits?**

The beneficiaries would be the same as in # 4.1.1.

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<sup>6</sup> SPC: Short Sea Promotional Centre

**Time scale for realising the benefits?**

This would be the same as for Action 1.1.

**1.3** Modify the “Ecobonus” scheme that supports truckers in their use of ships in order to facilitate and encourage cooperation between neighbouring states in implementing a modified scheme.

**How can the proposed action be carried out?**

A special study could be carried out to investigate the Italian experience with the current Ecobonus scheme, to identify circumstances and cases where a modified scheme between two or more states may be beneficial to all, without distorting competition. This would help take trucks off roads and would assist RoRo operations. A related scheme for long-haul trucking should be investigated that would assist LoLo operations. The study could be commissioned or requested to be carried out within an existing project.

**Who Pays?**

The actual study could be paid for by the Commission, if it were a contractual study. If it were part of an existing project, it could be paid for by the project.

The subsidies associated with the implementation of the scheme would be paid by the member states involved, with monitoring carried out and paid for by the Commission.

**Who Benefits?**

The principal beneficiaries would be the member states participating in the scheme and who ultimately pay for it. Shipping services would also benefit and the extent of the benefit would need to be balanced against the costs and the risks.

**Time scale for realising the benefits?**

Commissioning and implementing the study would take about six months.

Initiating the scheme would take a further six months.

Applications, assessments, negotiations and implementations would take a further one-to-two years. In total, implementation would take two-to-three years, although promotion of the programme could commence in about six months.

## **2 Improve Access to Finance for Investment in ‘Healthy’ Shipping or Port Services**

The criteria that constitute ‘healthy’ shipping need to be agreed, based on –

- a. Bridging intra-European and international trade gaps and, hence, directly addressing the economic recession in Europe;
- b. Achieving optimal transport efficiency, taking into account considerations addressed in Section 3 of this study;
- c. Complying with EU social and environmental policies.

Suggested Action to help realise the ambitions of Measure 2

**2.1** In view of the fact that the European Investment Bank (EIB) has supported many general infrastructural projects with low cost funds, a Briefing Paper should be prepared on how EIB funding may be accessed for port infrastructural developments and possibly for shipping services, subject to proposals meeting 'healthy' shipping criteria.

**How can the proposed action be carried out?**

The Briefing Paper could either be commissioned as a standalone study or it could be requested as part of an existing project.

**Who pays?**

If it were a commissioned study, the Commission would pay; if it were part of an existing project, the project would pay.

**Who benefits?**

Ports, terminals and shipping services would directly benefit if it were found that EIB funding is available for their development requirements and the conditions are not too onerous.

**Time scale for realising the benefits?**

Specifying, commissioning and preparing the Briefing Paper would take about 6 months.

Promoting the findings, if found to be positive, would take about a further 3 months.

Using the Briefing Paper would depend on the ambition and readiness of ports, terminals and ship operators.

### **3 Devise Measures to preserve highly qualified labour in the maritime industry**

Suggested Actions to help realise the ambitions of Measure 3

**3.1** Identify measures to enhance the attractiveness of seafaring professions

**How can the proposed action be carried out?**

- a. Carry out a study on prevailing tax arrangements for seafarers in the international seafaring market. Determine the extent to which seafarer tax exemptions affect recruitment to the industry in a sample of maritime states and the controls that are put in place to ring-fence these exemptions.
- b. Identify measures derived from successful member state campaigns aimed at attracting young people to careers in the maritime industry.
- c. Establish life-long learning / continuous professional & personal development programmes to encourage new entrants into the industry.



- d. Facilitate skills and knowledge enhancement of seafarers through e-learning programmes that may be cooperatively designed and implemented by colleges and training establishments.

### **3.2 Establish clear career progression paths to enable seafarers to adapt their knowledge to alternative shore based employment, if desired.**

#### **How can the proposed action be carried out?**

- a. Investigate the career paths of people already working in the maritime sector with a view to addressing perceived weaknesses in their training and capitalizing on the strengths.
- b. Identify professional and academic programmes that are available to assist seafarers to achieve employment mobility.
- c. Facilitate the mobility of workers from the fishing sector to merchant marine through training and recommend appropriate incentive schemes.
- d. Research the requirements of shore-based employments that are broadly related to the maritime industry in order to match adaptive training of seafarers to these requirements.
- e. Identify the transferable skills, knowledge, education, training, attitudes and experience of seafarers and present them as a marketable feature at every stage of the seafaring career.

### **3.3 Encourage the formation of Networks of Centres of Excellence to enrich maritime and logistics training across Europe.**

#### **How can the proposed action be carried out?**

Networks of Centres of Excellence will help to:

- Broaden the perspectives and knowledge base of college staff;
- Make specialized training available to maritime students, which otherwise they may not obtain;
- Provide students with opportunities for further education;
- Integrate maritime training with the greater logistics industry.

#### **Who Pays?**

The Measure to preserve highly qualified labour in the maritime industry forms the basis for the X-Cutting Action SST.2010.6-2 in the call for proposals in FP7 that closed on the 14<sup>th</sup> January '10. As such, a comprehensive programme of work will be carried out that will probably cover most of the suggested actions. The costs of the work programme will largely be covered by the Commission, with some contributions from the participating organisations.

#### **Who Benefits?**

The beneficiaries in the first instance will be the organisations that carry out the work, assuming that they have direct professional interest in the subject matter.

European maritime colleges and universities, as well as shipping companies and the maritime industry in general will benefit from having access to high calibre European seafarers.

The principal beneficiaries will be European seafarers, whose career prospects will be broadened and who will be provided with greater opportunities in the maritime & logistics industry.

**Time scale for realising the benefits?**

The successful proposal for SST.2010.6-2 will probably commence in early 2011 and last for possibly two years. The benefits arising from the project will therefore commence in about two years from now and will be deepened and strengthened for a further year or so.

## **4 Facilitate investments in port developments and hinterland connections**

Measures 4.1 and 4.2 examine the financial supports for infrastructural developments. This section addresses the conflicts that arise between port developments for economic & commercial reasons and associated environmental concerns.

Suggested Action to help realise the ambitions of Measure 4

**4.1 Expedite the preparation of guidelines for the interpretation of environmental legislation in the context of port development strategies.**

**How can the proposed action be carried out?**

A study could be commissioned that would –

- Identify recognised best practices of ports towards environmental and economic advancement and corporate social responsibility;
- List, through case studies, the practical difficulties associated with reconciling port developments and the negative powers vested in objectors through environmental legislation;
- Prepare guidelines for the interpretation of environmental legislation in the context of port development strategies;
- Prepare specifications for short duration professional courses for port executives in relation to port developments, environmental legislation and corporate social responsibility.

**Who pays?**

The Commission would pay. Addressing this intractable problem would be a service to the European ports' community in particular and to the maritime industry in general.

**Who benefits?**

The direct beneficiaries would be the whole maritime transport industry.

**Time scale for realising the benefits?**

Commissioning and carrying out the study would take about six months.

Disseminating and promoting the findings would take a further six months.

Trial implementations by port authorities would take one-to-two years and would be open-ended.

The realisation of benefits would therefore be in two-to-three years.

## 5 Introduce a Ship Scrapping scheme to address overcapacity and to stimulate new shipbuilding contracts

There are a number of concerns relating to a European-specific ship scrapping scheme.

- A scrapping scheme would be a measure designed to artificially control the supply of shipping capacity and, hence, would constitute interference in what is a very open international market;
- If successful, it would reduce the supply of ships and would ultimately lead to an increase in price, thus to a net decrease in demand, bearing in mind that the lead time between investigating and building a ship can take two-to-three years;
- The European shipbuilding sector has limited capacity and could be overloaded with an over-ambitious scrapping programme;
- Ship scrapping subsidies would inevitably lead to a leakage of funds from the EU economy due to the mobility of the assets;
- A selective European scrapping scheme would probably be in contravention of international agreements.

Nevertheless, if the promoters of a European ship scrapping scheme could satisfactorily address these concerns, then such a scheme should be given consideration.

### Suggested Action to help realise the ambitions of Measure 5

**5.1** The concerns relating to a ship scrapping scheme need to be addressed and the details of the scheme need to be established before such a scheme could be introduced.

## 6 Introduce incentives for ordering / using environmentally friendly vessels & equipment

### Suggested Actions to help realise the ambitions of Measure 6

#### 6.1 Deployment of Shore Power for Ships in Port

##### How can the proposed action be carried out?

Ship exhaust gas emissions in ports are recognised as being a concentrated source of air pollution, especially in city ports. TEN-T subsidies could be specifically assigned to encourage the provision of shore power for ships in port, with installations to be carried out in the short / medium term.

##### Who pays?

A small, yet significant proportion of the total could be paid under the TEN-T programme. The balance would be paid by the port authority or terminal management.

##### Who benefits?

Ships using the port, as well as the port and terminal would benefit. The principal beneficiaries would be the local community who would experience less air pollution from ships in port.

##### Time scale for realising the benefits?

Applying for TEN-T funding, assessing proposals and negotiating implementations would take about one year.

Installing the necessary fittings would take a further year.

A system could therefore be in place in about two years.

## **6.2 Deploying co-modal transport solutions<sup>7</sup> to meet the requirements of targeted market segments**

The most effective means of achieving the most suitable end-to-end transport solutions is by deploying a combination of transport modes in the most efficient manner for particular requirements. It is evident from Section 3 of this study that ship type, speed, capacity and average utilisation are all critical factors when considering cargo types, distances, geographical constraints and commercial imperatives. An optimal solution is comprised of the combination of modes that meets the correct balance in unit price, delivery times, reliability of deliveries and carbon footprint for targeted segments of the freight market. Designing or adapting for optimality is probably best achieved by simulating the transport network in which the principal variables are embedded, comparing practical alternatives with each other and identifying the combination of modes that best meet market requirements. Implementing an optimal solution requires an organisational structure that mitigates risk and optimises efficiency in intermodal networks and that achieves close alignment of transport services with economic and trading dynamics.

### **How can the proposed action be carried out?**

A pilot action could be carried out under the aegis of an existing collaborative project, such as 'e-Freight',

### **Who pays?**

The project in which the action can be carried out would bear the cost.

### **Who benefits?**

The maritime transport industry would benefit through using co-modal solutions in complex transport networks.

Shippers / receivers would benefit by having available efficient transport services that are designed to meet their requirements.

### **Time scale for realising the benefits?**

Benefits can be realised in about two years.

## **7 Initiate a dedicated research programme for developing a "new generation" of clean ships**

The recent transport research work programme, which closed on the 14<sup>th</sup> January '10, had a number of calls for proposals relating to clean ships, such as:

SST.2010.1.1-1 'Carbon Footprint of Freight Transport',

SST.2010.1.1-2 'Energy Efficiency of Ships',

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<sup>7</sup> Co-modal transport solution: The use of different transport modes on their own and in combination in order to obtain an optimal and sustainable utilisation of resources.

SST.2010.1.1-4 'Advanced After Treatment Solutions for Mitigation of Emissions from Ships'. In time it is most likely that the successful proposals will contribute to the development of a new generation of clean ships.

### Suggested Action to help realise the ambition of Measure 7

**7.1** Voluntary initiatives for environmentally clean ships, such as the Swedish 'Clean Shipping Index' or the 'Environmental Ship Index', which was developed by CE Delft on behalf of a group of major European ports, or IMO recommendations – all have significant advantages:

- Voluntary initiatives do not have to go through a series of cumbersome phases, as would apply to a new legal act, before they can be put to use;
- A Clean Shipping Index would be a powerful marketing indicator for maritime transport.

#### **How can the proposed action be carried out?**

A study could be initiated for the purpose of developing an agreed Clean Shipping Index, incorporating the best of the voluntary systems that have been or are being developed. The purpose of such a system would be to make Green Transport, based on co-modal criteria, a major marketing feature in Europe.

#### **Who pays?**

The study could either be assigned by the Commission or it could be carried out within an existing project. If assigned by the Commission, the Commission would pay; if carried out within an existing project, the project would pay.

#### **Who benefits?**

The maritime transport industry would benefit by conferring services that meet specified criteria with a legitimate green status that can be strongly marketed.

#### **Time scale for realising the benefits?**

The benefits could commence to be realised in about one year.

## **8 Stimulate rethinking on new technologies and ways of organising logistic chains**

The current recession has shown up weaknesses in previously accepted practice i.e.

- Decision making based on the prevailing collective wisdom;
- The underestimation of risk;
- Extrapolations from past experience into future expectations in terms of market growth, service design, cost escalations and pricing.

### Suggested Action to help realise the ambition of Measure 8

**8.1** In the short / medium term, the most promising technological development that is emerging is e-Maritime, which is becoming the focus for the simplification and cohesion of administrative requirements and procedures, with a corresponding strong emphasis on commercial applications. From the perspective of logistics chains, e-Maritime has the potential of providing standardisation, interoperability and security of information exchanges based on a common IT platform that can

provide the foundation for cooperative networking strategies in intermodal operations. The implications of this are far-reaching:

- Coordination, standardisation and simplification of administrative requirements for shipping;
- Efficient functioning of intermodal networks without incurring massive IT infrastructural costs;
- Inter-network linkages becoming feasible;
- Increased reliability and security of deliveries with reduced unit costs becoming a reality.
- In brief, e-Maritime can potentially make Motorways of the Sea as accessible and as dependable as long-haul trucking.

**How can the proposed action be carried out?**

The initial action could be part of an EU research project.

**Who pays?**

The project could bear the cost.

**Who benefits?**

The European maritime transport industry would benefit directly.

Shippers / receivers would benefit through the availability of transport services that provide efficient dynamic linkages between maritime trade and economic prosperity.

**Time scale for realising the benefits?**

Benefits could commence to be realised in about two years.

**9 Restore mutual confidence and address the problem of delayed payments**

The downturn in most European economies has been accompanied by a credit crisis, as some banks, and in turn businesses, became insolvent. The insurance underwriting corporations globally suffered very high claim demands for debtor failure, and have withdrawn facilities extensively on an international basis.

This has created a situation where exporters have been forced to delay payments to their logistics providers, and this has rippled down the chain. Similarly importers have not been able to get credit terms from their suppliers and have been equally slow in paying for their shipping and logistics services.

There is unquestionably “market failure” in regard to credit availability and credit insurance availability.

**Suggested Action to help realise the ambition of Measure 9**

**9.1** The situation would be helped in the logistics / maritime sector if standardised dispute resolution guidelines were made available as an alternative to litigation procedures. It would be helpful if this were supported by an open access reference database of case law related to relevant disputes. Existing initiatives under the direction of the European Judicial Network, such as ECC-Net, FIN-NET and SOLVIT should be utilised to their fullest potential to facilitate the specific needs of the maritime industry.

**How can the proposed action be carried out?**

A study could be initiated by the Commission to address the suggested action.

**Who pays?**

The Commission would pay.

**Who benefits?**

Exporters & Importers would benefit directly.

Maritime transport operators would benefit in the resolution of disputes.

**Time scale for realising the benefits?**

Commissioning and carrying out the study would take approximately one year. Benefits could be realised shortly afterwards.

## **10 Prevent a proliferation of substandard shipping**

Port State Control (PSC) inspections of ships are very thorough and are carried out approximately every six months for ships trading in European waters. There is no evidence of a proliferation of sub-standard ships in Europe.

### **Suggested Action to help realise the ambition of Measure 10**

**10.1** The suggested action has two parts:

- a. In order to maintain the highest possible standards of working and living conditions of seafarers, it is suggested that the ratification of the Maritime Labour Convention 2006 by Member States be advocated. This will assist PSC Officers to enforce quality standards for seafarers.
- b. To mitigate the trauma of crew abandonment, it is suggested that insurance cover for crew abandonment be made compulsory within the framework of the IMO.

**How can the proposed action be carried out?**

The suggested action or actions would require agreement amongst member states.

**Who pays?**

There would be no specific cost.

**Who benefits?**

European and international seafarers sailing on ships in European waters would benefit.

**Time scale for realising the benefits?**

This would be uncertain and would be conditional on agreement reached amongst member states.

## **11 Fight against protectionist measures at EU and international level that delay economic recovery**

There is growing evidence that various countries are taking measures to protect their economies. In some instances this is without regard to existing international free trade agreements and the WTO rules of trade.

### **Suggested Action to help realise the ambition of Measure 11**

**11.1** The EC must be vigilant on these matters and ensure that the Commissioners responsible take early interventionist action to protect businesses in the EU.

**Who pays?**

There would be no specific cost.

**Who benefits?**

European shippers and receivers, as well as maritime and logistics operators.

**Time scale for realising the benefits?**

That would be uncertain.

## **12 Exploit newly available maritime statistical data to assess trends/length for hauls between EU ports**

Quite a number of statistical studies relating to cargo flows have been or are being funded by the EU Commission.

### **Suggested Action to help realise the ambition of Measure 12**

**12.1** Data arising from EU funded statistical studies could be made available for inclusion in the SKEMA Maritime Knowledge Base, which will be openly available to the maritime industry and will be maintained for a minimum of ten years after completion of the SKEMA project.

**How can the proposed action be carried out?**

The sources of funded statistical data would need to be identified, with some assistance from Commission Officers. The data would need to be categorised and adapted for inclusion in the SKEMA Knowledge Base.

**Who pays?**

The action could be assigned as a Periodic Study to the SKEMA project, in which case there would be no incremental cost.

**Who benefits?**

European shippers and receivers, as well as maritime and logistics operators would benefit.

**Time scale for realising the benefits?**

The study could be carried out in about six months. The availability of the data would need to be promoted and benefits would accrue shortly thereafter.

## **Ranking of the Proposed Actions**

A proposed Action is rated in terms of the relative potential benefit of the resulting outcome arising from its implementation and is assigned a mark in the range 10 to 1. The marks were assigned by the authors in consultation with the contributors to the study.

The proposed Actions were ranked in order of their assigned mark, with second and third order ranking being in terms of Realisation Time of Resulting Outcomes and Incremental Cost of Actions respectively. Many of the proposed Trigger Actions are studies that will help unlock the targeted benefits. The specific cost of each study is uncertain and an indicative cost of €100,000 is used in each case.



| Rank | Reference Trigger Actions  | Relative Potential Benefit of Outcomes | Realisation Time of Outcomes (years) | Est. Incremental Cost of Trigger Actions (€)  |
|------|--|--|--------------------------------------|---|
| 1    | 6.2 Deploy co-modal transport solutions <sup>8</sup> in intermodal networks to meet the requirements of targeted segments of the freight market.   | 9                                      | 2                                    | A pilot action could be carried out under the aegis of an existing EU research project. |
| 2    | 8.1 Develop e-Maritime, which has the potential of providing standardisation, interoperability and security of administrative information exchanges based on a common IT platform and that will support cooperative networking strategies in maritime transport. | 9                                      | 2                                    | The initial action could be part of an EU research project.                             |
| 3    | 1.2 Promote the advantages of TEN-T and MoS support funding for port developments and new shipping services respectively   | 9                                      | 2.5                                  | 50,000  |
| 4    | 1.1 Simplify and clarify the funding measures that are available through the TEN-T and Motorways of the Sea (MoS) support structures.  | 9                                      | 2.5                                  | 100,000   |
| 5    | 1.3 Modify the “Ecobonus” scheme that supports truckers in their use of ships in order to facilitate and encourage cooperation between neighbouring states in implementing a modified scheme.  | 9                                      | 2.5                                  | 100,000   |
| 6    | 4.1 Expedite the preparation of guidelines for the interpretation of environmental legislation in the context of port development strategies.  | 9                                      | 3                                    | 100,000   |

<sup>8</sup> Co-modal transport solution: The use of different transport modes on their own and in combination in order to obtain an optimal and sustainable utilisation of resources.

| Rank | Reference Trigger Actions  | Relative Potential Benefit of Outcomes | Realisation Time of Outcomes (years) | Est. Incremental Cost of Trigger Actions (€) |
|------|--|--|--------------------------------------|--|
| 7    | 7.1 Develop a Clean Shipping Index, incorporating the best of the voluntary systems that have been or are being developed, to make Green Transport, based on co-modal criteria, a major marketing feature in Europe.     | 8                                      | 3                                    | 100,000                                      |
| 8    | 2.1 Prepare a Briefing Paper on how European Investment Bank funding may be accessed for port infrastructural developments and possibly for shipping services, subject to proposals meeting 'healthy' shipping criteria. | 8                                      | 2.5                                  | 100,000                                      |
| 9    | 3.1 Identify measures to enhance the attractiveness of seafaring professions   | 7                                      | 2                                    | Incorporated in an FP7 call for proposals    |
| 10   | 3.2 Establish clear career progression paths to enable seafarers to adapt their knowledge to alternative shore based employment, if desired.   | 7                                      | 2                                    | Incorporated in an FP7 call for proposals    |
| 11   | 3.3 Encourage the formation of Networks of Centres of Excellence to enrich maritime and logistics training across Europe.  | 7                                      | 2                                    | Incorporated in an FP7 call for proposals    |
| 12   | 12.1 Data arising from EU funded statistical studies could be made available for inclusion in the SKEMA Maritime Knowledge Base, which will be openly available to the maritime industry.                                | 6                                      | 1                                    | 100,000                                      |
| 13   | 6.1 Promote the use of incentives for the deployment of shore power for ships in port.   | 5                                      | 2                                    | Co-funded under TEN-T                        |
| 14   | 9.1 Prepare dispute resolution guidelines for the maritime industry as an alternative to litigation procedures, with an open access reference database of case law related to relevant disputes.                         | 5                                      | 2                                    | 100,000                                      |

| Rank | Reference Trigger Actions  | Relative Potential Benefit of Outcomes | Realisation Time of Outcomes (years) | Est. Incremental Cost of Trigger Actions (€) |
|------|--|--|--------------------------------------|--|
| 15   | 5.1 Introduce a European ship scrapping scheme   | 3                                      | 1                                    | Indeterminate                                |
| 16   | 11.1 The EU should be vigilant on protectionist measures and ensure that the Commissioners responsible take action to safeguard European businesses. | 3                                      | 1                                    | No cost                                      |
| 17   | 10.1 Ratification of the Maritime Labour Convention 2006 and compulsory insurance cover for crew abandonment are proposed.                           | 3                                      | 4                                    | Indeterminate                                |

**Conclusion:**

The Actions proposed in this study to help weather the economic crisis have been ranked in order of their potential benefits if implemented. Some of these Actions only require a re-orientation of emphasis; others require trigger funding to help activate much larger funding sources, both public and private, that could initiate major developments. All are focused on improving maritime transport within the context of deploying all transport modes individually or collectively in the most efficient manner possible. The primary aim is to facilitate intra and extra European trade and, hence, to positively address the current economic crisis and to avail of the opportunity presented by the crisis of putting maritime transport on a sustainable growth path in Europe.

