行政院及所屬各機關出國報告

(出國類別: 考察)

考察國際港口國管制作業程序及電子化工作

服務機關: 中華電信數據分公司

 職 稱:
 科 長

 姓名:
 王宏鈴

 出國地區:
 英國

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考察國際港口國管制作業程序及電子化工作

主辦機關:

中華電信數據通信分公司

聯絡人/電話:

出國人員:

王宏鈴 中華電信數據通信分公司 政府網路處 科長

出國類別: 考察出國地區: 英國

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關鍵詞: 港口國

內容摘要: 本次赴英國考查奉核定期間爲九十二年九月二十八日至十日五日主要訪查

地點利物浦城市,扣除二天行程外,前三天主要實際參觀歐洲運輸協會海運電腦系統 PISCES,後三天訪談爲PORTIA HORBOUR COMPANY及所屬技術人員.本次考察主要包含下列幾方面: (1)港口國管制檢查作業實施情形及檢查作業實施情形 (2)歐洲運輸協會PISCES電腦化系統 (3)航務自動化相關作

業

本文電子檔已上傳至出國報告資訊網

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1. 目的

1.1 緣起

本次出國考查目的主要是為配合交通部(1)從民國九十一年開始,我國開始實施港口國管制措施。期能由此,讓港口管理機關對於船舶安全管制趨向國際標準,確保船舶港口與鄰近水域安全並防止海水污染發生,進而提昇我國國際商港之信譽與地位及(2)交通部航政司「航港資訊系統建置計畫」整體計畫,執行期間為 2002 年 11 月至2005 年 12 月。整體工作涵蓋下列五項工作:

- 交通部航政、監理現有系統作業流程整合再造(BPR)
- 港區貨櫃進出管制作業先導系統規劃及開發
- 航港單一窗口服務平台(MTNet) 建置
- 航港資訊系統建置細部規劃與系統開發
- 交通部船舶管理系統開發

藉著深入了解先進國家對港口服務與管理作業方式,提出參考 建議使我國作業效率能夠提昇、服務品質更好.

1.2. 目標

本次考查目標主要是為了解國外航港電子化作業實施及在國際

上如何對於本國港口內停泊之外國籍船舶能符合國際海事安全及防止污染公約之相關規範,配合交通部政令之宣導及施行,制定一套對該等船舶執行查驗工作之系統。

航港電子化作業是建置國家級單一服務平台以滿足航港便捷化 服務需求,主要是符合下列需求:

1.海運資訊作業需要有共通之資訊平台

航運相關業者之間或政府業務管理單位之間(港務局、海關、國貿局等)皆需要一共用且有效之串聯資訊平台,航運業務之申辦、管理,需要跨區、跨單位的整合能力。

2.申辦各項業務資料格式需要統一

各港務局因系統發展歷程不一,採用之軟、硬體設備各不相同。相同的申辦業務,服務窗口可接受的資料格式與文件標準迥然不同,如有統一的資料格式,則可提供系統間資料流通。

3.需要有單一網路申辦窗口

各港業務均朝「申辦無紙化」之目標努力,已有成效。如能整合現行各港各自發展的資訊系統。民眾申辦業務就不 需到不同申辦窗口,只要到一申辦窗口就可辦好所有的業 務。

4.需要有網網相連環境

航港、通關、簽審等資料庫如能整合,航運業者申辦業務 就不需要同時面對多個政府窗口,同時可提供業務管理單 位與海運業者決策與應用上所需的即時資訊。

5.各港資訊需要交換

各港務局之間及與其他相關單位之間,軟硬體設備存在差異,如能完全連線,相關單位間資源就可共享。

6. 需要有單一簽入機制

需要建置唯一身份辨認之資訊系統與機制,提供民眾只須 登入一次身分辨識資料即可被授權跨越系統申辦業務,完 成所有欲辦理之事項。因此,業者申辦業務時只需簽入一 次,增加業務執行效率及民眾使用資訊系統意願。

2. 過程

本次赴英國考查奉核定期間為九十二年九月二十八日至十日 五日主要訪查地點利物浦城市,扣除二天行程外,前三天主要實際參觀 歐洲運輸協會海運電腦系統 PISCES,後三天訪談為 PORTIA HORBOUR COMPANY及所屬技術人員.本次考察主要包含下列幾方 面:

- (1) 港口管制檢查作業實施情形及檢查作業實施情形
- (2) 歐洲運輸協會 PISCES 電腦化系統
- (3) 航務自動化相關作業

3. 心得

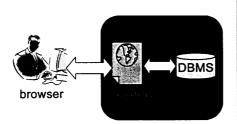
3.1 如何強化海運 WEB-SERVICE 電子化系統

Web Services/XML 等技術逐漸浮出檯面,在科技日新月異的未 來與各項新技術發展成熟時,在成本允許的當口下,建議政府補助或 以 BOT 方式建置全國性單一服務平台,即時新的資料輸入,即時提供 港務服務.而在新業務引進需建置服務系統,則可參考國外系統,以英 國而言,就有一完整全國港口服務系統.我國亦應逐年整合各港務局 系統,以達資訊互通互享.

Why Web Services?

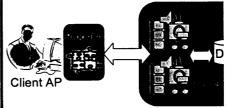
■ Web Application

- User-to-program interaction
- Static integration of components
- Monolithic service

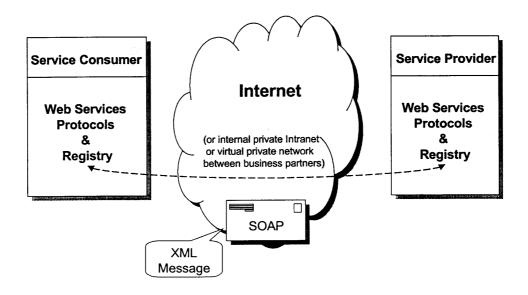


■ Web Services

- □ Program-to-program interaction
- Dynamic integration of components
- Service aggregation

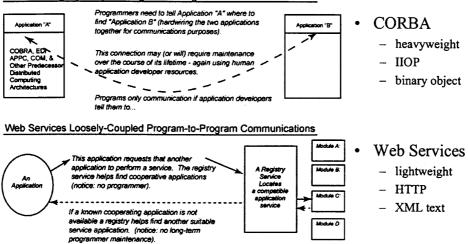


How do Web Services work?



Tightly coupled versus loosely coupled application

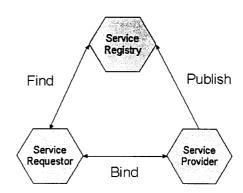
Traditional Tightly-Coupled Program-to-Program Communications



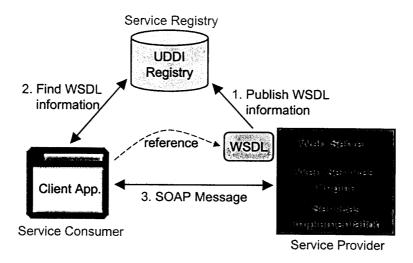
Source: Bloor Research NA - May, 2002

The Basic Functions of Web Services

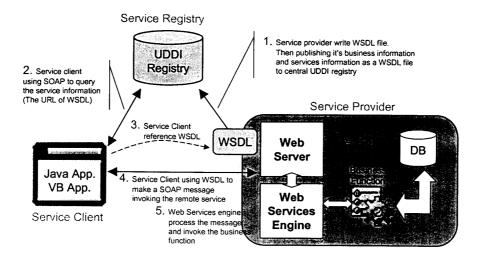
- Three kinds of roles:
 - Service Provider
 - Service Requester
 - Service Registry
- Three operations:
 - □ Publish -> WSDL
 - □ Find -> UDDI
 - □ Bind -> SOAP



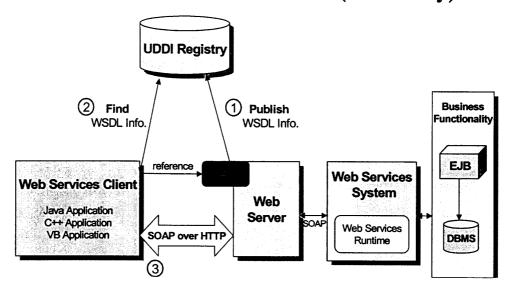
The Basic Functions of Web Services (cont.)



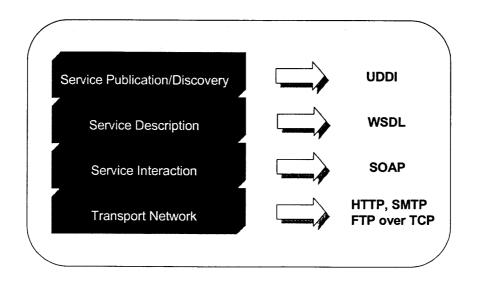
More Detail



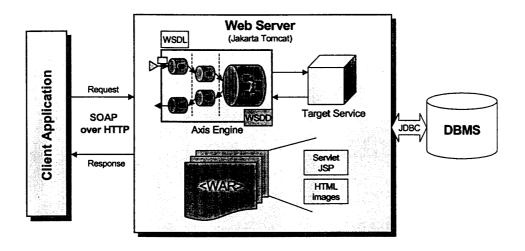
Web Services Architecture (summary)



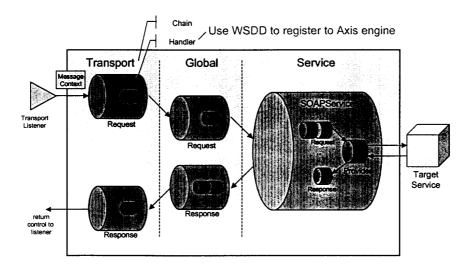
Web Services Stack



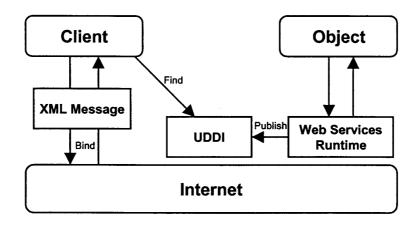
Web Services Architecture Based on Axis



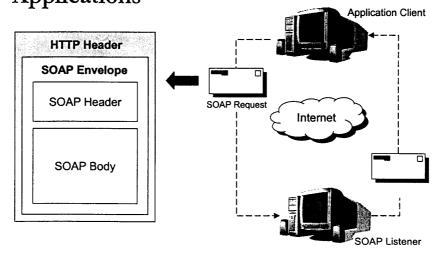
Axis Engine



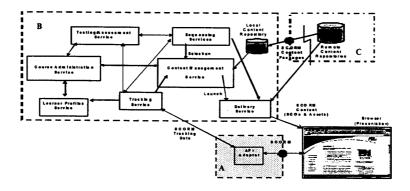
Web Services Architecture (cont.)



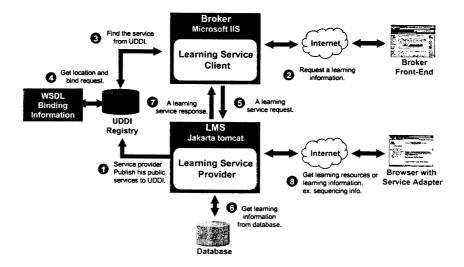
Web Service Applications and Soap Applications



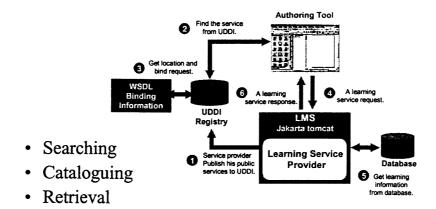
Learning Management System



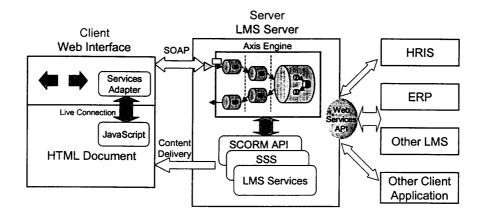
A Scenario of LMS



A Learning Object Repository Service Scenario



Web Services Integration for LMS



3.2 如何強化我國港口國管制管理制度

國際商港之組織架構體系,各港大同小異,以溫哥華港口為例,港務管理機構之作業範圍包括港埠經營與航政管理。船舶自進港之預報、泊靠碼頭、貨物作業以迄離開港口皆屬港埠機關之作業範疇。港埠之航政業務則屬航政組負責。其業務功能執掌大致可分為船舶、船員、航線、引水、貨櫃集散站、船舶運送、船務代理、船舶貨運承攬、船運糾紛安全、海事及打撈等。

不過加拿大在執行上相當徹底,在法規人力與查驗上都非常完備,職有機會一同上船檢查,方知國際上對此項工作重視程度遠超過吾人所能想像,而我國國際商港目前執行有關港口國管制之規定,僅止於船舶進港及出港預報時執行證書文件之查驗規定,與目前國際海事組織所規範之港口國管制內容,有顯著之落差,其原因略述如下:

- 相關法規未能更新:對於執行港口國管制之規定,除交通部 於民國七十年函准施行外,並未有更新的法令依據及行政規 定得以遵循。而十數年來,國際海事公約對於船舶方面的技 術與操作要求不斷提高,相對地,港口國管制內容亦擴大範 圍。
- 人力資源不足:目前各港航政仍編屬於港務局組織下,其人員編制僅足敷處理目前經辦業務之需,加以港口國管制之實體檢查,涉及船舶操作之專業性質,自非目前現有之人力所能執行。
- 查驗資料無法交流:船隻於海上航行的過程中會經過多國的港口,在已實施港口國管制的國家,其查驗工作的相關紀錄可供另一港口國做查驗工作時之重要參考依據。但是查驗資料的交流必須是有加入東京備忘錄此區域性之港口國管制組織成為其會員國才可以,所以在本國未加入 IMO 組織前,暫時無法取得其他國的查驗資料。

● 海事管理業務

- A. 海事安全各項國際公約之處理
- B. 有關海事各項國際組織主管事務之辦理登記及資料處

理

- C. 國際海事問題研究業務之協辦、登記及資料整理
- D. 海事案件之處理與調查統計及資料整理
- E. 海事綜合性事務之處理

● 船舶管理業務

- A. 船舶丈量與檢查事項之處理
- B. 船舶國際公約之執行
- C. 有關船舶國際事務之處理
- D. 船舶管理法規之制定、修正與廢止

● 港務管理業務

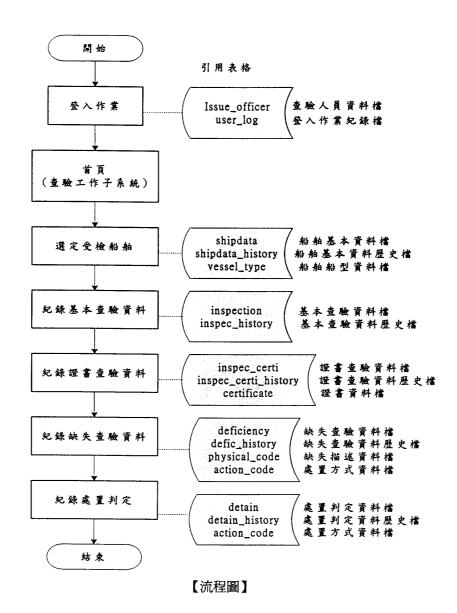
- A. 港務法規及國際公約之擬訂核議修正及解釋
- B. 港埠工作人員訓練事項
- C. 港埠資料統計之審核與處理

● 監理管理業務

- A. 船舶進出港預報簽證
- B. 船務代理業管理
- C. 海運承攬運送業管理
- D. 船舶運送業及船舶出租業管理
- E. 船舶登記
- F. 小船註册
- G. 船員管理
- H. 動力小船駕駛人駕駛證核發
- I. 引水人業務管理
- J. 打捞業許可證

● 技術管理業務

- A. 船舶檢查、丈量
- B. 船舶檢查證書之核發
- C. 船舶噸位證書之核發
- D. 船舶解體許可證之核發



4. 建議

4.1 海運單一服務作業平台方面

1. 自 90 年代晚英國海運界已開始單一平台建置,分兩方面同時進行;

- 一面配合歐洲運輸協會 PISCES 歐盟貨物運輸平台建置,另一面建置 英國自有海運單一平台。歐洲運輸協會 PISCES 歐盟貨物運輸平台建 置係委由英國 LIVERPOOL JOHN MOORES UNIVERSITY 為主規畫建置. 英國自有海運單一平台則由英國政府採 BOT 方式委外建置採取使用 者付費方式進行。
- 2. 我國目前採政府先行建置方式,以後則可透過修法方式,採委外經 營及使用者付費,藉以減輕政府財政負擔。

4.2港口國管制方面

- 其國港口採委外明民營方式,然而港口檢查工作依舊由官方警察負責,以確保港口安全。
- 2. 我國港口國管制作業,與國際已施行多年制度的國家相較,仍屬萌芽階段。在本身制度尚未健全,且挑選之查驗人員大部分不符國際所認同之專業人士,雖經過短暫的教育訓練,專業能力及經驗都仍嫌不足。在參考巴黎備忘錄的做法後,或許可由行政機關邀請專家學者訂出一套編碼與查驗項目及所參考國際公約之對照檢索表,再將之納入本系統中;如此查驗人員可依照檢索表中的查驗項目對船舶進行查驗工作,減低因專業知識不足所造成的困難與摸索。
- 3. 我國現有航港體系,雖有航政組織之編制,但限於人力、能力及財

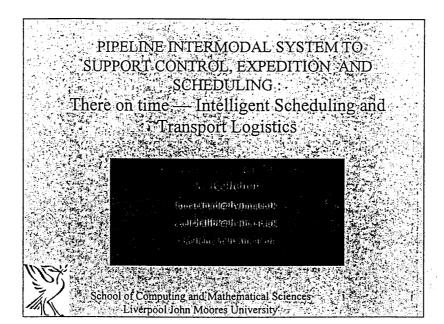
力等多重因素考量下,施行港口國管制作業確有其困難。為期有效能執行港口國管制作業,宜另設置專責單位,以加強港口國管制作業之宣導與教育;並儘速建立一專屬資訊中心,負責所有相關法規與資訊的分析整理及作業訊息交換的工作。港口國管制作業應依我國現行能力分階段施行,受檢船舶之比例亦應考量我國管制機構專責編制的擴增及執行經驗的累積而逐年提昇至國際水準。

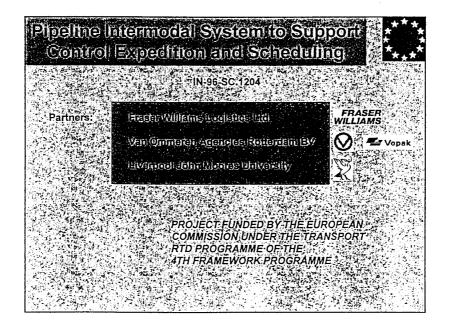
- 4. 目前港口國管制作業查驗人員由各港務局人員指派的遴選方式應屬權宜措施,未來查驗人員條件,應著重以具船舶方面實務經驗者為對象,如:驗船師、船長、大副、輪機長或大管輪等。此外,體格良好、具英語說寫能力也屬基本要件;為確實提昇查驗人員相關的知識及經驗,亦需經過適當的訓練及證照的取得。
- 5. 港口國管制作業中,各港口所具備的污油、污水、垃圾等污染物的收受設備,對其是否能有效地執行污染防治,具有相程度的影響。為能有效執行港口國管制作業,港口應能提供充足的岸上收受及處理設備。此外,並應與我國海洋污染主管機關行政院環保署充分溝通連繫,以期確實掌握港口管制工作。
- 6. 我國為亞太地區重要之海運國家,建議我政府應透過適當管道,及 早加入東京備忘錄此區域性之港口國管制組織,能夠與港口國管制組

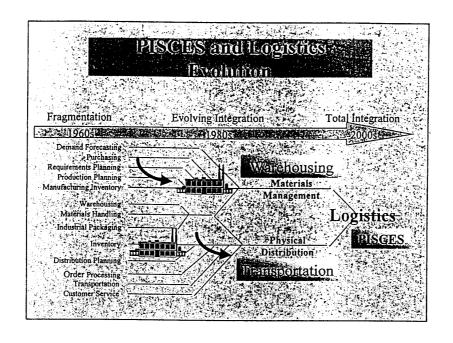
織進行港口國檢驗資料互換,藉此加強港口國管制作業的確實性,並減少港口國作業的查驗工作量。

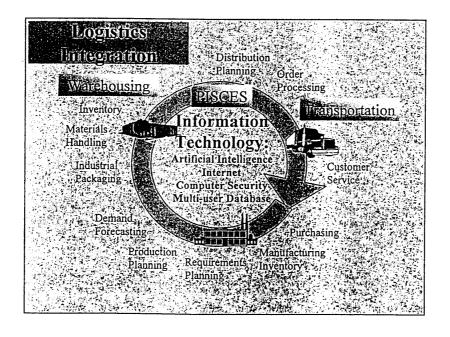
4.3 港務自動化方面

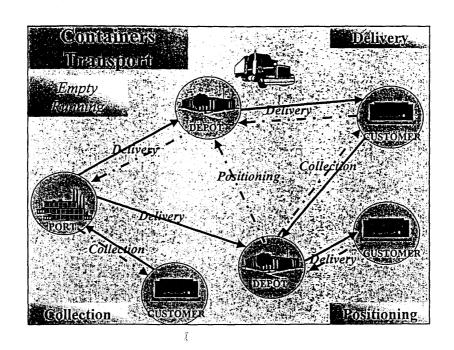
- 1.自90年代晚期無線網路、Web Services 等技術逐漸浮出檯面,在 科技日新月異的未來與各項新技術發展成熟時,建議港口國系統在成 本允許的當口下,讓查驗人員登上被檢驗船的同時隨身可以配備 PDA 或筆記型電腦,增加新的資料輸入與擷取功能。以便在登船檢驗的同 時,即時查詢到所需相關參考的檢驗資料,並且立即完成整體檢驗工 作,查驗結果同時進入系統。藉以幫助查驗人員增加服務品質與作業 效率之提昇。
- 2. 應建立整合性港務資訊系統, 以達到各港務局資源有效互通及共享.
- 5. 攜回之參考資料
- 5.1 PISCES 簡報資料(附件一)
- 5.2 PORTIA HORBOUR COMPANY OPERATION DATA(附件二)

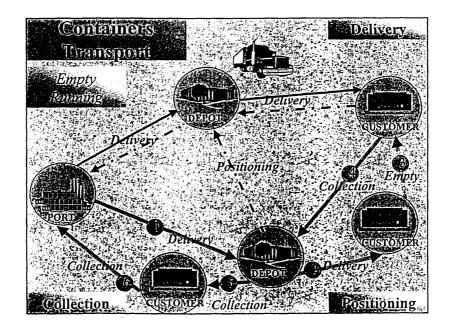


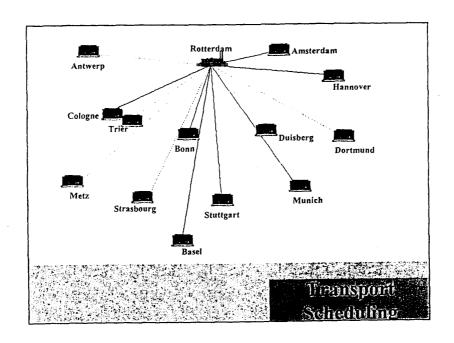


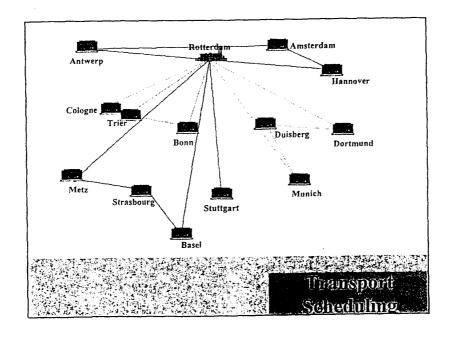


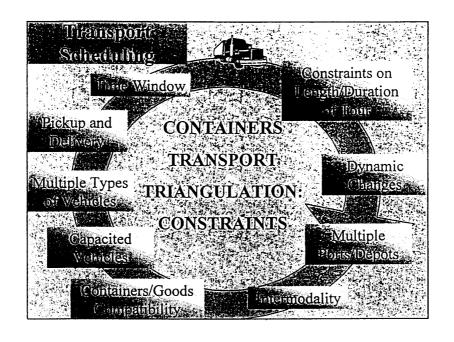


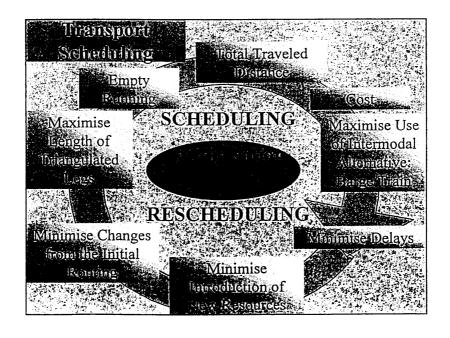


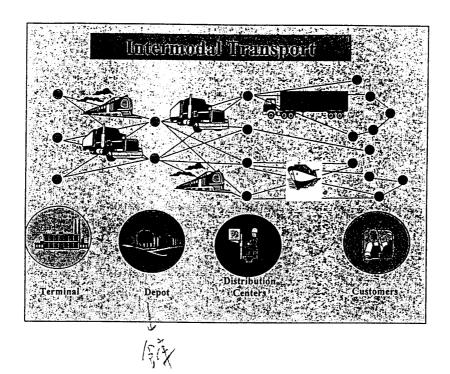


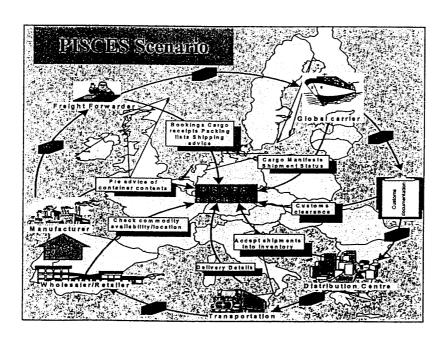












Technical Estics



- Based on Oracle and Design 2000, Multi-users, *WWW accessible:
- >Two levels of security Password and encryption hand based on business relations:



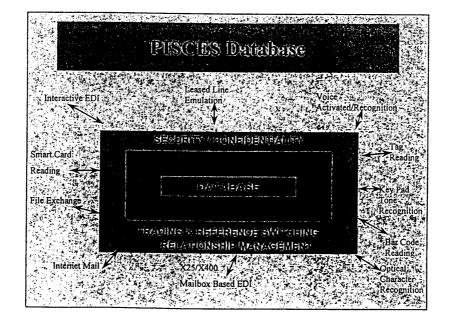
- T Design of a Software Package to Produce Routing Scheduler.

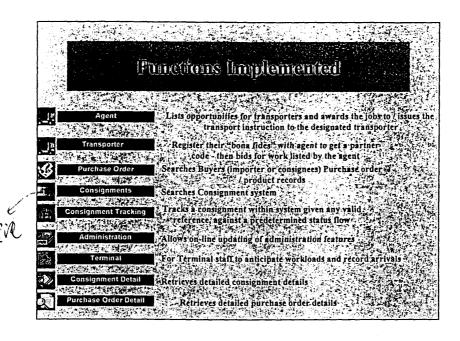
 Hybrid Approach using CSP, GA.

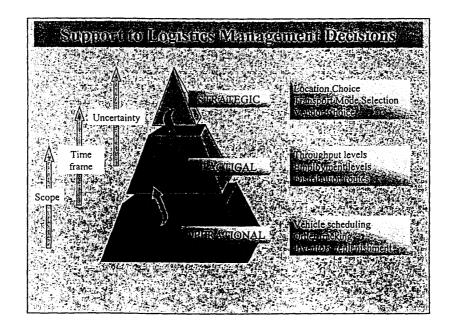
 - ➤ Hybrid Approach using Col., GA.

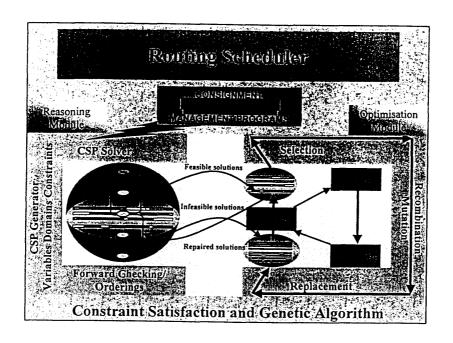
 ➤ Application to the Triangulation Problem, for the Triansport of Containers.

 ➤ Application to Classical Vehicle Routing Problems.









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- Reduced costs of achieved by better utilization of resources.
- Enhanced services to buyers of transport services via better planning information;

 Enhanced frack and trace and more reliable times

- Enhanced track and trace and more reliable times

 More optimized loads.

 Close matching of shipments to priorities.

 Less environmental impact through more routing toward rail and barge.

 Fewer vehicle running miles,

 Less inovements of empty units for positioning,

 Reduced vehicle waiting and queuing times.



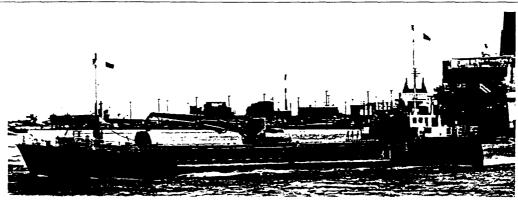


PORTIA MANAGEMENT SERVICES

- Portia is a UK-based company specialising in port related business serving government agencies, port authorities and commercial clients
- Activities include:
 - port management and operations
 - strategic investment
 - consultancy services
 - technical assistance
- Since 1978 more than 100 projects completed in over 50 countries
- Portia is the International Arm of the Mersey Docks and Harbour Company which owns and operates Medway Ports

PORTIA MANAGEMENT SERVICES LIMITED

Maritime Centre, Port of Liverpool, L21 1LA United Kingdom
Telephone: +44 (0) 151 949 6262 Facsimile: +44 (0) 151 949 6287 Telex: 626264 PTOPS
Email: ajn@portia.merseydocks.co.uk





LAPTHORN

R. LAPTHORN AND COMPANY LIMITED BUTTERCROCK WHAPF HOD ROCHESTER KENT ME3 9LG

L & M ENGINEERS LIMITED

BUTTERCHOOCK WARRE HOD, ROCHESTER, KENT MES 9LQ

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L & M SHIPYARDS LIMITED
WHAPF ROAD DENTON GRAVESEND KENT DATE 2RU
TEL 44 DIATA 567881 FAST 444 DIATA 351450
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THAMES & MEDWAY BULK SERVICES LIMITED KODDE SHIPPING AND TRADING

Lapthorn's 24 ships specialise in the bulk dry cargo sector and operate throughout Northwest Europe - the largest fleet of its type flying the British

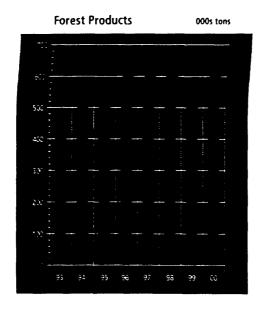
Adapting ships for specific tasks - long or short term - forms an integral part of the Group's strategy for the future. For example, four vessels of the Hoo Marlin class (above) have been fitted with cargo handling machinery to reduce customers' reliance on shore-based facilities.

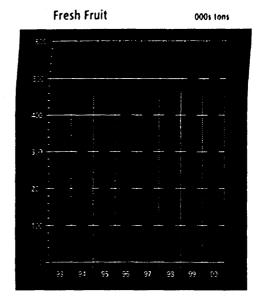
L & M ENGINEERS provide maintenance services throughout Europe for both Lapthorn and third party fleets with L&M's UHP hydro-blasting unit able to provide a rolling-programme of steelwork maintenance, especially cargo

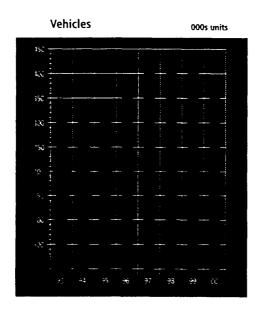
Newly opened L & M SHIPYARDS is ideally situated at Gravesend, and with its two slipways, provides the only repair facilities of its size in the locality.

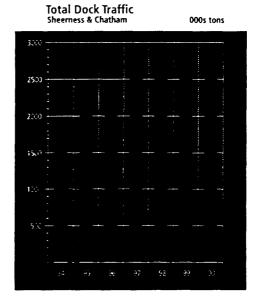
KODDE SHIPPING AND TRADING, Rotterdam provides a specialist shortsea dry cargo broking and agency service to owners and charterers.

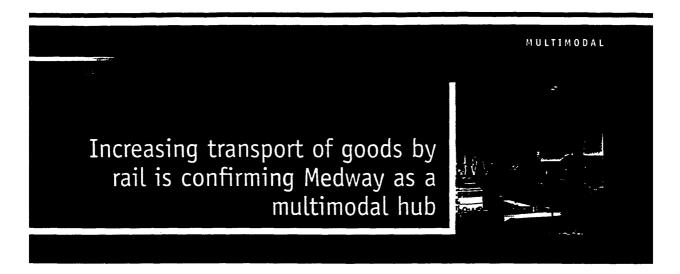
DELIVERING FOR BRITAIN AND EUROPE











PORTS on the Medway are ideally situated to serve the UK's bustling South East and other key areas of the country. High-quality road and rail links are in place to enable the river's ports and terminals to provide a cost effective route for exports and imports from and to all parts of Britain

A series of multi-million pound road improvement projects towards the end of the 1990s dramatically improved access to the area, providing an important boost to port activities. The £80 million Medway Tunnel, a vital part of the £180 million Medway Towns Northern Retief Road, was opened in 1996. This was followed by the £60 million Wainscott bypass linking the M2 to the new tunnel, and a series of improvements to the A228, which benefited Thamesport on the Isle of Grain in particular. On the south bank of the Medway, a £36 million programme upgraded the A249 to dual carriageway from the M2 to Iwade, transforming access to the ports of Sheemess and Ridham. The latest project under way is the widering of the M2.

After years of lobbying, Medway Ports, along with the local community and substantial business sector, is looking forward to the construction of a new bridge across the Swale to the Isle of Sheppey. The Second Swale Crossing is now a confirmed part of the UK government's roadbuilding programme; a public inquiry into the Highway Agency's plans was held in 1999, and the plans have been approved by the Secretary of State.

A contract for the bridge is to be let by summer 2003, with construction expected to be finished by 2006, allowing for a two to two-and-a-half-year build programme.

"Alongside Medway Ports, we will continue to lobby to bring the bridge forward in the road-building programme," said Kieren Mansfield, Economic Development Officer at Swale Borough Council. "The Sheppey Industries Association and the whole community is lobbying for this."

The bridge forms the central part of a £90 million project to upgrade a 5 kilometre stretch of the A249 between Iwade on the mainland and Queenborough on the Isle of Sheppey. It is the last of four schemes to improve the A249 between the M2 and the Port of Sheerness.

At present the island's link is via the single-carriageway Kingsferry Bridge, which has a central lifting span and carries a single track railway. Not only will the new bridge provide excellent access to and from the island, but the 1.27 kilome-

tre link, rising to a height of 34.7 metres above the Swale, will also deliver important opportunities for expansion on the Isle of Sheppey.

The bridge will open up more than 100 acres of land earmarked for general industrial and commercial purposes on the island - land which, because of highways restrictions, cannot be developed until the bridge is in place.

"The bridge will also encourage investment," said Mr Mansfield. "In terms of perception, it will make our job of attracting new investment much easier.

"The land could be used for port-related activities or a whole range of other industrial/commercial activities."

Increasing use of rail for transport of goods is confirming the Medway's position as a truly multimodal hub. Rail services out of Sheerness were reinstated during the 1990s by English, Welsh and Scottish Railways (EWS). Since then, increasing

Quality road and rail links enable the river's ports and terminals to handle goods drawn from and distributed throughout the country.

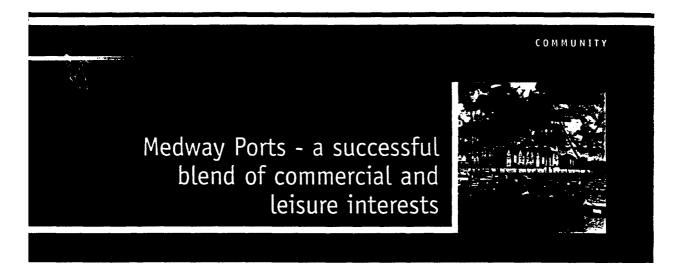
amounts of forest products, particularly pulp, and cars have been regularly leaving the port by train. Chatham Docks is ready to welcome back rail services too, in 2001.

With the help of a Freight Facilities Grant from the Department for the Environment, Transport and the Regions (DETR). Medway Ports is ready to invest in the rebuilding of a damaged bridge, which will enable the recommissioning of the link into the docks.

"The rail facility will certainly enhance trade opportunities in Chatham," said Medway Ports Director Des Crampton.

A number of tenants at Chatham are keen to put their goods on to rail as soon as possible, and the link is expected to be carrying regular consignments for the UK market of newsprint from Convoys and reinforcing mesh from Kent Wire (Ispat) Ltd.

"It is another service we can provide and therefore our tenants can provide to customers and another way in which the docks can expand," said Sue Bilney, Medway Ports' Operations Manager for Chatham.



edway Ports' reponsibilities stretch far beyond ensuring the safe and efficient movement of ocean going shipping in and out of the river.

On a river that has almost 90 different marine facilities, including terminals, ports, wharves, marinas, yacht clubs and moorings, Medway Ports adopts a successful approach which is a blend of professionalism and firmness, co-operation and communication.

"We are always talking and consulting to ensure that people act sensibly - using dialogue to address problems rather than ignoring them or having confrontations," said Medway Ports Harbour Master and Pilotage Manager Capt Peter White.

There are some delicate balancing acts involved, as growing volumes of commercial traffic share the river with thousands of leisure users, particularly at weekends. There are an estimated 4,000 yacht moorings on the river, many of them situated in marinas and yacht clubs. Fifty of the marinas and clubs are large enough to be required to have waste management plans in place.

"Our jurisdiction stretches 27 miles up to Allington Lock, and there is a significant amount of water which is predominantly given over to pleasure craft," said Capt White. "The task for us as conservators is to meet all interests.

"Commercial movements have to have priority but we work, for example, with the organisers of regattas to plan events so that races are not interpurted."

Medway Ports itself owns a number of moorings and anchorages for large vessels and also smaller craft moorings upriver which are maintained and leased or rented out. Leisure craft-related services are offered by Medway Ports, such as the servicing of several yacht clubs' moorings.

Medway Yachting Association is a collective of most of the river's yacht clubs and marinas. There are regular meetings between the association and Medway Ports representatives.

"It is extremely useful and valuable for us to have a dialogue with them. They are stakeholders and our customers," said Capt White.

"We keep them informed of how various projects could affect them and they are a valuable sounding board for us."

Medway Ports has recently put in place its new oil pollution contingency plans, required under the new National



Contingency Plan. It has also recently rewritten its waste management by-laws.

"Our new pollution response plan is made up of effective measures rather than merely satisfying the legal requirements," said Capt White. "Now we have these measures in place, we are set up for the first proving exercise in the nottoo-distant future."

Considerable areas of Medway and Swale under Medway Ports' ownership are within a designated Special Protection Area. A part of the Swale has been leased to the Royal Society for the Protection of Birds; Medway Ports maintains continuous dialogue with English Nature and the RSPB to minimise the impact of port operations on the environment. It also worked closety with environmental groups when drawing up plans for the major dredge of the River Medway which got under way early in 2001.

Medway Ports liases with Swale Borough Council on a whole range of issues, including the development of industrial activity and transport links.

"You just cannot over-emphasise the importance of port activities on the Medway to the local community and economy," said Kieren Mansfield, Swale Borough Council Economic Development Officer. "There are so many industries which revolve around the ports' activities. Value-added activities linked to the Sheerness car import industry are increasing, and a large number of jobs in Sittingbourne and on the Isle of Sheppey itself depend on the fruit importation business.

"As an authority, we work to encourage more addedvalue/distribution activity where processing takes place at the point of export/import."

