

# BLUE WATER THINKING



A new software product aims to change the way that ocean carriers view their cost-cutting practices and run their liner services. *John Fossey reports*



Andreas Baumgart: Cost-management based on the IBM model for road, rail and air transport sectors

Liner shipping companies posted significant fiscal losses again last year and while every effort is being made by the sector to raise freight rates and boost revenues, effective cost control has to be a fundamental part of any management's strategy these days.

Arguably, it is even more important in an environment that has seen oil prices rise more than 70% over the past two years and where operating/voyage expenses, such as labour and insurance, are also rising.

And no one is expecting these cost components to reduce any time soon. While much has been written about the yield management systems used by many carriers, their effectiveness has varied enormously.

Hapag-Lloyd is one carrier that has no doubts about its success in this area. Indeed, Michael Behrendt, ceo, claimed it is one of the main reasons for the ocean carrier consistently outperforming (financially) its main competitors (see 'View from the bridge', pp32-36).

In 2011, Hapag-Lloyd was one of only two carriers to post an operating profit. The other was OOCL, which also places considerable faith in its yield management solutions. This suggests that there must be something that is right about these packages, providing they are implemented effectively and then rigorously adhered to, sometimes at the expense of market share.

Purely on the cost front, there is a need for change if real savings are to be achieved, as practices in this area have largely been limited by traditional thinking.

'Probably, there has never been a better time to introduce innovative ways to cost-management, particularly as 2012 will be another tight year for liner shipping,' Andreas Baumgart, owner of load-line, told *Containerisation International*.

'Current cost-savings strategies usually come with significant levels of investment and have doubtful effectiveness,' he added.

This is because in generating cost savings ocean carriers more often than not buy new hardware and/or introduce new systems, but fail to address the nub of the problem, which is often corporate and operational in scope.

He suggested that capital investment in areas such as propellers, new gearing systems, etc, always tied a company up as a return on that investment needed to be made.

In contrast, the effective use of software, computer simulation modelling, etc, to address operations, routes, voyages, and so forth, can often lead to enhanced levels of flexibility and cost reduction (see Data Hub).

Baumgart also attributed the ocean carriers' limitations on the cost-saving front to the way liner services are set up.

He explained: 'The design of any liner service usually starts with very pragmatic elements, such as terminal slots, vessels, alliances and evolves towards a commercially viable operation imposing cost-efficiency criteria.'

#### Radical approach

'I suggest the opposite should take place: Start with a cost-optimal design for the service

#### DATA HUB

#### load-line

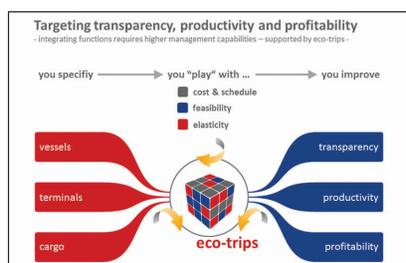
- Established: 2011
- Objective: to use operations research applications from other transport industries in the liner shipping business
- Products: eco-trips, a decision support tool that enables liner shipping companies to design more cost-effective services

## DATA HUB

## eco-trips: features

- **Optimal rotations** – takes into account all costs of a voyage, including bunkers, terminal-handling charges, canal tariffs, etc
- **Cost-efficiency** – through a detailed inspection of cost patterns and a sensitivity analysis of design variables
- **Decision support** – by revealing the cost of present service string constraints, including terminal berthing windows, vessel performance and incidences of transshipment
- **Competitiveness** – by assessing numerous different solutions, including key-account satisfaction, reefer transport performance, capacity constraints, etc.
- **Expertise** – extending the knowledge base of the impact of contractual constraints, vessel performance, terminal productivity and cost drivers with each simulation and optimisation run

## A screen-shot of load-line's software



## CHALLENGES

- Rising oil prices mean higher costs for shipping lines
- Changing liner shipping's mindset
- Overcoming the focus on technology and hardware to save costs
- Ensuring that cost-cutting is paramount

## SOLUTIONS

- Operations cost models can play a part and help change the liner shipping industry's way of thinking
- Origin-destination transport models are more effective at saving costs
- Cost savings generally also mean less emissions
- Eco-trips helps put cost savings at the heart of liner services

and then make compromises to achieve a commercially-feasible service by imposing operational constraints.'

Having gained industry experience as an employee of the Hamburg-based Classification Society Germanischer Lloyd for over a decade, he has also set up load-line, a company that offers operations management software solutions for the maritime transport sector.

Baumgart said: 'It is my intention to offer to the shipping sector a cost-management approach that IBM has been providing to the rail, road and air transport sectors. It is about feeding the holistic cost model of a liner operator to a computer and then deriving optimal operational criteria such as ship speeds cargo and vessel routing patterns from it.'

He added: 'At the end of the day it is all about using the software to increase an individual company's and/or ship's operational productivity. In a sense, I am trying to establish a parallel approach to Seaspan's Gerry Wang. What he does with ships for the liner industry I am trying to do with software.'

The company's core product 'eco-trips' offers what Baumgart describes as 'decision support for liner operations and network planning' and relies on the 'operations research' concept.

He added: Operations research is a class of computer application that helps take appropriate decisions. It is about providing similar competitive services with the same ships for the same cargo at less cost.'

In a presentation at *Containerisation International's 14th Global Liner Shipping Conference*, Baumgart stressed: 'It is my perception that liners have adopted a sequential approach to their business. The sales department deciding on the ports to serve and in which order, the chartering department on the ships to be used for the various slings and operations personnel arranging "feasible" round voyages.

'While this can work as the companies have highly skilled people and an intuitive understanding of their respective challenges, what if these divisions are controlled by conflicting KPIs (key performance indicators)? What then is the level of transparency and traceability you can expect from this approach and how close do you get to the "best" solution?'

## Lessons from the past

He compared the current situation in the liner business with that faced by FedEx in the early 1980s when it adopted the operations research model to address issues it faced in the courier business.

He explained that the group was able to achieve consistently high load factors (82-93%), compared with an industry average of 60-69%, while reconfiguring its route structure every month, implementing schedule changes within a few days and keeping its finances in line.

While the software guru acknowledged that there were many reasons why liner companies had probably not embraced the operations research model, including fixed day schedules, fixed-berthing windows in ports/terminals

and the need to support various key accounts by calling at certain ports on certain days, he suggested these were no different to the challenges faced by FedEx.

Baumgart argued: 'In principle, these constraints say: there is no leeway to make operations more cost-efficient. In reality, the idea behind operations research is not to invent a new kind of liner operation, but about doing the same thing and looking for minor modifications that will lower operating costs by say 5%, 10% even 15%. This may sound excessive but is well in line with IMO forecasts and the work that I have been doing.'

He added: 'My argument runs as follows: try to imagine that you carefully and slowly relax one constraint at first, maybe a second and then see what happens.'

While this may appear a brave move, in his conference presentation he was adamant as to the outcome.

'As I see it there are two approaches that lines can adopt,' he told the conference. 'The "no way out" thesis, which says the business envelope dictates all relevant decisions and we can only hatch the business risks and where survival is through sharing.

'The other thesis and the one that I fully promote is the "break free" thesis where traditions and constraints are relaxed. While the complexity of running services will be greater it will ensure survival through competitive advantage.'

The company's eco-trips is the facilitator for ocean carriers to do this. Essentially it is a mathematical model that delivers a full cost model for a service string based on capital expenditure, operating expenses, voyage costs, terminal handling charges, terminal productivity, canal charges etc.

In fact Baumgart referred to eco-trips as a simulation tool as it takes all of the input values; ships, ports/terminals and cargo and then produces the most optimal speed per trading leg, most efficient vessel routing pattern, transshipment scenarios.

Indeed, the tool provides liner shipping companies with:

- the ability to assess many different operational scenarios quickly and efficiently
- reliable data management practices to ensure the consistency of parameters for vessels, terminals, cargoes and cost scenarios
- the flexibility to adapt operations in changing markets
- least-cost solutions

It can also be used to help terminal operators understand how their costs and charges can affect their competitiveness and attractiveness in any carrier's liner network.

Baumgart argued that whatever variables are played with the outcome will always be a service and/or operation characterised by enhanced levels of transparency, better productivity and improved levels of profitability.

On the face of it, eco-trips seems a win-win situation for ocean carriers, giving them the tools to become more cost-competitive and greener at the same time. ■