

## Asset Management in the Supply Chain

Over the last decade more and more companies have implemented returnable and reusable transit packaging (RTP) fleets and pools, whether it is pallets, crate / tote bins, steel stillage, cages or even wooden crates. What is guaranteed is that these fleets require a capital investment, (whether directly or through a fleet / pool provider), and should be protected as you would any other company asset.

The specifications of the RTP fleets vary enormously depending on the industry, the application and budget. However one thing common to many of the established RTP fleets or pools is that when they were originally specified, costed and implemented, a number of elements were not considered, and often still aren't. These include repair and maintenance costs due to normal wear and tear as well as misuse, equipment loss, stockpiling and extended dwell and cycle times, lifespan of the equipment and the flexibility of the chosen design to adapt with developing and changing supply chain demands. These elements all have a cost impact, which can be substantial, and surprisingly many companies are either unaware of the real cost of their packaging pools, or just accept that it is a high cost and then budget accordingly.

The key to managing costs of an RTP fleet is the in the initial equipment design and specification, the processes specific to the fleet within the supply chain and having an effective management and control system which can be easily integrated into the existing supply chain operation.

The starting point is therefore establishing the objectives of the RTP fleet and the requirements within the supply chain that you are looking to satisfy. Analysis of the operation and supply chain requirements, now and for the next five years, needs to be carried out and once the objectives and requirements are confirmed then the methods of handling and the type of packaging required can be established and specified. Success will be facilitated by a simple cost effective process design, which adds value to the existing operation by generating "self funding" fleets, to include cost control mechanisms which reduce cost of damage, loss and misuse.

Process designs are unique to the individual customers supply chain needs, whether it is a simple hub and spoke operation or a complex multi tiered supply chain. Identifying the subtle differences between the needs of an inbound or outbound RTP pool is crucial to a successful solution.

The actual equipment design must take into account the physical requirements of the RTP unit, as well as the lifespan under actual working conditions, the ease of maintenance and repair, the ease of handling and of course the initial capital investment. It must be remembered that when costing an RTP fleet it will probably be an initial high capital cost, compared to disposable one trip packaging, but it is also an asset that can be depreciated over a number of years. The annual cost of running the fleet can be budgeted and

this will vary depending on the individual supply chain needs. However these costs can also be monitored and controlled with a suitable management system.

There are a number of asset management systems being used to manage fleets or pools, and experience shows that a simple system, using established technology can provide the perfect tool for controlling your fleet effectively.

The objectives of a fully integrated pro-active fleet management system are as follows:

- To reduce overall packaging fleet costs
- To increase fleet visibility and cost control
- To optimise packaging fleet utilisation and minimise cycle times
- To provide proof of accountability for damage and loss
- To manage a repair and maintenance program
- To manage and minimise packaging waste in line with environmental legislation

A suitable system should be modular, enabling it to cope for example, initially with a simple hub and spoke operation developing into a more complicated multi-tiered supply chain over a 3 to 5 year period.

Equipment losses can be put into two categories, actual loss and perceived loss. Perceived loss is where it is assumed that the equipment is lost as no one can account for its physical location. In reality the equipment is sitting in a warehouse or yard area unaccounted for and ignored. Actual loss is exactly that and the equipment has been permanently mislaid or destroyed. Effective management will identify actual loss via audit trailing facilities and should negate perceived loss.

Damage will always occur to packaging equipment in the supply chain. However experience would suggest that an estimated 70% of damage is avoidable. Effective management will allow you to identify who is damaging equipment in the supply chain and handling processes of regular offenders can be examined and changed or improved to ensure damage is reduced. Damage data can also identify any design areas within the equipment itself that could be changed to reduce overall damage levels and therefore costs.

The example in fig 1 shows the effect that increasing or decreasing trip cycle time in an RTP high hygiene plastic pallet pool in the food sector. In the example the current cycle time is “normalised” at 13 days, and the key elements that drive the capital cost of the RTP fleet are included. The example clearly shows that a reduction of two days in the total return trip time facilitates direct RTP fleet cost savings of 15%, and an increase in cycle time, by the same amount gives a disproportionate cost increase of 17%. This demonstrates the importance of having the ability to monitor and manage your RTP fleet activity through an effective fleet management process and system.

Number of RTP despatches per annum	500,000	500,000	500,000
Cycle time per RTP trip (days)	<b>15</b>	<b>13</b>	<b>11</b>
Trips per RTP unit per annum	24	28	33
Number of RTP units required (excluding surplus for repair)	20,833	17,857	15,152
Capital Cost per RTP unit	£36	£36	£36
Total Capital Investment Required (excluding surplus for repairs)	£749,988	£642,852	£545,472
Capital write down period (years)	3	3	3
Cost per RTP unit per annum (excluding interest and repairs provision)	£12	£12	£12
Cost of RTP unit per trip	£0.50	£0.43	£0.36
Total Cost per annum	£249,996	£214,284	£181,824
Cost Variation per trip from Normal cycle time	<b>17%</b>	<b>0%</b>	<b>-15%</b>

**Fig1 – Cycle time sensitivity in a managed RTP fleet**

Having established that cycle time management is fundamental to the RTP fleet size and therefore cost, all efforts to reduce or maintain a minimum cycle time are paramount. This can be achieved through synchronous container flows integrated with lean manufacturing or production process. Cycle times, in reality, should not be averaged out across the whole fleet and a good system will enable you to set individual cycle time parameters for specific user requirements. Minimising and reducing cycle times can create a surplus of equipment in an existing RTP fleet or pool. However this should not be regarded as wasted capital, but as cost avoidance on future RTP requirements as your business expands.

In order to ensure your objectives and requirements are met the system specification process must be thorough and realistic and tailored to suit the individual RTP user and supply chain needs.

- Your current management systems and process will be evaluated, and a suitable RTP management system designed and implemented
- Packaging fleet data can be captured via RFID or bar code readers, or by manual entry of bulk movements.
- Data entry should be minimal, (whilst remaining effective) so as not to increase on-costs and the risk of human error.
- There must be a high degree of control and a wide range of reporting capabilities, available via a local network or over the internet on a user level secure password access basis.
- The system must manage overall packaging fleet performance, including additional operations such as repair and maintenance, cleaning, damage inspection procedures and KPIs.
- There should be no limit on RTP types or the amount of locations where the fleet can be used in order that it can be flexible to a growing business.
- Data synchronisation with other systems within your business will facilitate accurate equipment planning for future or seasonal requirements.

The impact of RTP on overall supply chain costs, and indeed the impact on RTP costs brought about by changes elsewhere in the supply chain, can be tested theoretically using various cost modelling software prior to actual implementation.

**Author:- Gideon Hillman MILT, MIBC – Revised edition - 11<sup>th</sup> September 2008.**