

Tracking Concepts, Definitions and Asset Management

ContainerTRACKER[®] addresses all aspects of controlling and managing cyclic assets. *Cyclic assets* – assets that belong to one organization but are used, moved, managed or maintained by other organizations or sub-organizations. Shipping containers are one type of cyclic asset. There are an unlimited number of other assets that may be cyclic including, portable computers, vehicles, rail cars, tools, specialty equipment, ships, personnel and many others.

Many of these assets, particularly shipping containers, move through a variety of locations or statuses in their normal movement. For example, a tote (a container that is smaller than a pallet) may regularly travel from the owner to their vendor, back to the owner, to a cleaning facility and back to the vendor in a more or less continuous cycle throughout its life. Cyclic assets provide a difficult management challenge because the asset is not under the control of the owner for a major portion of its useful life.

Managing cyclic assets is a matter of managing loss, misallocation, availability and cycle times. *Cycle time* is defined as the amount of time required for an asset to move from a specified 'cycle start' location through a normal path (travel to the locations and statuses that represent a typical move) and back to the cycle start location.

We will need definitions for locations and statuses that we mentioned. *Locations* are what we normally think of as physical locations. For example, the table, warehouse A, the truck, column C46 in warehouse C are example of physical locations. *Statuses* are conditions of the asset. For example, clean or dirty, allocated or available, inspected or not. Our cyclic assets regularly travel through locations and statuses. Sometimes our description of the node on the path is a combination of location and status. Tank cleaning might indicate both status (not cleaned) and location (where we clean the tanks). Each node on the path is an indication of the asset's location or status. Both are conceptual but an asset will also spend time in statuses (the time it takes to clean a dirty tank).

Obviously, reducing cycle time will allow you to reduce your inventory. However, cycle time is not a direct measure of what actually happens within your system. Cycle time is the result of the time spent at all the normal nodes within the path, availability and off-path time. To manage cycle times, you must manage the time an asset spends at each node within its path, increase the percentage of time it is available, and keep it on the path. *Path* is the sequence of all normal nodes in a cycle. A *node* is a status or location on the path. To manage inventory, you must keep the asset on its allowed path. If the asset is removed from the path, permanently (stolen) or temporarily (administrative loss), it adds time (an indeterminate amount to forever) to the cycle.

An organization normally wants to minimize the assets required to conduct their operations. When the assets are moving through various nodes, the time spent at each node becomes critical. If this time spent at each node is 50% higher than necessary, you need an inventory that is 50% larger to meet your requirements. More typically, in a normal path the asset is allowed to spend more time at some nodes than others. The time an asset spends at a node is called dwell. To manage cycle time for the whole path you must manage the dwell at each node.

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We are going to create a definition of a normal cycle for an item to use as an illustration. We have an item, a 350 gallon, stainless steel tank; SS-350. A normal cycle for our example has the following nodes and dwells;

Inventory (physical location)

Allocated (status) – 1 day

Shipping (physical location) – 3 days

Cross Dock (physical location) – 1 day

Customer (physical location) – 30 days

Receiving (physical location) – 1 day

Tank Cleaning – Dirty (physical location and status) – 1 day

Tank Cleaning – Clean – 1 day

Inventory – 3 days.

The total cycle time is 41 days.

Definitions

Cyclic assets – assets that belong to one organization but are used, moved, managed or maintained by another organizations or sub-organizations.

Cycle time is defined as the amount of time required for an asset to move from a specified 'cycle start' location through a normal path and back to the cycle start location.

Dwell – the time an asset spends at a node.

Locations are what we normally think of as physical locations. For example, the table, warehouse A, the truck, column C46 in warehouse C are examples of physical locations.

Node – a status or location on a path.

Path is the sequence of all normal nodes (locations and statuses) in a cycle.

Statuses are conditions of the asset. For example, clean or dirty, allocated or available, inspected or not.

Path is the sequence of all normal nodes in a cycle.