Item traceability has evolved

Camcode Global discusses the growing need for improved international identification standards for imported/exported goods

IN today's high-stake, just-in-time world it is no longer 'good enough' to make business decisions using part, stock or even serial numbers. For traceability across an increasingly complex and global supply chain, individual asset information is needed. Both customers and suppliers are deeply connected through their shared supply chain, and stringent export controls are common. Throughout life, asset traceability and ownership are required, and discrete product information is essential. Customers are dealing with hundreds, even thousands, of suppliers, and if each used a custom approach to asset identification, it would be disastrous.

Nations have their own export and traceability requirements that rely on accurate item identification. Unambiguous and reliable item identification data is, in many cases, a key to efficient and effective asset management and compliance. A manufacturer-supplied serial number alone does not work for all parties involved in the production, sustainment, control and use of critical pieces of equipment. If a business supplies to more than one nation, how can it be confident that it is meeting the customer's identification requirements, and is there a common approach across all suppliers and customers?

Efficiency

The problems of using different standards and methods also affect the supplier. If suppliers don't meet the marking standards of their customers, then items delivered may be held or even rejected, costing time, resources and, ultimately, profits. Understanding the various layers of a customer's requirements and interpreting them correctly is a key cost driver for delivery. Using a centralised management service can elevate many of the cost-absorbing functions, improve efficiency, and ensure the quality of any marking or data output.

The International Standards Organization (ISO) recognised the need for globally unique serialisation in the early 1990s, and developed Unique Identification (UID) of items standards that produce a globally unique serial number and provides a non-repeatable identifier to each critical asset. Scanning these barcodes at critical points in the life of an item ensures accurate data collection. The days of pencil and paper data collection for lifecycle management of items are as antiquated and unreliable as manual entry at a retail store checkout counter. Most people would not rely on the clerk to be 100% accurate, so why would a warehouse technician or operator be more reliable? Humans make mistakes, resulting in 'dirty' data and unreliable analytics.

Evidence of the power of individual asset identification can be seen in everything from defence assets and medical devices to food (i.e. farm to table). Regulatory, statutory and contract requirements, as well as public perceptions, require more visibility, handling and responsible management of key assets. These efforts began in early 2000 and have accelerated significantly over the intervening years.

Security

International defence institutions, including the North Atlantic Treaty Organization (NATO), the United Kingdom Ministry of Defence, United States Department of Defense, Australia and others, have adopted UID to meet this need. NATO, for example, has ratified a standard and guidance document for the implementation of UID leveraging the ISO standards. The medical sector has also adopted a very similar approach for medical devices both in Europe and in the United States.

From recent experiences, being proactive in this space will help improve a business's traceability issues as the sooner a programme is begun, the sooner the benefits can be realised. Monitoring and reporting activity relating to items export controlled under the International Trafficking in Arms Regulation (ITAR), UN Arms Trade Treaty (ATT) and various Defense Trade Cooperation Treaties (DTCT) is already a resource-heavy activity. Barcode markings required to implement the UID of items can also be encoded to provide a real-time alert for the handling of export-controlled items from manufacture through to initial delivery and throughout the life of the asset. This does require specialist knowledge and thoughtful implementation; however, the payoff is dramatic and the liability reduction is critical to the industrial base.

Traceability requirements commonly impact assemblies, major components or other support products. Therefore, it is critical to flow the end customer requirements down to subcontractors/suppliers. In most cases, suppliers must use two-dimensional barcodes that comply with the standards. There is often much more effort than expected in educating the supply base on these marking requirements, and businesses may not have the expertise or available staff to provide this support.

Reliability

Meaningful asset identification or UID implementation starts with establishing the existing and anticipated requirements of the customer. Once the requirements are known, an holistic strategy must be developed to ensure assets are reliably identified and data captured automatically throughout the lifecycle of the item.

The engineering of the mark is the key to success, much like engineering the useful life of the item itself. Engineers designing a system often address the marking as an afterthought since, after all, it is 'only a label/mark'. However, most marking standards require full-life durability of the marking and that must be engineered into its design. If the identification mark fails, data capture will fail and the data will be unreliable.

Once an holistic strategy has been developed, implementation can begin. Often internal resources are stretched or not trained correctly, so seeking expert and experienced personnel along with specialist hardware/software tools to support is recommended. A surge of efforts, as well as support for long-term marking capabilities for new production/deliveries, often prepare a business for success. Effective implementation depends upon accurate and reliable data from the start so audit and reconciliation of the item/property records is often necessary. Typically, records of items held on inventory for a significant length of time are only about 40-60% accurate. This lack of accuracy will not support meaningful traceability and will bring into question the reliability of any business analytics resulting from the use of this data.

An example of where individual asset identification would save a business money is product recall. A common approach is to physically survey the entire inventory through an 'alert' to look for the item or, worse yet, a component part that 'may' have been installed. This approach is slow, labour intensive and will delay correction. With a uniquely identified end item – and uniquely identified key or critical associated components – in an authoritative and accurate item record, the affected items can be singled out and targeted for correction.

For businesses responsible for lifecycle support, individual asset identification or UID can enable predictive maintenance when embedded in the operational and maintenance processes. An understanding of the detailed life history of an item can also dramatically reduce the cost of disposal since its exposure to hazardous materials could be monitored down to the material safety data sheet of the consumable materials used.

To ensure that a business does not have to relearn these lessons, Camcode Global is the expert on item identification, traceability and UID with implementation experience across seven nations. If your business is considering how to implement the item identification programme, and improve the data relied on for managing critical assets, Camcode Global would be more than happy to speak to you.

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