RFID or Barcodes: Which Way For Asset Management?

**RFID offers greater flexibility and may cost less too.**

Using RFID for asset management used to be thought of as an expensive solution but new developments in RFID technology mean that RFID can now deliver cost savings that more than compensate for the increased capital costs. This short guide, prepared by RFID and bar code systems provider CoreRFID, provides a list of the areas that should be considered by those creating a cost-justification for RFID based asset management systems.

**Benefits of RFID over barcodes for asset management**

RFID solutions offer direct benefits when RFID is used in asset management applications in preference to barcode based systems. RFID offers benefits over bar coding in six key areas.

1. **Line of Sight Issues**

   Barcode readers require a direct line of sight between the reader and the printed barcode but RFID readers do not. They simply need to be held in proximity to the tag.

   In asset management systems this may limit where on the asset the barcode is applied. It has to be easily visible to the person checking the asset and so it may also be more likely to be removed or defaced. This can increase the costs for the user of barcode systems:
   - applying printed bar code labels to assets takes longer, labels must be positioned carefully so they are visible.
   - checking assets takes longer as readers have to be positioned exactly in relation to the label.

2. **Read Distance Issues**

   RFID tags (especially UHF tags) can be read at much greater distances. An RFID reader can access information on tags at distances up to 10 metres. The range to read a barcode with a high level of success is much less, typically no more than a foot or so.

   In asset management systems this means that the person checking the asset can do so without getting close to the asset, saving time and effort when checking assets.

Barcode systems appear to be low cost but is that the case in real life asset management?
The benefits are lower costs for asset checking, fewer lost assets and improved information on asset location by using RFID for asset management instead of bar codes.

3. Discrimination / Read Speed

An RFID reader can read tags much faster than barcodes can be read. Read rates of many tags per second can be achieved. Barcode readers usually take a second or more to successfully complete a read.

In asset management, an RFID reader can read all the asset tags within a room with a sweep of only a few seconds whereas a bar code based system would need the user to locate each item individually. This makes the asset checking process faster and more reliable since assets within a location cannot be overlooked (in cupboards or drawers, for example).

4. Ruggedness

RFID tags can be installed in areas where there is moisture, grease or dirt without it affecting the read success rates. RFID tags can also be installed inside of an asset’s casing. Barcodes can be laminated in order to improve their resistance to environmental factors but coded labels can be defaced and torn, accidentally (particularly since the label has to be on the outside of the item in an accessible area) or deliberately.

In asset management fewer assets are “lost” due to missing or unreadable labels.

5. Read – Write Capability

Information cannot be written on a barcode once it has been applied. If codes need to be updated for any reason then a new label must be printed and applied with the associated risk of error. RFID chips can, however, be updated with the tag in place.

In asset management applications this can make for a much more flexible system design. The asset tag can carry the date of the last time it was inspected for example or a code can be added indicating that it should not be removed from a particular location.

6. Portal Possibilities

A barcode can only be read as a result of a conscious decision to access the data on the code, either by moving the asset past a reader or moving the reader across the label of the asset. An RFID reader can detect a tag simply by virtue of it being in the same general area as the reader.

In asset management, RFID readers can be built into doorway portals in order to detect the movement of an asset from a particular location. This can reduce theft or inadvertent loss of assets as a result of inter-department loans or relocation to home premises. It can also be used (with appropriate coding mechanisms) to allow the movement of some assets (portable computers, for example) while raising an alarm at the movement of other assets (projectors, servers or monitors).

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