

Smart solutions for art security and beyond.

The concept of a gallery attendant with a pencil faithfully ticking off a check list of paintings on the walls twice a day may sound more like a scene from a Mr Bean movie than modern best practice in gallery security. Yet until a year ago, this was how a major London public gallery checked its collections were all there. All this has now changed however with the introduction of RFID (Radio Frequency Identifiers) technology to this gallery. By installing active RFIDs on the back of each picture frame, and an RFID reader in the ceiling void of each room, security staff now monitor a system which checks the presence of each painting every 15 seconds. The software immediately identifies the location of any painting that not only may have gone missing in the previous 15 seconds, but also may have been moved through the presence of movement detectors in the RFID. Security levels have been transformed for the better, and unfortunately a number of the gallery attendants made redundant.

RFID or 'smart card' microchip technology has been around for some years, most notably in the warehouse distribution and clothing retail areas. The more recent plastic tags attached to clothing in shops, or the E tags on the Sydney Harbour Bridge and Tullamarine Tollway are using RFIDs. They come in essentially two forms, active and passive. Both are based on a microchip embedded in plastic with a small aerial attached. Active RFIDs include a battery allowing them to send out a signal and ensuring that they can be read at some distance, namely up to 7 metres. These are about the size of a mobile phone battery. Passive RFIDs are much smaller, and can be as tiny as a pharmaceutical capsule, but typically are credit card size in dimensions and thickness. Passive RFIDs do not include a battery and need the reader to be as close as about ½ a metre.

Within the cultural sector take up of the technology has been surprisingly slow. The need for efficient methods for locating and tracking artworks and artifacts in galleries and museums, when collections may number in the hundreds of thousands, has long been recognized. Manual tracking, i.e. the physical recording of accession numbers, is prone to an error rate of about 5%, which can create a real problem when thousands of items are being moved. Bar-coding has been widely embraced and does reduce the error rate, but suffers from the need for the bar code to be physically sighted by the bar code reader for the information to be accessed.

RFIDs offer a much more sophisticated process whereby not only does the microchip contain far more information than the bar code (from simple catalogue information to images), it most importantly can be read through a picture frame or inside a travelling case without the need for the painting to be lifted off the wall, the artifact picked up or the traveling case unpacked whilst in transit. With the advent of second generation RFIDs and the international standardization of their manufacture (something never achieved with bar codes), it is clear that the technology is here to stay for some time to come. As consumers, we will see more and more use in the retail world, including the scrapping of supermarket check-out conveyor belts, and their replacement with a reader past which the whole trolley of goods is pushed, providing instant data capture of the entire contents. Whilst cost has been an issue to date (a passive RFID typically costs about 50c compared c 5c for a bar code), with the demand for volume will come massive economies of scale.

Although take up in the cultural sector has been slow, it is now being increasingly embraced. Beginning with the library sector where there is now widespread use ( the Vatican Library rare book collection being an early adherent), corporate art collections are fast seeing its benefits, particularly where they have substantial, valuable but dissipated collections throughout an office block or series of buildings. Stock take of these assets, which has for many organizations been an annual headache, can now be constantly and automatically undertaken, with considerably improved accuracy.

Within the broader public gallery and museum sector, there is take up occurring at the smaller level, and trials underway with major organization in the USA, Holland and Australia. The benefits beyond the basic tracking and security functions are already being explored. At the Museum of Natural History in Denmark, visitors are provided with a PDA on arrival, which then gives them the option to access information on the painting through their PDA, the back ground to it and even educational games about it, all accessed via the RFID on the back of each painting. This not only opens up a new dimension to the visitor experience but provides valuable return information to the museum staff about which paintings visitors come to see and what information they are wanting to access.

There seems little doubt that RFID technology will soon be an integral and widely-used collection management tool for public and private collections alike.

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