

## OBJECT IDENTIFICATION WITHOUT HANDLING OBJECTS: REDUCTION IN MOMENTS OF RISK

*The experience gained by the founders of Helicon conservation support b.v. (Helicon) within the museum world, led to the invention and development of an identification system, the so-called Talking-Tag® system. Because of its limitations, present day methods for collection management harbour many moments of risk. When identification of an object is needed, it is necessary to lift, tilt and touch the object. This handling can damage the object. It is also time consuming and often a frustrating activity. The Talking-Tag® system restricts these moments of risk and frustration, by taking away the need of physical contact when identifying an object. There are other advantages to this system as well, which include: simplification of registration checks; integration in disaster planning; the combination with public information systems; and security. This article describes this identification system and explains the advantages of the system above other identification systems such as barcode.*

### **Introduction**

Helicon is located in Alphen aan den Rijn, the Netherlands. It was established on 1 January 2000, and functions as a crucial pivot between museums, commercial institutions and other specialised companies. We provide consultancy, sell material for use in preventive conservation, and develop a wide range of products and applications. We assist and improve the profession of collection management. In addition to the Talking-Tag® system, Helicon has developed a revolutionary approach in packaging - resulting in the 'Pegasus-Packaging' concept. Moments of risk during handling, packing and transportation are therefore minimised.

As a result of our innovation, Helicon has already proved to be ahead of the mainstream in its holistic approach of collection management and exhibition support.

### **Problem definition**

The necessity to handle objects for identification often results in damage. The object has to be lifted, taken out from its packaging, turned, twisted, etc. in order to retrieve the accession number. Damage can vary from abrasion caused by friction to breakage caused by falling. The importance to tackle this problem linked with the traditional method of registration is widely acknowledged and has resulted in the development and use of more advanced technologies e.g. barcode. However, with all systems used at present, it is still necessary to have visual access to the number or label. In case of barcode, the label has to be manoeuvred in such a way that a beam of light can reach the label. Also any damage to the label will make the information irretrievable.

## **Solution**

Helicon therefore developed a revolutionary identification system, the Talking-Tag® system. With this system there is no need to see the number on the object as it uses radio frequency. The system consists of hardware (tag, antennae) and software (link to existing database). It was developed together with major international software and hardware companies.

Apart from the fact that this system minimises moments of risk, there are other advantages. The system can be used to simplify inspection and to establish integration in disaster planning. As it uses radio frequency, it also allows for a combination with audience information systems. Another great advantage is a reduction in the time it takes to identify objects, valuable time which could be spend more efficiently.

## **Development**

After one and a half years of research and development, we have succeeded in creating and developing a revolutionary identification system - the Talking-Tag® system, which forms a link between the object and the already existing database (e.g. The Museum System – TMS), created by a chip (tag) which is attached to the object. This new system facilitates and simplifies collection management. A means for identifying objects for museums, castles, country houses, libraries, galleries and archives has been developed. To establish an international standard in use and applications, we work closely with major cultural institutions - such as the Institute for Cultural Heritage in the Netherlands.

Helicon developed the Talking-Tag® system and its applications through thorough scientific technical research and research into the inertness of the material. Under our guidance, several specialised companies have participated in the development of the system. The Talking-Tag® system was tested within several Dutch museums.

The Talking-Tag® system is a means of identifying objects. The system should be considered as a tool for collection management. The Talking-Tag® is based on a chip in which digital information - including both permanent and temporary data - can be stored, managed and retrieved. A selection of applicable data generated by an existing database is transferred to and from the tag by means of an antenna. The Talking-Tag® can also be used to generate administrative data without the use of a database.

## **Talking-Tag® system**

The Talking-Tag® is an interactive chip that has a capacity of 44 digital positions which enables it to store information. Each position on the tag can be linked using specific software to information stored in existing museum databases, such as object number, photo, description and location. The tag also holds the key to information relating to the packing

and shipping of objects, their physical condition, storage conditions, priority of evacuation in case of calamity, etc. The tag can be read and written by means of high frequency radio waves, which are broadcasted by special antennae. Radio waves can travel through material, meaning that the tag does not have to be visible and can be accessed without touching the object. Information on the Talking-Tag<sup>®</sup> can be read, added to, or changed by means of these waves. The necessary antennae are obtainable in various shapes and sizes - ranging from hand-held reader to gate antennae. If an object equipped with a Talking-Tag<sup>®</sup> comes within the range of an operational antenna, this object will be registered.

### **Standardisation / manual**

Helicon aims for a uniform approach in positioning the tag to the object. The main issue here is the location of the Talking-Tag<sup>®</sup>. The method of attaching the tag to objects depends on the wishes of the institution and the type of objects present. To realise this standardisation, the results of the pilot-projects and the experiences in museums were used in order to compile a manual. By implementing the instructions of this manual, uniformity and exchangeability can be realised.

### **Software / hardware**

The specially developed software enables compatibility of the already existing museum database (e.g. The Museum System - TMS) with the Talking-Tag<sup>®</sup> system and ensures a smooth working registration system. This prevents the management of collections in becoming labour-intensive and rigid.

The hardware consists of a variety of applications communicating with each other, as a handheld reader, a bloc antenna and a gate antenna.

### **Advantages of the Talking-Tag<sup>®</sup> system**

The Talking-Tag<sup>®</sup> system facilitates easier and a more professional approach to collection management. Examples of the added value of the Talking-Tag<sup>®</sup> system include:

#### **□ Limitation of moments of risk**

Usually a registration number is written on or attached to the object. Most of the time it is written on the object - occasionally a barcode label is used. For identification, it is necessary to lift, tilt and hold the object - or at least the label - to make the number visible. However, this consequential handling may cause damage to the object. The Talking-Tag<sup>®</sup> system can be used to identify museum objects in storage, exhibition, during transport, etc., without the need to handle the objects, thus avoiding the risk of damage. With current registration systems there is the problem of locating objects within their packaging (a box may contain several objects). To check if the correct object is inside, the object has to be taken out in order to read the registration number. Further each object has to be made accessible

individually. This process is time consuming and creates the risk of damaging it. The Talking-Tag<sup>®</sup> system makes it possible to identify an object without actually touching it - even when the tag is not visible.

□ Multiple read

The Talking-Tag<sup>®</sup> system makes it possible to identify several objects at the same time. When objects are packed together - for example, a stack of prints in a box - it is possible to identify all the objects in one action, without opening the box. This saves a lot of time.

□ Information in the tag

Contrary to barcode or other labels, it is possible to store information in the tag, like specific conditions for the care of the objects. This means that this information is always available without the need to consult the database.

□ Visibility not needed

The use of labels is well known. The traditional label, including the barcode, carries information that has to be visible and is therefore unattractive. The Talking-Tag<sup>®</sup> however, does not have to be visible - it can be hidden in or placed on the back of the object and is therefore less visually disturbing. Another plus point is that the Talking-Tag<sup>®</sup> system makes it possible to change information without the need to replace the label.

□ Simplification of registration

The movement of (packed) objects can be easily traced by the use of antennae such as hand-held readers and gates - this means that there is no need to unpack the objects. Groups of objects, e.g. prints in boxes, can also be processed in one action.

□ Time-saving / reducing of mistakes

All intervening actions such as reading, communicating, writing on a notepad or typing information into a computer will become redundant. In addition to this, the Talking-Tag<sup>®</sup> system is very secure. When a 'tagged' object passes an active (gate) antenna it is automatically registered.

□ Integration with disaster plans

In the unlikely event that a serious problem could materialise, a quick evacuation of your most valuable objects is imperative. By using the Talking-Tag<sup>®</sup> and a hand-held antenna instructions can be given for the evacuation of specific objects.

□ Combination with public information systems

The Talking-Tag<sup>®</sup> system can be linked to public information systems. With the use of a hand-held antenna, a visitor can identify an object which results in the distribution of relevant information regarding the object.

## Research

The material of the Talking-Tag<sup>®</sup> was tested and found inert, which means that it can be attached to all materials without causing chemical decay. Tests showed that the tags can withstand ageing without losing operational possibilities. In practical tests and pilot projects, the optimal and most universal dimensions for the Talking-Tag<sup>®</sup> had been defined. In addition to this, several alternatives for attaching the tag to objects were tried and tested. We aim for a uniform method in positioning the tags. To realise this an extensive manual was composed.

### Pilot project:

Guided by Helicon, several museums co-operated in pilot projects to further develop and research the applicability and implementation of the Talking-Tag<sup>®</sup> system. The pilot-project was split into several limited studies in which each museum was responsible for at least one such study. On the basis of the results the Talking-Tag<sup>®</sup> system was further developed.

The following museums participated in these pilot projects:

#### □ Museum Boijmans van Beuningen

In the Museum Boijmans Van Beuningen the main focus in the first pilot was at tracing the movements of objects (external move). During this pilot several objects travelling to Porto for 'the cultural capitol of the year 2001' were traced.

The issue was to find out if the Talking-Tag<sup>®</sup> system works properly as a means of identification? The result of this pilot is that the system does work properly for identification and also for timesaving. All logistic acts and moves have to be thought through in advance. After proper procedures have been established a useful workspace can be equipped. The amount of time the objects have to be handled has been extensively reduced.

The second pilot in the Museum Boijmans Van Beuningen is used to inventorise and categorise all moves and acts needed for proper site-registration. One hundred and seventy objects of applied and ancient Art will be moved within the museum. The alterations in site will be digitally registered by means of the Talking-Tag<sup>®</sup> system. In this pilot the museum researched how the Talking-Tag<sup>®</sup> system function in collaboration with site registration during internal moves. It can be concluded that the Talking-Tag<sup>®</sup> system proves to work properly during internal moves. Digital site-registration turns out to be hugely more effective as the traditional methods of registration. Apart from the greater accuracy it provides the system also speeds up the process. Mistakes are reduced to a minimum. Even after a showcase is closed it is possible to register the objects without the need to re-open the showcase or touch the objects.

#### □ Kröller Müller Museum

The pilot in the Kröller Müller Museum was aimed at the methods and locations for attaching the tags to the objects. For this a sample - representing the complete collection

is used. During a period of two days, a huge variety of objects and their storage have been studied.

The method chosen to attach the tags to the object is very much depending on the keepers preferences. This ranges from a (semi-permanent) using glue or even staples to separate positioning close to the object. The Kröller Müller Museum chooses for the last option. For other users a tailor made solution will be found. The ultimate goal is to standardise the location of the tag on the objects. The standardisation of the method of attachments is less crucial. To realise this a manual is in the making for:

- Physical location of the Tags on a variety of objects.
  - Diversity of methods for attaching the tags to a variety of material including dis- and advantages.
- Stedelijk Museum Amsterdam

The pilot in the Stedelijk Museum Amsterdam has taken place in one of the stores for paintings. The store houses approximately 40 big paintings. The performances of the hardware were central in this pilot, like multiple read and the function of the gate antenna. In order to check the readability of tags using a gate-antenna, a painting was placed on a trolley and moved through the gate. This worked perfectly. About six Talking-Tags<sup>®</sup>, positioned straight on top of one another, can be read in one go without problems; the possibility to read about 20 objects at once will be possible in the near future.
  - Van Gogh Museum

The Van Gogh Museum was used as an example for the research into the security possibilities of the Talking-Tag<sup>®</sup> system. In this research the Dutch Central Investigation and Information Department of the Ministry of Justice was involved. The Talking-Tag<sup>®</sup> system can be used to protect the object up to a certain level. It can be used together with existing security systems without undue interaction. The Talking-Tag<sup>®</sup> system will inhibit most snatchers (provided a higher threshold). Against organised crime stronger systems are needed. The methods used to attach the tag to the objects as well as the visibility will influence the level of security provided. Therefore this will vary with each museum and user.

## References

### First project: museum Boijmans Van Beuningen

The Museum Boijmans Van Beuningen in Rotterdam was the first museum worldwide to implement the Talking-Tag<sup>®</sup> system. The museum was involved in the pilot projects at a very early stage. Before the museum started to work with Helicon, they were going to launch a collection wide project aimed at checking the registration, adding labels (barcodes) and photographing objects - the so-called 'physical check project'. This project was a result of an earlier registration project and is now part of a complete inventory project of the collections of the Museum Boijmans Van Beuningen. At the moment, Helicon and The Museum Boijmans Van Beuningen are working together in implementing the Talking-Tag<sup>®</sup> system.

After investigating the demands and plans of the museum, the Talking-Tag® system proved to be the best option. This system offers many advantages over barcodes.

After participating in the pilot-project, the Museum Boijmans Van Beuningen decided to start with 'tagging' and photographing its entire collection. The first part of this project is the physical check of 15.000 drawings. This project will take about one year, and will be carried out by two qualified professionals. As a result of this project, all drawings - registered in the linked TMS - will be provided with a Talking-Tag®. The museum aims to treat all objects in the same manner.

### **Conclusion**

The system takes care of a reduction in handling objects, resulting in a risk reduction and can be used for museums, castles, country houses, libraries, galleries and archives. Other advantages of this system are: simplification of registration checks, storage of information in the tag, multiple read, security, integration in disaster planning, combination with public information systems.