

One-To-One

Putting the ART back into SMART

The word SMART tends to be somewhat overused these days and can often dismiss the importance of context in favour of technology. The market for authentication solutions is a good example of this. Clever technologies that are dependent on physical or chemical processes are often developed whilst the framework required for delivering the results can be deficient.

Nowhere is this more obvious than in the field of secondary and tertiary authentication devices where clever chemistry and physics need to interface with simple and quick processes that provide accurate indications as to the provenance of printed material. A decision often needs to be taken instantly to take goods or documents out of circulation and this can prove costly if it later becomes evident it is incorrect.

Our Editor spoke recently to InkSure Technologies, one of the leaders in protecting assets and revenues and discovered the importance of scalability and integration when applied to protection programs.

Many businesses today find themselves having to protect their assets from a variety of fraudulent activities. Forgery and ID fraud are activities that directly affect financial institutions, whereas product piracy has serious effects on the profits of Branded Goods.

Today, wherever and whenever businesses face risks from these threats they need to focus on a solution that delivers a cost effective remedy without putting further organisational pressures on a business that detract from its day to day purpose in life - delivering revenue.

"At InkSure we have developed solutions that incorporate material science, electro-optics and software that enable our clients to check the authenticity of data and products without interfering with the usual flow of business". Says James Assaf, InkSure's CEO of Global Sales & Marketing.

The Company is based in Fort Lauderdale, Florida and has research and development facilities at the Science Park in Rehovot, Israel. Products were first released in 2000 after four years of development. During the intervening years the Company has introduced second-



Hand held readers, developed by Inksure authenticate taggants in inks and coatings

generation solutions that have incorporated much of the experience gained initially and applied this to improving their performance and interoperability further.

Products are based on uniquely formulated machine-readable taggants that can be incorporated into inks and coatings in such a way that they can be quickly authenticated by hand held readers as well as high speed processing systems such as cheque or

currency sorters.

"We now have many clients using our services in Financial, Consumer, Transportation and Government applications where products and documents require authentication checks to determine the validity of data codes or product packaging". Assaf adds.

Adding security taggants to inks and coatings is a sure way of spotting alteration

One-To-One

fraud, whilst also delivering certification of the original document or product label. By introducing two tags simultaneously into the same application users can check the integrity of supply chain data and the carrier substrate, whether it's a label, blister or carton board pack.

Hand-held readers can be used to check items throughout the supply chain. Automatic sorters and readers such as those used in cheque clearing and voucher redemption can supply verification on individual tags at speeds of 400 inches a second with a pass/reject rate of 12-15 milliseconds.

"We have developed a large range of proprietary codes that allow users to choose their own unique coding structure so there is no risk of a client running out of codes or having to use a tag code developed for another user". Assaf Continues.

The code detection concept is based on an electro-optical measurement of various spectral phenomena present in the tag. A mixture of spectral, luminescence and RGB colour sensors and filters are combined in each reader and set to specific wavelengths to decode the taggants present on

protected product.

A combination of clever signal and image processing delivers a calibrated result that can be used to provide a visual and audible message confirming the presence of a unique tag or SmartInk™ as InkSure refers to each 'signature'.

The software residing behind each reader has in-built learning algorithms so that each SmartInk™ application is capable of distinguishing between printing variations and fraudulent simulations. Of course each security print partner in the InkSure program is able to quality control every batch of printed product and this is achieved through a mixture of training and sheet or web inspection systems built into a printing press to ensure that the correct amount of taggants is present in each ticket, label or document produced.

"By supplying field authentication readers, quality control readers and speciality taggants, we are able to offer complete solutions which satisfy the requirements of both brand-owners and their converters. This enables us to build our revenues around recurring consumables business, providing a solid foundation for continuing growth". Assaf continued.

InkSure can provide its customers with a multitude of security options by combining its covert technology with leading overt authentication offerings. One example of this is a joint approach with the products of Merck KGaA. Merck manufactures specific effect pigments that are utilised as primary authentication devices. Adding unique taggants to these products offers additional secondary and forensic identification features resulting in combined technologies in a multi-tiered security feature that delivers multiple authentication levels. A new product, which InkSure calls "Triple Play", provides overt effects of a customised graphic which appears or disappears, depending upon the viewing angle, as well as a colour change and InkSure's covert machine-readable authentication technology.

Similarly, the holographic industry is able to take advantage of the forensic properties of these taggants when they are applied as a coating or overprint to provide machine-



James Assaf InkSure's CEO of
Global Sales and Marketing

readable codes to security holograms. A leading manufacturer of holographic foils and threads, Centro Grafico DG are another key partner in the InkSure technology team.

Delivering product security solutions however needs to be a continual process since scalability is seen as an important feature of any product portfolio in the authentication business. Clients need to be satisfied and confident that those entrusted with supplying security devices are researching and developing new answers to a continually changing problem.

Over the last few years InkSure has been investing in bringing an alternative 'tag' to market. Interest in RFID (Radio Frequency Identification Tagging) has been immense of late and nowhere more so than in multi-bit 'chipless' products that can be manufactured at a lower cost than their silicon counterparts.

RFID has now entered a phase of 'track and trace' at pallet level with adoption at WalMart and Albertsons in the USA and Metro in Europe. However RFID has yet to break into the true item level arena where each and every product is capable of being tagged and



PRODUCT & IMAGE SECURITY
& DATA AUTHENTICATION

One-To-One

thereby providing proof of its pedigree.

"Our goal is to develop a multi-bit chipless RFID tag that can be manufactured and applied to product labels at a cost of well below one cent each. Such tags offer higher speeds and functionality together with easier use than traditional bar codes and have the potential to revolutionise the brand protection supply chain on a global scale". Assaf continued.

InkSure owns and directly controls three important patents that encompass the technology required to deliver the products of such a vision. Indeed an important part of the Company's intellectual property in chipless tagging revolves around printing the antennae that allow the tags to receive and transmit radio signals carrying the data codes buried in the tags.

Traditional manufacturing methods for RFID have involved metal antennae (for signal transmission and reception), but recently methods of printing conductive inks to offer more cost effective manufacturing have been devised. With its strong connections in ink technology InkSure has been able to develop suitable ink based alternatives that can be applied as labels and packaging components are printed.

As further evidence of this expertise InkSure has been chosen to participate in the Sixth EU Framework Programme for Research and Technological Development (FP6). This programme is funded by the European Commission and is aimed at encouraging participants to develop solutions that are of benefit to the European Community and support EU policies. The EC recently identified that 400 billion is lost every year in the region to product piracy and this may explain the desire to find solutions to product surety problems.

Over the three years that have been set aside for this research project the partners will participate in the 'development of multifunctional nanometallic particles by sonoelectrochemistry'. Other participants include Bar Ilan University and The Hebrew University in Israel, the University of Padova and Pometon S.p.A. (Italy), the Max Planck Institute of Colloids and BASF in Germany and



Coventry and Kent Universities in the UK.

Most stakeholders in the world of product and document security prefer to deal with their product safety risks by applying a structured and systematic approach that continues to be scalable and addresses future requirements as

well as current needs. That's why authentication services that offer comprehensive solutions such as those offered by InkSure will always be in demand.

Reader Enquiry 32

PRODUCT & IMAGE SECURITY
& DATA AUTHENTICATION

