

Diamond Trading Company - Siteholder Case Study -



Our client, one of the world's largest diamond groups, has installed SpaceCode's RFID technology to improve their global asset management and security. To do this they require automated real time visibility of all their inventory throughout their global organisation. The results have been astounding, as is outlined in this case study.

THE CHALLENGE

Our client is one of the leading diamond manufactures, taking rough diamonds and processing them into finished polished stones. The entire process involves many stages, transactions, people, and movements of the high value stones between global locations. This complexity results in inefficiencies, lack of control, human errors and delays, confusion, poor customer focus and responsiveness, and increased costs. Despite the magnitude of the problem, a solution is difficult to come by and instead additional layers of manual and barcode processes are implemented to address these problems. But these do not solve the problems

To address the shortcomings of their historical processes, the client embarked on an extensive search for suitable automated, reliable total business solutions that can provide:

- **Automated 24/7** track-and-trace
- Inventory **Visibility** enterprise wide
- Indisputable stock **Control**
- Seamless process **Efficiency**
- Continuous **Monitoring** and security
- Comprehensive **Audit** trail and reports

The group's Chief Financial Officer required 100% full and accurate visibility of all inventory at all or any of the global offices at any point in time. He wanted to replace the incumbent outdated processes being used – numerous telephone calls, unwieldy emails and faxes, and thousands of manual computer entries. This labour intensive process was strewn with inefficiencies, costs, and errors – all of which was made even more difficult due to the time differences between the various offices. The CFO believed that replacing these processes was essential to the future success, security and reputation of the company. Moreover, it

was essential that the company be able to monitor who exactly accessed the inventory, and handled the stones for the purposes of processing, receiving, managing, storing, shipping and/or selling it.

Following extensive research and evaluation, our client decided that RFID combined with powerful software could potentially be the solution to all of their problems by providing always on automated visibility and tracking of diamonds as they moved between different departments, personnel, processes and locations in immediate.

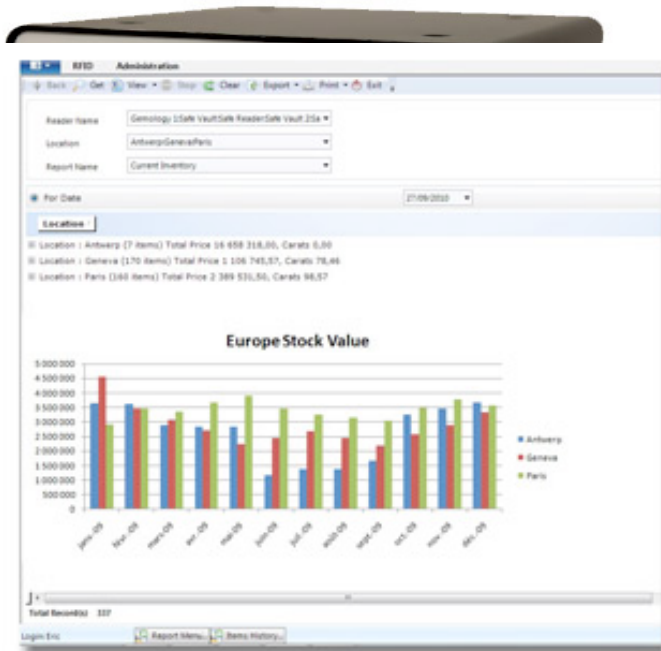
“We wanted a system that could, from the point of view of managing our stock, tell us at any time of the day, where a given stone was in the world. Plus, for security and administration purposes, we wanted to be able to know who had handled a stone, when and where,” said the Chief Financial Officer.



And all of this benefit and enhancement had to happen with no or minimal change to their existing processes. Importantly, the customer required a vendor that could provide all of the necessary hardware, software, and integration for the total system.

CHOOSING THE OPTIMUM SOLUTION: SPACECODE PLEXUS

Of all the vendors evaluated, only SpaceCode **PLEXUS™** product suite was able to meet the essential customer requirements for reliability, efficiency, security, stability, and after sales service.



PLEXUS™ has a **sophisticated** but **simple** to use total business solution comprising powerful software with advanced RFID hardware to provide the leading system of its kind in the Diamond industry. The system constantly lets the client know where the stock is and what the stock is doing. It provides accurate stock records and audits, and adds another layer of security which is always running in the background 24/7. After extensively researching the market, it became clear that SpaceCode **PLEXUS** was the only product that could fully meet the clients objectives for comprehensive automated real time inventory management, global track-and-trace visibility and monitoring, and guaranteed safety and security.

SOFTWARE: The **PLEXUS™** Diamond Tracker software is the engine of the system that links and analyses all the data in real time, offering incredible visibility, control and analytics. It is obvious that this software has been developed for the diamond industry, by the diamond industry. Stones, movements, and transactions are monitored and analysed in real time. The software can generate real time activity reports and data in regard to any stock movement. Reports can be generated from anywhere in the world, for any number of stock items, at any time. For example, the activities of a particular employee (what he or she shipped on a particular day/week/month); the stock situation in a particular global office; the movements of a particular stone, and so on.

HARDWARE: RFID tagged diamonds are placed and/or stored in SpaceCode's specially designed **PLEXUS™ DataBoxes**. The databoxes use SpaceCode's advanced RFID technology to communicate with the software and network. This data provides all the information regarding what inventory is in the databox now, who handled the inventory, when and where. A database, linked to the RFID tag, stores all the products parameters (including the value of the stone, the cut, clarity, colour, carat weight, etc). The **PLEXUS™** RFID system continuously scans and knows its contents. The Databox can be deployed anywhere in the office or factory, on desktops, or remarkably even in safes – no one else can equal the physics of this RFID performance. Units can be stacked as a single unit or as multiple units on top of each other. When located in the safe, the DataBox continues to function even when the safe is closed. This means that it operates as an intelligent safe within a safe, allowing wholesalers, manufacturers and retailers to track their stock,

value and other information no matter where the diamonds are. Particularly impressive was the ability of SpaceCode's **PLEXUS™** DataBox to read thousands of diamond parcels stacked in very close proximity in any orientation with 100% reliability, in a secure system that was easy to use and globally deployable, even when enclosed in a metal safe.

BIOMETRIC ACCESS: A biometric/finger print identification system is needed for access. Each **PLEXUS™** DataBox generates a full audit trail of who accessed the diamonds, when they accessed the diamonds, and what they did with the diamonds, and where. Different access rights mean only certain approved people can access specific DataBoxes at specified times. The security alert thresholds of all personnel are configured, and the inventory management software then tracks and records all events. Management can have a full audit trail of all goods moving in or out of the DataBox. Moreover, the finger print identification function allows the client to stratify the inventory. In other words, although the inventory was always secured in a high value vault, it was important to limit the access to the various inventory items by separating it according to value and type, and securing it in separate areas. By so doing, the client could give different access rights to the various inventory items, thus adding a further layer of security.

"Spacecode was the only RFID company that we found that offered all the functions that we were looking for, in one system. And since their product was being deployed in the healthcare and hospital settings, where reliability and accuracy was essential, we were convinced that they were the right vendor for us," said the CFO.

THE INSTALLATION AND IMPLEMENTATION

After extensive consulting with Spacecode regarding the clients business and functional requirements, the system was implemented, tested, and went live for an initial period of 3 months, followed by a broader global roll-out. **PLEXUS** Software was installed on the user computers, and **PLEXUS** DataBoxes were installed on desktops, in the closed safe, and in the vault.

SOFTWARE: Users quickly mastered the **PLEXUS** Diamond Tracker software and started to generate different reports on a daily basis. Management were able to check inventory in all global offices in real time. They can look for particular stones, generate reports, and provide audit trails. Alarms are configured within the software, such that real-time alarms and alerts can be sent to management and security staff for example in the following situations:

- users removed stones which exceeded the authorized value
- the user tried to access the Databox outside of working hours
- the total value of the goods exceeded the insured value
- the door was left open longer than permitted
- etc



HARDWARE: - The PLEXUS Diamond Databox proved easy to use with minimal training. They automatically and continuously read hundreds of diamond parcels with 100% reliability. Although the system does not require any user input besides a finger print, the client felt more comfortable having a LCD screen near the units in the early stages so that the users could immediately confirm that the RFID system was giving the right results and correctly recording their transactions. The client reported 100% accuracy, and soon the LCD check was no longer required.

INTERFACE: SpaceCode interfaced the system to the client's in-house ERP system. In this way the existing database of diamond stock could be accessed and used, and manual input of the data avoided. A comprehensive toolkit was provided by SpaceCode which made the interfacing easy.

RESULTS AND BENEFITS REALIZED

As a result of the **PLEXUS** Total Business Solution, the client realised a host of proven benefits including:

Automation

- Inventory control and efficiency improved nearly **400%** since stock is now counted automatically every five minutes, 80 times per day or 400 times per week. This compares to the previous weekly physical count

Visibility

- Stock visibility improved **100%** due to global real time information on stones and their location
- Access to inventory increased **100%** since stones could be identified and located on demand
- Time-wasting searches eliminated since any stone can be located quickly, anywhere in the world
- Activity of stones visible from anywhere in the organisation

Control

- Data received in real time globally provides unparalleled control of inventory and transactions
- Management can scrutinise stones, transactions, total value of goods insured, etc in real time
- Global inventory reports available on demand
- As the name suggests, **PLEXUS** became the control centre of the clients systems and processes

Efficiency

- Processing time for major work processes reduced by **40%** including checking goods in/out, recording change of "ownership" between people and/or departments, etc
- Sales productivity increased by **66%** since employees can process a particular request from a client in less than a third of the time

Monitoring and Security

- Security enhanced with multifaceted approach using software (alerts), hardware (the DataBox is a secure unit), and biometric access (strict access controls)
- In the event of a "missing" diamond, the system can create a full history of the diamond in regard to its movements, the people who accessed it and the exact time that every 'transaction' happened
- Security enhanced via controls that allow the safe to be divided into sub-safes by giving each DataBox different access rights for different staff

- Real-time alarms and alerts ensure that management/security are notified immediately if goods had been accessed or moved without the requisite authority
- Continuous monitoring reduces the risk of employee infidelity

Audit

- Management of stock records accurately managed with **100%** reliability. Managers have global inventory reports instantly whenever needed
- Audit trail improved 100% due to immediate availability of reports summarizing the daily activities, and any anomalies or irregularities that can be picked up immediately

Business Case

- Insurance premiums reduced by 7.5% or more due to added security, monitoring, and audit trails. This provides 100% reduction in risk, of over or under, insurance on renewal of policy, as inventory is monitored daily. Moreover, due to the additional layer of security, any insurance claims are settled easier and quicker

FUTURE DEVELOPMENTS



The client is now rolling out the system to all its global offices which will involve hundreds of readers and hundreds of thousands of tags. Putting it simply, this will be the new way of business for the client. The South African office, where the factory is located, will have the biggest application and the system will be modified to suit the needs and requirements of the factory. More specifically, each factory manager will have their own reader located in the glass panel at distribution office. This will serve as a dispatch area. There will be cameras focused on the readers for additional security. Each

reader will be a tunnel reader with biometric access. When the inventory controller adds goods to the reader, the factory foremen concerned will receive an alert that goods are ready for collection. When they collect goods this will comprise one part of the transaction as the goods needs to be deposited in the factory reader upstairs to finalize the transaction.

This means that the stock controller will no longer be disturbed with repetitive time consuming and distracting phone calls asking her if the goods are ready. Goods can be collected seamlessly without her involvement so she can concentrate on her work without being unnecessarily disturbed. From the foremen's point of view they do not have to call or wait for her as they are notified automatically and immediately when goods are ready for collection.

CONCLUSION

The client is happy to report that the system works perfectly and is delivering tremendous value to the business.

“We never imagined that we would find a system that would be able to cater for all our needs: cope with large numbers of parcel papers, tightly joined together in many orientations (in the presence of metal jewellery) and all inside a closed metal safe,” says the CFO. “The visibility and control that the system gives us in regard to our stock has changed the way we operate and dramatically increased our level of efficiency and security.”

ABOUT SPACECODE

SpaceCode is a specialist Radio Frequency Identification (RFID) technology company that provides secure and automated inventory management. At SpaceCode we supply 100% reliable inventory management using our proprietary PLEXUS solutions comprising Smart DataBoxes™, Smart DataCabinets™ and Smart DataSafes™) that protect high-value products in the luxury goods and healthcare industries. Our Diamond Tracker™ and Tracer™ software provide complete track-and-trace capabilities, Business Intelligence reports and security alerts for total asset control.

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