

# SME Ambassador Program 2006 - Inventory Management

## Case Sharing



# Acknowledgements

“SME Ambassador Program 2006 – Inventory Management” has received great industry support essential for the program success. GS1 Hong Kong hereby gives sincere gratitude to the following organizations:

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*The above organizations are in alphabetical order*

## **About GS1 Hong Kong**

Founded in 1989, GS1 Hong Kong (formerly known as The Hong Kong Article Numbering Association) is a not-for-profit industry support organization. We are dedicated to the development and implementation of global standards and solutions to improve the operational efficiency and information visibility of supply chains for enterprises across sectors.

As the local chapter of GS1, GS1 Hong Kong is the only organization authorized to issue and administer GS1 identification numbers in Hong Kong. Standards and solutions offered include bar coding services, B2B e-commerce services, knowledge transfer training programs, Global Data Synchronization (GDS) and Electronic Product Code™ / Radio Frequency Identification (EPC/RFID). The GS1 community has over one million corporate members spanning 145 countries and economies around the world, representing more than 20 industries.

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# Introduction

SMEs in Hong Kong play an important role in the Hong Kong economy as well as the international market. With the coming of the information age and the knowledge-based economy, it is essential for SMEs to develop efficient supply chain management in order to stand out from the keen market competition and grasp the business opportunities.

The SMEs Advisory Board of GS1 Hong Kong is set up with the objective to enhance the competitiveness of the SMEs in Hong Kong through the adoption of global supply chain standards and enabling technologies.

Following the success of SME Ambassador Program 2002-2004, GS1 Hong Kong launched the SME Ambassador Program themed at “Inventory Management” in 2006. Common inventory management problems, such as record inaccuracies, manual operation inefficiency, insufficient warehouse space and IT system not meeting with company needs, have been faced by Hong Kong enterprises, especially SMEs who lack the resources and knowledge to improve the inventory management.

As the advisor to the SME Ambassador Program, the SMEs Advisory Board, together with the supply chain specialists of GS1 Hong Kong, selected 5 SMEs from different industries including food, apparels, consumer electronics, medical equipment and paper products suppliers, to participate in this program.

The program covered a series of site visits and process flow analysis on the goods-in, goods-out, storage and return processes. It helped the SMEs to review their problems on goods and information operational flows, and understand the solutions for improvement with practical guidelines as documented in the study reports of GS1 Hong Kong.

The case studies are being shared with the SME community through various activities such as seminars, workshops and trainings. GS1 Hong Kong will continue to develop industry support programs for the benefits of SMEs, and assist them in achieving greater business success in the local and global marketplace.

Organizer:  
GS1 Hong Kong

Advisor:  
SMEs Advisory Board



## Inventory Management and Barcode System

### Facilitate Efficient Operation of Medical Equipment Supplier



Backed by the 20-year operational history, 3-MED Medical Instruments Co., Ltd. (thereafter referred as "3-MED") supplies rehabilitation products, including wheelchairs; clutches; adult/infant diapers; phlegm absorption, feeding and oxygen-breathing catheters and emergency aid products. 3-MED also designs and manufactures its own product series, and obtained various ISO quality and safety certifications. 3-MED's products are supplied to various hospitals in Hong Kong as well as the European and American markets.

3-MED has 16 distributors throughout Hong Kong, Kowloon, the New Territories and Macau. In recent years, it has expanded its business to Zhongshan and Shenzhen in China. 3-MED has also adopted the Global Positioning System in its delivery services and a customer relationship management system to provide close customer support and follow-up on its product.

Regarding its inventory management, some of 3-MED's products are small in size and are stashed away in individual boxes. Compared to wheelchairs and other larger items, these small and dispersed goods are relatively more difficult to manage. Furthermore, some of 3-MED's products have expiration dates, such as adult/infant diapers, suction catheters and tracheal suction tubes. These are the most vexing storage problem facing 3-MED.





In view of the above problems, 3-MED joined the SME Ambassador Program 2006 – Inventory Management organized by GS1 Hong Kong, with the objectives to improve its inventory management and increase its operational efficiency.



## Operational Challenge

### Extensive product variety but limited storage space

Due to limited space, the same product is forced to be placed in multiple storage locations. It had happened that some goods were left behind in trucks during delivery. Moreover, there is heavy reliance on human memory in day-to-day warehouse operations.

### Returned goods problem

There is no separate area to place, identify and handle returned goods. They are usually mixed with normal goods and placed in the same area.

### Uncertain delivery schedule leads to stock accumulation

Some customers have committed to bulk orders but are uncertain when the goods can be delivered. As time goes on, there accumulates a number of stock reserved by customers, thus increasing the warehouse overheads.

### Expired products

There is no comprehensive monitoring on the expiration dates of the products, such as adult/infant diapers, catheters and tracheal suction tubes.



## Improvement Recommendations

After a series of onsite inspection and analysis, GS1 Hong Kong has offered 3-MED the following suggestions.

### Improve warehouse design

- Designate clear functional zones – such as goods-in zone, storage zone, goods-out zone, returned goods zone, waste zone, materials zone, fire-safety passageways, transportation passageways and showrooms.
- Add a buffer zone for placement of excessive items.
- Clear indication of various zones.
- Review warehouse space utilization regularly and make adjustments if necessary.
- Place the goods in fixed areas. Avoid changing and moving storage locations that might cause confusion.



- Storage locations should be aligned with the delivery routes, such as placing popular goods at a location near to the goods-out zone.
- Set-up procedures for goods release and pick-up.
- Use cartons in a uniform size, or one half or one quarter of such dimension to enable easy stack up in warehouse.

### Improve management of returned goods

Prior to handling returned goods, be sure to distinguish clearly normal, dysfunctional and to-be-repaired goods. Such information should be indicated on the external cartons. Goods return procedures should be established for staff to follow.

### Effective control of stock accumulation

Try to negotiate with customers, especially those with good relationship, to work out a delivery schedule to avoid accumulation of excess stock. If 3-MED is aware of customers' delivery schedule in advance, then it can have better delivery planning and avoid inventory accumulation, while still achieve customer satisfaction.

### Monitoring of expired products

Adopt a "First In, First Out" (FIFO) method, whereby products with the earliest expiration dates are placed in the front part of the storage racks, while those with later expiration dates are placed at the back.

Upon receiving goods, capture and store the expiration dates at the same time. Products with different expiration dates should be clearly shown on system records. This can minimize the chances of products becoming obsolete due to expiration.

### Adopt barcode scanning

Allocate Global Trade Item Number (GTIN) and print them on the products. Use barcode scanning to store the information in the computer for later retrieval. Designate scanning points, set up barcode scanning procedures and rules for different warehouse zones. Where appropriate, use PDAs that are equipped with barcode scanners to enable easy handling of pick, pack and stocktaking procedures.

### EPC/RFID adoption - cost and technical considerations

Electronic Product Code™ / Radio Frequency Identification (EPC/RFID) technology is effective in stocktaking and goods tracking, especially for high-value items such as medical equipment whereby the cost benefits can be better realized. GS1 Hong Kong has provided the list of equipment for deploying EPC/RFID and its cost for 3-MED's reference. These include EPC/RFID labels, EPC/RFID label printers, EPC/RFID receivers, system interface software and integration services.



| Problems   | Suggested Improvements   | Expected Results/ Benefits   |
|--|--|--|
| Extensive product variety but limited storage space    | <ol style="list-style-type: none"> <li>1. Designate clear functional zones. Place the goods in fixed storage areas.</li> <li>2. Indicate various zones with clear signs. Align storage locations with the delivery routes. Review space utilization regularly.</li> <li>3. Formulate procedures for goods release and pick up. Use cartons of a uniform size to optimize the use of storage space.</li> <li>4. Use Global Trade Item Number (GTIN) with barcodes scanning. Capture and store the inventory information clearly in the database system. Set up barcode scanning points, and use with PDAs for efficient handling of pick, pack and stocktaking procedures.</li> </ol> | <ul style="list-style-type: none"> <li>- More efficient goods-in/out workflow.</li> <li>- Maximize storage space utilization with the use of uniform size cartons.</li> <li>- Adopt barcode scanning for faster and accurate capture of goods-in/out records, thus reducing errors and delays and improving the overall database accuracy.</li> <li>- Deploying EPC/RFID technology for faster and more accurate inventory management for high-value items such as medical equipment.</li> </ul> |
| Problem of returned goods                              | Differentiate normal/dysfunctional/to-be-repaired goods as soon as possible. Set up returned goods procedures.   | Arrange warehouse personnel to handle returned goods as soon as possible.  |
| Lack of delivery schedules leads to stock accumulation | Negotiate with customers for a planned delivery schedule to avoid accumulation of excessive stock.   | Stock accumulation will be reduced. Cost of warehouse operation overheads will be reduced.   |
| Monitoring of expired products                         | <ol style="list-style-type: none"> <li>1. Adopt a "First In, First Out" (FIFO) method, whereby products fast approaching their expiration dates are placed in front, while those with a later expiration date at the back. The records are clearly indicated in the computer system.</li> <li>2. Products with different expiration periods should be clearly distinguished on record. For cost saving reasons, be sure to minimize the chances of products becoming obsolete as a result of expiration.</li> </ol>  | Reduce wastage and revenue loss due to expired and obsolete products.  |

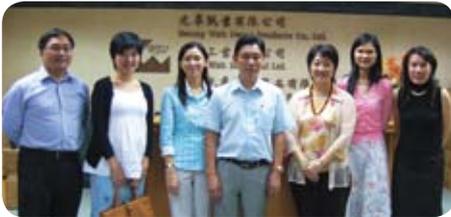
### Inventory Management Professional Services of GS1 Hong Kong

Through the onsite study and professional analysis provided by GS1 Hong Kong, 3-MED has gained a clearer understanding on its inventory management problems and their respective solutions. 3-MED is ready to put these suggested solutions into practice to achieve smoother warehouse operation and higher customer satisfaction for its growing business.

If necessary, GS1 Hong Kong can further provide a vendor sourcing service and project management service. These services will address the individual business needs with customized solutions, facilitating the choice on the right IT systems, and ensuring the project implementation effectiveness.



## Paper Products Supplier Improves its Operational Quality Further with Modernized Inventory Management

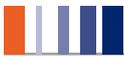


Kwong Wah Paper Products (HK) Co Ltd (thereafter referred as “Kwong Wah” ) is a one-stop manufacturer of food and beverage paper products with a history of over 30 years. It specializes in paper products, including paper boxes, paper containers, paper cups, paper plates, paper bags, packaging paper, dim sum paper, chopsticks, toothpicks and paper towels.

The company has imported various high-quality manufacturing equipment from Europe for its production facilities. Kwong Wah is very concerned about quality management and has adopted the ISO9001 international safety standards. Kwong Wah manages its own team of vehicle fleets to provide efficient delivery for its customers.

As Kwong Wah has obtained ISO certifications, all its workflow is subject to a set of monitoring procedures and proper documentation. The company joined the “SME Ambassador Program 2006 – Inventory Management” organized by GS1 Hong Kong, with a view to enhance its service quality and further improve its supply chain management.





## Operational Challenge

According to Kwong Wah's goods-out statistics, it has attained 99% accuracy in average. Nevertheless, there is still room for further improvement.

### Accuracy of order placement

Due to the wide variety of paper products, every product model is different and has its own texture, shape, colour, dimension and design. Sometimes, staff of the customer and sales department of Kwong Wah might not be able to provide accurate product descriptions. New employees and new customers, in particular, are not familiar with the various products and their difference. This caused confusions and miscommunications, which led to incorrect order placement and product delivery errors.

### Monitoring of product expiration

Among the various products, wet paper tissues come with expiration dates. But the company does not have a monitoring mechanism for product expiration. When products pass beyond the expiration dates and become obsolete, it means cost rise and revenue loss for Kwong Wah.



## Improvement Recommendations

After conducting an on-site inspection and analysis, GS1 Hong Kong has provided the following suggestions for improvements:

### Adopt Global Trade Item Numbers during order placement

- Assign Global Trade Item Numbers (GTIN) for the products. Because of the global standard and uniqueness of GTIN, products with different colours, dimensions, shapes, volume, and packaging quantities are all represented by different GTINs. The use of GTIN as the key product identifier for order placement will help avoid misunderstandings in communication, and enhance the accuracy in order placement.
- Enter GTIN records into the product database and have them printed on product catalogues to facilitate customers' order placement using GTIN. GTIN can also be used with barcodes and barcode scanner for automatic data capture.
- Using with a Customer Relationship Management (CRM) system, Kwong Wah can also see the purchase history of the customers. This will help identify the required products more efficiently.



## Adopt barcodes for automation of inventory management

- Using barcode scanning can capture the goods-in/out records more accurately and efficiently. This will help reduce the time needed for manual recording, minimize mistakes, prevent negligence and delay in record entry, thus improving the accuracy of the overall inventory management.
- Install barcode scanning points at different goods-in, goods-out and returned goods zones. If barcode scanning is adopted for stocktaking, then it is advisable to choose mobile devices such as PDAs equipped with scanners. Staff should immediately upload the goods-in/out/return data from the PDAs to the system.
- Formulate new guidelines for the scanning points and conduct regular reviews on their operations and benefits to see if there is any problem faced by warehouse staff, and any need to add or remove the number of scanning points.
- The use of EPC/RFID can be considered with the appropriate operation workflow. This will help handling multiple goods simultaneously, and the tracking of goods, thereby making the supply chain management more efficient.

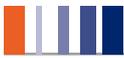
## Monitoring of expiration dates

Another advantage of using barcodes is the monitoring of expiration dates of the wet paper tissues. By adding the expiration dates to the existing GTINs, and capturing the barcodes for both the item and expiration date into the computer system, Kwong Wah can have a complete picture on the products' expiration dates. Together with the "First in, First out" (FIFO) principle, it is believed that the expiration dates can be effectively monitored.

## Financial and technical considerations for the adoption of EPC/RFID

GS1 Hong Kong has listed out the cost for adopting barcode scanning, Electronic Product Code™ / Radio Frequency Identification (EPC/RFID) and its technical considerations for Kwong Wah's reference. These include the prices of barcode printers, barcode scanners and barcode stickers, the price of EPC/RFID labels, EPC/RFID label printers and EPC/RFID receivers.

The report has also raised the functional requirements for connection to barcode scanner and database system. As for the charges of interface software and system integration services, it will depend on the system design and the IT vendors' charges. Kwong Wah can also consider purchasing a brand new system, hence eliminating concern on system integration.



| Problems                         | Suggested Improvements  | Expected Results / Benefits   |
|----------------------------------|---|---|
| Accuracy of order placement      | <ol style="list-style-type: none"><li>1. Use Global Trade Item Numbers (GTIN) for order placement - Assign GTINs for the products, record them into the computer system, and print them on the product catalogues for customers' order placement using GTIN.</li><li>2. Adopt barcodes for inventory management automation. Set up barcode scanning points at various warehouse zones. Implement with clear guidelines, and review for improvement needs.</li></ol> | <ul style="list-style-type: none"><li>- Reduce misunderstandings and enhance accuracy of order placement. Fast and accurate goods-in/out records.</li><li>- Reduce manual work, human error and data delay. All these contribute to improve accuracy of inventory management.</li></ul> |
| Monitoring of product expiration | <ol style="list-style-type: none"><li>1. Add and capture expiration dates on GTINs.</li><li>2. Use them for setting up alerts in the IT system.</li><li>3. Adopt "First in, First out" (FIFO) principles to prevent products from becoming obsolete due to expiration.</li></ol>  | Clear indication of the expiration dates in system can prevent obsolete goods due to expiration, thus reducing the operating cost.  |

### Inventory Management Professional Services of GS1 Hong Kong

The professional analysis and recommendations of GS1 Hong Kong provided useful reference for Kwong Wah's inventory management and further improved its supply chain management.

GS1 Hong Kong can further provide a vendor sourcing service and project management service, providing total supply chain solution catering for Kwong Wah's specific needs.



## Enhanced Inventory Management Brings Greater Efficiency to Apparel Supplier

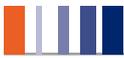


Delicron (H.K.) Ltd. (thereafter referred as “Delicron”) specializes in men’s underwear, socks, suits, office-wear accessories, neckties, children’s underwear and student socks, which are sold in major department stores throughout Hong Kong and the Southeast Asian region.

Most of its products are made in Qingdao and Guangzhou factories. There are also items imported from Australia and Europe.

Delicron’s products have great varieties. Garment of the same kind comes in many different colours and sizes. This led to a huge stock inventory, insufficient storage space and operation problems. Delicron joined the SME Ambassador Program 2006 – Inventory Management, with the objectives to improve its existing problems and enhance its operational efficiency.





## Operational Challenge

### Growing inventories but insufficient space

Garment products have plentiful varieties. Each garment design comes with different colours and sizes. For example, there are 6 colours and each colour has 11 sizes for shirts of the same design. As a result, the same products are often placed in many different locations. Warehouse locations are scattered which affects warehouse operations. At times, manufacturers may deliver their goods ahead of schedule, or behind, which resulted in either stock redundancy or shortage.

### Barcode system needs to be improved

Although 80% of the retail items is labeled with GS1 barcodes, the barcode labels are not consistent and some are not obviously visible. There is no barcode shown on cartons. Barcode numbers are quickly used up due to the great variety of product models, colour and sizes involved.

### Complex and time-consuming operational flow

Goods-out and stock taking procedures are complicated and time-consuming. For instance, every goods-out procedure involves several turnarounds between the sales department and warehouse department.

### Problems of consignment and returned goods

Consignment activities are common. But department stores usually do not provide details on the sold items such as the model number and remaining stock. Frequent consignment activities also led to frequent handling of returned goods.

## Improvement Recommendations

After conducting an onsite inspection and process flow analysis with different departments, GS1 Hong Kong provided Delicron with the following recommendations.

### Control stock inventory level in the warehouse

Streamline the inventories, such as retaining only the fast-moving and profitable items. Reduce slow-moving, with diminishing demand, non-mainstream and duplicated items. Undertake regular review to identify items that are selling slowly, ageing, outdated and obsolete.

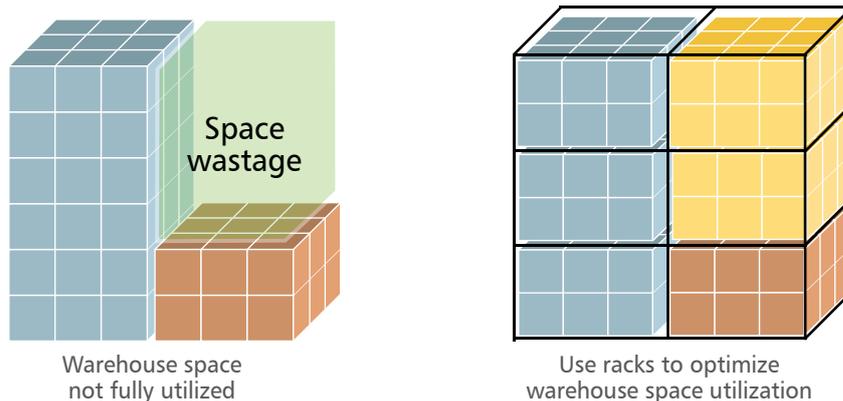
Negotiate with the supplier and avoid stocking in excessive inventories due to purchasing strategy. Negotiate with the supplier to adjust the Minimum Order Quantity (MOQ) and the volume for bulk order discount, and agree on a delivery schedule, in order to avoid early accumulation of excessive stock. If the suppliers are unable to accommodate these requests or stocking large inventories is inevitable considering the logistics cost and product source, Delicron can consider arranging extra warehousing in China or outsourcing to third party logistics service vendors, or try to source other suppliers to reduce the risk of product shortage and excessive storage.

### Revise warehouse design and storage locations

Integrate several warehouses into a centralized operation, with designated centers for goods-in, goods-out, storage, returned goods, obsolete goods, fire passageways and transportation passageways. This will replace the past practice of having different warehouse zones in each warehouse. Add a buffer zone for the storage of excessive products. Clearly demarcate different warehouse zones and passageways, with a clear indication of its respective functions. Document all the information on the warehouse floor plan and file the information in the computer system with regular updates.

Adopt cargo racks to replace having a single stack for one product type, as indicated in the diagram. Avoid mobile storage locations and making frequent changes to prevent confusion during product delivery and stocktaking. On-season goods are placed near the goods-out zones, while those off-season items can be placed in the attic or warehouses of more remote locations. Products of a high turnover should be placed nearer to the goods-out area to speed up the handling time.

Provide guidelines for warehouse personnel to handle records for goods' receipt, inspection, pick and pack, goods-out and storage. Restrict the numbers of staff entering or exiting the warehouse, to ensure that non-warehouse staff will not misplace or lose the goods.



### Use barcode scanning to enhance inventory level precision

Store the Global Trade Item Number (GTIN) of each product into the computer database. Then use barcode scanners for speedy and accurate capture of goods-in/out records, thereby minimizing errors, omissions and outdated information.

Set up scanning points at various warehouse zones. If Delicron needs to conduct stocktaking, it is advisable to use mobile devices such as PDAs that are equipped with scanners.

Establish barcode scanning procedures, rules and regulations for different warehouse zones, as well as offline and online uploading procedures. Conduct regular reviews on the progress and cost-efficiency of each scanning point. Collect any scanning problems faced by the warehouse personnel and help them to resolve these issues.

### Cost and technical considerations of barcode scanning

GS1 Hong Kong listed the cost and technical considerations of barcode scanning for Delicron's reference, including prices for the purchase of barcode printers, barcode scanners and barcode stickers. As for the charges of interface software and system integration, it will depend on the system designs and vendor's service scope. Delicron can also consider installing a brand new system, hence eliminating the concern on integration.

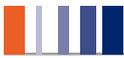
### Simplify goods-out and stocktaking procedures

Simplify the turnaround procedures between the sales and warehouse department. Conduct regular stocktaking exercise, verify and update the computer records with the actual stock and reports by warehouse staff. Use barcode scanner for stocktaking to replace manual stocktaking for greater efficiency. During stocktaking, assign different stocktake zones to prevent confusion and duplication in the process.

### Improvement on consignment and returned goods management

To get a clearer picture on the sales and stock level at consignment sites, Delicron can consider introducing an electronic point-of-sales system equipped with barcode scanning function, or mobile PDAs that are equipped with barcode scanners, and upload the daily sales and inventory data into the company's system.

Handle returned goods every day. Returned goods should be categorized at the retail sales points first. Separate normal and dysfunctional items and pack them into different cartons for further handling by different departments.



Summing up the above-mentioned suggestions, Delicron can deploy a step-by-step improvement. For example, first of all, it can improve its warehouse design, reduce its stock inventory, then employ a barcode system for automatic data capture. As a result, Delicron can improve its back-end operation efficiency as well as its front-line customer service quality, thus increasing its competitiveness in the market.

| Problems                                    | Improvement Recommendations   | Benefits   |
|---|---|--|
| Growing inventories but insufficient space  | <ol style="list-style-type: none"> <li>Control stock inventory level in warehouse <ul style="list-style-type: none"> <li>Streamline inventories by reducing slow-moving stocks.</li> <li>Negotiate with suppliers to adjust the minimum order quantity and delivery schedule.</li> <li>Use warehouses in China or outsource warehouse facilities.</li> <li>Standardize carton size for optimal utilization of space.</li> </ul> </li> <li>Revise warehouse design and storage locations <ul style="list-style-type: none"> <li>Integrate several warehouses into a centralized warehousing facility.</li> <li>Separate storage of seasonal products and non-seasonal products.</li> <li>Adopt cargo racks for optimal space utilization.</li> </ul> </li> </ol> | <ul style="list-style-type: none"> <li>Reduced stock level.</li> <li>Optimal use of storage area.</li> <li>Improved goods flow and cash flow.</li> <li>Reduced management cost.</li> <li>Enhanced efficiency to cope with market needs.</li> </ul> |
| Barcode system needs improvement            | <ol style="list-style-type: none"> <li>Store Global Trade Item Number (GTIN) of every product type into the computer database.</li> <li>Set up scanning points at different warehouse zones.</li> </ol>   | <ul style="list-style-type: none"> <li>Automated warehouse management.</li> <li>Increased operational efficiency.</li> </ul>   |
| Complex and time-consuming operational flow | <ol style="list-style-type: none"> <li>Simplify working procedures between sales department and warehouse management department.</li> <li>Conduct regular stocktaking and rectify records in computer database.</li> <li>Adopt barcode scanning for stocktaking to replace manual stocktaking.</li> </ol>   | Efficient support to frontline staff, leading to better service quality.   |
| Consignment and returned goods problems     | <ol style="list-style-type: none"> <li>Adopt electronic point-of-sales systems equipped with barcode scanners to capture sales and stock level data at consignment outlets, and upload into the company's system.</li> <li>Handle returned goods every day.</li> </ol>  | <ul style="list-style-type: none"> <li>Clearer understanding of the sales trends of different consignment items.</li> <li>More accurate system records.</li> </ul>   |

### Inventory Management Professional Services of GS1 Hong Kong

The professional analysis and recommendations of GS1 Hong Kong enables Delicron to gain a clearer understanding of its inventory management problems. With our recommended solutions, Delicron planned to put the improvement measures into practice in order to smooth out its warehouse operation, meet the business expansion needs and exceed customer expectations.

GS1 Hong Kong can further provide a vendor sourcing service and project management service to assist Delicron in the implementation. This can help Delicron select the right vendor, achieve effective collaboration and implementation addressing Delicron's specific needs. This will ensure the project effectiveness with a complete supply chain solution.



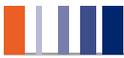
## Consumer Electronics Provider Benefits from Highly Efficient Supply Chain Management



Amytel Asia Ltd. (hereafter referred to as "Amytel") is a specialist in wireless electronics products imported primarily from France, Canada and various regions in Asia, including cordless phones, walkie-talkies and Bluetooth technology items.

Amytel's products have enjoyed market popularity all along. The company launches new products regularly. Because of the increasing variety of its product types and models, Amytel requires an efficient inventory management system in order to promptly address market needs. Upon learning about a SME Ambassador Program launched by GS1 Hong Kong, Amytel joined the program immediately.





## Operational Challenge

### Shortage of warehouse space

Due to the vast variety of its products, Amytel is running short of its warehouse storage space. It can only resort to placing some of its stock in other locations. This has resulted in a situation where the same type of products are scattered in different storage locations. Given the reliance on its staff to memorize these locations, it is inevitable that errors will arise.

### Returned goods procedures are prone to confusion

Amytel's goods return procedures are unclear. Coordination problems occur during the goods handover from one department to another in the goods return process. As a result, the normal products cannot be returned to the proper locations in time, which easily leads to inaccuracies of the inventory records.

### Error in order information leads to delivery delays

Order placements are generally done over the phone. Sometimes verbal description of the products is not clear enough and then the wrong items are ordered, leading to delays in delivery.



## Improvement Recommendations

After an on-site inspection and analysis, GS1 Hong Kong provided the following recommendations to Amytel to tackle the above-mentioned problems.

### Reduce excessive inventory

To avoid excessive stock accumulation, GS1 Hong Kong suggested that Amytel should negotiate with its suppliers to adjust the minimum order quantity. It can also try to negotiate with both its suppliers and customers to arrange for partial deliveries for bulk purchase orders. It is suggested to have regular reviews on slow moving and ageing products, which should be handled within a certain period. The excessive stock can be cleared through clearance sale or bundled with giveaway packages. Furthermore, the goods volume flow needs to be regularly monitored, so that the inventory level can be adjusted accordingly.

### Improve warehouse design

Clearly define different warehouse zones, with clear signs of indication. To optimize space utilization, a single warehouse zone can be flexibly assigned for different purposes. Implement with standardized procedures and clear guidelines for the warehouse personnels, it is believed that Amytel can greatly enhance its useable warehouse space.



## Effective returned goods management

GS1 Hong Kong suggested Amytel to formulate a set of returned goods procedures. For example, returned goods should be separated into different categories as soon as possible, with clear indications for normal and dysfunctional goods for easy understanding and prompt handling by the warehouse staff. Returned goods should be inspected, audited and handled regularly. For example, normal items should be returned to warehouse, dysfunctional items should be dispatched for repair and waste products (beyond repair) are to be discarded.

Stock status and quantity should be kept in clear records and synchronized with the IT system. If any discrepancy is found, Amytel should follow up and clarify with the related departments as soon as possible. Amytel is also suggested to provide guidelines on returned goods procedures, and have dedicated staff accountable for the record accuracy.

## Increase accuracy of order placement

Amytel can consider printing the Global Trade Item Number (GTIN) on its products. Different GTINs can be assigned to different products, based on their colours, dimensions, shapes, content and package quantity. This, in conjunction with automatic scanning by barcode readers and scanning, and storage in computer database, can facilitate efficient and accurate delivery.

Customers can place orders by GTIN and because each GTIN is a unique number based on GS1 global standard. It can clearly identify different products to increase the order accuracy. Coupled with good order form design, customer management system (CRM) and an incentive scheme to encourage order accuracy, it is believed that the order placement accuracy will be visibly improved.

## Adoption of barcode scanning

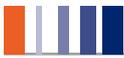
The above-mentioned barcode scanning requires investment in basic facilities including: barcode scanners, label stickers, interface software and system integration. By connecting the internal system with the barcode scanner, Amytel's database system will be able to capture and store accurate product data with the latest quantity information.

## Financial and technical considerations

In addition, GS1 Hong Kong listed the cost and technical considerations in the adoption of barcode scanners for the reference of Amytel, including the prices involved in the purchase of barcode printers, barcode scanners and label stickers. As for the cost of interface software and system integration services, it will depend on the IT vendor and the system design of Amytel. Amytel can also choose to purchase a brand new system and do away with the concern on system integration.

## Alignment of product data in information system

GTIN can be directly printed on the product packages or on stickers to be pasted upon the external containers. Amytel's internal system must be able to connect with the barcode scanner to perform data capture and storage. The database within the system must be capable of storing GTIN, stock quantity and stock location.



In view of Amytel's current situation, although there is no immediate serious problem in the inventory management, their early rectification will lay a strong foundation for the company's business expansion, which will certainly be beneficial to the company's future development.

| Problems                                     | Improvement Recommendations   | Benefits   |
|--|---|--|
| Space shortage                               | <ol style="list-style-type: none"> <li>1. Avoid excessive stock accumulation – negotiate with supplier for adjustments in order volume or delivery schedule.</li> <li>2. Improve warehouse design – assign different warehouse zones and goods locations. Provide guidelines on goods-in/out procedures.</li> </ol>   | <ul style="list-style-type: none"> <li>- Optimum use of warehouse storage space.</li> <li>- Reduce unnecessary stock to make it a cost-effective warehouse operation.</li> </ul> |
| Returned goods prone to data inconsistencies | <ol style="list-style-type: none"> <li>1. Categorize returned goods into normal, dysfunctional and to-be-repaired types. Count and indicate their conditions.</li> <li>2. Returned goods should be handled as early as possible and regularly.</li> <li>3. Update computer records.</li> <li>4. Formulate returned goods procedures.</li> </ol>   | <ul style="list-style-type: none"> <li>- Systematic goods-in/out handling.</li> <li>- Prevent confusion in the process.</li> <li>- Accurate update of system data.</li> </ul>    |
| Complex and time-consuming operational flow  | <ol style="list-style-type: none"> <li>1. Assign each product with a Global Trade Item Number (GTIN), which is unique for global trade. GTIN can be converted into a barcode to be printed on the products, and captured by the barcode scanner.</li> <li>2. Customers can place their product orders using GTIN for easy clarification and cross-checking against the computer.</li> </ol> | Utilize GTIN in conjunction with the company system to avoid miscommunication so as to improve the order placement accuracy  |

### Inventory Management Professional Services of GS1 Hong Kong

SMEs in Hong Kong need to provide high-quality products and services continuously to satisfy the ever-increasing demand of their customers. Faced with keen market competition and information technology, SMEs always have to maintain their operational efficiency with advanced facilities, global standards and modern management to enhance their competitiveness.

After undertaking the on-site studies and analysis, Amytel got new insights about its inventory problem. With the solutions and implementation guidelines, it will help Amytel lay a solid foundation for the company expansion ahead.

## Modernized Inventory Management Increases Competitiveness of Traditional Soup Pack Supplier

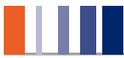


### Background

Established in 1992, Cents Co. Ltd. (thereafter referred as "Cents") has, over many years, sourced a variety of soup ingredients and health recipes, to become a supplier of close to 100 types of soup packs nowadays. Its main product categories are: Chinese soup packs, mushroom soup packs, lingzhi soup packs and rose tea leaves.

Due to the increasing product variety, its inventory was getting out of control. To address these problems and improve its operational efficiency, Cents joined the "SME Ambassador Program 2006 – Inventory Management" organized by GS1 Hong Kong.





## Operational Challenge

### Wide product varieties but inadequate storage space

This resulted in the storage of the same type of products in more than one location, which was prone to confusion.

### Accumulation of returned goods that affects inventory records

Due to the active promotional activities, Cents has to deal with returned goods frequently. This resulted in the accumulation of returned goods, which not only took up warehouse space, but also led to errors in inventory records. As time goes on, the warehouse data becomes inaccurate and is no longer reliable.

### System data is not synchronized with actual storage conditions

Although Cents had a database system, its reliance on manual input of data and the lack of automation in data entry and update, led to discrepancies between the computer records and the actual inventory, which rendered the system ineffective in keeping reliable inventory records.



## Improvement Recommendations

After on-site inspection and analysis, GS1 Hong Kong has provided Cents with the following recommendations to address the above-mentioned problems:

### Improve warehouse design

- Designate warehouse zones and goods storage areas
  - Clearly designate and indicate goods-in/out zone, storage zone, returned goods zone and waste goods zone.
  - Provide a buffer zone for placement of excessive inventories.
- Allocate storage areas for every product
  - Provide a fixed storage area. Avoid mobile storage locations and frequent changes on storage locations.
  - Products of a high turnover should be placed close to the goods-out zone for fast handling using the nearest route.
- Set up procedures for goods placement. Define staff entry authority into the warehouse.



### Returned goods management

- Categorize returned goods as early as possible. Normal, dysfunctional and to-be-repaired items should be placed in separate cartons with clear indications.
- After dividing the returned goods into different categories, send them to the appropriate zones accordingly for further handling.
- Record every returned goods transaction. For example, normal goods should be added into the system inventory records; dysfunctional items should not be counted into the system; to-be-repaired items should only be recorded in the system after repair.
- Formulate returned goods procedures. Appoint personnel to take responsibility for the inventory record accuracy.

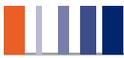
### Rectify inventory records in computer

- Conduct manual stocktake regularly and rectify the system records.
- Adopt barcode scanners for regular stocktake, and capture goods-in/out records.

### Adopt barcode scanning

Adopt barcode scanning for faster stocktaking and more accurate inventory records. GS1 Hong Kong listed the cost and technical considerations of barcode scanning for Cents' reference, including the prices of barcode printers, barcode scanners, barcode stickers. Regarding the charges of the software interface and system integration, it will depend on the system design and the vendor solutions.

After the allocation of GTINs, the soup packs can be directly printed on the product packages or printed on label stickers to be pasted on the products or on the cartons. Cents' internal system should be able to connect with barcode scanners in order to capture and store inventory data. The system's database should be able to store GTIN, inventory level and storage locations.



| Problems   | Suggested Improvements  | Benefits  |
|--|---|---|
| Wide product varieties but inadequate storage space            | <p>Improve warehouse design</p> <ol style="list-style-type: none"> <li>1. Designate the different goods zones, with excessive items placed in the buffer zone.</li> <li>2. Sub-divide into different storage areas to ensure that each type of products has its own storage area.</li> <li>3. Formulate procedures for goods release and pick-up for staff to follow.</li> </ol>                                      | <ul style="list-style-type: none"> <li>- Different products have their respective storage locations, and can be counted and recorded easily.</li> <li>- More efficient handling of goods-in/out and return.</li> <li>- Ensure non-warehouse staff do not put the goods in wrong place.</li> </ul> |
| Accumulation of returned goods that affects inventory records  | <p>Returned goods management</p> <ol style="list-style-type: none"> <li>1. Categorize returned goods as early as possible and indicate them clearly.</li> <li>2. Process the returned goods quickly and send them to different zones for appropriate handling.</li> <li>3. Record every returned goods transaction, and update computer records accordingly.</li> <li>4. Set up returned goods procedures.</li> </ol> | <ul style="list-style-type: none"> <li>- Accurate inventory record despite high frequency of returned goods.</li> <li>- Smoother operation and efficient management.</li> </ul>   |
| System data is not synchronized with actual storage conditions | <p>Rectify computerized inventory records</p> <ol style="list-style-type: none"> <li>1. Stock-take regularly and rectify the computerized storage records.</li> <li>2. Adopt barcode scanners for stocktaking and record goods volume in inbound and outbound delivery.</li> </ol>  | <p>Apply barcodes in inventory management to increase data capture efficiency and accuracy, and reduction of manual errors.</p>   |

### Inventory Management Professional Services of GS1 Hong Kong

The professional consultancy of GS1 Hong Kong suggested a number of improvement measures in system, workflow and manual perspectives. These measures will help improve the warehouse operation with greater efficiency and flexibility. With a returned goods policy, Cents can have better information on its product quality. The information will be useful for the management to review and determine improvement actions.

GS1 Hong Kong can further provide a vendor sourcing service and project management service, customized to the Cents' individual needs, thus offering a complete supply chain management solution from process analysis, vendor sourcing to project implementation and completion.