2BIN-iD
RFID-enabled two-bin replenishment system

A resourceful solution by Logi-D
Logi-D was originally created as a hospital supply chain consulting group with a research affiliation with the HEC Montréal business school. Our consulting and research experience has provided us with an in-depth understanding of dominant healthcare supply chain issues. Building on this experience, we continuously expand our knowledge by sourcing best practices, emerging technologies and leading standards across borders and industries, which has resulted in a comprehensive and resourceful knowledge base.

Resourceful ideas
However, simply knowing the sector does not distinguish us from our peers. It is through our core competency of innovation that we connect the dots in new ways and convert our knowledge into resourceful solutions, just as we have transformed ourselves into a hospital logistics solutions integrator. We strongly believe that an end-to-end solution generates the best results, given the dynamics of the supply chain, and that the standard solutions available on the market today do not always solve the issues. It is with this in mind that we have developed our iD-SUITE, a unified solutions platform of best-of-breed solutions designed to interface easily to host applications.

Resourceful solutions
The common denominator in any healthcare organization around the globe is a focus on clinical services, as it should be. But in many cases, the functions supporting the front line are left stretched to the limit due to cumbersome manual processes. Our focus is to create resourceful solutions that simplify and automate both front line clinical services and back office support functions. This not only allows the front line more time to deliver care, but it also enables optimized and consistent back office processes.

Resourceful R&D philosophy
The leading practices we adopt are translated into effective, automated solutions that ensure user compliance. Proven technologies are integrated to optimize data capture and communication within the supply chain. Ongoing value and effectiveness are assured by our continuous seeking out and adopting of leading standards.
Resourceful replenishment

Our automated 2BIN-iD point-of-use material management solution aims to optimize the replenishment process while minimizing both clinical and back office staff involvement. It requires no counting or data entry and only limited involvement from clinical users. Drawing on detailed time and motion studies performed by our consulting team, this system controls inventory levels and turnover and helps prevent the use of expired products. It also incorporates an internationally recognized high-density storage system, a proven inventory concept inspired by the Japanese lean/kanban system, and leading-edge RFID technology.

Resourceful concept

As part of the 2BIN-iD solution, a single quota of supplies is divided between two compartments of a storage module. Once the first or primary compartment is empty, the replenishment label holder, which contains an RFID transponder, is removed and affixed to an RFID information board.

The information is gathered through the LogiDATA-iD software application and, based on pre-established business rules, is transferred to the hospital’s materials management information system, which in turn can generate a picklist of requested stock items or requisitions for direct purchase products.

Resourceful benefits

Stock rotation assured through improved work flow
• Lowers costs incurred by expired products and improves patient safety

Counting and data entry eliminated
• Reduces the risk of overstocking and stockouts
• Reduces back office workload

Organized inventory and fixed product locations
• Enables clinical staff to spend less time searching for supplies

Continuous par level optimization
• Optimizes inventory value and volume
• Enables clinical staff to spend less time dealing with time-consuming stockout issues

Enhanced physical environment
• Improves ergonomics
• Offers a dynamic storage solution, adaptable to changing conditions
• Reduces storage footprint

Real time information flow
• Offers a demand response based on actual consumption
• Enables a quick response to supply issues and exception management
• Provides management information, dashboard and report capabilities

RFID and voice-guided supply flow
• Reduces dependency on staff
• Increases productivity and reduces supply-related errors
• Provides real time information
Consumption

Based on consumption, delivery frequency and other criteria, the total optimal quota is established for each supply item and then divided into two compartments of a storage module: primary and secondary. When the primary compartment is empty, consumption continues from the secondary compartment.

Patient charging

Using the optional PC-iD add-on module, chargeable items can be isolated and captured with a touchscreen or ring scanner. Identified items are then linked to a patient and may be transferred to external applications for billing purposes.

Ordering

Once a compartment is empty, clinical or support staff remove the corresponding label holder containing the RFID transponder and place it on our patent pending RFID-enabled demand board next to the storage unit. This triggers a replenishment alert. The RFID board contains an antenna linked to a control box connected to the hospital’s IT network through a wireless or wired connection, which provides real time data capture. When the label containing the passive transponder (no battery) enters the scan field of the antenna, it is activated through short-range radio waves; communication is thus established between the transponder and the reader, which enables data to be exchanged. The reader transmits the unique identifiers of all of the tags on the board, capturing the supply demand in our advanced LogiDATA-iD application, which links the transponder information to the database. RFID technology significantly increases productivity, as the demand evaluation activity is eliminated at the point of use.

Resourceful automation

Most materials management systems used in hospitals offer limited point of use distribution automation features. They focus primarily on demand capture using electronic requisitioning and barcode reading technology to support financial transactions. 2BIN-iD is a resourceful plug-in to any materials management application, optimizing interaction with the front line of service and answering essential supply chain question: who needs what, where, how much and when? And it provides this answer through real-time, automated information flow as demands occur.

The application features fully customizable automation and business rule settings to manage response decisions and keep human reliance to a minimum, which allows back office resources to focus on more value-added activities.

Resourceful data & interfaces

LogiDATA-iD includes a dashboard offering accurate consumption data, a meaningful usage overview, and a decision platform for continuous optimization. The management team gains access to reports that are typically either unavailable or not easily accessed via MMIS applications. The quality of actionable data provided makes 2BIN-iD a one-of-a-kind application.

All Logi-D solutions are designed to easily interface with and enhance logistics processes in host applications such as ERPs, WMS, MMIS and clinical suites. In fact, a built-in interface engine easily and quickly customizes connectivity between applications to enable the required data to be pushed and pulled as needed, enriching the value stream of the organization’s global IT platform.
3. Order processing

Resourceful WMS and distribution

The actionable information processed through LogiDATA-iD is automatically transferred via interface to the hospital’s host applications (ERP/WMS), which can then generate a picklist for stock items or requisitions for direct purchase products.

Optional warehouse management system

In order to support the complete automation of the internal supply chain, Logi-D partners with key WMS providers to optimize and automate supply chain processes, from central stores or distribution centers to the point-of-use. Partnering with industry leaders in the warehouse and distribution space guarantees a level of excellence unparalleled by any single WMS provider. Through these partners, Logi-D helps hospitals manage online receiving, directed put-away, product picking by lot and expiry date for specific point-of-use bins, wireless picking, directed cyclical inventory, and the updating of data at the point-of-use by lot number and expiry date.

4. Replenishment

Stock rotation

When supplies are delivered to the point of use, the quantity remaining in the secondary compartment is transferred to the primary compartment.

Stock rotation allows for:
- Higher process compliance
- Less stock wasted due to expired products
- Increased patient safety through a reduced risk of expired products
- Traceability of lot numbers and expiry dates when enabled

Replenishment and tag placement

The newly delivered quantity is then placed in the secondary compartment. The RFID-enabled label holder is removed from the demand board and placed back on the storage unit, signaling to the LogiDATA-iD platform that the replenishment cycle has been completed.

Optional voice-directed replenishment

To facilitate the replenishment process, the optional VOX-iD add-on module offers voice-directed point-of-use replenishment. VOX-iD employs voice recognition technology to guide users through the process by querying a database using voice prompts. Voice recognition technology replaces manually searching for, reading and entering information with speaking and listening, which significantly shortens the replenishment process.
1. Demand capture

- Consumption
- Demand triggered
- Cycle completed

2. Demand response

- Automated business rule engine
- Rotation and put away

3. Order processing

- Warehousing & distribution

4. Replenishment

- Point-of-use
- ERP
- WMS
A proven track record

Case study

This case study focuses on a 720-bed institution comprised of two hospitals with complementary vocations. On an annual basis, the institution admits more than 18,000 patients and performs more than 30,000 surgeries.

Logi-D was mandated to optimize and automate the hospital’s clinical supply chain processes by implementing the 2BIN-iD point of use replenishment system throughout the hospital. The institution selected the Logi-D solution because of the gains it generates through improved logistics processes. These gains, among others, include relieving staff of supply chain duties and more importantly substantially reducing the unnecessary tasks that clinical staff must perform when retrieving supplies using inefficient replenishment systems. As a result, they are able to focus on the hospital’s primary mission: patient care.

Logi-D’s 2BIN-iD solution, which requires no inventory count to identify supply needs, allows for savings on a number of levels:

• Annual recurring increase in productivity associated with the management of supplies
• Reduction in inventory shrinkage caused by expired, obsolete or lost products
• Reduction in nursing staff movements and in the time spent searching for and retrieving supplies in storage areas
• Reduction in inventory levels and the space allotted to storage.

Post-implementation measurements revealed the following gains:

• Approximately 60% reduction in the time that nursing staff spend on material-related tasks
• Approximately 15% time savings for materials management staff
• One-time inventory reduction of 34%
• 50% reduction in recurring shrinkage costs.

Recurring productivity gains
• Clinical Staff: 60%
• Supply staff: 15%

Supply-related gains
• Inventory reduction: 34%
• Shrinkage reduction: 50%

“The system has enabled our hospital organization to make substantial productivity gains and has allowed nursing personnel to spend more time with patients.”

MD and CEO of the hospital
Logi-D also supports the entire implementation of its solutions in order to ensure that the results of the project are aligned to your objectives. Our implementation support is backed by a unique and proprietary methodology. This proven methodology is adapted to each client’s needs and context and takes into account the hospital’s internal resources assigned to the transformation project.

**Pre-implementation planning**

Pre-implementation begins with a meeting with the hospital to conduct a detailed assessment of needs, understand the current processes, and tour the storage locations. An implementation plan is then submitted to the coordination committee for approval. Once the implementation plan has been approved, kick-off meetings are organized to present the project, implementation plan, role of participants throughout the implementation process, and key success factors.

**Implementation**

On a physical level, we submit layout plans and can support the installation of all storage components. Using a dynamic implementation tool and working in close collaboration with the users, we align the placement of supplies according to workflows and usage frequency.

On an IT level, we install the applications and RFID components and connect everything in a test environment before interfacing with the existing infrastructure.

On a user level, we train the various stakeholders and users, as a system is only as effective as the compliance of its users.

**Post-implementation services**

At this stage, we analyze the post-implementation results and conduct compliance measurements as needed. This step also includes the remote monitoring of the systems.

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Putting resourceful ideas to work