



Microsoft Dynamics Customer Solution Case Study

INTERMECH

Solution Overview

Country: Singapore
Industry: Industrial Automation
Manufacturing

Customer Profile

Established in 1990, Intermech Machinery Pte Ltd (Intermech) provides value-added manufacturing and distribution in the field of factory automation, servo & geared motors, controller, engineering solution (design, fabrication and assembly of industrial automation's sub-systems and equipments) and CNC machines. Headquartered in Singapore, the company has a regional presence in Malaysia, Indonesia, Thailand and China. Intermech was awarded its ISO 9001:2000 and IQNet accreditation in 2002 and 2005 respectively.

Business Situation

In 2003, Intermech Machinery Pte Ltd implemented a customised ERP system during its upgrade from a DOS to Windows-based environment. After taking 1 year to implement, the ERP system proved to be more suited for trading businesses. Needing an ERP system to support its manufacturing and distribution business, Intermech's management decided to migrate to an integrated ERP system with RFID capabilities.

Solution

Microsoft Dynamics AX

- Trade
- Logistics
- Warehouse management
- Financial management
- RFID

Avanade Asia Pte Ltd

- Avanade RFID Middleware
- Microsoft Dynamics AX Implementation

Benefits

- Gain real-time inventory visibility
- Increase physical stock take accuracy by almost 100%
- Reduce labour resources for physical stock take by more than 90%
- Cut material wastage by 50%
- Enhance stock pick and pack efficiencies
- Faster order fulfilment

Users

4 users

Intermech Machinery Pioneers RFID Implementation with Microsoft Dynamics to Enhance Operational Efficiencies

"Microsoft Dynamics and its support for RFID have enabled us to gain real-time data visibility across all major processes within our business. Inventory management is now streamlined with increased physical stock take accuracy by almost 100%. We are also able to cut material wastage by 50% - a great savings for us."

-- K H Ong, Group Managing Director, Intermech Holdings Pte Ltd

Just like other companies in the Industrial Automation industry, Intermech Machinery Pte Ltd (Intermech) faces the age-old challenge of inventory and wastage management. To tackle the problem, Intermech implemented a customised ERP system when it converted from a DOS to Windows-based system in 2003. However, the ERP system proved to be more suited for trading businesses and therefore, inadequate in supporting Intermech's manufacturing and distribution business.

Facing customer demands for shorter delivery lead times and impending business growth with a new factory premise boasting 50% more floor space, Intermech's management knew that it needed to implement an integrated Supply Chain Management (SCM) solution to better streamline operations and manage business growth. The new system must have the capabilities to enable just-in-time inventory, cut material wastage, streamline the company's manufacturing lead-time and improve overall business competitiveness.

As a strong advocate in the use of technology to enable business innovation, Intermech also wanted to enjoy the 360-degree visibility offered by Radio Frequency Identification (RFID), which is fast-gaining worldwide momentum.

With over 90% of its IT environment already on the Microsoft platform, Intermech selected Microsoft Dynamics™ AX to maximise its technology investments. Besides familiarity, Microsoft Dynamics was selected for its reputable brand name, comprehensive functionalities, low total cost of ownership, superb technical support and most importantly, its RFID capabilities.

By integrating RFID with Microsoft Dynamics, Intermech is able to gain real-time inventory visibility, increase stock take accuracy by almost 100%, reduce labour resources for stock take by more than 90%, cut material wastage by 50% and enhance stock pick and pack efficiencies – all contributing to faster order fulfilment and greater customer satisfaction.



“With a complete view on our inventory and materials status, we are now able to make better and faster business decisions ... Microsoft Dynamics’ powerful analytical features also give us the capability to perform fast and reliable accounting, financial reporting and analysis... helping us manage our cash flow more effectively and achieve better overall business competitiveness.”

K H Ong
Group Managing Director
Intermech Holdings Pte Ltd

Situation

The world market for material handling equipment and industrial automation systems is projected to grow 6.2% per year through 2006 with the Asia Pacific region expecting to register fastest per-annum growth¹. As a major Controls and Automation hub in Asia Pacific², Singapore will be one of the key players riding this growth momentum, fuelled by the government’s push to double total manufacturing output to S\$300 billion by 2018³.

Intermech Machinery Pte Ltd, a 16-year veteran in the local industrial automation industry, shares the same vision and has set itself a 50% growth target by 2008. Established in 1990, Intermech provides value-added manufacturing and distribution in the field of factory automation, servo & geared motors, controller, engineering solution (design, fabrication and assembly of industrial automation’s sub-systems and equipments) and Computerised Numerical Control (CNC) machines.

Intermech’s business can be largely segmented into 4 main areas, namely aluminium Profile, Motion, CNC and Services. The company’s main business, which contributes up to 51% of its revenue, is in the building of customised aluminium profiles for the mounting of machineries and mission-critical equipments. This is followed by the Motion business, which distributes motors and components, contributing to 48% of its revenue. With a wide regional network spanning Malaysia, Thailand, Indonesia, Hongkong and several parts of China, Intermech’s customers mainly come from the highly-competitive semiconductor, electronics and hard-disk manufacturing industries.

“Unlike 5 to 10 years’ ago, when it was normal for customers to take deliveries in 2 to 3 months, today’s market dynamics demand 1-week turnaround for simple automation equipments and next-day delivery for components. Volatile market conditions like that of the semiconductor industry often meant the rush to fulfil 7 months’ worth of orders in merely 1 month. These factors place tremendous pressures on our back-end systems,” said K H Ong, Group Managing Director, Intermech Holdings Pte Ltd.

He added, “Without an effective SCM solution, we had limited inventory visibility. Our processes for picking, cutting and assembling materials for profiles manufacturing were largely manual-based and needed to be streamlined to optimise order fulfilment. We knew that we needed an integrated SCM solution with comprehensive financial, inventory and warehousing functionalities to help us ride these waves of changes.”

Solution

With over 90% of its IT environment on the Microsoft platform and an IT team already familiar with Microsoft solutions, Intermech turned to Microsoft when evaluating its SCM solution.

“Our previous customised system took a year to implement. This time round, we wanted to pick a solution that is easy to implement and offers comprehensive functionalities that serve our business needs. We were looking for an integrated solution that can cut across all our business functions, from ordering, picking and packing to manufacturing and warehousing. We also expect the system to have strong analytical capabilities to help us capture business-critical data to support faster and confident executive decision-making,” explained C E Tan, General Manager and Chief Information Officer, Intermech Machinery Pte Ltd.

Mr Ong added, “As a medium-sized local enterprise, we have limited IT budgets and resources. This means the need for a user-friendly system with a familiar interface that requires minimal staff training. Without multi-million dollar IT budgets, we wanted a SCM solution that could meet our growing business needs with a low total cost of ownership.” After a thorough evaluation, Intermech selected Microsoft Dynamics AX to be implemented by Avanade Asia Pte Ltd (Avanade), a leading Microsoft Gold Certified Partner.

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“With Microsoft Dynamics, we expect to cut material wastage by 50% and improve efficiencies in our picking and assembling processes, as our workers can now accurately identify which specific piece of material they require for each stage of profile manufacturing.”

C E Tan
General Manager
Intermech Machinery Pte Ltd

investments gives us the assurance that implementation and user-training will be much simpler. Unlike previously when we had to suffer 2 to 3 days downtime with our earlier system, the wide availability of Microsoft expertise in the market means that we can easily enjoy Microsoft support wherever our business is,” said Mr Tan.

“Microsoft Dynamics’ comprehensive suite of functionalities also gives us the flexibility and scalability to add capabilities as the business grows. For example, Microsoft Dynamics can support bill of materials (BOM) lists up to 15 levels. Even though we currently only require up to 5 or 6 BOM levels, knowing that the system can scale as we grow is reassuring,” he added.

Commending the Avanade team, Mr Tan said, “Avanade impressed us by their willingness to listen and understand our business requirements. With their dedication and extensive knowledge of Microsoft products, they were able to give us excellent service. We greatly appreciate their full support.”

However, what really sealed the deal for Intermech, was Microsoft Dynamics’ support for RFID as an innovative way to further enhance supply chain efficiencies. Intermech is proud to be the first in its industry to implement RFID in its operations, having participated in the RFID-CFC for Business Efficiency launched by the Infocomm Development Authority of Singapore (IDA) in 2005.

Benefits

Leading the Pack in RFID

To support its profiles manufacturing business, Intermech maintains an inventory of aluminium profile of different sizes and length. These aluminium profiles cost up to S\$50.00 to S\$80.00/metre, making up a group monthly inventory of S\$1.5 to 2 million.

“Without an integrated SCM solution to track material usage, our workers’ indiscriminate use of these costly materials resulted in material wastages of up to S\$30,000 per month. These are the same issues faced by all in the industry. To leapfrog the competition, we knew that we had to think “out-of-the-box” and be prepared to explore new technologies,” said Mr Ong.

Calling RFID a “360-degree application” that enables all-round business visibility, Mr Tan explained further, “While RFID is not a new technology, adoption is still in its infancy as RFID implementations are known to be costly. For Intermech, we are very clear why we need RFID – which is to tackle our inventory and materials management issues. As such, even though RFID could collect 24x7 information on the business -- we realised that not all data collected were necessary. Only data for certain times of the day or business cycles were required.”

He added, “By embarking on our RFID implementations with these clear parameters, we were able to be very selective in where we implement RFID in our business. Using innovative thinking, combined with our mechanical, electrical, electronics and IT expertise, we are able to cut our RFID costs by 65% off its deployment costs.”

He added, “RFID is not a “One-Size-Fits-All” technology. It has given us the opportunity to invent three new RFID applications, which work with complementary technologies to optimise and achieve up to 98% read rate in an item and case level reading, while reducing RFID hardware deployment costs by up to 65%.”

Operations: Cut Material Wastage by 50%; Enhances Inventory Tracking and Visibility

The typical business process of Intermech’s profiles manufacturing business involves the picking of aluminium profiles, cutting and assembling them to customers’ specifications, before manufacturing and delivering them within the time frame committed.

Intermech’s management discovered that its workers had the tendency to draw out new un-cut aluminium profiles whenever they needed to fulfil a customer order. This was done without first checking if there were any leftover materials from earlier orders which could be recycled. For example, for a 6-metre aluminium profile drawn out earlier where only 3-metres of materials were utilised, the 3 remaining metres could be recycled.



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After the materials have been cut, they would be placed in different pallets in accordance to size and length. The assembly workers would then pick the materials according to the customer's orders specifications and send them through to be manufactured into the actual profiles. Before Microsoft Dynamics, Intermech's staff would assemble these cut materials randomly, without considering which pallet the materials came from. This often caused delays as orders needed to be reworked after materials had been picked from the wrong pallets.

“With Microsoft Dynamics, Intermech is now able to enhance inventory visibility by tracking items using batch and serial numbers. Supervisors now know which items have been used and where they could be found. These are made possible with RFID tags on the inventory. Every time the inventory is drawn out or moved, the relevant information would be sent back to the system via the factory's wireless system. With the new Microsoft RFID-enabled solution, we expect to cut material wastage by 50% and improve efficiencies in our picking and assembling processes, as our workers can now accurately identify which specific piece of material they require for each stage of profile manufacturing,” said Mr Tan.

Operations: Optimise Warehouse Layout Efficiency; Increase Physical Stock Take Accuracy by Almost 100%; Reduce Labour Resources for Stock Take by More Than 90%

Intermech's motion business distributes motors and components used in industrial manufacturing environments. If one such component in equipment used on a production line becomes faulty, a customer may face the possibility of the entire production line coming to a standstill.

“Our customers face the time crunch of shortening time-to-market windows. They simply cannot afford to miss their production timelines with 100 workers sitting around not accomplishing anything, just because of one faulty component. As such, our customers are often willing to pay premiums to obtain component replacements in the shortest time possible. This puts

tremendous pressures on both our front-end processes -- from the warehousing, picking and packing of the components, to the generating of the correct paperwork in the back-end -- to help us fulfil these urgent orders. Failure in meeting these requirements will result in loss of business and credibility,” explained Mr Tan.

To support this fast-moving business, the company's warehouse for its motion products maintains a monthly stock volume of S\$1.5 million. Prior to RFID and Microsoft Dynamics, its workers were unable to know how many pieces of a product were packed in each box without opening up the package and doing a physical count. Even then, errors were rampant as many of the product packaging looked almost identical, except for a particular specification, such as the power wattage.

Intermech's monthly stock take was a tedious chore with 40 staff taking a full day to complete the task. After the manual stock take, the data would then be updated manually into the system. “With a two-step process, there were simply too many chances for mistakes. As a result, only about 40% of the data collected were accurate, making the whole set of data unusable for our procurement and inventory management decisions,” said Mr Tan.

By implementing RFID smart shelf tagging, a brainchild of Mr Tan, Intermech now requires only 2 staff, taking half a day to conduct the stock take. Achieving 98% of stock take accuracy, this presents an increase in stock take accuracy by almost 100%, up from the previous 50%.

A beaming Mr Tan said, “An efficient warehouse will enable us to speed up order fulfilment and handle more orders in the long run. However, these great results do not come cheap, as our investment in just 1 RFID smart shelf costs nearly S\$20,000. Thanks to support from the IDA, we were able to get some financial help in this area. The physical stock take process is also made easier with our self-designed RFID mobile system. Using this innovation, our workers can now conveniently pull this mobile scanner along as they conduct stock counts. The data collected are then transmitted via our factory's wireless network back to our



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back-end system, which updates all inventory information in real-time and eliminates the need for data entry. This RFID mobile system is so efficient, we only require 2 pieces for our entire motion warehouse.”

Operations: Streamlined Pick and Pack Processes; Enables Faster Turnaround of Orders

For Intermech’s motion distribution business, the typical business process after an order is received, involves the picking of motors and components from the warehouse, before packing and shipping to the customer. Prior to implementing RFID and Microsoft Dynamics, 1 supervisor is supported by 4 workers to pick and pack customer orders. Without a tracking system, the supervisor has no visibility and is thus unable work out when the order will be ready for shipment.

In addition, in the picking process, workers often picked the items randomly, without considering if they should be picking a particular piece of stock from a particular shelf. With its motion inventory’s expected turnover of only 2 to 3 months, based on First-In-First-Out accounting guidelines, older stocks should be depleted first before moving onto the newer stocks.

With Microsoft Dynamics’ efficient warehouse solution which helps the supervisor optimise warehouse layout and even picking routes, the supervisor is now able to generate a detailed pick list to accompany each customer order. This pick list provides workers with specific details down to the specific piece of item to be picked for a specific order.

The packing process has also improved with the use of RFID. Previously, if a staff went on sick leave or ended his work-day before completing a packing order, the entire order needed to be re-counted by the new staff or the next day, before it was ready for customer delivery.

“It used to take us 1 day to process a few orders per worker. Now our workers can be more efficient as they are equipped with a handheld scanner and a detailed pick list. Workers now know exactly which rack to go to, which specific pack to pick from and which

specific item to pick. In the case of packing, the packing list gives the worker specific instructions on what to pack, where to pack the items and the quantity that have been packed, thus reducing the need for re-count. This speeds up our order fulfilment and improves overall customer satisfaction,” said Mr Tan.

Financial: Enhance Data Visibility Speeds Up Decision-Making

With an integrated SCM solution, Intermech’s management now gains more visibility into its daily business processes.

“With a complete view on our inventory and materials status, we are now able to make better and faster business decisions to meet our customers’ demands. Microsoft Dynamics’ powerful analytical features also give us the capability to perform fast and reliable accounting, financial reporting and analysis. All these information helps us manage our cash flow more effectively and achieve better overall business competitiveness,” said Mr Ong.

Mr Ong added, “Microsoft Dynamics and its support for RFID have enabled us to gain real-time data visibility across all major processes within our business. Inventory management is now streamlined with increased physical stock take accuracy by almost 100%. We are also able to cut material wastage by 50% - a great savings for us. With these new efficiencies and enhanced business insights, we can now fulfil our orders much rapidly, enhance customer satisfaction and compete more effectively.”

Microsoft Dynamics’ multi-currency and multi-language support also enables more efficiency in Intermech’s financial reporting, as the management have plans to integrate all its overseas offices onto the Microsoft Dynamics platform.

SPEED: Empowering Better Business Growth

Looking ahead, Intermech’s management is also considering extending its Microsoft platform to include partners, suppliers and customers to gain end-to-end supply chain efficiencies.

About Microsoft Dynamics™

Microsoft Dynamics™ is a line of financial, customer relationship and supply chain management solutions that helps businesses work more effectively. Delivered through a network of channel partners providing specialised services, these integrated, adaptable business management solutions work like and with familiar Microsoft software to streamline processes across an entire business.

For More Information

For more information on Microsoft Dynamics, visit www.microsoft.com/asia/dynamics or email: mbsasia@microsoft.com

For more information about Avanade Asia Pte Ltd, call 65-6394 7888, visit www.avanade.com or email: asia.marketing@avanade.com

For more information about Intermech Machinery Pte Ltd, call 65-6751 5088 or visit www.intermech.com.sg

Intermech's company slogan "SPEED" which stands for "Sales – Productivity – Engineering – Expansion – Development", best represents Mr Ong's business philosophy in running the business.

To stay competitive in this market, Intermech can either be the smallest player with a niche focus or be the largest. Intermech aims to be top ranked in the market, not just in the delivery of top-quality products and services, but more importantly, continue to value-add to their customers.

"At Intermech, we are always ready to embrace the power of technology to strengthen and enhance our market position. We are looking at a return on investment in 2 1/2 years on our Microsoft Dynamics and RFID implementation. We strongly believe that these latest investments will help us achieve our goal of growing 50% by 2008," Mr Ong concluded.

Footnotes:

- 1 World Material Handling Equipment
- 2 Industry Week: "Singapore: Controls Centre", July 1st 2006
- 3 Economic Development Board: "Looking ahead: Manufacturing in 2018", October 1st 2005

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Software and Services

Products:

- Microsoft Dynamics™ AX
- Microsoft Outlook
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