FOSTERING IT-ENABLED BUSINESS INNOVATION AT YCH GROUP

Executive Summary
As the business environment becomes more global and competitive, organizations need to pay more managerial attention to systematically encouraging business innovation. Singapore-based YCH Group, a leader in end-to-end supply chain solutions in the Asia-Pacific region, has addressed the issue of stimulating business innovation. This article describes its experiences and offers three lessons for encouraging IT-based innovation.

The first lesson is to foster an innovation mindset, which YCH has done by creating an IT-centric innovation mindset and by balancing strategic and operational issues. The second is to build partnerships, which YCH has achieved by developing an outward-facing IT organization, by leveraging cross-learning from alliances, and by leveraging IT to capitalize on opportunities to grow with customers. The third lesson is to mitigate risks and uncertainty, which YCH has done by instilling a flexible risk ethic, by focusing on customer value when assessing its innovation projects, and by paying attention to protecting intellectual property.

THE CHALLENGE OF IT-ENABLED INNOVATION

After several years of anemic economic growth, downsizing, and increasingly intense competition, a growing number of businesses are now focusing on innovation. In this article, we adopt the definition of innovation used by Intel Corporation: “The creation and adoption of something new that creates business value.” Business innovation could include new products, services, or processes, such as integrated supply chain solutions.

The quest for innovation has placed IT at the forefront, with senior executives looking to CIOs and IT managers to drive and support business innovation. IT could enable business innovation in three broad ways:

- By providing tools and support that let business managers develop new products and services. For instance, IT can help create linkages within the enterprise as well as with external entities to enable collaborative pursuit of new ideas.
- By fundamentally altering business processes and systems to pave the way for a range of new products and services.
- By becoming an integral part of new products or services, thus being at the very core of business innovation.

Regardless of the approach, IT can help to generate superior business value. However, organizations have historically experienced high failure rates in IT-enabled business innovation.

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2 The authors wish to thank the following YCH Group employees: Tien Yushan, Head of Corporate Communications; Yap Chih Nam, Assistant Vice President of Product Development; Yeo Eng Chye, Assistant Vice President of IT; Kush Agarwal, former Senior Executive (Projects); and Hong Chou Hui, former Section Manager, Corporate Communications. Thanks also to MIS Quarterly Executive Senior Editor Jack Rockart for his helpful suggestions for improving the paper. An earlier version of this paper won an Honorable Mention Award in the 2007 Society for Information Management Annual Paper Awards Competition.
3 Intel’s definition emphasizes achieving business value, rather than creating something new that might have limited or no value potential.
innovation. In a Gartner study, over 80% of CIOs recognized the criticality of IT-enabled innovation for business, but only 40% reported that their organizations had funded innovation projects or created roles accountable for innovation.5

Why is IT-enabled innovation challenging? Despite recognizing the critical role of IT, most organizations still have an awkward relationship with IT and struggle to improve matters. Most businesses keep the IT unit out of the innovation process. Innovation is delegated to R&D or product design units with very little involvement of IT, thus precluding any technology inputs to the quest for innovation. Moreover, many senior executives still have an unclear understanding of technology, don’t do adequate groundwork for spurring IT innovation, have unrealistic expectations, and end up with disappointing outcomes.6

Nevertheless, there are success stories in IT-enabled business innovation. One is YCH Group in Singapore, which tied IT to the core of its business, laid a solid foundation for fostering IT-based innovation, improved managerial practices to better align IT with the business, and has reaped the rewards.

**YCH GROUP**

YCH Group is a logistics and supply chain management company that serves clients in the Asia-Pacific region. It was founded in 1955 by Mr. Yap Chwee Hock (hence the acronym YCH) as a passenger transport business. In 1977, Robert Yap (eldest son of the founder) joined the company and instigated the strategic move into cargo transportation. This move marked a fundamental shift toward internationalizing the company by leveraging Singapore’s growth in trade activity. Subsequently, the business evolved to include freight forwarding and warehousing. By 1988, YCH provided integrated logistics services and began exploiting IT to develop proprietary applications to support its services.

In the mid-1990s, YCH had transformed itself into a total supply chain management (SCM) company. Since then, it has been aggressively using IT for innovative supply chain solutions that enhance its partnerships with key customers.

Under its chairman and CEO, Robert Yap, YCH is now a prominent player in the Asia-Pacific region with 2006 revenues of more than S$300 (US$200) million, likely to grow to S$1 billion (US$667 million) by 2010. It has over 2,500 employees, with an additional 150 at Y3 Technologies—an independent IT subsidiary of YCH. YCH operates in 13 Asia-Pacific countries (Singapore, Malaysia, Indonesia, Thailand, Philippines, China, Hong Kong, Taiwan, Korea, India, Australia, Vietnam, and Japan). It provides end-to-end SCM solutions to leading multinational firms in the electronics (e.g., Dell, Motorola), chemicals/healthcare (e.g., Ciba Specialty Chemicals, Rohm&Haas) and consumer goods (e.g., Danone, Friesland Foods) industries. The company has more than five million square feet of warehouse space and serves more than 20 world class multinational customers.7

YCH’s vision is “To build the logistics superhighway in a borderless world.” A cornerstone of realizing this vision is the integration of three supply chain flows:

- Physical flow—the point-to-point movement of goods
- Information flow—shipment dates, delivery requests, inventory details, etc.
- Financial flow—value of goods and inventory ownership/transfer processes, etc.

In line with this vision, YCH’s mission is “To be the number one supply chain solutions partner in the Asia-Pacific region.” YCH’s network of hubs, offices, and subsidiaries, and its in-depth understanding of the complex business environment and government relations in Asia-Pacific, enables it to be the preferred supply chain partner in the region for leading global companies.

YCH is built on strong Asian values and heritage, which permeate the entire organization. Its corporate philosophy is RISE (written as “升” in Chinese and pronounced “sheng”). RISE stands for Reliability, Integrity, Sincerity, and Enterprise, which the company describes in these terms:

- Reliability is the cornerstone of our service values, where our word is our bond, and we deliver what we have promised to achieve for customers.
- Integrity is the key to building trust and being trusted to handle both physical goods and information.
- Sincerity underpins the partnership rapport and symbiotic relationships that drive YCH

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5 Tucci, L. “The Road To Innovation is a Bumpy Ride” SearchCIO.com (http://searchcio.techtarget.com/originalContent/0,289142,sid19_gci127726,00.html), November 2, 2006
employees (known as “YCHees”) in delivering services and in their relationships with clients and colleagues.

- **Enterprise** is the desire and ability to innovate, and shift business and industry paradigms to constantly reshape the future of supply chain solutions.

RISE governs not only how YCH treats its customers but also how YCHees are assessed. They are appraised on their reliability, integrity, and sincerity in dealing with customers. They must also not be risk-averse; they must show an enterprising spirit, and they must take calculated risks to innovate and propose solutions to meet customers’ needs. RISE creates the foundation for an innovative culture.

**Three Pillars of Strength**

YCH views itself as having three key pillars of strength: people, technology, and quality. These three pillars play an important role in YCH’s culture of innovation.

People are the most important pillar, and the company places much emphasis on developing, enhancing, and retaining talent to ensure its competitive edge. It has a no-layoffs policy and views employees as a part of the YCH family.

The second pillar is technology, which YCH sees as a “force multiplier” and as a strategic competitive weapon in enabling business processes. It uses IT to challenge the status quo and shift paradigms in the industry by adopting a customer-centric approach to designing supply chain solutions for customers. All of YCH’s end-to-end supply chain solutions were developed by its in-house IT unit, which has now been spun-off as a subsidiary called Y3 Technologies.

The third pillar is quality, which permeates the organization to ensure process consistency, improvements and world-class standards of execution. The company has been awarded various quality-based certifications and has achieved audited compliance with standards that demonstrate its commitment to constantly excel and harness best-in-class practices to deliver quality results for its clients.

**YCH is a “7PL™” Business**

Traditionally, logistics companies provided freight forwarding, transport or warehouse services in a piecemeal way. Logistics service providers that provide all three services, either through in-house capabilities or by outsourcing, are commonly known as “3PLs.” Management and strategy consulting firms that provide value-added functions by consolidating external and internal resources, or providing services through technology, are called “4PLs.” This type of logistics business typically manages 3PLs by consolidating and managing new routes, optimizing space, etc.

YCH refers to itself as a 7PL business (a term it has trademarked) because it provides both professional consulting services (through Y3 Technologies) and traditional logistics operations. As a 7PL, YCH offers integrated end-to-end supply chain solutions that leverage both its knowledge and technology to execute efficient supply chain processes.

**IT INNOVATION AT YCH**

YCH’s application portfolio has evolved along with the business. Early IT innovation involved developing piecemeal applications. Integrated logistics solutions grew out of these applications.

**From Transactional to Transformational Applications**

Given the shortage of land in Singapore, a major business priority for YCH in the mid-1980s was to optimize use of warehouse space, so the company developed a PC-based warehouse management system. In the 1990s, it developed more piecemeal systems focusing on traffic management, shipment tracking, fuel management, and other administrative functions.

An early innovative application was an artificial-intelligence (AI) system for scheduling trucks. The CEO identified the need and participated in an exercise to capture the knowledge of an experienced schedule supervisor that led to the creation of the AI-based scheduling system. The success of this exercise sowed the seeds for exploiting IT to enable other business innovations. YCH started looking for transformational IT solutions, rather than isolated transactional systems. A condensed history of the company’s key IT-enabled innovations is shown in Figure 1.

The initiatives described in Figure 1 illustrate YCH’s track record of using IT in innovative ways to respond to the changing needs of its customers. The company also provides value to its customers by removing the complexities of IT-based SCM solutions from them, allowing them to focus on meeting the delivery service levels promised to their customers.
One of the key decisions made by the CEO in the early 1990s was to invest about 15% of the company’s profits into IT every year. This decision paved the way for nurturing and developing strong in-house IT capabilities. Rather than procure off-the-shelf software, YCH developed a suite of in-house systems from scratch. The main reason for this approach was that no vendor had suitable software to meet YCH’s distinct needs. With an unequivocal commitment from the CEO, YCH began to explore opportunities for building IT-based innovative solutions. As a result it has used technology to fundamentally redefine its business—gradually developing three key IT solutions that currently drive all of its business: Intribution®, Intrabution®, and Retrogistics®.

**Intribution.** Intribution is essentially manufacturing logistics. It involves a many-to-one relationship where YCH works with a client’s global suppliers to provide a hub for raw materials and parts for the client’s manufacturing operations. Providing both outbound and inbound logistics was a significant innovation in the mid-1990s. At the time, most third-party logistics service providers focused primarily on outbound logistics (i.e., linking clients to their regional/world markets via classic distribution). Inbound logistics tended to be more complex because of the need to manage and track multiple suppliers and multiple parts. Hence, Intribution is designed to manage the flow of raw materials, information, and financial transactions between global suppliers and manufacturers.

**Intrabution.** Intrabution helps manufacturers increase production flexibility and save costs because raw materials are stored at a central hub and provided to the manufacturer on a just-in-time (JIT) basis. It also handles finished goods fulfillment logistics. Finished goods are delivered by a manufacturer to YCH’s hub and dispatched to many destinations in the country or region. YCH has built capabilities into Intrabution for route and load optimization, and for providing real-time information about delivery and inventory status, which helps its customers to manage the merging, planning, and tracking of finished goods. Intrabution thus allows finished goods to be delivered efficiently to stores and consumer end-points, thereby helping YCH’s customers to minimize stock-outs and increase their market share.

**Retrogistics.** Retrogistics, which stands for reverse logistics, focuses on managing spares and returns. It handles after-sales service logistics for manufacturers—customers’ goods that need to be repaired, serviced, returned, or exchanged, warranty validation, etc. Hence, Retrogistics helps manufacturers or brand owners improve after-sales service, thereby enhancing customer satisfaction and loyalty.

These solutions won the Innovation Development Award given by the Economic Development Board in Singapore. Their development paved the way for a suite of IT-enabled solutions that transcend the entire value chain (see Figure 2). The newer systems in the suite exploit the power of Web services and RFID technologies.
Fostering IT-Enabled Business Innovation

FACILITATING IT INNOVATION BY SPINNING OFF THE IN-HOUSE IT UNIT

The development of the innovative SCM suite opened up new revenue streams for YCH. The company’s IT solutions attracted the attention of several businesses, including some of YCH’s competitors in Asia-Pacific, which became interested in acquiring and using YCH’s proprietary applications. To exploit the opportunity of commercializing its proprietary IT solutions, YCH decided in 2000 to spin off its IT unit as a separate business. It recruited a CIO to establish the unit as a new subsidiary called Y3 Technologies. The CIO also became the chief operating officer (COO) at Y3 Technologies, with responsibility for selling YCH’s solutions as well as engaging in IT-related R&D.8

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8 Setting up of a new unit to champion IT-enabled innovation that is separate from the parent organization, yet linked through senior management (YCH’s CIO is Y3 Technologies’ COO), can facilitate both incremental and discontinuous innovation. Such units are called ambidextrous organizations and are described in O’Reilly III, C. A., and Tushman, M. L. “The Ambidextrous Organization,” Harvard Business Review (82:4), April 2004, pp. 74-81. The link between YCH and Y3 Technologies has also helped to avoid the classic mistake of “loose
The investments required for IT projects, as well as for new innovative solutions for YCH, are funded by revenue from Y3 Technologies.\textsuperscript{9} Revenue from Y3 Technologies also contributes to YCH’s overall bottom-line.

As well as generating additional revenue, the decision to set up Y3 Technologies ensured that YCH would retain a competitive edge because rivals would lag behind if they simply used YCH’s software rather than develop their own solutions. Although Y3 Technologies sells IT applications to YCH’s competitors, it does not share YCH’s in-depth know-how on the best ways to use the applications. This approach is analogous to selling PowerPoint software and teaching the buyer basic PowerPoint functions but not the intricacies of creating superior PowerPoint presentations. Further, although Y3 Technologies also provides consultancy services to clients on how to streamline their supply chains, it does not provide such services to other logistics providers. Thus Y3 Technologies helps clients understand the potential savings in their supply chain if they switch to YCH but does not provide competitors with inside information.

Another key advantage of setting up an independent IT subsidiary is that it provides opportunities to collaborate with non-traditional partners such as other IT vendors. For example, Y3 Technologies now markets some of its supply chain solutions through IBM and Oracle. If the IT unit was still within YCH, it would be difficult for it to collaborate with such IT vendors, because they would continue to view it as a customer, not a partner. Y3 Technologies has also collaborated with Oracle in developing the Sensor Edge Server used in RFID implementations. This server, which is used to capture the mass of data from RFID readers, can handle surges in data resulting from a rapid flow of goods through a warehouse.

\textbf{SIX CRITICAL CAPABILITIES FOR FOSTERING AN IT-INNOVATION CULTURE}

The prerequisite for IT-based innovation is business leadership. YCH’s CEO has a strong passion for developing IT-driven business solutions. Prior to YCH, he had run a PC business, which gave him a deep understanding of IT’s potential in logistics and distribution. Rather than use IT to automate paperwork and improve operations, he wanted to use IT to enable innovative opportunities for growing the business. He was convinced that IT could provide new business opportunities for YCH. In an interview with \textit{Singapore TradeNews} (July/August 1996)\textsuperscript{10}, he put it like this: “We are paradigm shifters. There must be new and better ways to do things.”

But YCH recognizes that having the necessary technological capabilities is not sufficient. Fostering IT-enabled innovation also requires developing internal manpower, knowledge, logistics expertise and processes. The company focuses on building and nurturing the following six critical capabilities to generate innovative IT-based business solutions. These six capabilities form an internally consistent, self-reinforcing mechanism.

\textit{Innovation Capability 1: Open Innovation Culture}

YCH depends heavily on capturing and developing the ideas generated by YCH’ers. It encourages and promotes innovation by specifically recognizing the new ideas and contributions of its employees by giving them innovation and special appreciation awards.

The company makes systematic efforts to create an open innovation culture\textsuperscript{11} that promotes interactions to brainstorm and develop innovative ideas directed at providing better solutions to customers. YCH’s offices have been designed to be “open” and facilitate instant interactions. As one of the executives noted:

“We have open feedback on all issues of the company. Office cubicles are made of glass so everyone can see and know what everyone else is doing. The design of offices forces YCH’ers to communicate with each other about the various issues and ideas.”

The company also organizes “planning retreats” from time to time to provide opportunities for employees to brainstorm and share their innovation ideas.\textsuperscript{12}

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\textsuperscript{9} This funding helps to address the “resource gap” obstacle in IT innovation. For details of obstacles to innovation, see Westerman, G. “IT-Enabling Innovation at Intel?” MIT research briefing, 2007. See also the forthcoming article Westerman, G., and Curley M. “Building IT-Enabled Innovation Capabilities at Intel,” \textit{MIS Quarterly Executive} (7:1), March 2008.


\textsuperscript{11} The importance of open communication and social networks in fostering innovation is highlighted by Rizova, P. “Are You Networked for Successful Innovation?,” \textit{MIT Sloan Management Review} (47:3), Spring 2006, pp. 49-55.

\textsuperscript{12} By providing incentives, as well as encouraging an open culture of sharing ideas, YCH is able to mitigate the obstacles of “opportunity gap” and “implementation gap” in innovation. For details of obstacles to innovation, see Westerman, op. cit., 2007.
Innovation Capability 2: Entrepreneurial IS Organization and Structure

Traditional organizational structures and processes can sometimes hinder innovation. To overcome the organizational bottlenecks and to mitigate associated uncertainties and risks, YCH pursues some of its IT innovations through its Y3 Technologies subsidiary. As an entrepreneurial venture exclusively focused on IT solutions, Y3 Technologies provides an incubator for pursuing IT-related innovations and is a fertile ground for conceiving, developing and marketing IT solutions.\(^{13}\)

Innovation Capability 3: Cross-Functional Project Teams

The composition of IT project teams at YCH strikes a fine balance between serving the firm’s operational needs and driving strategic business solutions. Instead of silo IS teams, YCH creates cross-functional teams of business, operations, and IS personnel. The combined expertise of IS and functional staff naturally leads to new ideas. Project teams also meet monthly with senior management to discuss the new ideas. Rather than relying on positional authority or functional hierarchies to generate innovative ideas, YCH believes its corporate culture and emphasis on innovation that is instilled broadly throughout the organization is the best way to identify IT-enabled innovations.

Innovation Capability 4: Customer-Centric Alliances

YCH forges tight partnerships with selected clients to generate and nurture ideas for new services and solutions. These clients are leading players in different industries with a wealth of domain expertise. They have sound knowledge of industry practices and distribution issues specific to their sectors and are highly motivated partners in the company’s innovation efforts. These partnerships enable YCH’s IT and operations personnel to work with clients to develop customer-centric solutions. By partnering with world-class clients that are leaders in their respective industries (e.g., Dell, Motorola), YCH is motivated to continue to innovate so it can retain them as clients.

Innovation Capability 5: Staff Development

To enhance its employees and their skills, YCH makes significant investments in its human capital through extensive training. Business personnel are exposed to IT, and IT staff are trained in advanced technologies and industry-specific knowledge. For instance, some IT personnel were trained in advanced AI techniques in Japan in preparation for developing the AI-based scheduling application. YCH’s commitment to training is illustrated by its training expenditure in 2006, which amounted to 5.8% of its salary bill. On average, each employee attended 2.7 training sessions lasting a total of 43 trainee-hours.

Innovation Capability 6: Focus on Value

YCH does not have a formal, rigid, and structured approach for evaluating and working on new IT-related ideas. Instead of using a traditional ROI approach to evaluate IT-innovation ideas, they are assessed by the potential value they could generate for the business.\(^{14}\) Sometimes, the innovation opportunities are not explored in the business unit but by Y3 Technologies. By measuring the value that success would generate, YCH often accepts ideas with higher levels of risk than would be accepted by ROI evaluations. The company also periodically obtains external funding to explore new IT ideas—such funding helps to mitigate potential risks.

Benefits of YCH’s IT-Enabled Innovations

Examples of several significant benefits gained by YCH and its customers from IT-enabled business innovations are shown in Figure 3.\(^{15}\) YCH’s achievements have resulted in numerous prestigious innovation and technology awards from leading industry groups and premier business associations, in addition to quality-based certification and people awards.

IT Innovation Challenges Still Faced by YCH

YCH still faces several business and IT-related challenges in its continuing quest for IT-enabled business innovation. The company is a relatively small player in the logistics business with limited resources, and it faces an uphill task in carving out a niche in an established logistics supply chain market. It has to compete with larger logistics players with deep pockets. This is why YCH has made a strategic choice

\(^{13}\) O’Reilly III and Tushman, op. cit., 2004.

\(^{14}\) By assessing innovation based on potential value rather than strict financial metrics, YCH avoids one of the classic traps of innovation. For details, see Kanter, op. cit., 2006.

to use IT to customize its offerings to a selected set of clients, rather than focus on the mass market. World-class clients’ operations tend to be more complex and they require innovative solutions for their business operations, hence YCH’s need to continually innovate so it can retain such clients. Creating customer-centric offerings that are primarily enabled by IT is a novel step in the Asia-Pacific logistics market, which is dominated by providers of generic services. But YCH has to continuously “delight” its customers and keep them motivated to use its IT-enabled supply chain offerings.

YCH also faces the challenge of constantly convincing its customers that its use of IT is to improve efficiency and reliability, and will not lead to increased prices. Thus the cost of IT-enabled improvements in work processes and operations is borne primarily by YCH. For a company of YCH’s size, this represents a significant capital outlay on ventures with no guaranteed success or returns; it is the financial equivalent of a “leap of faith.”

YCH’s continuous quest for IT-enabled innovation is fraught with risks and uncertainties. The company often experiments with newer and emergent technologies, such as RFID, to help it develop customized solutions. This is both risky and expensive, so YCH partners with other agencies to share the costs and risks of working with newer technologies. IT-enabled innovation also requires considerable changes to corporate culture, work procedures and employee training. YCH’s senior management carefully cultivates a corporate mindset, business practices and managerial mechanisms that place IT at the forefront of business innovation.

THREE MAJOR LESSONS LEARNED

YCH’s journey provides the following three major lessons for businesses seeking to use IT to drive business innovation (see Figure 4):

- Foster an innovation mindset and corporate culture that values and promotes IT-enabled business innovation.
- Build partnerships with external clients, business leaders, and IT executives in thinking through IT-enabled business innovation.
- Mitigate the risks of IT-enabled business innovation and the uncertainties about the value of IT among clients, business partners, and functional stakeholders.

These lessons are useful for both CIOs and other organizational leaders engaging in business innovation.

Lesson 1: Foster an Innovation Mindset

YCH’s experience demonstrates the importance of two specific actions: create an IT-centric innovation mindset and balance strategic and operational IT issues.

Create an IT-centric innovation mindset. CIOs who nurture IT-based innovation shift the dialog between...
the IT unit and the business away from how IT projects can be delivered on-time and on-budget, to how IT can help the business come up with innovative offerings for business growth. YCH focuses on the strategic potential of business ideas, rather than on cost savings. Innovation initiatives are not viewed as “IT projects” but as business projects with IT as a critical component. By combining inter-organizational and intra-firm personnel in teams, the value of IT is communicated to all key stakeholders, creating grass-roots support for an IT-centric innovation mindset across the entire organization.

**Balance strategic and operational IT issues.** CIOs who foster IT-enabled business innovation strike the right balance between strategic business initiatives and operational IT tasks. Delegating internal, delivery-oriented operational tasks enables CIOs to focus on larger business issues and thus interact more effectively both with business and functional leaders and with outside partners. YCH’s CIO remarked:

“I leave the routine aspects of IT to my team, and I focus on the transformational and innovative aspects of IT. We are constantly trying to create transformational value for the customer’s business. Unlike CIOs of many other Asian companies, my focus is not on cost reduction; instead, to me, value creation for the customer through the strategic use of IT is more important.”

When CIOs are active contributors to business innovation, they enjoy an excellent rapport with senior management and peer leaders. YCH’s experience shows that progressing the innovation agenda means engaging appropriate stakeholders at multiple levels. At YCH, most innovation projects are joint efforts, with the CEO acting as a champion and the CIO acting as the primary agent of innovation, along with other business leaders.
Lesson 2: Build Partnerships for IT-Enabled Innovation

YCH’s experience points to three main actions aimed at building partnerships for IT-enabled innovation: develop an outward-facing IT organization, leverage cross-learning from alliances, and leverage IT to capitalize on opportunities to grow with customers.

Develop an outward-facing IT organization. When IT plays a critical role in organizational innovation, the CIO has extended the IT organization’s reach to external stakeholders. Suppliers and customers are increasingly crucial partners in organizational innovation. IT provides the essential “glue” for business interactions with external partners, so the IT function must be a key participant in the inter-organizational innovation team. At YCH, IT is a core component of innovation projects and, more importantly, IT personnel are included in business development teams for any new clients. YCH’s IT function doesn’t just interface with other internal functions and end users, it actively interacts with external clients and other business partners. IT personnel are involved right from the outset of any new business deal (even before the contract is signed). In their initial meetings with customers, IT managers proactively suggest the “transformational solutions” they could offer, and they educate customers about the potential benefits of such initiatives.

Leverage cross-learning from alliances. IT managers who foster IT-enabled business innovation absorb and leverage specific knowledge from alliance partners. Many of YCH’s customers are in three key sectors—consumer goods, electronics, and chemicals/healthcare—and the company is able to cross-apply best-in-class supply chain solutions among these sectors to enhance its ability to serve world-class customers. For example, the Infocomm Development Authority of Singapore asked Y3 Technologies to help it implement RFID in hospitals. Y3 Technologies organized an off-site meeting with various healthcare professionals to discuss how warehousing concepts might be applied in hospitals. It found that a hospital is, in many ways, analogous to a warehouse. Patients admitted to hospitals are analogous to inbound cargo. Admission procedures are analogous to inbound processing for cargo. Allocating a patient to a bed is analogous to allocating cargo to a storage location. A patient in the wrong bed is analogous to a cargo pallet at the wrong location. Discharge of patients is analogous to outbound processing. Documentation to discharge patients is analogous to documentation for outbound cargo.

Within three months of the off-site, Y3 Technologies had modified an existing system to create a customized RFID system for use in a hospital. (Changing the existing system was straightforward because it used a service-oriented architecture based on object-oriented technology.) The RFID system is currently being piloted in a Singapore hospital. The constant turnaround of patients makes it difficult for nurses to remember where everyone is, and RFID technology will enable them to check which patient is in which bed. The system will thus ensure the correct medication is given to the correct patient, significantly reducing incidences of incorrect medication.

Y3 Technologies is also now applying practices from the healthcare industry to the logistics industry. An example is routing optimization (similar to how best to allocate patients to beds).

Leverage IT to capitalize on opportunities to grow with customers. When YCH’s key multinational customers expand into other regions, they continue to engage YCH’s services, thus giving YCH the opportunity to expand its network. Many of these multinationals are based in the United States and Europe. When they expand into new Asia-Pacific territories, they continue to use YCH because engaging a new logistics provider would entail significant uncertainty and risk. They prefer to work with someone they trust and have successfully worked with before.

For example, Motorola continued to use YCH’s V-Hub (virtual hub) to manage its supply chain needs when it set up operations in Hangzhou and Tianjin in China to serve the North Asia markets of Korea and Japan. Large Korean and Japanese conglomerates (known respectively as chaebol and keiretsu) tend to favor national partners and trust their own logistics providers. So non-Korean or non-Japanese firms have great difficulty breaking into these countries. By using

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17 Interacting directly with clients helps to build relationships between IT and the business and fosters collaboration, thereby mitigating the classic trap of poor communication (see Kanter, op. cit., 2006).

18 This “follow the client” expansion strategy is only possible by working closely with key customers to understand and identify their needs, and subsequently capitalizing on opportunities to venture into new areas. For details on managing customer-centric innovation, see Selden, L., and MacMillan, I. C., “Manage Customer-Centric Innovation—Systematically,” Harvard Business Review (84:4), April 2006, pp. 108-116.
Motorola’s North Asia hub, YCH has made inroads into the Japanese and Korean markets.

YCH has also extended its regional operations in the chemicals sector. It has specialized expertise and capabilities in the stringent chemicals environment, so, for example, it can ensure appropriate temperature and humidity control. It also has storage facilities for dangerous chemicals. As Ciba has expanded in the region, YCH has extended its chemical operations to Singapore (1997), China (2002), Indonesia (2003), Thailand (2003), and Australia (2004).

YCH has also increased the number of destinations it handles for Moet-Hennessey because of the increased efficiency this customer gains from YCH’s RFID-based system.

In all these examples, expansion into new areas would be difficult, if not impossible, without leveraging IT to coordinate business operations in different parts of the world.

Lesson 3: Mitigate Risks and Uncertainties

The YCH case shows that companies can take three actions to mitigate risks and uncertainty when fostering IT-enabled business innovation: instill a flexible risk ethic, focus on customer value when assessing innovation projects, and pay attention to protecting intellectual property.

Instill a flexible risk ethic. Almost all business innovation initiatives have inherent technical and financial risks. YCH’s experience shows that, instead of having detailed procedures and controls for risk assessment, a company can make better progress by instilling a flexible risk ethic. Such an ethic ensures that the “go/no-go” decision gives greater weight to potential future value than mere compliance with procedures. YCH’s IT-based innovation projects are evaluated based on their long-term potential impact rather than strictly on short-term ROI. YCH also provides incentives and rewards to encourage its employees to take risks and pursue innovative ideas. When recruiting, YCH looks for people who are entrepreneurial (prepared to take calculated risks) and who are passionate about their specializations and eager to continue to learn.

Focus on customer value when assessing IT-driven innovations. In service sectors such as logistics and distribution, business growth and performance depend largely on the value the service provider generates for its customers. Thus when considering IT-driven service innovations, both value to the client and value to the organization need to be taken into account. YCH has found, however, that value to clients ultimately translates into value to the organization in the form of greater client loyalty and expanded business with the client. It therefore has chosen to focus on the value of an innovation to clients by assessing projects from each client’s perspective so it can better understand the logistical needs and the business problems.

For example, with vendor-managed inventory, a manufacturer’s suppliers store their goods in YCH’s warehouses. However, the suppliers are not paid until the goods are actually used to manufacture a product. Even then, manufacturers may often take from 60 to 120 days to pay the suppliers. Thus suppliers incur high inventory-holding costs, which adversely affect their cash flow. There is also a danger that goods will become obsolete if they are held in the warehouse for too long before being used. In response to these problems, YCH developed its patented ZIM model. With ZIM, YCH pays the suppliers (at a discounted rate, depending on the risks and volatility of the goods) the moment the goods are received into its warehouses. It then securitizes the goods with a bank. This is a good example of YCH controlling the physical flow, the information flow, and the financial flow. In fact, YCH is almost acting as a bank because it takes over the trade financing of suppliers. The suppliers of both Dell and Motorola now use ZIM to fund their inventories.

Pay attention to protecting intellectual property. Organizations that implement IT-enabled business innovations create intellectual property that must be protected against infringements. In 1996, YCH launched its first VMI solution (Intribution) for Compaq in Asia-Pacific. At the time, Compaq was the world’s leading PC manufacturer and a VMI solution was essential. The materials for manufacturing PCs came from Asia, and Compaq needed to significantly reduce its inventory costs to compete more effectively with its competitors. However, by the time YCH had successfully completed the VMI implementation for Compaq, another company had been awarded a patent for this type of system. This experience was a hard lesson for YCH. Since then, it has recognized the value of intellectual property and the need for intellectual property protection. As shown earlier in Figure 2, YCH has now patented and registered trademarks for many of its solutions.

All these lessons from YCH can guide other organizations in leveraging IT for business transformation and fostering business innovation.

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