

VO THI TRUNG TRINH, NARUMON SRIRATANAVIRIYAKUL, MATHEWS NKHOMA,  
HIEP PHAM

## PATSOFT: The Vietnamese ERP Solutions Provider<sup>1</sup>

*Adopting organisational innovation practices can be seen as an essential method for enterprises to deal with the economic downturn. However, it was not easy to do so...*

In January 2012, PATSOFT, the Vietnamese ERP solutions provider, faced a market downturn where its potential clients constantly cut costs instead of increasing investment, especially IT investment. The company was founded in 2005, providing its own ERP solutions for Vietnamese companies, specifically targeting Small and Medium Enterprises (SMEs). It had grown steadily ever since. Bearing in mind that the current situation could lead to the loss its leading position in this market, Mr. Phung Minh Triet, CEO of PATSOFT, had to adopt three short-term strategies to deal with the situation.

The first strategy was reducing operating costs, achieved by reducing personnel costs and implementation project costs. PATSOFT set up a new process for implementing an ERP project. This process concentrated on the coordination between its divisions and its clients. Fundamental training programs were offered for its clients prior to implementing these projects. As a result of these it expected to cut operating costs down and improve organisational efficiency for both PATSOFT and its clients. The second strategy was market expansion, achieved by growing sales with new customers. PATSOFT promoted its products to these customers, having business activities close to the industries such as pharmaceuticals, fisheries and mechanics that it was already focusing on. It aimed to optimise costs for customising these products and to reduce the time for expansion. Flexible selling policies were proposed to customers who needed to apply ERP solutions but who could not afford to purchase a whole system. It offered individual modules in its deep portfolio of ERP solutions and ensured that these modules would be upgraded to a standard ERP system when these customers could afford the investment costs for the whole system. The final strategy was product expansion through providing maintenance services and technical support for its current customers. These services raised the PATSOFT's revenues.

Implementation of these three strategies helped PATSOFT survive the difficult situation. However, Triet still considered other strategies for mitigating the effects of the economic downturn on its business and to retain PATSOFT's reputation for sustainable and technological entrepreneurship. From an innovative perspective, he deliberated about a number of plans for maintaining its competitive advantage, enhancing its business performance, and sustaining its development. He also figured out several policies that could be instituted to implement the plans. What would be the new directions and the way ahead for PATSOFT in the next few years?

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## ERP and the Global Marketplace

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Gartner, the world's leading information technology research and advisory company, coined the term Enterprise Resource Planning (ERP) in the early 1990s. ERP systems were intended to improve a company's business performance by integrating such tasks as customer relationship management, employee benefits, warehouse management, and financial reports. Due to their promising benefits, numerous firms throughout the world had made huge investments in ERP systems.

### ERP Solutions

According to *CIO*, the special magazine for chief information officers and other IT leaders, ERP was a software application that allowed enterprises to manage their business processes. ERP solutions attempted to integrate all functions of departments across an enterprise into a single computer system that could serve all those different departments' particular needs. The software system consisted of integrated applications to manage the business processes, including functions such as product planning, inventory management, procurement, and product lifecycle management.

There were a number of academic studies supporting ERP's benefits. In 2012, Aversano and Tortorella indicated that enterprises have applied these solutions for supporting their business processes in order to effectively execute the related business activities. There was considerable evidence to prove how ERP solutions could bring benefits to companies including improved visibility, reduced operating costs, and standardized business processes. Furthermore, information system capabilities could have a significant impact on a company's competitive position, according to recent studies based on the resource-based theory. Thus, despite an uncertain economic climate, a 2012 report by the Garner Group projected that worldwide spending on enterprise application software would increase by 4 percent that year, with ERP being the largest enterprise application software market.

### The Global Marketplace

According to the *Global Enterprise Resource Planning Software Market 2011-2014* report, the ERP market was forecast to grow at a compound annual growth rate of 7.5 percent between 2011 and 2014. The ability of ERP to integrate all organizational activities was seen as one of the key factors contributing to this market growth. This report also pointed that the demand from small and medium-sized businesses steadily increased. SAP AG, Oracle Corporation, The Sage Group, and Infor Global Solutions were the key vendors that dominated this marketplace. The ERP market size would reach US\$45.5 billion in 2011 and to US\$50.3 billion by 2015, as projected by the *Computer Business Review* magazine.

## Information Technology in Vietnam

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A 2011 report by the Vietnam's Ministry of Information and Communications indicated that for the last 10 years, the Vietnamese IT sector was developing rapidly. It played an important role in the national economy, both as an economic sector and as a driver of vital information infrastructure; it was a crucial force in the socio-economic development of the country. In 2010, the Vietnamese Government introduced a set of major IT initiatives to transform Vietnam into an advanced Information and Communication Technology (ICT) country in the next few years. These strategies reflected the political determination of the Government to advocate IT. Through these initiatives, the Vietnamese Government provided favourable conditions and incentives to promote the development of the IT sector.

### The Industry

Vietnam's IT industry developed in several diverse sub-fields, including the software industry, hardware industry, digital content industry and IT services. According to *Viet Nam Information and Communica-*

*tion Technology – White Book 2011*, the IT industry was an important economic sector, with an annual growth rate higher than any other areas. The overall IT industry average revenue growth in the period 2001-2009 was estimated 20-25 percent per year. By the end of 2010, the revenue of the software industry and digital content industry reached US\$2 billion, while the hardware industry revenue reached US\$5.6 billion. Among the IT industry in the period 2006-2010, software development and services achieved significant growth in both revenue and market share, becoming one of the most promising economic sectors in the country. The digital content industry and IT services, in particular, were expected to boom in coming years.

## The ERP Market

In the early 2000s, ERP solutions were introduced into the Vietnamese business environment. Vietnamese companies were increasingly looking for ways to make their operations more efficient and effective. Many of those considered using an ERP implementation to drive organisational change. A 2007 market report by *PC World Vietnam* noted that Vietnam's ERP market was still relatively small, but it was a growing market that had changed dramatically over the previous five years. There was vigorous competition among foreign and Vietnamese ERP providers. Since 2000, some high-end ERP providers such as Oracle and SAP entered in the Vietnamese market, a market that was dominated by foreign solutions rather than local ones, according to this report. During the period of 2004-2007, Oracle was seen as a leading ERP provider in the Vietnamese market (see Exhibit 1).

Generally, Vietnamese enterprises including SMEs, believed ERP solutions helped them to improve their business process and performance. Large corporations having subsidiaries or listed companies, in particular, employed ERP solutions to manage and mobilize the resources of their business. These solutions facilitated transparency, allowing comprehensive management of corporate resources and solving business problems in real-time. Those in the fields of pharmaceuticals, real estate, banking, retail, and consumer goods production continued to pursue the implementation of ERP because of these benefits, as indicated by a 2011 market news report by *Saigontimes*, a special economic magazine. Hence, there were two main ERP market segmentations in Vietnam that focused on ERP solutions for enterprises having medium or large size and others having medium or small size. The average cost for implementation of an ERP project in Vietnam was between \$US 100,000 and \$US 1,000,000 for projects that applied foreign ERP solutions such as Oracle or SAP, whereas most Vietnamese ERP solutions cost under \$US 100,000 (see Exhibit 2).

## PATSOFT

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PATSOFT was founded in October 2005 when the Vietnamese market was still new to ERP applications. With the motivation of the entrepreneurial dream, after working 4 years as a software consultant at the largest ICT Corporation in Vietnam, Phung Minh Triet and his friends decided to start the new venture providing their own ERP solutions. From an entrepreneurship perspective, it could be clearly seen that Triet and his friends recognised a market demand for ERP applications as an opportunity for them to start their new venture.

## The Founder

Triet graduated from Ho Chi Minh City University of Technology, recognised as a centre of excellence in Vietnam, majoring in computer science in 2001. Similar to his peers, Triet found that knowledge learnt at the university could not be applied directly in the workplace due to lack of technical skills and real-life experiences. There was a gap between conceptual knowledge provided in tertiary education and skills required by the workplace. In order to narrow this gap, Triet had to learn and adapt by himself. However, he admitted that even though the knowledge learnt from university could not be used straight away, it

nevertheless played an important role as a solid foundation for studying a range of other skills as well as acquiring further ICT related knowledge. Communication skills, team-work skills and critical thinking skills were learnt throughout his working period.

Directly after his graduation, Triet was employed by the leading ICT Corporation in Vietnam. He adapted quickly to the workplace requirements through self-studying. From 2001 and 2004, he developed and implemented a number of management application projects for government agencies and enterprises in various roles including team leader and project manager. During this time, he learnt to implement well known ERP systems such as SAP and Oracle solutions. In 2005, at the age of 27, Triet left his position to start his new venture.

## **The Company**

Based on his working experience, Triet found that there was a high demand for ERP solutions in SMEs in Vietnam but that many organisations could not afford foreign ERP solutions, such as Oracle or SAP. Having an entrepreneurial orientation, Triet recognised that this need represented the potential opportunity for his new venture.

According to the Vietnamese Government Decree 56/2009/ND-CP, dated 30 June 2009, SMEs were enterprises having annual labour not exceeding 300 people. On the other hand, large scale enterprises were those having annual labour of at least 300 people. SMEs were divided into 3 sub-groups: (1) Micro enterprises: Engaging up to 9 employees, (2) Small enterprises: Engaging up to 199 employees and (3) Medium size enterprises: Engaging up to 299 employees. A 2012 business news report from the Vietnam Government Web Portal reported that by early 2011, SMEs accounted for 98 percent of enterprises in Vietnam and the SMEs contributed up to 40 percent of GDP and employed 50 percent of the labour force.

Triet and his entrepreneurial team had more than 10 years working experience in developing and implementing a number of applications that helped managing an enterprise's resources. At that time, all of them were employed by leading ICT corporations in Vietnam. According to PATSOFT's website, in 2003 they implemented their first two ERP projects, Solomon and Microsoft solutions with complete modules for two companies: Bibica, a tea and confectionary company, and Savimex, a furniture, interior design, and packing company. These were the very early ERP development projects in Vietnam. Using extensive experience from implementing these projects, they continued to develop subsequent ERP projects.

On 13 October 2005, the group started their own venture with their Vietnamese version of an ERP application, B4U, catering to the manufacturing industry, pharmaceutical industry, and fisheries. This venture was driven by Triet and his entrepreneurial team. They spent 2004 developing this application: "From 7PM to 12AM, after we finished our work, we had to spend time developing our own ERP application. In order to obtain financial resources to nurture our venture during this period, we still worked for our employers," said Triet.

Since 2006, PATSOFT continued developing its products as well as its services. It focused on ERP solutions for SMEs because SMEs accounted for more than 95 percent of the total enterprises in Vietnam. Its aim was to exploit the market by selling its products for around \$US 50,000. As a consequence of its efforts, PATSOFT became one of the leading Vietnamese ERP solutions providers (see Exhibit 3). Its products were implemented in more than 30 enterprises. Most of them were manufacturing enterprises in the pharmaceutical, fishery, and manufacturing industries (see Exhibit 4).

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## PATSOFT: Core Products and Competitive Advantage

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In theory, competitive strategy involves building a company's competitive advantage. Porter (1988) pointed out that when a company achieves a specific competitive advantage, it outperforms its competitors. PATSOFT developed its core products with building competitive advantage in mind, thereby establishing a key set of core competencies that enhanced its ability to stay ahead of current or potential competitors.

### Core Products

PATSOFT developed its own ERP solutions, namely, B4U, based on Microsoft technology, particularly Microsoft Dot Net 2010 for application development and SQL Server 2008 for data management. B4U provided several functions for managing enterprise operations, similar to those offered by standard ERP applications such as Oracle or SAP. It was designed to cater to a range of customer needs, including enterprise performance management, human capital management, financial management, merchandise operations management, warehouse management, quality management, procurement, and product lifecycle management.

Initially, PATSOFT developed B4U for the two major manufacturing operations: process manufacturing and discrete manufacturing. After that, B4U tailored its functions particularly to suit specific industries that had process manufacturing (pharmaceuticals, fisheries, and food processing) and discrete manufacturing (mechanics and steels). These approaches were employed to develop its products, helping PATSOFT to expand its market into other industries having manufacturing operation such as cosmetics, fertilisers, cements, electronics, electrical appliances, and plastics. Therefore, B4U addressed complex business processes relevant to a wide range of issues in these industries.

In the process manufacturing industry, PATSOFT focused on ERP solutions for managing complex internal processes, providing a high level of control. B4U was also tailored to the particular needs of each industry. For the pharmaceutical industry, B4U included features to facilitate the calculation of requirement materials for production by using historical production data, sales forecasting, and planning expertise (see Exhibit 5). Since pharmaceutical products needed to comply with strict standards of quality, special attention was paid to the software's modular quality management functionality, used to manage quality product activities and materials. This module also provided a finished product tracking system to manage the stability and quality of these products after the manufacturing process.

Similar to pharmaceutical producers, fishery enterprises also paid specific attention to control material requirement planning and quality management. B4U was therefore designed to tackle these issues. B4U provided additional special functions to manage fishery production processes for fish breeding farms (breeding management and costs), as well as estimation and allocation costs for products and payroll for different production stages. In contrast, for the discrete manufacturing industry, PATSOFT focused on tracking assembly and the cost of finished products. The software was developed for managing processes relevant to the product of these industries such as machinery and steels.

PATSOFT also developed enterprise management applications, designed for accounting and human resource operations. In a long-term development, PATSOFT was interested in focusing on ERP solutions for fishery enterprises because Triet believed that Vietnam's extensive coastal geography favoured development of these enterprises. They were considered PATSOFT's potential clients.

## **The Competitive Advantage**

Since its establishment, PATSOFT pursued its strategic goals of reaching out to the ERP market segment for SMEs, thereby filling a gap where foreign ERP solutions could not adapt to local Vietnamese conditions. Three following factors specially contributed to its competitive advantage.

Firstly, B4U was recognized for delivering a set of core products that could compete with other ERP providers in this market segment. B4U provides most functions supported by a standard ERP system (see Exhibit 6). B4U was tailored for enterprises having process manufacturing or discrete manufacturing with a particular focus on specific industries such as pharmaceuticals, fisheries, mechanics, and food processing. As a result of this focus, B4U was more easily customized for these industries in the Vietnamese market. B4U was particularly successful in supporting report functions for financial and accounting operations that were adapted to the Vietnamese accounting system.

Secondly, the niche market was recognised and seized: applying ERP solutions for SMEs. These customers could not afford ERP solutions provided by Oracle or SAP, whose solutions were aimed at medium and large enterprises. At the same time, other enterprise managing applications only focused on accounting or human resource activities meaning that there was a lack of integrated software applications for SMEs. In fact, when the company was founded in 2005, ERP solutions for SMEs was an unexplored market by 2005. PATSOFT had recognised the gap in ERP solutions markets and seized the opportunity.

Finally, PATSOFT had an entrepreneurial team who were ERP experts. Its entrepreneurial team had extensive experience in the implementation of a number of ERP projects prior to PATSOFT's launching. Therefore, the team held the expertise necessary to develop high quality software and provide effective project management. In conclusion, these three resources of competitive advantage served to differentiate PATSOFT from its competitors.

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## **PATSOFT: Dealing with the Economic Downturn**

In 2007, a financial crisis in the United States spread to Europe and led to a downturn across the world lasting from 2007 to 2009. A 2012 study by Mason, Cho, and Obstfeld stated that no countries are immune to the sequence of economic shocks that accompanies a sharp collapse in international trade. There was no exception in the case of Vietnam. The economic downhill (GDP growth slowdown) and big difficulties (the number of bankrupt businesses) remained evident in the Vietnamese economic situation as late as 2012, according to Vietnamnet.

From an innovative perspective, management scholars refer to “organisational innovation” as the creation or adoption of an idea or behaviour new to the organization. “Innovation” was regarded as a critical source of competitive advantage for organisations. A 2010 framework of organisational innovation by Crossan and Apaydin described the dimensions of innovation as they related to both process and outcome. According to their framework, “innovation as a process” involves the question of how the innovation process started and developed. “Innovation as an outcome” examines the results of the innovation (see Exhibit 7). In facing the downturn, PATSOFT tried to adopt organisational innovation practices by implementing the three short-term strategies in addition to its broader, long-term strategies.

## **The Effects of the Economic Downturn on PATSOFT's Business**

A 2011 report by the World Bank indicated that the financial crisis and global economic slowdown had a major impact on the Vietnamese economy. Enterprises were faced with difficult choices such as restructuring, increasing prices, reducing investment costs, or narrowing the scope of the production. As a consequence of this, the local ERP market had been falling since 2009, according to 2010 market news by *PC*

*World Vietnam*. Similar to other ERP providers, PATSOFT faced this market downturn as its potential clients were cutting costs, especially for IT investment.

Due to the difficult economic situation, since 2011 ERP providers including foreign and local solution providers had begun to expand their target market - originally medium and large enterprises - into other segments, specifically the SMEs that were PATSOFT's core customers. ERP solution providers that targeted SMEs prospered, as reported by the *Saigontimes*. As a result, PATSOFT began to experience serious competition in its favored market segment. These new competitors employed low price strategies to compete. PATSOFT recognised that ignoring this situation could lead to losing its lead position in this target market. Triet said, "We could not lose this position; we could also not increase our prices when they are going to decrease their prices".

### **The Solutions to Survive the Economic Crisis**

To deal with this situation, PATSOFT rapidly implemented three short-term strategies. Similar to other organisations, PATSOFT tried to cut operating costs. Several methods were employed such as reducing personnel costs and implementation project costs. As part of this effort, PATSOFT set up a new process to implement ERP projects. This process focused on the coordination of its divisions and its clients during the period of project implementation (see Exhibit 8). For example, PATSOFT offered training programs for clients before it implemented ERP projects for them. These training programs provided background information in relation to ERP solutions for its clients. As a result, they would know how to manage their requirements and provide feedback when they worked with PATSOFT's implementation team. In doing so, the gap between its ERP solutions and its requirements from clients could be reduced. This led to a reduction in the time required for project implementation, decreasing operating costs. PATSOFT's new implementation method improved organisational efficiency for both it and its clients.

A second strategy, market expansion by growing sales with new customers, was also implemented. PATSOFT tried to identify new clients who had production activities which that were similar to the industries that it already supported. For these new customers, PATSOFT's costs of tailoring its products were reduced. It had particular success in identifying new clients in the food processing industry. Furthermore, PATSOFT had flexible selling policies for customers who needed to apply ERP solutions but who could not afford to purchase a whole system. It provided some applications from its deep portfolio of ERP solutions to these customers and ensured that these applications would be upgraded to a standard ERP system when the customer could afford the investment costs for the complete system. Its modular financial management application was an example providing enterprises with a choice that included the ability to upgrade.

Finally, PATSOFT expanded its products by providing services for its current customers. Its maintenance services and technical support were offered to these customers in order to maintain their investments. Although PATSOFT could not repeatedly sell its core products to them, it still earned significant revenues from these services.

Triet said, "The three above strategies have just been short-term strategies but they have helped PATSOFT survive the current difficult situation". For the long-term development, PATSOFT still pursued its strategic goals. These were to lead the ERP market for SMEs by utilising lower cost and differentiation strategies. He believed that difficult economic situations could lead to enterprises taking steps to improve their operating and production costs enhance their efficiency. Chiara and Vincenzo (2008) asserted that information system integration was a technological driver of the sustainability of competitive advantage. ERP applications would be an integral part of the solution for many organizations seeking such integration.

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## New Directions

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The three strategies described above helped PATSOFT temporarily maintain its business; however, in dealing with the economic downturn, as the CEO of PATSOFT, Triet also considered introducing other means for maintaining its position in the target market and enhancing its business performance for sustainable development.

### For Maintaining PATSOFT's Competitive Advantage

Triet recognised that there were a number of approaches that he could take to sustain PATSOFT's competitive advantage. Expanding product lines for other industries was considered. Of particular interest were plastic products, electronics, and home appliances. In doing so, there were several issues for his consideration, such as expansion costs and market size.

PATSOFT's own ERP experts had always been a source of competitive advantage. Triet bore this in mind as he faced the challenges of recruiting and maintaining the skills of existing personnel. It was not easy to employ and retain excellent IT professionals as a small firm. Its HR policies needed to be improved to deal with these issues. He considered introducing an Employee Stock Ownership Plan (ESOP) in order to allow PATSOFT's key personnel to obtain its stocks through a profit sharing plan.

It would not be easy to implement ESOP due to several issues: the inherent complexity of such plans and their high implementation cost. Therefore, he needed to clearly discuss this with other PATSOFT's founders to convince them to allow him to do so. However, he admitted that it was not an easy task for him. He deliberated on the pros and cons of this possibility.

### For Enhancing PATSOFT's Business Performance

Considering the vital role that innovation played in business performance, as indicated earlier, Triet found that there were a number of approaches he could try to encourage organisational innovation practices. He had already been successful in forming a new process to implement an ERP project. From this early success, he believed that its business performance would be further improved if new appropriate business processes or models could be formed. He wondered what these business processes or model should be.

Possible directions for PATSOFT's R&D activities to enhance its products were also weighed. Triet planned to apply the latest technologies, such as cloud computing, to its products. ERP applications for tablets or smart-phones were considered for development. He needed to decide how to allocate its resources across these R&D activities. PATSOFT also needed to promote policies to encourage its employees to be creative and innovative. Triet felt the company's leaders needed to play an important role in promoting innovation. How could they be encouraged to do so?

Given its limited financial and human resources, PATSOFT would not be able to allocate major funding to R&D activities for the next few years. Triet considered focusing on administrative reform plans and implementing new processes for its projects. This could establish an appropriate business model for PATSOFT that could serve it during the years that followed. He thought about which business model would be best suited to enhancing PATSOFT's business performance. From organisational innovation perspective, forming a new business process or a new business model could be seen as an outcome of organisational innovation practices.

### For Sustaining PATSOFT's Development

The Vietnamese ERP market was dominated by foreign solutions; however, foreign providers faced issues of customization to meet the requirements of local Vietnamese. Based on its competitive strength,



PATSOFT received some offers from foreign providers to support the whole Vietnamese ERP market instead of only focusing on the SMEs segment. These offers included forming a business alliance or a joint venture to tackle these issues and enhance its competitiveness. Triet considered these offers but was concerned about how to control the business if he formed a business alliance or a joint venture because PATSOFT was weaker than foreign ERP providers in terms of financial and human resources.

Triet also recognised that there was still a great opportunity for PATSOFT's continued development. The Vietnamese IT industry had become the country's most promising economic sector. As a Vietnamese ERP solutions provider, therefore, he considered how he might seize and then exploit the market opportunity for the company's sustainable development.

For him, the time was ripe for PATSOFT to form a business alliance or a joint venture with foreign investors. He admitted that PATSOFT lacked sufficient capital and human resources to fully exploit this market opportunity. Therefore, he thought about how to develop cooperation with potential partners, leveraging their competitive advantage in ways that would increase PATSOFT's competitiveness. How to create a win-win situation became a big concern that he kept in his mind.

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### A Way Ahead

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According to the recent *World Economic Outlook* report from the International Monetary Fund, global growth was projected to increase during 2013. In particular, growth in emerging market and developing economies was forecast to reach 5.5 percent in 2013. The Vietnamese economy was also expected to improve steadily. However, economic experts from the World Bank warned of risks in the country's economy in 2013, including high inflation and low foreign currency reserves compared to other countries in the Southeast Asian region. "Vietnam will try to address economic challenges in 2013 as inflation risks persist, bad loans weigh on banks and rising inventories hurt businesses," Prime Minister Nguyen Tan Dung had said.

The economic difficulties and policies to reduce public expenditure could potentially make the ERP solution market fall. Despite the current major difficulties, enterprises still followed their ERP plans because they well understood that these were solutions that could help them improve their business efficiency. And untapped opportunities in the ERP market segment for SMEs remained.

However, after considering the possible new directions available to PATSOFT just described, Triet was optimistic. His next step would be to bring them PATSOFT's founders, who would further consider how best to continue the company's already enviable track record of sustainable growth and technological entrepreneurship.

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## References and Suggested Readings

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- Aversano, L., & Tortorella, M. (2012). Assessing workflow ability of ERP and WfM systems for implementing business processes. *Information Systems Reengineering for Modern Business Systems: ERP, Supply Chain and E-Commerce Management Solutions* (pp. 127-145). Hershey, PA, USA: IGI Global.
- Computer Business Review. (2011). *ERP market to grow to \$50.3bn in 2015: Forrester*. Retrieved from <http://enterpriseapplications.cbronline.com/news/erp-market-to-grow-to-503bn-in-2015-forrester-060511>
- Chiara, C. F. F., & Vincenzo, V. M. M. (2008). IS integration and business performance: The mediation effect of organizational absorptive capacity in SMEs. *Journal of Information Technology*, 23(4), 297-312.
- Crossan, M. M., & Apaydin, M. (2010). A multi-dimensional framework of organizational innovation: A systematic review of the literature. *Journal of Management Studies*, 47(6), 1154-1191.
- Dinh, V. T., Trieu, V. Q., Rab, H., & Kubota, K. (2011). *Taking stock: An update on Vietnam's recent economic developments (December 2011)*: The World Bank.
- Gartner. (2012). *Gartner says worldwide spending on enterprise application software to increase 4.5 percent in 2012*. Retrieved 18/10/2012 from <http://www.gartner.com/it/page.jsp?id=2055215>
- Ha, V. (2011). *Nhon nhip thi truong ERP*. Retrieved 11/11/2012, from <http://www.thesaigontimes.vn/Home/congnghe/thitruong/64084/>
- Hien, T. (2007). *Thi truong ERP 2006: Ngoai lan at noi*. Retrieved 17/10/2012 from <http://pcworld.com.vn/articles/kinh-doanh/quan-tri/2007/01/1190015/thi-truong-erp-viet-nam-2006-ngoai-lan-at-noi/>
- Hien, T. (2011). *ERP khoi sac tro lai*. Retrieved from <http://www.thesaigontimes.vn/Home/congnghe/muonneo/56991/ERP-khoi-sac-tro-lai.html>
- Jacobs, R., & Weston, T. (2007). Enterprise resource planning (ERP)—A brief history. *Journal of Operations Management*, 25(2), 357-363.
- Mason, A., Cho, D., & Obstfeld, M. (2012). *Global economic crisis : Impacts, transmission and recovery*: Edward Elgar.
- Ngoc, V. Q., Hien, T., & Quan, H. (2010). *Thi truong ERP 2009: Gap ghenh len xuong*. Retrieved 15/10/2012 from <http://www.pcworld.com.vn/articles/kinh-doanh/quan-tri/2010/02/1195426/thi-truong-erp-2009-gap-ghenh-len-xuong/>
- NSCICT, & MIC. (2011). *Viet Nam information and communication technology – White Book 2011*: Information and Communications Publishing House.
- PATSOFT. (2012a). *Gioi thieu*. Retrieved 17/10/2012 from <http://www.patsoft.com.vn/about/1.aspx>
- PATSOFT. (2012b). *Khach hang*. Retrieved 17/10/2012 from <http://www.patsoft.com.vn/customer.aspx>
- PATSOFT. (2012c). *San pham*. Retrieved 17/10/2012 from <http://www.patsoft.com.vn/product.aspx>
- Porter, M. E. (1988). From competitive advantage to corporate strategy. *McKinsey Quarterly*, 2, 35-66.
- ResearchandMarket. (2012). *Global enterprise resource planning software market 2011-2014*. Retrieved from [http://www.researchandmarkets.com/research/c538c1/global\\_enterprise](http://www.researchandmarkets.com/research/c538c1/global_enterprise)
-

Vietnamnet. (2012). *Economists say Vietnam's economy still insecure, getting worse*. Retrieved from <http://english.vietnamnet.vn/fms/business/49173/economists-say-vietnam-s-economy-still-insecure--getting-worse.html>

Vietnam Government Web Portal. (2011). *VN's SMEs make big leap forward*. Retrieved from <http://news.gov.vn/Home/VNs-SMEs-make-big-leap-forward/2011/9795.vgp>

Wailgum, T. (2008). *ERP definition and solutions*. Retrieved 18/10/2012 from [http://www.cio.com/article/40323/ERP\\_Definition\\_and\\_Solutions](http://www.cio.com/article/40323/ERP_Definition_and_Solutions)

## Biographies

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**Vo Thi Trung Trinh** is the Head of Information Division at the Department of Planning and Investment at Ho Chi Minh City, Vietnam. She has more than 15 years experience in management information systems, information analysis and public administration reform. She holds a masters degree in Commerce, majoring International Business from Swinburne University of Technology, Australia. Her principal research areas are applied econometrics, entrepreneurship, international business, public management and e-government. She also has part-time academic jobs as a Research Officer for RMIT International University Vietnam and as a Teaching Assistant for the Graduate School of Ho Chi Minh City Open University, Vietnam.



**Narumon Sriratanaviriyakul** (BA, MS, AdvDip, Grad Cert TTL), Narumon is a Senior Lecturer in the Centre of Commerce and Management at RMIT University Vietnam and has 6 years of teaching experience in higher education in international universities.

Narumon can be reached at [narumon@rmit.edu.vn](mailto:narumon@rmit.edu.vn)



**Dr. Mathews Z. Nkhoma** holds a PhD in Information Security from University of East London, England. His major research topics are information systems security, information security investment model, ethical hacking, network defence, network security management and forensic computing. Mathews has international experience in teaching—leading Information systems and computer forensics courses in Africa, Europe, Middle East and Asia at both undergraduate and postgraduate levels.

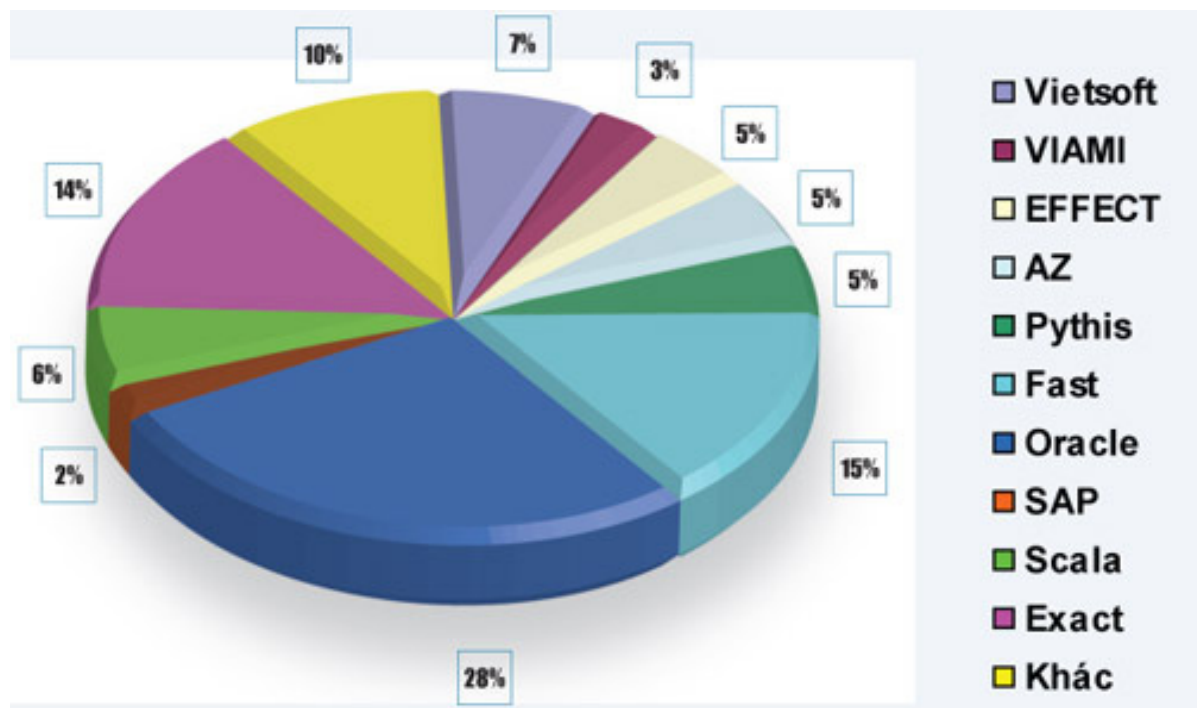
Mathews can be reached at [mathews.nkhoma@rmit.edu.vn](mailto:mathews.nkhoma@rmit.edu.vn)



**Hiep Pham** is a Senior Lecturer at RMIT Vietnam University. He has completed a Master degree in Advanced Information Systems at University of New South Wales and a MBA (Executive) at RMIT Vietnam University. He is actively conducting research in Information Management and Information Security Management.

## Exhibit 1: Viet Nam's ERP Share Market in 2007

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Source: PC World (Hien, 2007)

**Exhibit 2: The Average Cost for Implementation an ERP Project in Vietnam**

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ERP Solutions	Average cost (\$US)
SAP	400,000 – 1,000,000
Oracle	100,000 – 500,000
Scala	7,000 – 200,000
Exact	50,000 – 100,000
AZ	70,000
Pythis	30,000
Fast	25,000
EFFECT	8,000 – 50,000
Vietsoft	6,000 – 40,000
VIAMI	2,000 – 30,000

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*Source:* PC World (Hien, 2007)

## Exhibit 3: PATSOFT's website

### Introduction (<http://www.patsoft.com.vn/about/1.aspx>)



Source: PATSOFT (2012)

The PATSOFT board of directors has more than 12 years working experience in developing and implementing a number of applications that help managing enterprises' resources. Since 2000, we had a chance of learning and implementing ERP applications that have been developed by foreign and Vietnamese software companies.

In 2003, we implemented the first two ERP projects, Solomon and Microsoft solutions with complete modules for Bibica, Savimex and other ERP projects later.

Founded officially on 13/10/2005, PATSOFT has focused on development of its own ERP solutions, namely, B4U. The functions in B4U have been tailored particularly to suit specific industries such as pharmaceuticals, fisheries and mechanics. B4U is regarded as the largest Vietnamese ERP solutions application.

On 13/10/2008, PATSOFT successfully developed and launched S4U, an ERP solutions application for distribution. Up to now, we implemented this application for more than 10 retailing enterprises.



After 7 years of establishment, PATSOFT has become one of the leading ERP solutions companies in Vietnam, particularly ERP solutions for produce enterprises.

## Products (<http://www.patsoft.com.vn/product.aspx>)



Source: PATSOFT (2012)

B4U has provided several functions for managing enterprise operations, which are similar to standard ERP applications such as Oracle or SAP. It was designed to cater for a range of customer needs, including enterprise performance management, human capital management, financial management, merchandise operations management, warehouse management, quality management, procurement and product lifecycle management.

B4U is built on Microsoft Technology. It is an integrated solution and this technology provides significant benefits such as centralised data and high security.

B4U has good user facilities such as a multilingual in interface and data. Data formats, such as dates and numbers, can be selected for each user.

B4U can help companies to monitor regulations in manufacturing and business operation according to ISO's standards.

## Exhibit 4: PATSOFT's Customers

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Company name	Activities	Implementation year	Website
Southern Vietnam Engine and Agricultural Machinery Company Limited	Produced diesel engines and agricultural machines	2006	<a href="http://www.vinapro.com.vn">http://www.vinapro.com.vn</a>
Can Tho Fertilizer and Chemical Joint Stock Company	Manufacturing and trading fertilizer, chemical, animal/aqua feed	2007	<a href="http://www.cfc-cobay.com.vn">http://www.cfc-cobay.com.vn</a>
Ben Tre Aquaproduct Import and Export Joint Stock Company	Aquaculture, processing and exporting fisheries products, importing goods and materials for local industry	2008	<a href="http://www.aquatexbentre.com">http://www.aquatexbentre.com</a>
Glomed Pharmaceutical Company	Produced and distribution pharmaceutical products	2011	<a href="http://glomedvn.vn">http://glomedvn.vn</a>

Source: PATSOFT (2012)



## Exhibit 5: B4U's Showing manufacturing, planning and control screens

### Production plan screen

To input the amount of products that have to be produced per month based on sales plans from Sales Department.

**Production plan**

Plan No. KH1208.0001 Load by Dis. Capacity

Description Wine box Red Label

Quarter 3 Year 2012

Item code	Item name	UOM	Jul	Aug	Sep	Total	Need day	Version=	From Seq	To Seq
01.000010	Wine box Red label 01	EACH	0	0	500.000	500.000	02/09/2012	1	1	1
01.000011	Wine box Red label 02	EACH	0	0	300.000	300.000	03/09/2012	1	1	1

### Master Production Scheduling Screen

Based on production plans and capacities of factories, this function estimates the required machines and shifts per day to achieve these plans. As shown on the screen, red colour bars indicate that these plans could be overdue.

**Plan**

Plan No. KH1208.0001 Mfg date 01/09/2012 Method Method by scheduling

Description Wine box Red Label

Shift qty 2 Time (h) 12

**Plan is expected**

F.G/H.O.G Name	UOM	Quantity	1	2	3	4	5	6	7
1 Wine box Red label 01 - 02/09/2012	EACH	500.000							
2 Wine box Red label 02 - 03/09/2012	EACH	300.000							

## Materials Requirement Planning Screen

Based on production plans and a production formula for each, this function estimates required materials for these productions. It also considers inventory, safety stock and on-going purchase orders to accurately enhance its estimation.

**Material require planning (MRP)**

Production plan: KH1208.0001 Wine box Red Label

Sourcing rule: SL1208.0001 PATSOFT rule

Safe stock: ☒ Mfg date: 02/09/2012 MRP no: MRP1209.0002

On Purchasing: ☒ WIP of Discrete: ☐

Action: [ ]

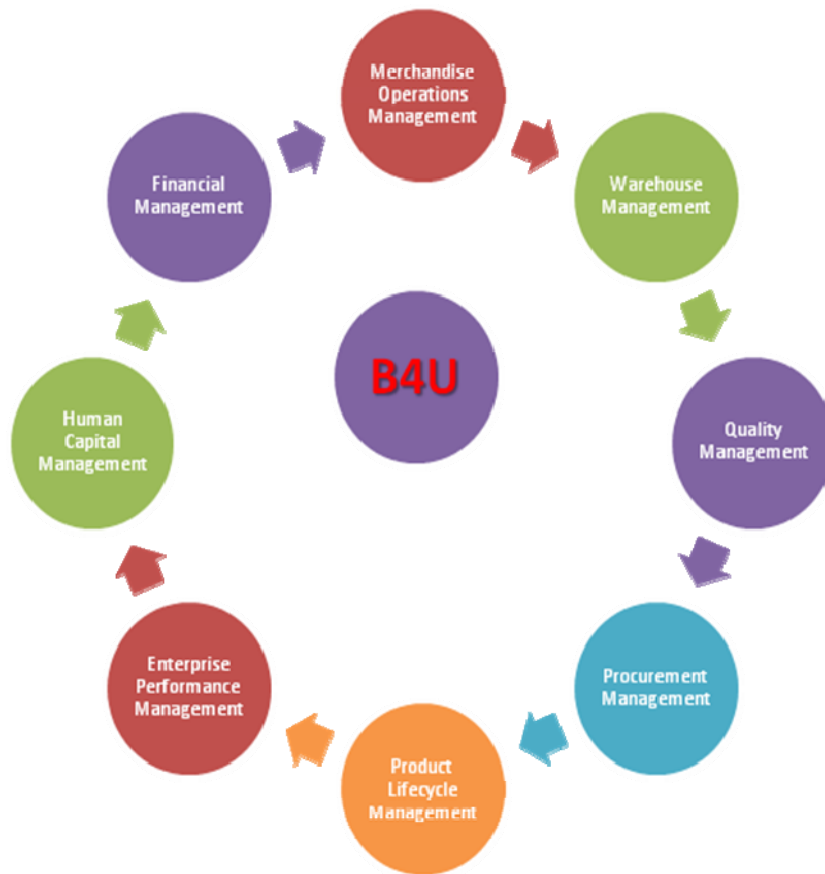
Create requisition: [ ]

Item code	Item name	UOM	Require Qty	Need Qty	WIP Qty	Onhand	Safe stock	PO Qty
02.000036	Green Ink (C01)	KG	320	500	0	100	20	200
02.000037	Green Ink (C02)	KG	300	300	0	200	0	0
02.000039	Red Ink (M02)	KG	1.200	1.200	0	150	0	0
02.000040	Yellow Ink (Y01)	KG	1.600	1.600	0	0	0	0
02.000042	Paper material 01	MET	125.000	125.000	0	0	0	0
02.000043	Paper material 02	MET	75.000	75.000	0	0	0	0
02.000044	UV coating material	KG	1.250	1.250	0	10	0	0
02.000045	Vanish coating material	KG	750	750	0	0	0	0
02.000046	Black Ink	KG	450	400	0	100	50	0

Source: PATSOFT (2012)

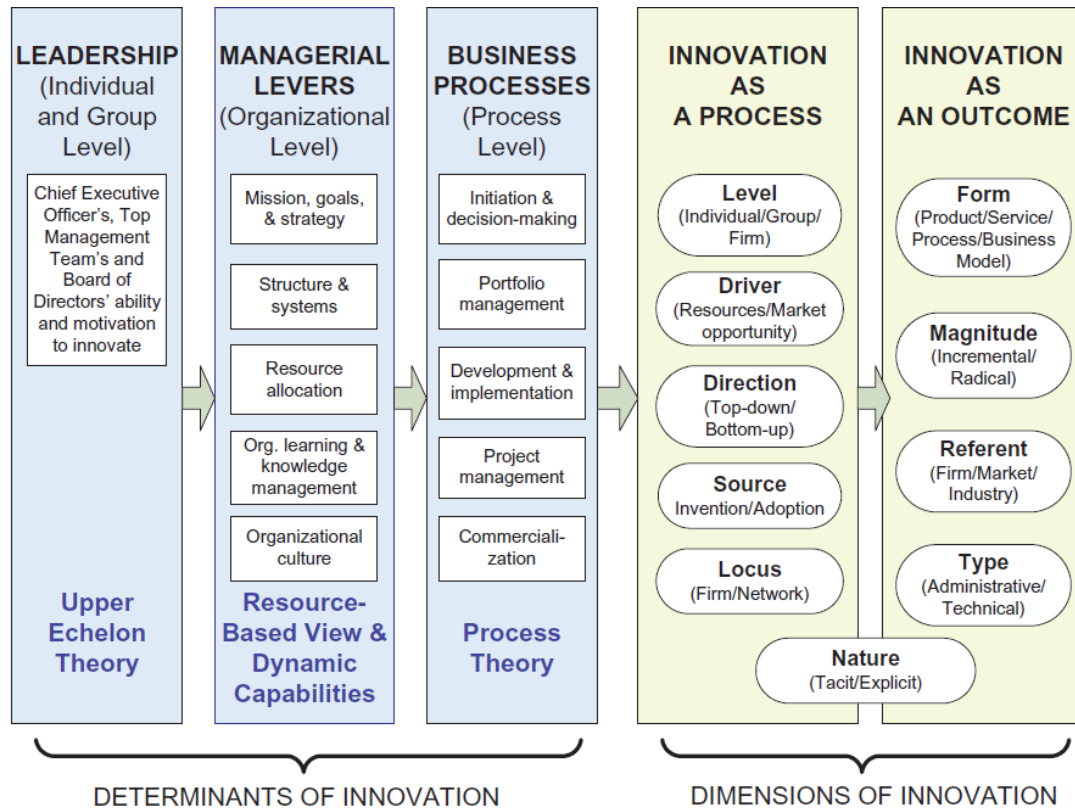
**Exhibit 6: B4U's ERP Solutions**

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Source: PATSOFT (2012)

## Exhibit 7: A Framework of Organisational Innovation

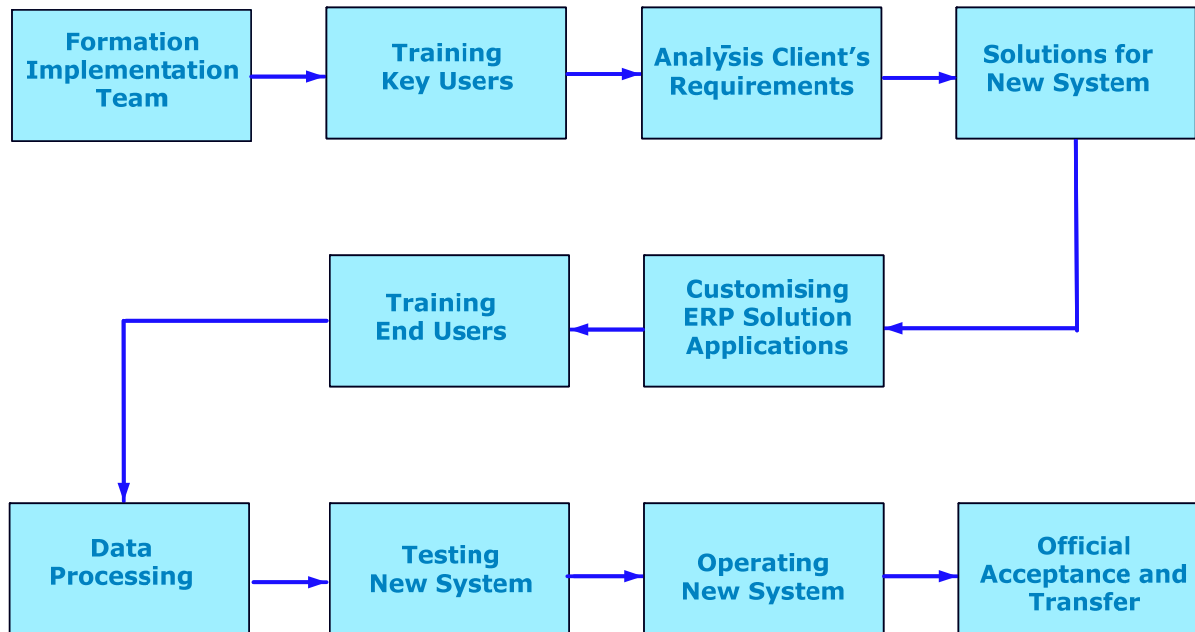


Source: Crossnan and Apaydin (2010)

As can be seen from the framework, there is a link between leadership, innovation as a process and innovation as an outcome. For managerial implications, business practices can support innovation. Therefore, organisational innovation can be achieved by these business practices to enhance organisations' business performance and their competitive advantage.

**Exhibit 8: PATSOFT's Process to Implement an ERP Project**

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Source: PATSOFT (2012)