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ADDITIONAL READING: HOW ELECTRICAL BUSINESSES USE INFORMATION SHARING AND COLLABORATION – HG’S RESPONSE TO THE CHANGING ENVIRONMENT

Introduction

Global competition has massively speeded the using of information techniques and online communication to improve business performance. The object of this work is to draw a perspective about how businesses using information sharing react to the dramatic change of the external environments. HG will be evaluated for the real-case study analysis, and the statement in this work is primarily according to the interviews with Mr. Chen— the president of HG, and Mr. Tang– the vice manager in the HeWind under HG.

To begin with, this case study will present a brief background introduction of HG with the focus on how the mission and vision of this organization is keeping pace with the times. Subsequently, HG’s reaction to the external pressures and constrains facing the organization will be evaluated. To specify those e-business applications, these techniques in the sell-side activities of business will be presented firstly with the focus on how to attract customers and how to be interactive with them. Secondly, technologies in the buy-side business seek to facilitate greater efficiency in purchasing within lower operational cost. Finally, integrated business management and control systems will be discussed in the internal part of an e-business adoption in HG. At the end, recommendations for management strategies and actions improvement in using information sharing will be produced to equip business competitiveness.

BACKGROUND REVIEW OF HG

HG is a large-scale Private Enterprise Group in Wenzhou China, regarded as China’s Top 100 Growth Enterprises. It was founded in 1986 and listed on Shanghai Stock Exchange (SSE) in 2007. After 20 years of developing, HG is currently the leading
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manufacturer in the High-voltage Electric Apparatus Industry and Wind Power Generation Industry in China. There are more than 1,000 employees working in its 7 subsidiary companies and 6 joint-venture companies. The ‘HG’ trademark is evaluated as China National Well-known Trademark.

HG takes “Science and Technology for Support, Quality for Assurance, Market for Orientation” as its mission to visualize the vision -- “To be an international famous enterprise”. According to its enthusiastic direction, HG endows itself in building up its technological competitive advantage over time, and attaching great effect to improve the level of development & research and technology innovation capabilities.

The target markets of HG are widely distributed. Its products are labelled as “National Exemption Product”, which are exported to varied countries and areas in East and Middle Europe, South Africa, Southeast and South Asia, besides of the domestic market in China. Moreover, in order to establish a well brand image, the majority of HG’s exported products have gained international certifications, such as KEMA certification, CPI test in India, etc., besides of these essential Management System Certificates (ISO14001:2004 and ISO 9001-2000) in corporate level.

Additionally, HG’s products can be generally divided into four core industry systems: Power Generation, Power Transmission and Distribution, Power Control and Power Consumption. Specifically, HG classifies its products into six categories: wind power generation equipments, outdoor and indoor vacuum circuit Breakers, switchgears, automation distribution switch and terminal devices, HV switch components and mine electrical equipments, and over one hundred series. The annual report from HG board meeting (Annual review, 2011) mentioned the production was near 644.83 million RMB, the sales volume was appropriate 754.86 million RMB and the profit rate was nearly 14.6% in 2007, which has continuously placed top 3 in electric industry for seven years.

What’s more, the most competitive product in HG is form the business unit of Zhejiang HeWind Co., Ltd. (hereinafter referred to “HeWind”) --- the Wind Power Generator section under HG. HG devotes itself to the development and application of renewable sources ten years ago, told by the HeWind vice manager Mr. Tang. Such as the independently developed 780kW wind turbines had been successfully exported to Chile in October 2007, which is the first Chinese Enterprise Exporting Complete Sets of Wind Power Generators. Although the sales volume was 55.803 million RMB (8% of the electric products) with 0.81 million RMB lost in profit in 2007 (Annual review 2007), the giant investment in renewable energy technology is expected to be the potential competitive advantage in a leading status.

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All these factors of external environment are always changing in a dramatic way which poses an influence on company’s mission and vision. Accordingly, HG has its own missions in different developing periods, and these missions also would be change according to its changing external environment. Currently, the external environmental pressure and constraints would mainly come from the political and legal influence, the economic influences, the competition environment, R&D for product technology upgrading, and internal management issues. All of these external environmental influences affect the firm’s operations and competition ability, both on an international business level and domestic level.

With the favorable supports from government policy, HG, as well as the whole exporting business in electric industry, will be much more competitive in the international market. However, as the time changes, because of the low qualify and less differentiated technology content, in addition to the local protectionism and discriminatory trade policies in the foreign market, the exporting business in the electric industry was getting overcrowded with scorching price competition. Along with the development of economy and living level, consumers (the target market) are looking forward to the products with higher technological content and more excellent quality in a lower price. HG is facing the same constraint which mainly will be from the product portfolio upgrade, and has to put forth the same effort in product development as well as in technology upgrading, business management improvement and product cost control.

The competitors of HG come from both domestic market and aboard market. HG’s tough competitors are TOSHIBA, ABB and Schneider Electric, and all these competitors continually promote the technology upgrading. At the same time, more and more competitors appear in the electric market competition in the domestic market (Zhang, 2008). HG needs to face all the pressures that come from a highly sensitive competition in trade and services. HG has boosted up its sales force to outdistance its competitors in volume sold in order to win in the market share contest.

REACTION FROM HG

Being equipped with an advanced management capacities and sound techniques diffusion in relation with its mission of developing its own new technology, is believed in HG which can enable a leading status in grasping the growth opportunities. HG actively takes advantage of the opportunity presented by the fast development of global economy and the seeking for new economical growth points. Under the premise
of constant resource allocation optimization and improvement of core businesses, HG is working hard to make full use of all possible resources and opportunities to create more values in its market expansion and spare tremendous efforts to lead the electric industry (Working plan and Year forecasting, 2008).

As Mr. Chen mentioned, the core values from technical innovation capability and information and knowledge sharing via collaboration help HG to face any environmental changes and competition confidently, so as to hit a new growth and sales volume breakthroughs time and time again. HG is closely following the latest high-tech developments from home and abroad markets. One success key is its sound organization capacities which can integrate the high-tech achievements from its research institute and strategic partner in nationwide and worldwide. In order to be capable of adapting to the changing environment, the company pays much attention to its customers, suppliers and employees basing on e-business technology. HG sends employees to study the advanced management mode, and brought technology and equipment from other international companies to make faster and greater strides.

For example, through a continuously technical cooperation with scientific research institution and international famous enterprises (such as Toshiba (Japan), ABB (German), etc.), HG carries out its development strategy-- “Brand Marketing together with Network Marketing”, which is not only arming to extensively establish stable customer relationships with the domestic and international market, but also to increase the product quality and scientific and technological content. Thanks to the internationalized collaboration on the technology of wind turbines with Aerodyne (German), HG has jointly developed 1.5MW wind turbines, and attains the individual ability to advance them to 2.0MW, 3.0MW wind turbines. And there will be a new energy production base in the year 2010 for wind turbine production, which will be one of biggest New Energy Research and Development Centers in China. HG does strive hard to developed low-voltage and high-voltage technologies actively, and aims to be the leading enterprise in wind power industry. The rapidly developing in the output of products with high content of technology is representing as a new economic growing point for HG. In the second half of 2007, 780kW wind turbines were exported to Chile and HG became the first Chinese enterprise exported the complete sets of wind power generators.

However, HG fails to repeat technology innovation in its product portfolio. New product development is under a slow pace and there are too little distinguished products with differentiated technical content to gain a competitive advantage as a product set. Series of measures and internal business and management governance to constantly improve the independent innovation ability and management efficiency is inappropriate. OA systems or ERP system are in not diffuse to all employees and partners. What’s worse is that the accident rate in the factory and the repaired rate are relatively increased due to unsatisfied quality, and the customer service satis-
faction is low, as shown in the Annual review (2007). This means, although these developed e-business or e-collaboration systems and techniques are installed, they are still some other factors will affect the implementation of information sharing and collaboration.

RE-ENGINEER A RESPONSIVE E-ENTERPRISE STRATEGICALLY

HG’s international business model is on-demand production which highly emphasises an sound information sharing among customers, suppliers and employees. As a manufacturing factor, HG not requires a fast evening-and-weekend or real-time operations system. But it still needs an e-enabled business system which should be a competently interactive system, from a consuming market to a business supply chain. To be a competitive enterprise and to sustain the competitiveness, HG pays more attention to the information systems, such as enterprise resource planning (ERP), Office Automatic (OA) system, customer relationship management (CRM), supply chain management (SCM), Material Resource Planning (MRP) system, execution report and treasury package (the controls over transactions, payment and settlement).

Rapid performance can help the company to get competitive advantage in the supply chain (such as shorten the delivery lead time and quicken the cash flow in buy-side of business), expand marketplace (such as widen the interaction with customers in the sell-side of business), and especially upgrade the level of confidence for a further improvement in the organisation (such as reduce the work load and increase the profit-margins in internal side of business). Therefore, the links between value chains can be tightened instantly with automatic connections to other counterparties’ network, mentioned by Mr. Tang from HG.

For online marketing and customer service, there are various online marketing and customer communications techniques to encourage customers to find products using the web than traditional catalogues. Foremost, a user-friendly website interface with sound self-service tools will be a vital transaction in the e-marketing. As a delivery company’s website, a straightforward searching tool for navigation with clear display page will contribute to classification. A consistent view template of electronic catalogue for standard service is appropriate. Technical categorisation tools for site content layout requires the HTML (Hypertext Markup Language), CAD/CAM systems (Computer Aided Design/ Computer-aided manufacturing), 3D technology (such as Map Assistance) and engineering drawings (such as using Photoshop and Flash in advertisements). Those technologies can be used to visualise the service specification and availability information on the on-line catalogues, and to style attractive advertisements for customer. Moreover, a transactional e-commerce
website interface is not only just concentrating on the category display, but also on effectively matching the varied consumer requirements. The company set up different language sections for different target users in the Europe and a set of the FAQ (frequently asked questions) and index to assist site visitors.

Other marketing channels have been traded by HG for spread information. Communication to customers can be placed in intermediary sites (such as the e-publication (People Daily) or other portals (Google or RRS) to promote the service offers, via a banner linking to the company’s site. Those media agencies tend to offer all the skills in content development, advertisement design and online promotion. This online advertising -- banner advertising is a small banner with keywords graphically pops up on a web page, which is normally charged by spot lease, click-through or ad impressions rate (cost per mille (CPM)). Co-branding is a free way for promotions by affiliateing banner advertisement, such as banner exchanges and allied sites (Chaffey 2000, p249-51). Banner is a valuable method for but problem is from people’s disregard.

For the customer relationship management, all the customer transaction information will be recorded at database under individual account catalogue. When the customer log in, the history transaction information will be clear displayed which is useful for database mining to analyze buying behavior and then provide marketing solution for effective and efficient promotion activities. Data-based virtual business processes, with its corresponding order tracking technique (barcodes and WAP (Wireless Application Protocol)) and networked sensors, will program the status of delivered products and then dispatched the warrant into customers’ e-mails, or give a notification when order delayed.

For downstream supply chain management, in order to deliver products and service to customers in a cost-effective way with low stock levels, flexible and quick-response delivery processes are the objects to e-enable the downstream supply chain management. A time-based performance can be achieved from an efficient consumer response, reduced fulfillment time and flexible supply and customer service in HG. E-commerce facilitates collaborative planning by combining the similar target customers’ requirements (according to pickup locations and destinations) and rearrange the accessible schedule for seamless delivering cooperation’s in the supply chain. SCM contributes to more efficient shipment planning, faster order processing and reduced mistake return cost by removing time and manual work from various elements in the order-delivery cycle. The greater accuracy and quicker response will assist HG to position itself as price competitive online.

For techniques in the buy-side, the procurement of procurement of materials and appliances is an essential part in HG. The major efficiency benefited from e-business in HG is not only from the effective manufacturing but also from the well-organized transport of the business supporting materials. The e-procurement
system and transactional web site are clearly the best strategic value investments in the buy-side of business. Through utilizing the workflow system, the web-based e-procurement solutions can automatically produce and transfer the requisition and entry of purchasing information and get e-warrants or e-invoice via e-mail rather than paper-based post. E-procurement, under an enhanced budgetary control, can improve the efficiency and accuracy without the involvement by the purchaser which may pose a non-strategic sourcing and purchases along with duplicating redundant and disconnected ordering of information. ERP system provides a better way to provide a simultaneously integrated management of supply-chain activity and customer services information flows in real-time processing. The most straightforward implement of e-procurement is to catch one or several favoured suppliers for the materials and be integrated with the suppliers’ SCM system. That will help the company get pricing advantage, but with higher setup cost.

From upstream supply chain management, the saving and profitability comes from the reduced need for material stock, owing to faster purchase cycle times (increased sales will result on an increased turnover automatically). Additionally, a lower price can be obtained through standardisation and consolidation of purchase. The e-mail messaging technique, the WAP and the barcodes for traceability all can be used to facilitate the connection within upstream supply chain management. The well work depends on advance agreement and trust between the counterparties. Another B2B e-business application is HG try to use the collaborative transportation management (CTM) as an online reintermedium--- joint the forces with other electrical companies and suppliers---to reduce delivery time and improve responsiveness and reliability which is also depending on trust-based environment.

About techniques in the internal processes of business, first and foremost, to e-enable a manufacturing business, this is a management challenge. One cost-efficient way is to design a virtual organization to manage the knowledge resource in environmental uncertainty variables by providing Internet connectivity for staffs. Information through an ERP system can be effectively allocated to balance the business’s scarce resources. HG designs a web interface to seamlessly integrate front-end customer service (sell-side) with back-end systems such as finance management, human resources management, knowledge management, and market research, product design, sourcing, material requirements planning, production, warehousing and distribution.

ERP system is an integrated business management and control application, based on a day-to-day intranet application (EDI links or web-based open-standard groupware systems) which needs to be installed on each desktop to fill orders and provide account information electronically (Norris, et al. 2000, p31). Additionally, Microsoft products often provide greater functionality, e.g. Support for Internet protocol (IP) with HTML (Hypertext Markup Language), XML (Hypertext Markup
English), or Visual Basic. Those methods are more flexible and can be tailored to the organizations needs. Internet Explorer is currently free and can be used in all types of organizations. For further development, Microsoft development tools are likely to be more expensive, so for the small to medium company, non-Microsoft tools are probably best if there are sufficient trained staffs available. However, in any case, the key to a successful e-business is to use the same language and grammar in electronic dialogue.

On a personal level, to increase the speed of the process, e-enabled business involves fewer staffs. An ERP system offers the techniques to help the human resource management to recruit staff, educate staff, review staff and get feedback from staff. HR manager can use the announcement board to publish the company’s policies, display job description and issue events for its employees without paper-based booklets. Computers also can memory the whole career of each staff to enhance career and succession planning, coordinate training programs (using on-line ‘hands-on’ training software without time and place restriction), and maximize time management. For instance, in HG, the salary for a carrier usually includes a basic salary, performance salary (delivery quantity and quality) and other parameters such as job grade, absention, as well as the satisfaction feedbacks from customers. All the information can be mentioned and stored in the database which results an efficient way to calculate numbers by computers. Then the payroll within detailed records can be delivered to individual by e-mail or in a personal page with permission to view.

The office workplace redesign also take account of a range of alternative techniques, such as a standardized allocation of space—the universal footprint which help to configure a flexible setting to meet the alternate needs of individual work styles (Jackson & Suomi 2002, pp14-15). The bulletin boards, e-mail, instant messaging, e–conferencing, virtual white boarding, and forum will help to collect the ideas, share the project process and drive the business intelligence throughout the company in digital form. For example, the marketing staff will give a better feasible e-business consideration after sharing the web enhancement technique concepts with webmaster, and otherwise, the webmaster will set up good knowledge of marketing technical on time and within budget after well communication. The intercommunication and multi-comprehension facilitated by e-business will encourage a harmonious company culture. The tools (the software such as teleconferencing) support cooperation over an distant in virtual offices—which refer to a non-territorial office, shared assigned spaces, and alternative touchdown areas --- afford a new way to work without the limit of location and time, provide an opportunity for home working and flatten management hierarchies, empowerment and customer interaction.

Moreover, ERP system supports the management of accounting and financial data. Although it requires person to analyse the problems and make decisions at last, computer software with backup database will make the statistical processes more
quickly and accurately. Furthermore, in addition to paper documents management, an effective information management is required by EPR system to control the capacity of information and to capture the competent evidence in the first place for the organisational success. The personalised web side under privacy policy requires a sign-on, which is valuable to give individual information and special authorities to access separate information level. Financial report forms can be updated instantly after accountants finish their input work. Within ERP, the resulting financial effect of a physical transition will be shown to provide decision support for corporate leadership, produce strategic measure for performance, and hold a strategic cost management.

Furthermore, good information management system, with an efficient management of both the quality and quantity of the information which links the organisation’s routine processes—logistic, manufacturing, sales and marketing, will ensure interoperability as being capable of independently of location and time (Chorafas, 2005). E-business can help managers in HG to audit the internal information flow—internal control—in a management information system (MIS). This also is part of knowledge management in business to facilitate the decision making, which make an effort to transfer the various intangible data and information to tangible knowledge can be shared by other ones. The management of the information is broader than maintaining a centralized control on files registry and records management, multi-media and electronic objects (those digital storages, such as CD records and Floppy Disk and Fixed Disk) that combine image and audio are also evolved to reduce the physical forms requirement. The risk of financial records missing or mess also can be avoided if database is duly copied.

**RECOMMENDATIONS**

First of all, technological diffusion definably will be one valuable vehicle to establish a fundamentally distinctive competitive strategy. HG is capable to compete as technology leadership when it integrates a strong innovative R&D team and international research resources. However, the more critical work is to generate an association between technological change and management change. HG should formulate the corresponding management strategies and capacities within a sound mission and vision. These management strategies for preserving product and organizational reputation include the governance guidelines concerning its competition environment, competitors, market operating, products design, organizational management and employees.

In particular, to achieve sophisticated capacities in the interorganizational collaboration side of business is the essential foundation to support the business com-
petiveness (Firn Crichton Roberts Ltd and David Crichton Economic Development, 2007). HG could carry out systematic information acquisition/sharing, innovation guideline and employee training plan in subsidiary, each business division and even business partners, which is arming to promote the quality information management system and collaboration control management toward standardization, scientization and internationalization. Such as the on-site management could be a breakthrough to strengthen the quality control, production management, material management, sales management (Working plan and Year forecasting, 2008).

In order to keep other competitors from encroaching its market share, HG should have the sensitivity in dealing with market. HG could measure its competition on market by their ability to leverage the market information and to take a fast reaction to the external environment more effectively than their competitors (Phatak, Bhagat, & Kashlak, 2005). That also maybe a good idea to organize an environmental inspection team to make sure the company in ledged to a right vision. The members could come from the operational level, management level, supplier level, distribution level or the institutions outside to assess the external environmental change and business performance regularly. The key point is the information from these team members are diffused unhindered and well.

Secondly, a further development plan in e-business adoption should be established to strengthen the management of the information and collaboration management and the full range of enterprise management. E-business is regarded as the tangible economic benefits, supported by Chaffey (2006). In order to offer a rapid response for customers’ demand and employees’ demand on the spot, HG should impose a strict execution in the management supervision with the help of e-business management solutions. For instance, the market and product information collected from the external environments can be processed in its database. And then, the e-business software can produce a more accurate market analysis, forecasting, financial reporting, as well as valuable positioning suggestion, diversified choices for decision-making, etc. to improve business management, especially the marketing management.

Creating new competitive products with the assistance of e-business solution is also a good approach to catch the competitiveness in the electric industry as well as the wind power field. As Li-Hua (2007) described that ‘faced with a turbulent business environment, the collaborative arrangement of technology strategy has become a trend’. HG takes “Resource-for-market” as its development strategy, and attains the benefits from the regional co-operation. Therefore, it is necessary to further develop the megawatt-class wind turbine generation systems with its owns independent technology, and then extend the research into other new energy field such as light energy and solar energy for building up a competitive products line. These new product could have its reliance to lead the international tendency via the collaboration designing in a lower costing but faster online communication
channel. With the optimized product mix, new technology and products should be introduced, together with an appealing promotion and pertinent marketing tactics, HG will catch bigger and bigger market both domestic and abroad.

Another strategy is human resources management and information and knowledge management. HG earnestly implements the strategy of tapping human resources that is about opening to engineers and technical person from China and other countries who could make their effort to the development of HG. HG is succeeding in transplanting significant amount of foreign talent in technological fields, but now, emphasis must be further placed on translating their presence into a permanent knowledge resource in research and development and innovation. If HG can enhance the executive force to encourage the OA system in dairy communication and schedule management, news publishing, e-mail management, and decrements and archive management and etc., knowledge management will be a priceless capital can not be copied.

HG did establish the guideline for information and knowledge management, but the practice did not follow it in a strict manner (the rewards are mainly basing on the sales volume). The outcome of Information and knowledge sharing does not directly to the sales part, therefore, the reward is relatively in a low level. For example, information and knowledge exchange program about innovation motivation between technical staff and managerial personnel would be a way to foster the comprehension among different business sections. Scientists, technicians and senior managerial personnel who have made outstanding contributions shall be rewarded. How to making well use of the human, information and knowledge resource by all means according to employee personals, intellectual property rights and business performance would be big topic in HG.

CONCLUSION

E-technologies and the Internet facilitate an efficient and effective re-engineered process for business. HG uses e-business technologies to develop different types of links to work with different suppliers or using an intermediary with many suppliers. This work focus on outlining those cost-and-risks-reduction and time-saving techniques for a HG, over through the buy-side e-business (as the inputs of resource), internal processes (as communications and transactional processes), and sell-side e-business (as the output). Buy-side e-business is mainly considered as integrating the marketing management, customer relationship management and downstream supply chain management, sell-side e-business mainly involved in the upstream supply chain management, which focuses on managing the relationships with suppliers – procurement, stock control and distribution (also including intermediaries), and internal e-business is focus on a integrated ERP system, supported by knowledge
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finances management, human resources management, knowledge management. Nevertheless, although there are various techniques can be adopted for business, the success of e-enabling the business is basing on the harmonized cooperation of these practicable e-technologies.

The pressures and constrains that come from external environment. Through the analysis of the changing external environment, and the pressures and constraints come from external environments, it is necessary for HG to develop definite mission and keen vision along with the environmental changes. The currently pressures and constrains are mainly from the political policy or legal system, the economic environment fluctuation, the financial monetary system, the competition, the technical development (R&D) for product technology upgrading, and internal management issues. Overall, HG has performed a successful accomplishment in adjusting its mission and vision when environments have been changed. Recommendations are that HG could reach a global market benefit from adequate response technological strategy and management capacities change, e-business adoption and talent management from interorganizationl collaboration. The key point is the information and knowledge from these collaborative team members are diffused unhindered and well. The new information ad collaboration strategies could create more opportunities for the development of HG in the future.

There is no doubt of the advent of the Internet Age, which has dramatically changed the personal life and business model. The expectations in business circumstance for e-business adoption are presented at last, which involves a further exploration of Internet virtual environment through building of a value trust network under reliable online trust and commitment, a humanized customer interactive interface supported by customized service differentiation, and a widely use of smaller devices, such as the pocket PCs.

REFERENCES


