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KNOWLEDGE MANAGEMENT IN AGILE ORGANIZATIONS

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ABSTRACT

It has been suggested that in the management of knowledge, organizations must be able to provide an environment in which individual and organizational knowledge, whether tacit or explicit, general or specific, declarative, procedural or causal is refined and reposited. One management process and organizational system that is of important concern in knowledge management is agility. The development of Information Communication Technology (ICT) in the era of globalization and competitive business environment indicates that agile organizations are able to better sustain in a competitive and volatile industry. By means of a case study on agility in the construction industry in Malaysia, this paper argues that knowledge management through agile organization structures can help construction firms to remain competitive in a volatile and competitive market. In conclusion, it suggests that knowledge management enables agile organizations to deal with uncertainty.

Key words: Knowledge management, Malaysia, ICT.

INTRODUCTION

One important feature of the twenty-first century is that new market-focused opportunity space is opening up, as the world moves toward a single mass market. Globalization, in particular, is said to bring managers around the world face-to-face with near-contradictory challenges. It increases the need for cooperation and coordination in businesses among countries in order to find common standards, methods, languages, package size, transportation systems and communication links.

During the phase of the k-economy and globalization, one significant trend in the management of organizations in Malaysia has been the move away from the conventional hierarchical organizational structure to what has been described as "Alliance Capitalism." Alliance Capitalism involves a redefinition of business units from one that is almost totally self-contained to one that is characterized by strong alliances with external firms. In effect, companies are "repackaging" themselves to become more competitive by focusing on their major sources of strength internally, and allying with strong service providers to gain maximum overall competence externally.

The shift from managing a traditional hierarchical structure to a network of alliances depending on a combination of internal core competency and outsourcing can have a

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significant impact on firms operating in hostile and volatile business environments like the construction industry. As expected, the construction industry too has within its workforce the full complement of positive characteristics that could be expected of individuals, such as vision, integrity, flexibility, honesty, wisdom, competency, professionalism, intelligence, entrepreneurial spirit, efficiency, transparency, managerial skills, and benevolence.

THE CONSTRUCTION INDUSTRY IN MALAYSIA AND ITS FLUCTUATION

For the last 25 years, the construction industry in Malaysia has experienced three economic cycles of the 1970s, 1980s and 1990s. In the 1970s, despite the economic fluctuation, the construction industry remained relatively stable with a growth level ranging from 4.7 % to 4.3 % (CIDB Malaysia, 1999–2000). The main contributing factors were the government policy of promoting home ownership and the rapid pace of commercial and industrial development in the country.

Before long, however, the volatile economy of the 1980s affected the construction industry negatively which indicated that Malaysian construction firms were very vulnerable to economic downturn. The firms were slow to respond to the economic environment. They were introspective, restricted their activity to certain segments of the industry and concentrated only on the domestic market.

The robust 1990s were active years for the Malaysian construction industry. There were double-digit growths for seven consecutive years from 1989 to 1995. Growth was widespread, involving the public and private sectors over an expanded range of construction activity. This growth, however, came to a halt in 1998 when the construction sector contracted by 23% and further deteriorated to 5.6% in 1999 (Lee, 2001). With a recovery of 3.1% for 2000, analysts projected a 4.8% growth for 2001 and a steady upward trend of 5.5% of growth in 2002 (Lee, 2001).

The construction industry is one of the most cyclic industries in Malaysia. It experiences higher highs and lower lows than any other industry. Thus, the fluctuation represents the most important constraint in the construction industry.

This fluctuation is induced by the economic cycle which influences other factors in the industry, especially human resource, and eventually affects the long-term objectives of a firm. The economic cycle is illustrated by the phenomena of “booms” and “busts” in the property industry that is related to the construction industry as viewed on the economic clock. *The Evening Standard* of London made a study of trade cycle over a period of 150 years and summarized its findings in a clock format. It showed how the booms and busts of the economy were related to economic indicators such as interest rates, share prices, commodity prices, overseas reserves, liquidity, and property value. According to Research Incorporated (Asia), the real estate cycle in Malaysia has three phases, which are Upturn, Mature and Downturn.

AGILITY AND COMPETITIVENESS IN THE CONSTRUCTION INDUSTRY IN MALAYSIA

Agility is the ability to survive in a continually changing and unpredictable business environment. It is a comprehensive response to the challenges of profiting from rapidly changing and continually fragmented global markets for high quality, high performance, customer-configured goods and services. Agile organizations and individuals not only survive but also take ample advantage of the uncertain, changing environment and create greater opportunities for themselves. Organizational agility (OA) is the capacity to be inherently adaptable without having to change. For a company, to be agile is to be capable of operating profitably in a competitive environment of continually and unpredictably changing opportunities. For an individual, to be agile is to be capable of contributing to the bottom line of a firm that is constantly reorganizing human and technological resources in response to unpredictably changing customers and business opportunities. All in all, agility is about profits and successfully winning the market share in the very eye of the competitive storm.

The concept of agility is crucial to the construction industry in Malaysia. An agile firm is in contrast to the traditional firm that has a hierarchical line, a staff structure and permanent employment of staff.

Hierarchical Line and Staff Structure

This traditional form of staff organization is a common solution adopted by construction firms. The form constitutes a vertical chain of command where staff at a higher positions exercise formal authority over subordinates at lower positions in the organizational. This direct and uncomplicated top-down hierarchy allows one-way passing of instruction and information down the line. Such a top-down hierarchical structure implies that all staff play a supporting role to the line of authority.

Permanent Employment of Staff

This creates a financial constraint on the firm. The considerable fixed costs burden the firm during bad times and do not help cope with the boom-time expansion. Thus, it worsens the vicious cycle by employing more permanent human resources, which in turn creates a problem during economic slowdown. The firm ends up losing a lot of money in retrenchment benefits and sometimes runs the risk of bad publicity and sore relationships.

Various Functions and Disciplines within an Organization

Construction firms operate by coordinating various functions and disciplines from quantity surveying to construction management. There are supervisors and office staff who interact via the traditional line and staff structure to get things done. The variety of functions performed by various disciplines and skills create a top-down approach with clear-cut job

descriptions. This hinders cultivation of other functions besides discouraging motivation to perform tasks out of the individual scope of work. Thus, during bad times the lesser functions or redundant disciplines are cut due to smaller volume of work.

Depth of the Organization with Multiple Layers

Multiple layers of organization, due to various functions and disciplines, result in enormously increasing the size of a construction firm. The size increase, due to the specific function of each layer of the organization, is critical to the overall function of construction activity. Though this eventually leads to the growth of the firm during boom times, it can also result in downsizing during lean times.

AGILE STRUCTURE

The essence of an agile firm with a competitive advantage lies in its response to constraints affecting construction industries in Malaysia: agility in function, size, and finance. The agile concept is quite similar to Atkinson's flexible work force model, which is based on three concepts (Atkinson, 1984):

- *Functional Flexibility* or the swift and smooth redeployment of employees between activities and tasks, resulting in the rise of multi-skilled employees
- *Numerical Flexibility* or striking the desired balance between the size of human resource employed and the actual number required through subcontracting of services and work
- *Financial Flexibility* or finding not only the most effective human resource but also a new way of compensation that is assessment-based, rather than on the "rate per job" basis

The agile structure adopted by a construction firm hinges on the following human resource strategies: rightsizing, flexibility and outsourcing. The challenge of agility is the conservation of knowledge. Every organizational structure downsizes one way or another, but when traditional hierarchical construction firms downsize, it also means losing knowledge. When people leave the firm, they take along with them the key success factors of the firm and in this way knowledge is lost. But when an agile firm downsizes, it does so without the loss of its knowledge base. The key human resource, which is the embodiment of skill and experience, stays intact but is kept at a minimum operating cost.

The essential objective of strategic human resource in an agile firm is to conserve knowledge while maintaining the resources of experience and skills during the down-cycle to be redeployed and expanded during the upturn of the economic cycle. This restructuring of the human resource seeks to achieve flexibility in order to respond to fluctuation that also creates a new experience for the construction work force. A major aspect of the Atkinson model is the increasing division of types of employment. This allows numerical flexibility through a process that ranks the needs of the firm in terms of its long-term objectives and

creates the role of strategic human resource management via the "built-in" of the flexible concept: Functional, Numerical and Financial.

Besides these, Atkinson also identified two source groups of external human resource that are more common to the construction industry: subcontractors and agency temporaries. These two groups are not firm-specific but are specialized and externally based. Examples of subcontractors are air-conditioning and electrical works contractors. Agency temporaries are consultants such as engineers, surveyors and architects who are hired to provide specific professional and consulting services.

The Atkinson model separates the human resource market into two categories, primary and secondary. At the centre of the construction firm model is a core group of full-time permanent career employees. This group is from the primary human resource market consisting of managers, designers, quantity surveyors, engineers and other building professionals whose roles are specific to the construction industry. These core employees are endowed with the following characteristics:

- The highest level of job security
- A degree of flexible functions
- Short-term conditions involving crosscutting and multidisciplinary roles
- Difficulties in subcontracting the role of the core group, as it requires highly skilled managerial skills
- In medium-term fluctuation, employment of this group is generally protected
- This group is the source of the firm's knowledge, skills and experience

The secondary human resource market, on the other hand, consists of first and second peripheral groups. Their function is to flank the core group and they are often victims to the fluctuation of the construction industry. These groups of human resource expand and contract in size according to the level of the industry fluctuation and in turn provide protection to the core group.

The first peripheral group comprises clerical staff such as purchasing clerks, secretaries and account clerks who are provided with jobs rather than careers. The other characteristics of the group are as follows:

- They are full-time employees
- They are not job, firm or industry specific
- Their jobs are usually less skilled compared to those of the core group
- They have a narrow range of jobs
- Firms usually adopt a recruitment strategy of targeting women
- Firms encourage a high level of turnover of such employees

These characteristics allow the firm a relatively untroubled and swift adjustment, and easy adaptation to changes and uncertainties of the construction industry.

The second peripheral group, however, is the most exposed to fluctuation of the cyclic nature of the construction industry. Their employment is characterized by short-term contracts, part-time employment, job-sharing and hiring of trainees. The role of this group

of human resource is evident in the maximizing of the firm's numerical flexibility by minimizing the firm's commitment to the employees.

Construction firms are mostly project-based where work is usually obtained via competitive means. Thus, the competitive advantage of the firm lies in strategic human resource management, which enables a great deal of numerical flexibility. This allows the firm to determine exactly (right-sizing) how much human resource services are needed at a particular time. This also facilitates greater agility (flexibility) in terms of the employee's scope of work compared to direct employment. This in turn results in greater development of external human resource (outsourcing) to get jobs done by increasing commitment of self-employment, specialization of subcontractor and agency temporaries, leaving the firm very agile and lean with minimum burden of internal human resource and maximum productivity.

A CASE STUDY OF A COMPETITIVE AGILE CONSTRUCTION FIRM IN MALAYSIA

The firm under study, which has an office in Kuala Lumpur, went through a restructuring by downsizing the office in anticipation of the weak regional economic sentiment in the wake of the recent economic downturn. As the activity of the construction firm was mostly project-based, such retrenchment was unavoidable. All staff belonging to the secondary human resource market was retrenched. Among the first peripheral members of the secondary human resource to be retrenched were the secretaries, clerks and other administration staff. The second peripheral of the secondary human resource that was hired as contract staff such as site clerks, supervisors and site engineers also suffered a similar fate.

Comparatively, between the internal secondary human resource market and the external human resource market offered by subcontractors, agency temporaries and outsourcing, the separation of the latter was done at almost no cost. Since the weak construction market had no ongoing projects, the variable costs from external resources were almost nonexistent. However, there were costs for separation of the internal secondary human resource in the form of retrenchment benefits not only to comply with the country's laws but more importantly, to maintain a professional relationship and goodwill with the retrenched staff, as their services may be needed in the future.

This segment of human resource is important as this group possesses potential knowledge and skill contribution that may be used in future undertakings. For example, recently on a project in Penang, skilled Thai workers and engineers who had previously worked with the firm were tracked down and brought into the project, as their specialized precast technology knowledge was urgently required. This was also due to the lack of ready and able local skilled human resource who were familiar with the system and multiples construction culture. In addition, training of locals could not be justified due to the short construction period.

The core, primary labour market, however, was less affected in the restructuring. The expatriate managers were redeployed in other projects around the world. This expatriate human resource, which is conserved during contraction, is the key to multiples competency in the construction industry. A majority of the local directly employed building

professionals such as construction engineers, quantity surveyors and designers were also retrenched. Redeployment in other overseas projects was offered to some of those retrenched, including:

- Three members of the core-group staff consisting of a project manager, a design manager and a contract administrator
- Two members of the primary peripheral staff consisting of a secretary and a clerk
- Five members of the secondary peripheral staff consisting of a site manager, engineers and supervisors

In this construction firm, the head office consisted of a core group of three directors, two secondary peripheral managers, and three primary peripheral staff consisting of one administrator and two clerks cum secretary. The rest of the human resource such as labourers and maintenance workers were outsourced (Figure 1).

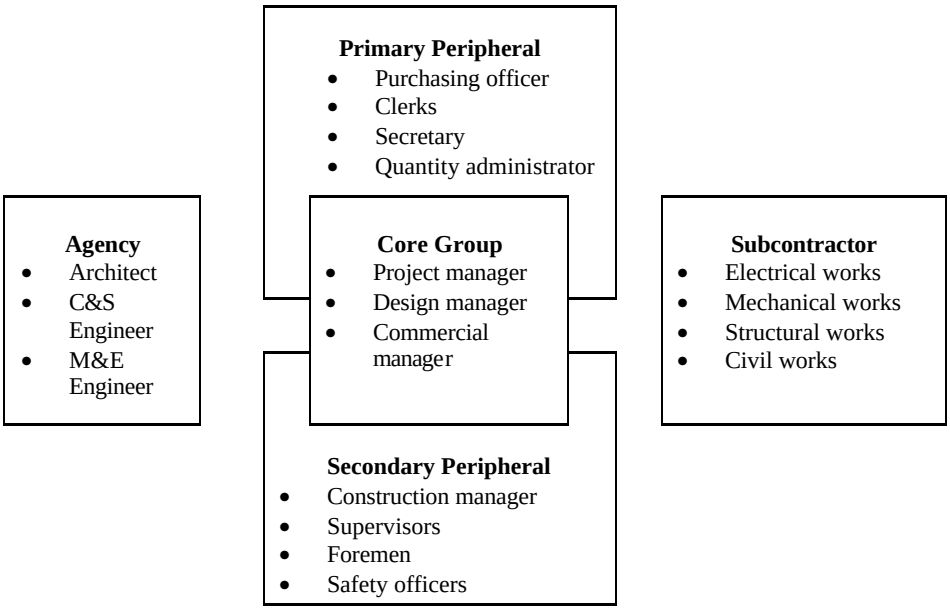

Figure 1. An Agile Organization Structure Of The Construction Firm: Project Oriented. C & S = civil and structural; M & E = mechanical and electrical

The key strategy for local primary human resource to be retained is for them to earn the "inner-circle" status of the company and be valued as local "expatriates" on the basis of acquired managerial skill. The financial commitment in terms of compensation would be reassessed according to the situation. Hence, in the absence of construction activity as agreed in the service contract, the salary and benefits of the core staff are also reduced to reflect the situation but remain sufficient to maintain a certain life style. In no way does this

financial flexibility communicate a salary cut; rather, it reflects a performance-assessed compensation.

The compensation of the core staff is thereby increased to reflect activity and to encourage performance. This also helps keep at bay pull-factors as the "activity"-level salary is always above market level. This combination of fixed and variable compensation enables the firm to maintain core staff during a down-cycle and provide motivation during an up-turn cycle. However, communication to that effect is essential, as the core staff's mind is oriented to view the compensation strategy as a vital part of the organization's competitive advantage.

The strategic human resource move is to mobilize the local primary human resource market, which was previously professionally separated, and rebuild the core group. The strategic human resource management would then expand the secondary human resource market by responding to the exact need of the new project, thus maintaining the agility of the firm.

RECOMMENDATION AND CONCLUSION

The planning and implementation of human resource must be strategically conceived. Identifying and responding to extreme external forces such as cyclic fluctuation, which inevitably affect and influence the internal chain value of the firm, must be paramount in order to gain competitive advantage.

In conclusion, the recommendation is to cultivate an agile construction firm, which is lean and prepared to face the challenges of the extreme cyclical nature of the industry. Knowledge, skill and experience are the key success factors of a construction firm. The way to attain, cultivate, maintain and develop these key factors is actually in the Human Resource Management.

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