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Case Study

- *Qian Hu Corporation*

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Knowledge Management: Strategy for Businesses

1. Introduction

In recent years, knowledge management (KM) has assumed greater urgency in businesses as millions of baby boomers prepare to retire over the coming decade. Businesses are taking measures to retain the baby boomers insights – the knowledge they gleaned about their jobs, businesses and industries, over the course of their long career. Additionally, KM has also increasingly become a vital strategic practice that enables businesses to operate more efficiently and gain competitive advantage in the marketplace.

2. What is Knowledge Management?

Knowledge management is defined as “the process through which organisations generate value from their intellectual and knowledge-based assets”. Most often, generating value from such assets involves codifying what employees, partners and customers know, and sharing that information among employees, departments and even with other businesses. It is also important to note that while KM is often facilitated by information technology, technology by itself is not knowledge management.

3. Knowledge Management Benefits

Knowledge management efforts usually focus on organisational benefits such as improved performance, competitive advantage, innovation, the sharing of lessons learned, integration and continuous improvement of the organisation. Often, KM efforts overlap with organisational learning, and could be distinguished from that by a greater focus on the management of knowledge as a strategic asset and a focus on encouraging the sharing of knowledge. Effective KM initiatives can bring

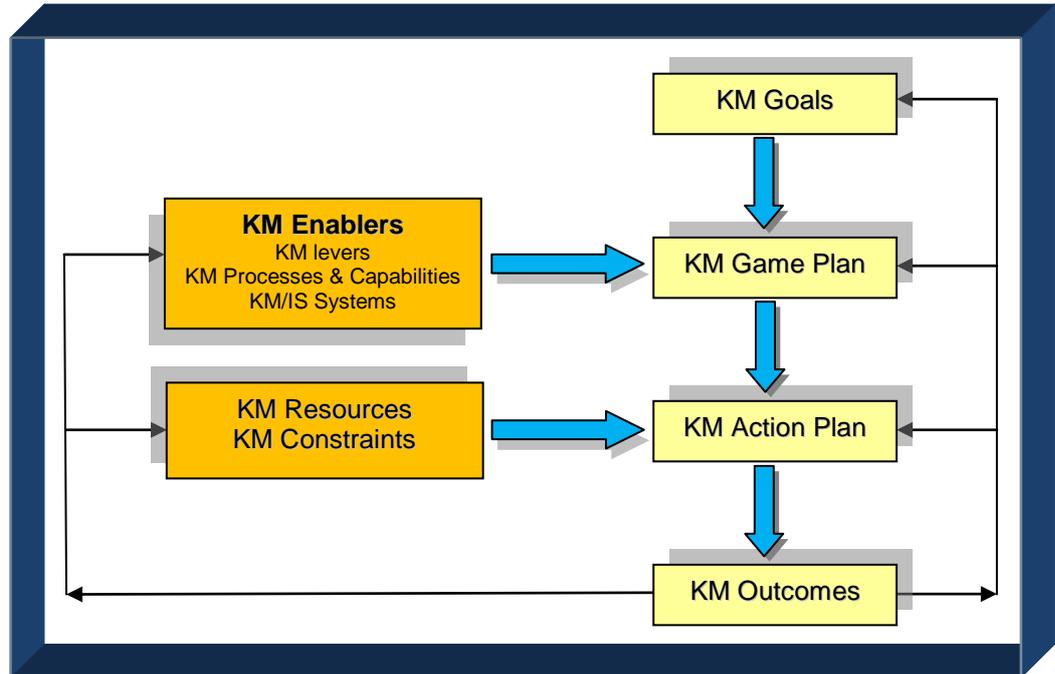
important strategic consequences to organisations by enhancing innovation, promoting firm productivity, increasing agility, maximising market share, fostering customer loyalty, boosting product or service quality and variety, among others.

4. Knowledge Management Framework

Creating and delivering an effective knowledge management strategy is an important first step for organisations to develop a shared knowledge base that is required to increase process management efficiency, as well as to improve their competitive positions. Hence, it is necessary to build a comprehensive framework that focuses on the key factors that are critical to the development and delivery of a successful KM strategy.

The basic framework includes outcomes (or goals), levers, processes, systems, resources, constraints, game plans, and action plans. The application of the framework begins with the goals of the KM strategy. The established goals must align the business strategy and the KM strategy. Once the alignment is identified, then the selected strategy is described using the appropriate levers, processes, and systems needed to support the devised game plan. The resources needed and constraints are then identified after which the goals and the game plan are devised and the action plan implemented. The implications of the strategies are translated into action plans that will allow the combination of the business strategy with KM strategy, while putting to work not only the knowledge base, but also the organisation's competencies. Even though the building blocks of the framework seem simple, and putting the framework to work seems straight forward, experience suggests that implementation is not without some challenges since few businesses apply the entire process successfully.

KM Strategic Framework – The Complete Planning Framework



Source: Russ, M. (2010). Knowledge management strategies for business development. Retrieved June 15, 2010, from <http://www.exportacademy.net/resource/file/ebook/Knowledge-Management-Strategies-for-Business-Development.pdf>

4.1. KM Enablers: Levers, Processes and Systems

KM Levers

The lever is regarded as the multiplier of force for whatever strategy or action that is put in place in order to arrive at the outcome. Some of the levers that should be considered include: human resources policies; reward (formal and informal) system; cross-functional collaboration; core competencies; top management support; external relationships and culture/tolerance of risk.

HR Policies

HR policies comprise the areas of recruiting, selecting, hiring, training, developing and rewarding new and current employees at all levels. Hiring, training and retraining are seen by many as talent management and different from knowledge management. While they are different, they are

intensely related, and talent is one of the most important, if not the most important lever needed for the KM strategy.

For example, one of the key positions companies have to develop for successful KM strategies is gatekeepers that have the capacity to bridge across disciplines. This unique set of skills can be either groomed internally or acquired from outside, but the HR policies must allow for gatekeepers to survive, improve, flourish, and perform their function effectively. Diversity is also crucial to support creativity. One hiring policy that can increase cross fertilisation and creativity is hiring people with different backgrounds, e.g. ethnicity, culture, complementary (but different) technical skills.

Reward System

Appropriate reward systems are crucial for the success of any strategy and KM is not an exception.

Pay for Performance

Individual pay for performance might be contradictory to new knowledge creation or to existing knowledge sharing behaviour.

If one is dealing with tacit knowledge and the organisational culture is not open, the knowledge that must be shared may not be released to the individuals who need it and it may be hoarded by those who have the tacit knowledge. If the knowledge that needs to be shared is codified it will be easier to detect, even if the organisation's reward system is positioning the different units as competing for the pool of rewards. However, tacit knowledge is much too easy to hide. This might explain why copying best practices within the firm are so difficult. Firstly, the best practice that might work in one place will probably have to be slightly modified because of local conditions, regulations, etc. Secondly, the knowledge provider might not be aware of some of the tacit knowledge assumptions that are taken for granted at his/her location. And lastly, the reward system based on the profits in the specific business unit will probably not be

rewarding him/her if it is based on a profit at the other business unit.

On the other hand, delayed payment, or payment that results from a relatively long period/ tenure, may be effective in promoting the appropriate behaviours that support KM strategy implementation.

Promotion

Promotion might be used more effectively to promote new knowledge creation and/or knowledge sharing. A problem with promotion is that it might be more subjective and as such create or play into internal politics.

Intrinsic Rewards

Intrinsic rewards are seen by some as the most appropriate but the most difficult to create and sustain. Some specific examples used to support KM strategies are: increasing the visibility (e.g. "best seller" advice) of an expert or being nominated as a mentor, or being sent to conferences to represent the organisation. This might be even more effective, but requires the right culture (for example a team spirit), and leadership.

Cross-Functional Collaboration

Cross-functional collaboration is seen as a key success factor (KSF) for successful KM strategy implementation. Cross functional collaboration is a KSF for new product innovation (new knowledge creation) in large high tech companies. For example, marketing collaborating with other functions might be crucial in some cases more than others. Learning from failures or from successes presents challenges for KM in a fast changing and uncertain environment. Thus, in this context a strategic question will be how to structure the cross functional team (composition) and how much autonomy and flexibility the team should have in making strategic and tactical or operational decisions. This also requires coordination with the nature of the knowledge (codified versus explicit) and the systems supporting the team activities.

Another question will be how to break the barriers between the internal or external silos, when true collaboration between people is needed but language barriers, organisational (intra and inter) authority lines, functional responsibilities, etc. make true dialogue difficult if not impossible.

The stickiness of the knowledge in question will be an issue as well. For example, if the knowledge is highly technical, the collaboration might require mechanisms appropriate for sharing tacit knowledge, while if the knowledge is codified (or codifiable) the collaborative mechanisms that will be appropriate will be more IT systems based. The other issue identified that is relevant here is that in many cases, the function of KM is “silo-ed” (under/owned) by either the IT function or by the HR function. If this is the case in the organisation, then the cross functional collaboration may be tainted by turf wars. One has to allow redundancies within the organisational design, since assuming that only formalised and planned processes will work is wrong.

Core Competencies

Organisational core competencies are defined as “the key processes that allow the organisation to deliver its product or services to its customers better than any of its competitors, and which result in its sustainable competitive advantage”. Those processes are unique, hard to copy and cut across multiple units. As such, they depend significantly on company culture and not based on information systems. They are the result of a complex process of organisational learning and an accumulation of multiple teams’ learning, and as such, are very difficult to manage, codify or copy.

Core competencies can operate as levers as they are the centre of the organisation’s business model. Thus, they should be the lenses through which the organisation concentrates its efforts. Being such a magnate for knowledge is a great advantage, but when the environment changes, or when the company may want to change its strategy significantly, this might be a huge burden. It is crucial to understand that managing existing core competencies and developing new competencies requires a different set of organisational skills and leadership.

Top Management Support

Top management support is crucial as in any other major organisational change or strategic initiative. It can create a powerful lever by providing the appropriate environment, for example budget, people, time, establishing appropriate performance indicators and reward systems, as well as providing the vision and leadership needed. In some cases, gaining top management support might not be easy, since KM might have a negative connotation, sound like another buzz word, or is seen as just another way IT is trying to increase their budget, by sneaking in a fancy technology. Since KM requires time, top management might see it as a significant drain on their attention and time, especially if the outcomes are not quantified. On the other hand, the senior management team might see KM as a tool for gaining control over labour, as it may allow for a better knowledge of what labour does and hence allows for de-skilling of the human asset as well as lowering cost, etc. Top management support is not static. The lenses through which the top executives test the value of KM are dynamic, and can be modified. One example of when the lens of KM will change will be due to government regulation, or when a government body introduces new legislation or a new standard. Another way to change the lens of KM and to gain support of top management is by aligning KM vision and mission with organisational vision and mission, which is why the goals are on top of the matrix.

Top management support, is not synonymous with control. In fact, in some cases, they contradict. The more control one has, the less support one is showing, since KM requires the soft touch of management. It is important to note that while having strong top management support is crucial, it is not sufficient. The role of middle management in KM is one of the least understood and studied aspects, even though it is clear that middle management plays a crucial role in a successful implementation of both.

External Relationships

More and more companies depend on external sources of knowledge. As there is a greater need to react quickly to environmental issues and the

ever-changing market, it becomes apparent that knowledge creation not only must be fostered from within, but companies should always be ready to discover additional external sources of knowledge. One variable in the equation is time. Although time has not been explicitly quantified within the knowledge creation process, it is evident that organisations are required to streamline this process. Knowledge creation can be a relatively slow process and one way to accelerate it is to utilise outside knowledge. There will be rare occasions when all the knowledge required by an organisation will be available in one or few individuals and even then, the cost of such knowledge can be relatively expensive. However, understanding what knowledge is required and how that knowledge can be used for a particular set of circumstances can greatly impact the time needed. For example, it can reduce the time-to-market of a new product or service.

Time is one of the primary factors that must be considered when analysing the overall requirements for knowledge creation. Knowledge will be exchanged when external relationships are fostered. It is both an advantage and disadvantage depending on one's perspective. However, the ultimate cost of knowledge loss or additional risk acquired, assuming it is a value to the organisation, must be weighed against the perceived gain of creating knowledge at a faster pace than creating it from within, which is why more and more companies, even the larger and successful ones, use external sources of knowledge extensively.

Some other issues to consider when discussing external relationships include utilising customer relationships as a trigger for new product or service development. One must recognise that the customers may be telling the organisation there is a need for a new product or service that it can provide. However, that need must be weighed against the organisation's strategic direction as well as the ability to ramp up and bring the new product or service to market in a timely and cost efficient manner. Inherently, customers with intimate relationships will know if the product or service is something that is within the organisation's scope but decisions of that scope must be made by the organisation itself, based on the strategic direction in which it is planning to

move. Customers, like individuals, are selfish and are only looking to their own needs and strategic direction. They will endeavour to push their agendas and the coercion of their requests may look like a lucrative niche is developing. The reality is that there may be a new market opening and you may not have the knowledge to fill that need. However, if the direction is contrary to the organisation's strategic direction, there may be dire consequences when what seems like a good fit runs against the direction the organisation is taking.

Acquiring knowledge from external resources may also allow for a re-combination with internal knowledge and creating a new knowledge or product or service. Some capabilities are more relevant than others depending on the expected outcomes and strategies. Development of alliances and/or joint ventures with one or more partners or participation with competitors in the development of industry standards or as part of a consortium is another way to acquire knowledge from external sources. The issue here is the transfer of knowledge to manage the relationships and understand what proprietary knowledge may be shared with others. If that knowledge is part of an organisation's competitive advantage or core competency, steps must be taken to ensure that the newly shared knowledge is leveraged and any strategic decisions made because of that knowledge are reviewed. In this case, a strategic decision may be compromised because proprietary knowledge is no longer contained within the organisation's domain.

All that is required to formalise the process of developing alliances is the capacity to develop and manage external relationships. This is more complex than it sounds, especially in the knowledge intensive context. For example, some of this participation may require signing a contract. In the context of developing new knowledge, writing the contract too early will be impossible; one will not know what knowledge outcome is possible and when. Even when the outcome uncertainty is reduced later on, customer expectations might not be clear enough to estimate value. But even if signing a contract is not an issue, developing the relationships (taking risks of sharing exposing knowledge and opportunity costs) and managing the relationships have their

risks and costs. One of these risks is being 'locked' into a "strong tie" relationship with a 'wrong' customer or supplier. Meaning, the customer was right at first, but when circumstances changed, they may turn out to be a wrong customer. Or, the supplier was appropriate for the first product line, but 'wrong' for a very different product line. In another words, one aspect of managing relationships, is to know when to disconnect/detached from a wrong partner, customer, or supplier, while one aspect of developing relationships is to write a contract that will allow for such detachment.

Culture/Tolerance of Risk

As in all things, there will be failures experienced as organisations work through the knowledge management strategy development and implementation processes. Indeed, many of the organisational failures experienced today could have their roots in KM. It must be remembered that building a culture or enhancing the present culture that will accept failure is of critical importance. As employees and partners see that the organisation will accept failure, an implicit trust will be developed that will foster individual efforts to enhance internal knowledge. Much of this reasoning is implicitly understood, but considers the differences between the quantification of knowledge and the quantification of, for example, a sales quota.

Just as setting sales quotas for individuals and groups is important to help drive business and forecast revenue, similar quotas should be set for knowledge creation. However, guidelines for not meeting the knowledge quota should be defined during the goal setting process. One problem that may be discovered is the quantification of the goal. Although these technical issues must be addressed, one important aspect to remember is that failure in one aspect of KM may not necessarily be a failure in another aspect of KM or business strategy. If a quota was set for a division to acquire a specific domain of knowledge and that goal was not reached, analysis is required to determine if any knowledge was created. Although the specific goal was not attained, different knowledge may have been created that will enhance the organisation's knowledge base.

It should be remembered that knowledge creation is an active process and the creation of any knowledge requires active participation by all the parties involved. So as one look at the cultural aspects of accepting failure, he/she must also look at the willingness the organisation has to accept and live with a moderate risk factor of not creating the knowledge it wants to create. Like failure, risk is another factor that must be addressed. The amount of risk an organisation is prepared to accept when dealing with KM should be consistent with the amount of risk the organisation can culturally accept. One cannot expect an organisation that is culturally risk-averse to be non-risk averse when dealing with knowledge issues. An organisation that accepts a high level of risk will usually understand that the risk resulting from the interchange of knowledge with other entities is something they will live with based on the potential benefits that can be achieved later. Indeed, the high-risk taking companies that flourished during the Internet boom seemed to thrive, not only on risk, but on sharing as much knowledge as possible in order to gain even the smallest competitive advantage.

Of course as the companies matured and their knowledge base became solidified, the amount of knowledge risk they would accept changed because the paradigm governing knowledge of the organisation changed from creators of technology (or new knowledge) to keepers of products. In any case, as the last economic crisis illustrated, most companies lack the ability to manage their risks and are not prepared for negative or positive contingencies. From the KM perspective this is extremely risky today because of the shrinking knowledge life cycle, the accelerated pace of new knowledge developed causing both faster knowledge depreciation and a shorter half life of knowledge. These issues did not emerge in a vacuum. Especially in the knowledge creation process, sharing knowledge must be rewarded and hoarding that knowledge should be penalised.

The final item on the subject of culture is the level of trust an organisation is willing to put in its knowledge base. It is fair to say that any organisation that is risk-averse and culturally "closed" will have a difficult time managing the knowledge creation process. Inherently, knowledge creation thrives on the ability to share, experiment, and fail. Creating knowledge is difficult

but managing the creation and exploitation of that knowledge requires managers to grant a level of trust that may go counter to the culture of an organisation and its constituent parts.

Processes and Capabilities

KM processes and capabilities comprise: communities of practice, product domains, functional units, project teams, and informal networks/clubs. This is not a comprehensive list and what makes these processes and capabilities different from the levers is that they are KM specific based and not organisation wide based.

Communities of Practice

People and teams in similar positions and similar disciplines begin to communicate for the common good and interpersonal relationships begin to emerge for the betterment of the organisation as a whole and not for individual advancement. These relationships are less focused on specific goals and more on providing better means of doing business within a domain. As the network of these relationships grows, knowledge is shared on a variety of levels. Out of these “silo-ed” environments come best practices that are fostered by institutional experience and shared knowledge. As the competitive nature of division versus division is not in place, inter-relational knowledge sharing becomes the norm. Once different areas within an organisation have more than a financial reason to share resources, the best resources in the organisation can be put to work where they can be used to their best advantage. The end result is gaining and maintaining a strategic advantage because there is a common goal rather than competitive in-fighting.

Part of structuring an organisation in this manner is the ability to create, maintain, and utilise a common set of tools that can be shared with others in similar situations. These tools may, by design, be position or discipline specific to enable the end users to accomplish their individual goals without changing the status quo of the organisation. Similar networking structures, schemas, metadata, etc., all combine to provide an organic resolution to problems that cross functional lines and reduce the

need for re-inventing the wheel every time a new project is undertaken.

Product Domains

Product domains are another area where knowledge is created, utilised, and maintained for the common good. There is great similarity between communities of practice and product domains. Consider these domains as somewhat smaller communities of practice but instead of encompassing knowledge at the macro level, products put limits on the macro view as they focus more sharply on the functional parts of the practice.

Product domains are still broad in their scope, but they are more narrowly focused than the practice level. Product domains may comprise one product or a number of products that work either independently or in concert to provide an output for the end user. They are also knowledge creation tools as individuals and teams develop, maintain, and support existing products. Of course, how customer feedback is solicited will have a great impact on how new knowledge will be created within the organisation. As the support mechanisms for the products are developed, internal structures must be developed to maintain and support the knowledge base that is required to sustain the organisational understanding of the domain. This is a broad concept and the next step down is the understanding of the functional units that are created to maintain the domains.

Functional Units

Functional units are created to support the product domains. They may “grow organically” out of need or they may be intentionally developed by organisations that have a strong strategic plan and direction. These functional units are a level lower than product domains. These units, although not the lowest level, can be considered the fundamental baseline for knowledge creation. These are however the lowest level at the formalised organisational structure. Knowledge creation at lower levels is not discounted, in fact it is found to be a more significant factor. However, organisationally these levels are difficult, if not

impossible to manage and informal low-level knowledge creation at the project team level should be brought to the functional level to enable more rapid dissemination throughout the organisation.

Functional units are small enough to allow knowledge creation on a one-to-one basis and large enough to ensure diversity within the units to allow for a wide ranging environment for knowledge creation. The assumption regarding these units is that the same or similar work is being performed by groups or teams but within formalised structures or geographical boundaries, for instance.

Project Teams

Project teams feed the functional units. Project teams could, and often do, provide a springboard for knowledge creation especially because they are constantly interacting with internal and external stakeholders. They are on the front lines and are doing the day-to-day work that allows knowledge to be shared and disseminated to other areas within the organisation. However, because the nature of projects is short-term and finite, organisations cannot look to project teams to provide long-term knowledge creation. Since the knowledge created will be project specific, and knowledge sharing must be formalised within the functional units to analyse the knowledge and determine the most appropriate area for the knowledge to be utilised in. This is not to say that the knowledge created at the project level cannot be used to the advantage of the entire organisation but transferring knowledge from a project team to an organisation is complex, and as such the majority of the knowledge transferred is in the tacit format, embodied in employees, unless the organisation created a specific mechanism for such transfer.

It is suggested that project teams be used as interdisciplinary teams that work together to share the knowledge created and provide the basis for internal knowledge creation and for creating processes, either tacit or explicit, to develop knowledge. This will go a long way to establish a detailed knowledge base as well as to establish best practices that can be used for multiple project teams, and looked at as an informal knowledge

creation process that becomes formalised as knowledge is shared and as formalised processes become the norm. It should also be remembered that as multiple project teams are sharing newly created knowledge and formalising the project approach, the functional units will begin to see cohesive knowledge bases that can be utilised for ensuring consistency among multiple project teams.

Informal Clubs and Networks

Informal clubs are similar to project teams but with much less formality. These clubs are looked at the organisational level, similar to sub-conscious knowledge creation at the individual level. It is established that we create knowledge at the conscious and sub-conscious level. We have all had experiences where once we set aside a problem and stop actively trying to solve the problem an epiphany occurs and suddenly we “know” the answer. Because of the informal nature of these clubs and the lack of formalised organisational structure, these clubs bring knowledge to the organisation that is based on individuals who are dedicated to the process and have an intrinsic affinity to the process, apart from being able to create knowledge for that process.

The potential problem that may arise from these clubs is the lack of codification of knowledge created at this level. Since there is no formal structure to share knowledge between the clubs and project teams, any knowledge created may not be available to the organisation at any level. Although this is an extreme case, individuals who are drawn to these clubs will also bring that knowledge to their project teams. Therefore, although difficult to codify and quantify, knowledge created at these levels will eventually become available to the organisation although it might take longer to manifest that knowledge. If one looks at the social networking sites available to anyone with access to the Internet, one can see the power of informal networks. However, do not be misled by the seemingly unstructured organisation of these types of networks. There is much to be gained by individuals and teams that gather in this type of environment. The knowledge might not be easily codified and its value quantified and it is certainly based on the individual entity but there is a much

to be gained from this type of interaction at both the individual and organisational levels.

Systems

KM/IS Architecture

It is fair to say that technology will become even more pervasive than it is today. Organisations must be diligent to understand that without information systems, knowledge management systems are useless. Every day the workforce grows more and more reliant on computers and communication networks to access their workday needs. If the IT infrastructure and systems are not built along with the knowledge base that an organisation is looking to expand and foster, the process will be doomed to failure.

What these systems will look like and how they will be accessed in the future is almost anyone's guess. What is clear is that a knowledge repository is not a collection of documents. It has to be an easy to use intuitive set of tools that can quickly allow someone to create the knowledge they need to complete the tasks assigned. In addition, it must also allow for the analysis of how something was done and if the results were satisfactory. The fast growing importance of analytics as a business intelligence tool is just one illustration of the trend.

4.2. KM Strategy

KM strategy should now be created and put in place. This should be done by matching the goals with the levers, processes and systems. Following that, one will have to develop an action plan and match that to the resources and constraints.

Here are some ideas that one may want to think about. The current business environment is extremely volatile and creates paradoxical, contradictory forces on any organisation. For one, change is not the only constant; it is the increasing pace of change that is constant. Next, organisations need to be able to respond to conflicting pressures, for example centripetal and centrifugal competing forces, or the need to attract young, Y-generation employees while still being attractive to older and "not retiring any time soon"

older employees. The organisation also needs to strive for being in the most innovative state, which is bounded instability that should allow the organisation to determine its own future. An innovative capacity can also be achieved through increasing their action's requisite variety and increasing their anticipatory memory, as well as using indicators for developing anticipatory, positive, non-linear (but within limits) feedback mechanisms. Developing the human capital is also strongly encouraged.

The most effective way to address these issues is to be open minded about not only what is to be done but the results expected to be achieved. As with everything, the platform and the content used to disseminate the data should be geared toward the user. How they are going to use the data is the important aspect, not the form the data takes. However, it should be noted that the data should be controlled in some sort of repository, a data warehouse for example, and that might be a determining factor in how the final data is presented and utilised.

4.3. KM Constraints and Resources

The obvious constraints are the current resources that one have, and/or that are available for any initiative, project, activity, etc. Budget, time, and staff are major among them and like in any strategic planning or thinking must be taken into consideration in the planning process. Any existing levers can be a constraint due to limited availability or due to a change in circumstances or conditions. Also, like in any major change initiative, internal politics must be taken into account and addressed. Organisationally, one must take a critical look at where they want to go with the understanding that the journey must be mapped out based on how the organisation works. Analysis must be done to evaluate where the roadblocks will come from and how the organisation will be able to navigate around any unforeseen problems.

This can be a difficult exercise but it is a required preparation to give the organisation an understanding of how they will manage the process, going forward. In some areas they will succeed and in others they will fail. However, failure should not be looked at as defeat, it is a

learning experience so that organisations can gain the knowledge required to make further attempts successful.

4.4. KM Outcomes

Outcomes should be consistent with goals. Organisations must also allow for new learning to happen, hence being able to account for some unplanned outcomes to create value. Even in continually updated plans, the unexpected can and will happen, with both positive and negative results and/or consequences. This also may encourage the organisation to experiment and to be open to the unexpected, or re-invent itself partially, or completely.

There will always be new and unexpected events that will require one to re-think, re-do, and even re-invent what has already transpired. Knowledge is vibrant and multi-faceted but more importantly, knowledge is dynamic. The factors, defined as influencing knowledge are a sub-set of all the factors that directly influence the knowledge creation process. This sub-set has specific meaning in the business environment and provides a guide to manoeuvre through the knowledge creation process.

It is critical to review the process and the specific steps within the process on a continual basis and that is also true of reviewing the outcomes. An interesting exercise to perform is, when the process is complete, look back at the initial drivers that led to the decision to go forward with a KM initiative and look at the differences between what was accomplished and the expectations. One will see that the initial expectations, at a high level, have not changed that much because the vision is supported by the process. However, as one looks into the specifics of the process, he/she will find many of his/her initial assumptions were incorrect and that the process requires making more changes than anticipated because of the dynamics of the process.

4.5. KM Controls

Now that the process has come to a close and the KM strategy development initiative is over, one

cannot stop. Maintenance is critical to ensure the process continues and provides for learning and knowledge creation on an ongoing basis. To do that, controls have to be established and stakeholders and other interested parties should be brought into discussions regarding the organisation's vision, mission, and goals. Consistent with this, the strategy, levers, and constraints of the KM initiative should be reviewed on a periodic basis to ensure the baseline has not changed. These controls will allow the organisation to completely understand the implications of both internal and external factors that impact how business is done and the external environment. This is actually a mini KM initiative with one difference: since most of the hard work has already been done, this simply keeps everything that has been accomplished on track.

Another way to view this is to understand that once a KM initiative has been completed, especially a successful one, it can quickly become a model for other areas within the organisation. By maintaining controls, the newer initiatives will have a great advantage over the previous ones as the process becomes defined and the errors made in earlier attempts become laboratories for new learning and knowledge creation.

There is an additional aspect that needs to be added, and this is the question of the self identity of the organisation. In more and more cases, one of the stumbling blocks or barriers for change, or for understanding the environment, is the definition of self identity. Organisations take their old identity for granted so much that they never realise how this is limiting their strategic options and alternative futures. So, to summarise, be aware of this issue, and allow one to question the need for change as part of the control and closing the loop process.

5. Critical Success Factors of Knowledge Management

5.1. Top Management Support

One of the primary factors that strongly influence the success of a knowledge management strategy is the management support that starts at the top

level in the hierarchy. Top management support is crucial as the implementation of KM initiatives is resource intensive. Substantial financial, human and material resources are needed to carry out KM initiatives: sufficient budget is allocated to KM activities; eligible employees are assigned to perform those activities; and adequate facilities are employed to do the job.

Additionally, significant and visible top management support contributes to the legitimacy of KM initiatives. Legitimation indicates the validation of employees' particular activities and beliefs in an organisation. As an important signal from executives, top management support is often used as a normative template to ensure employees about the organisational legitimacy of activities and beliefs. Hence, top management support for KM initiatives will encourage employee' adoption of, and commitment to, the initiatives.

Emphasising the importance of KM through organisational mission and goals also reflects the supportive role of senior management. By using organisational mission and goals to emphasise an organisation's commitment to KM, top management credits KM initiatives with high priority, captures the attention of employees, and sets up the notion that KM initiatives are important to the success of the company. Top management support for KM can be translated into a company structure that, by itself, sends a strong message to staff in terms of the significance of KM. For example, to respond to the business environment in which KM needs more respect and support, an organisation may create a new management position – Chief Knowledge Officer (CKO). Job responsibility of a CKO may include “leveraging knowledge content,” “developing a knowledge strategy,” and “promoting awareness of KM”.

Another important approach to show top management support is to link reward and personnel evaluation structures to desired KM behaviours. Reward and punishment standards set by top management help define acceptable behaviour because they usually specify what activities are encouraged and what are prohibited. Thus, by incorporating desired KM behaviour into annual performance evaluation, top management supports KM initiatives via encouraging such KM

behaviours as knowledge creation, sharing, and application.

Lastly, top management can also support KM through developing and implementing KM systems (KMS), defined “a class of information systems applied to managing organisational knowledge. That is, they are IT-based systems developed to support and enhance the organisational processes of knowledge creation, storage/retrieval, transfer, and application”. Organisations can use KMS to better leverage its knowledge resources by applying IT-based tools for knowledge creation, codifying and storing knowledge for reuse, and employing electronic communication channels for knowledge sharing.

5.2. Allocating Resources to KM Initiatives

Resources are defined as “all tangible and intangible assets that are closely tied to an organisation and can be used by an organisation to create value”. Resources can bring a competitive advantage to an organisation when they are rare or difficult to imitate, have no direct substitutes, and enable businesses to pursue opportunities or avoid threats. In other words, resources must have some value that can be utilised by an organisation to compete against its industry rivals.

Resources can be classified into three modes: tangible, intangible and personnel-based. Tangible resources involve financial capital and physical assets such as facilities, equipments, and materials. Intangible resources include assets such as patents, trademarks, and copyrights, while personnel-based resources consist of technical know-how and other knowledge assets that are rooted in organisational culture, employee training, employee education, etc. To create and maintain a competitive advantage, an organisation must make different types of resources work together to create organisational capabilities. To make KM initiatives a success, an organisation needs to ensure that proper resources are brought to bear at appropriate times and that they appropriately relate to each other during the conduct of KM activities. This requires the management to ensure that KM initiatives are provided with sufficient funding, that KM activities

are performed by eligible employees, and that adequate materials and facilities are employed for the KM activities. However, these cannot be realised without the commitment of top executives, because it is their support that sets the tone and provides the resources.

5.3. Legitimising KM Initiatives

Legitimacy can be defined as “a generalised perception or assumption that the actions of an organisation’s members are desirable and appropriate within the organisation’s structured system of mission, values, goals, norms, policies, and regulations”. Legitimising KM initiatives can be viewed as processes in which employees are encouraged to formulate general perceptions that the KM initiatives are necessary and proper.

Top management support plays a significant role in the legitimacy of KM initiatives. For example, top management support can secure required legitimacy of business activities. In summary, legitimisation makes employees believe that KM initiatives are useful in their work processes and task activities, and thus facilitates employees’ tendencies to welcome and embrace the initiatives.

5.4. Using Mission and Goals to Emphasise the Significance of KM

Mission and goals are recognised as the core purpose of an organisation – what it wants to accomplish in the future. Usually, mission and goals not only describe the business that an organisation is in, but also provide the rationale for its current existence. Setting a clear target and timetable can make mission and goals more concrete because it provides near-sighted milestones to keep the organisation moving in the right direction at the right time. Additionally, the statements of mission and goals should be meaningful, memorable, and communicative to all members of the organisation so that its units and members can establish their own objectives that fully conform to the organisation’s core purpose.

Members’ appreciation for the mission and goals of an organisation plays an important role in

encouraging coordination efforts and supporting organisational objectives. To help employees achieve an intrinsic understanding of an organisation's mission and goals, management should do the following. Firstly, it should turn the statements of mission and goals into actions. To make employees appreciate its core purpose, an organisation not only needs to rely solely on pronouncements and directives, but also needs to exhibit concrete actions that highlight its mission and goals. Second, it should live the organisation's mission and goals by setting examples that encourage employees to incorporate them into their daily work as guiding principles. This can be further realised by publicising the statement of mission and goals as widely as possible (e.g., webpage, informational handouts, newspaper articles), keeping employees engaged in the discussions of organisational mission and goals, and linking their daily work to the overall goal of the organisation. Many important organisations have leveraged their mission and goals to emphasise the significance of KM and strategic use of knowledge.

5.5. Using Organisational Structure to Show the Importance of KM

Organisational structure refers to an organisation's internal degree and pattern of integration among its members: whether they are primarily atomised as individuals, integrated through relationship networks, or separated by formal divisions. There are three main dimensions of organisational structure, each of which appears to have substantial implications for organisational strategic decision making and conduct of business activities.

The first is the dimension of centralisation, which refers to the degree to which decision making and activity evaluation authority is concentrated. In a centralised organisation, decisions are usually made by very few managers at the top level and thus organisational decision making is relatively easy to be controlled and coordinated. However, it is often the case that top managers in such an organisation are not well positioned for making effective decisions, because they suffer from limits in cognitive capacity due to the lack of detailed knowledge that are necessary for quality decisions. The second is the dimension of formalisation,

which refers to the degree to which organisational behaviours are prescribed by the rules, procedures, regulations, and policies. An organisation with high level of formalisation usually involves many standardised operations and business behaviours, and enforces a relatively high degree of control over its members and even its stakeholders. Such an organisation receives the benefit of eliminating role ambiguity, but limits members' decision making discretion. The third is the dimension of complexity, which refers to the degree to which an organisation is differentiated by the skills, functions, and occupations of its members and units.

There are also three types of complexity: horizontal differentiation, vertical differentiation, and spatial dispersion. Horizontal differentiation refers to the degree to which units are differentiated at the same level of an organisation's hierarchy, while vertical differentiation refers to the number of hierarchic levels in the organisation. Spatial dispersion refers to the degree to which the organisation's functions and units are distributed in different locations. An organisation that simultaneously has many units at one hierarchy level, multiple hierarchical levels, and several geographic locations is considered to be highly complex.

Many organisations intuitively realise that they are not able to leverage knowledge resources to full potential unless decision making and activity evaluation authority for KM are concentrated at top level. That is, they need to change their organisational structures by creating a top-level position like Chief Knowledge Officer (CKO), who is in charge of KM initiatives and reports directly to the CEO. Moreover, a CKO can also efficiently and effectively deal with organisational structure complexity and thus ensure smooth implementation of new KM initiatives. Translating the strategic importance of KM into organisational structure has evolved further in leading businesses.

A CKO should be a strategist, with the ability to see the big picture in the mind of the CEO and to put it into action by formalising the rules, procedures, regulations, and policies for KM. An organisation can leverage knowledge into tangible business benefits through the efforts of a CKO designed to:

- (1) set knowledge management strategic priorities;
- (2) establish a knowledge database of best

practices; (3) gain senior executives' commitment to support a learning environment; (4) teach knowledge seekers to ask better and smarter questions in using intelligent resources; (5) put in place a process for managing intellectual assets; (6) obtain customer satisfaction information in near real-time; and (7) globalise knowledge management. In short, realigning organisational structure with the importance of KM is an important step to the success of KM initiatives.

5.6. Developing KM Systems

Knowledge Management System (KMS) allow organisations to leverage their knowledge resources by using computer-based technologies. Two common models of KMS are the repository model and the network model. These two models are also known as integrative architecture and interactive architecture, respectively.

The repository model involves a codification strategy that allows knowledge to be carefully codified and digitally stored so that it can be accessed and used easily by anyone in the organisation. Thus, this approach focuses on knowledge reuse through knowledge codification and storage. One important technical component for repository model is an electronic knowledge repository (EKR) that involves technologies such as Lotus Notes, Web-based intranets, and Microsoft's Exchange, and that is usually enhanced by search engines, document management tools, and other tools that support editing and access. The network model involves a personalisation strategy that helps people transfer knowledge in a geographically distributed business environment by using computer networks. Thus, this approach focuses on knowledge sharing among people through computer-based communication channels. Important technical components for network model include electronic mail, which provides users with one-to-one and one-to-many communication channels, and groupware which allows people in the same group to have topic-based discussions and collaborative interchanges.

Two different approaches can be employed to develop a knowledge management system: the process approach and the infrastructure approach. The process approach focuses on the use of

knowledge in a business process and aims to make the process more efficient. When using this approach, developers must recognise knowledge needs in the process: what type of knowledge is required, who needs the knowledge, and when it is needed. As this approach is business-process-based and users of the system usually know how to exploit the knowledge, the approach places minimal demands on the system to capture knowledge context and application guidelines. The infrastructure approach differs in two ways. First, it focuses on the use of knowledge within and across a whole organisation and aims to allow all the units of the organisation to take advantage of the knowledge codified into the system. Second, the approach captures a great deal of knowledge context and application guidelines in order to explain the codified knowledge and the technical details needed to help users identify, retrieve, and utilise the knowledge. Thus, this approach emphasises strong network capacity facilitating fast knowledge transfer, well-developed database structure enabling efficient knowledge storage, and appropriate knowledge classification differentiating various kinds of knowledge. To create comprehensive KMS, an organisation can use both approaches: the process approach facilitating the development of KMS for a specific business activity and infrastructure approach fostering the integration of the process-based KMS into a single comprehensive system that can be leveraged by the entire organisation instead of just a single functional department.

Case Study

Qian Hu Corporation

Qian Hu Corporation Limited is a leading exporter of ornamental fish, exporting to more than 70 countries worldwide. The home-grown company has significantly helped Singapore to become the world's leading ornamental fish exporter, and to be recognised as the world's ornamental fish capital.

Qian Hu's mission is to create a premium lifestyle experience in ornamental fish-keeping by providing a one-stop aquatic shop for both local and international wholesalers, retailers, and consumers. Its vision is to be the world's biggest ornamental fish, aquarium, and pet accessories service provider. The organisation's foundation is built around the core values of integrity, value creation, entrepreneurship, and teamwork. Its four strategic thrusts, which it considers as its drivers to success, are customer focus, people excellence, quality excellence, and financial strength.

Key Drivers for the Adoption of Knowledge Management

Qian Hu recognised the importance of knowledge in its early days, when the entire stock of guppies and loaches was lost. Knowledge is integral to improving the organisation's operational efficiency, enterprise planning, and decision-making, and to create value for its stakeholders.

Qian Hu's Executive Chairman and Managing Director, Mr Kenny Yap, has actively spearheaded the adoption of KM in Qian Hu. He acknowledges that Qian Hu is a knowledge-based company. Mr Yap said that the ornamental fish industry is indeed a knowledge-based industry. Hence, managing the knowledge and enhancing it continuously is essential in sustaining his business. He also has to ensure that the knowledge they gained over the years stays within the company regardless of staff turnover.

Mr Yap is instrumental in driving knowledge management in Qian Hu. One of his aims in adopting KM is to capture the knowledge, competencies, and experiences of his employees in order to avoid knowledge losses in case an employee decides to leave the organisation. The aim of KM is to learn from experience-based knowledge and subsequently transfer it into the creation of new knowledge in the form of new products and/or service innovations.

Qian Hu's mission is to create shareholders' value by becoming a world-class ornamental fish and accessories company. Qian Hu believes that value creation and innovation are realised through systematic management of its intellectual capital. This will enable the company to achieve competitive differentiation through the development of innovative and quality products and services that add value to customers.

By leveraging its organisational knowledge assets, Qian Hu aspires to effectively deliver product knowledge, quality, timeliness, and value for money to its customers. Its deep industry knowledge and expertise as an ornamental fish breeder, distributor, and manufacturer is a major factor in the development of product innovations, delivery of high-quality services, and instillation of a learning culture.

KM to Support Organisational Goals

As a knowledge-based company, Qian Hu has continuously embarked on KM initiatives that provide an appropriate balance between short-term and long-term improvements to achieve its performance goals and create the greatest savings and efficiencies. In doing so, it optimised the organisational, cultural, and technological aspects of knowledge-based business processes. Various KM tools and techniques are utilised in line with its mission, vision, values, and strategic thrusts which revolve around customer focus, people excellence, quality excellence, and financial strength. All tools are customised and adapted to suit Qian Hu's business model, especially with its positioning as a one-stop shop for its customers.

Qian Hu's knowledge management initiatives involve considerable investments in technology, especially information technology resources. Over the years, Qian Hu invested in several million dollars in technology. The global nature of Qian Hu's business puts extreme pressure on the organisation to keep a finger on the pulse of its worldwide business activities. Mr Yap's openness towards new technologies is a key factor of his willingness to embark on new technology-enabled KM initiatives. According to him, technology is one of several key KM enablers.

To facilitate the capturing, sharing, and use of knowledge, Qian Hu developed a web-based KM system that captures and disseminates the working knowledge of individuals within the organisation. The system is interactive and has features such as access control, info approval, info subscription, automated reminders, and mass broadcast capabilities. Corporate information and documents of the company's

expertise and best practices can be accessed securely via e-mail and short message service (SMS). Some of the information in the system includes corporate information, product information, operations information, expertise, product innovations, staff suggestions, and newsletters. To engage staff in the alignment of the organisation's vision and mission, a Staff Interactive System (SIS) is also included in the system. There are terminal-based access points for all staff to access the SIS.

Qian Hu's highly mobile workforce could gain instant access to information on its local and overseas operational, inventory, financial, and sales performance that affects the organisation's bottom line. Users can extract data from multiple secured sources, perform ad-hoc analysis, and generate flexible business reports. The collection and storage of all relevant knowledge on a common platform facilitates the transfer and sharing of knowledge from employees to a knowledge network. To capture and transfer the knowledge from the local operations, each subsidiary has its own server, all of which are linked via a virtual private network (VPN). Data is sent daily to the local central system to allow for effective knowledge management.

The reusability of the organisation's intellectual capital is also emphasised. To enable this, the management of explicit and tacit knowledge of individuals and groups in the organisation is critical. Capturing individual and group knowledge enables reusability of the knowledge. Tacit knowledge such as industry know-how and proven solutions are preserved and, when required, can be reused to resolve problems quickly. Track records are stored to provide future reference, avoid re-inventing the wheel, and encourage innovation. One of the ways to ensure reusability is to convert tacit knowledge into explicit training documents. A good example is the development of the fish quarantine training manual. This manual is used to train new and existing staff.

Building a Learning and Sharing Culture

Besides technology, Qian Hu also places great emphasis on continuous learning and skills upgrading as well as maintaining a culture of transparency, openness, and innovation. Through its training and skill upgrading programs, new skills and domain knowledge are passed on to the staff. Regular review sessions are held to share working knowledge and strengthen teamwork and communication among staff. Mistakes are treated as learning points. To support this, Qian Hu implemented the "Creating Value from Mistakes" (CVM) initiative across the organisation. CVM encourages learning from others' mistakes and promotes

positive contributions from staff members. CVM is an important feature in staff dialogue sessions and operations meetings. Some of the learning points are also published in the in-house newsletter and notices. This has resulted in the minimisation of mistakes, an increase in positive contributions, and staff members becoming more conscientious in their work.

To ensure that Qian Hu's people management strategy supports its business objectives, a holistic performance reward system has been implemented. Qian Hu uses various diagnostic measures like employee opinion surveys, performance achievement, third-party feedback, employee involvement, and exit interviews to understand and enhance staff morale. Staff feedback is gathered through informal gatherings, operational meetings, and a Staff Interactive System (SIS). These HRM practices motivate employees to actively acquire and share information, allowing for the capture and transfer of knowledge. HR mechanisms to promote bonding and help remove the barriers among the employees for knowledge-sharing are also implemented. One such HR mechanism is the corporate newsletter. The newsletter promotes the corporate identity, bonding, and knowledge-sharing among employees.

Qian Hu's senior management has set the strategic direction to create a service-oriented culture. Through leadership and personal involvement in planning, communicating, reviewing performance, and recognising and developing people, senior managers at Qian Hu serve as role models. As the firm's senior management proactively engages in KM initiatives, employees, customers, and suppliers are also motivated to participate in corporate KM activities. Important mechanisms to ensure buy-in from stakeholders include the firm's numerous communication platforms and KM tools such as simple floor walks or tea sessions, which are used to capture, disseminate, and create new knowledge.

Senior management works with specific committees to translate Qian Hu's values into policies, practices, and behaviours in support of the organisation's culture. Strong emphasis is placed on teamwork and the promotion of "intrapreneurship."

Qian Hu also encourages innovation at various levels in the organisation. Organisational behaviours and practices in Qian Hu's culture that stimulate innovation encompass openness to new ideas, trust in all relationships in the organisation, creativity, encouragement of risk-taking, teamwork, and the importance of quality achievement. To empower staff, decision-making is allowed at all levels. To encourage individual employees to submit improvement ideas and

suggestions, a staff suggestion scheme is implemented. This facilitates the transfer of knowledge from employees with valuable ideas to other parts of the organisation that can use this knowledge for the creation and combination of new knowledge for Qian Hu. During the 2003's Singapore Innovation Awards organised by SPRING Singapore, Qian Hu was praised as an icon of innovation.

Communication between Senior Management and Key Stakeholders

Stakeholder	Communication Platform	Senior Executive Involvement	For Whom	Frequency
Internal				
Employees	<ul style="list-style-type: none"> ▪ Coffee breaks ▪ Briefings ▪ Informal gatherings ▪ Focus groups ▪ Floor walks ▪ Committee meetings 	Senior management, managers chair meetings, briefs, present prizes, discussion, tea with staff, etc Management by walking about	All employees, senior management, managers, executives, non-executives	All employees, senior management, managers, executives, non-executives
External				
Customers	<ul style="list-style-type: none"> ▪ Meetings, work plans seminars, surveys ▪ Projects, meetings, progress/status meetings ▪ Floor walks ▪ Committee meetings 	Senior management, managers and line managers chair meetings, briefs, present prizes, discussions, coffee with staff, etc Management by walking about	Customer CEO, senior management, customer front line staff, customer contact staff	Weekly, monthly, quarterly and annually as and when
Suppliers	<ul style="list-style-type: none"> ▪ Negotiations ▪ Periodic meetings ▪ Reviews 	Senior management, warehouse, operations manager meetings, briefings, auditing, presenting awards	CEO of supplier organisation, managers, working-level staff, professionals from supplier organisations	Annually, project-basis audits, annual BBQ, games/sports as and when needed
Investors	<ul style="list-style-type: none"> ▪ Results releases ▪ Inquiries/ feedback ▪ Analyst briefings/ press conference 	Annually, project-basis audits annual BBQ, games/sports as and when needed	Analysts and shareholders, media/ public analyst and shareholders	Quarterly/ as and when needed, bi-annually

Source: Qian Hu Corporation: Knowledge-based ornamental fish farm. (2009). Retrieved June 15, 2011, from http://www.apo-tokyo.org/00e-books/IS-40_APO-KM-for-SMEs/IS-40_APO-KM-for-SMEs.pdf

Customer Relations

Qian Hu's Customer Relationship Management (CRM) system is integrated with KM and provides a platform for global networking and knowledge-sharing among its various stakeholders such as investors, customers, suppliers, experts, hobbyists, academics, and even competitors. This is in line with its business objective of maximising customer satisfaction and ensuring a positive and satisfying experience whenever they interact with the organisation. Information is captured and shared through forums, advertisement posting, feedback forms, and sales inquiries. These are then disseminated via Internet applications, mass e-mail broadcasts, and VoiceXML application.

The company adopts various listening and learning strategies to analyse and anticipate customer and market needs. Information about existing and potential customers is gathered and managed to guide marketing, sales, and customer service activities. Customer-related information is analysed and transformed into actionable knowledge about new customer requirements. The processes of determining customer requirements are constantly evaluated and improved to ensure that products and services add value.

By leveraging customer knowledge, Qian Hu ensures that its products and services create customer satisfaction and value. For example, some of Qian Hu's export customers have orders from various aquarium retailers in their countries. With a shipment of fish of varying markings, they face problems identifying each customer's packing list and other details regarding the order. Qian Hu came up with customised bar code stickers, containing information such as weight per box, number of bags of fish per box, and the type of fish the box contains. This solution simplified the job for the customers, solved their problems, and delighted their customers. This is a good example of how Qian Hu provided innovative customer service by leveraging customer knowledge.

To further enhance customer service, fish catalogues and associated price lists are provided online to ensure correct fish ordering and current pricing. The launch of Qian Hu Voice in 2003, which is built upon the CRM system, is the first voice-based, multilingual customer self-service system in the industry.

CRM reports are frequently reviewed by senior management with marketing or project managers. Inputs to this review comprise the customers' overall satisfaction results, letters of compliments, customer service standard results (including responsiveness to queries), quality standards, and number of warranties and complaints. The integration of this knowledge

and knowledge from employees with customer contacts are then used to model the best customer relations practices.

To enhance customer relations, proper customer handling skills are imparted to customer contact employees on an ongoing basis. These staff members are also empowered to deal with customers professionally as they may deem fit for service recovery. Training courses on “Customer Services Excellence” are conducted for customer contact staff. In addition, rewards and recognition are given to deserving staff displaying a “customer-first” mindset.

Research and Development

Besides leveraging internal knowledge, Qian Hu also puts a lot of emphasis on research and development (R&D) and collaborations with external knowledge-intensive organisations to develop new knowledge. With its increased drive in the use of better technology, Qian Hu created the world's first automated packaging machine for ornamental fish. This is a joint project with the Singapore Agri-food and Veterinary Authority (AVA) and is partially funded by the Singapore Economic Development Board's (EDB) Innovation Development Scheme. In the past, nine people would work for nine hours to pack 300 boxes of fish. The new automated system, which packs fish in plastic bags before they are put in cartons for transport, requires only three workers. The three workers only need four hours to pack 500 boxes of fish. Automation of the packing operations increased efficiency by speeding up delivery time and eliminating human errors. The state-of-the-art packing automation technology is even connected to a bar-coding system, making it possible for customers to trace and identify their purchases. The automation of the packing operation is incorporated into the supply chain management system. The PDA system is used for the inventory control of both fish and accessories.

KM Results

Qian Hu recognises that KM not only has upgraded the skills and knowledge of its employees but also has improved the service level, increased productivity, and enhanced profitability. To track and measure KM results, and to ensure a positive impact on productivity and innovation, the company's key performance indicators (KPIs) are tracked, monitored, and reviewed in various venues such as monthly management meetings of the various business sectors and functional groups, corporate management meetings, and the like.

Employees can also instantly access the measurements of the company's local and overseas operational, inventory, financial, and sales performance that affect the organisation's bottom line. The data and key performance indicators are used to make effective decisions on a timely basis. Performance reviews of key management support processes such as quality assurance and information systems are also conducted periodically to evaluate process effectiveness. Performance variances, if any, are then examined, and changes are made to the relevant organisational components to ensure that corporate knowledge processes are effectively managed and add value to Qian Hu.

The following table highlights some of the various initiatives that add value for the stakeholders.

Initiatives	Value Add
Process training manual for quarantine/packing	Competency enhancement, leading to lower daily losses and D.O.A. (Dead on Arrival) rates of fish
R&D	Product, service and process improvements, more effective and efficient work
Staff suggestions, sharing in staff dialogue sessions, newsletters, notices	Lead to better staff motivation, more effectiveness and efficiency, reduce losses, continuous improvement mindset
Creating value from mistakes (CVM)	Lead to fewer mistakes, more conscientious staff, learning from positive contributions
Customer relations management	Lead to product, service, process improvements

Source: Qian Hu Corporation: Knowledge-based ornamental fish farm. (2009). Retrieved June 15, 2011, from http://www.apo-tokyo.org/00e-books/IS-40_APO-KM-for-SMEs/IS-40_APO-KM-for-SMEs.pdf

As Qian Hu constantly explores the attainment of business excellence, value creation, and innovation through effective knowledge management, it has obtained national recognition and several national awards. Qian Hu became the first small and medium enterprise (SME) to win the Singapore Quality Award (SQA), the most prestigious award conferred on organisations that demonstrate the highest standards of business excellence, in 2004. In addition, it was also the first company in the ornamental fish industry to achieve ISO 9001 accreditation. In 2006, Qian Hu was certified and awarded the People Developer Standard by SPRING Singapore, which testifies to Qian Hu's best practices in Human Resources. These testimonials indicate the effective implementation of KM at Qian Hu over the years.

Articles can be retrieved from
NLB's e-Resources –
<http://eresources.nlb.gov.sg>

Books are available at the Lee
Kong Chian Reference Library.

Recommended Readings

Boone, M. E. (2001). *Managing interactively: Executing business strategy, improving communication and creating a knowledge-sharing culture*. New York: McGraw-Hill.
[RBUS 658.45 BOO]

Davenport, T. H. (2011). Rethinking knowledge work: A strategic approach. *McKinsey Quarterly*. Retrieved June 15, 2011, from EBSCOhost database.

Felin, T., Zenger, T. R., & Tomsik, J. (2009, July/August). The knowledge economy: Emerging organizational forms, missing microfoundations, and key considerations for managing human capital. *Human Resource Management*. 48(4): 555-570. Retrieved June 15, 2011, from EBSCOhost database.

Jeffcutt, P. (2004). *The foundations of management knowledge*. London: Routledge.
[RBUS 658 FOU]

Natarajan, G., & Shekhar, S. (2001). *Knowledge management: Enabling business growth*. Boston: McGraw-Hill.
[RBUS 658.4038 NAT]

Nonaka, I., & Nishiguchi, T. (eds.). (2001). *Knowledge emergence: Social, technical and evolutionary dimensions of knowledge creation*. New York: Oxford University Press.
[RBUS 658.4038 KNO]

Nonaka, I., & Teece, D. J. (eds.). (2001). *Managing industrial knowledge: Creation, transfer and utilisation*. London: SAGE.
[RBUS 658.4038 MAN]

Pasher, E. & Ronen, T. (2011). *The complete guide to knowledge management: A strategic plan to leverage your company's intellectual capital*. New Jersey: Wiley.
[RBUS 658.4038 PAS]

Zhang, H., Shu, C., Jiang, X., & Malter, A. J. (2010, December). Managing knowledge for innovation: The role of cooperation, competition, and alliance nationality. *Journal of International Marketing*. 18(4): 74-94. Retrieved June 15, 2011, from EBSCOhost database.

References

Donoghue, L. P., Harris, J. G., & Weitzman, B. A. (1999). *Knowledge management strategies that create value*. Retrieved June 15, 2011, from <http://www.accenture.com/SiteCollectionDocuments/PDF/knowledge2.pdf>

Earle, M. (2001). Knowledge management strategies: Toward a taxonomy. *Journal of Management Information Systems*. 18(1): 215-233. Retrieved June 15, 2011, from <http://www.cs.nott.ac.uk/~dap/network/previous%20workshops%20etc/understanding%20concept%20of%20knowledge%20leakage/km.pdf>

Farida Hasanali. (2002, September). *Critical success factors of knowledge management*. Retrieved June 15, 2011, from http://www.providersedge.com/docs/km_articles/critical_success_factors_of_km.pdf

Knowledge management: Case studies for small and medium enterprises. (2009). Retrieved June 15, 2011, from http://www.apo-tokyo.org/00e-books/IS-40_APO-KM-for-SMEs/IS-40_APO-KM-for-SMEs.pdf

Levinson, M. (n.d.). *Knowledge management definition and solutions*. Retrieved June 15, 2011, from http://www.cio.com/article/40343/Knowledge_Management_Definition_and_Solutions

Malhotra, Y. (1998). *Knowledge management for the new world of business*. Retrieved June 15, 2011, from <http://km.brint.com/whatis.htm>

Qian Hu Corporation: Knowledge-based ornamental fish farm. (2009). Retrieved June 15, 2011, from http://www.apo-tokyo.org/00e-books/IS-40_APO-KM-for-SMEs/IS-40_APO-KM-for-SMEs.pdf

Russ, M. (2010). *Knowledge management strategies for business development*. Retrieved June 15, 2010, from <http://www.exportacademy.net/resource/file/ebook/Knowledge-Management-Strategies-for-Business-Development.pdf>

Successful knowledge management strategies. (2002, March). Retrieved June 15, 2011, from http://www.dnv.com/binaries/EFQMsummary_tcm4-352505.pdf



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SINGAPORE PRODUCTIVITY ASSOCIATION

The Singapore Productivity Association (SPA) was set up in 1973 as an affiliated body of the then National Productivity Board, now SPRING Singapore. Its objective is to promote the active involvement of organisations and individuals in the Productivity Movement and to expedite the spread of productivity and its techniques.



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<p>Module 1: Understanding Productivity (Duration: 1 day)</p> <ul style="list-style-type: none"> • Introduction to Productivity and Quality Concepts • Factors Affecting Enterprise Productivity • Productivity Movement in Singapore • Productivity Promotion in Businesses • Productivity Challenges 	
<p>Module 2: Productivity Tools, Techniques & Management Systems (Duration: 3 days)</p> <ul style="list-style-type: none"> • Business Excellence • Productivity Measurement & Analysis • Process management: <ul style="list-style-type: none"> ▪ Cost of Quality ▪ Lean Six Sigma ▪ Process Mapping & Analysis • Integrated Management Systems 	<p>Module 2: Productivity Tools, Techniques & Management Systems (Duration: 3 days)</p> <ul style="list-style-type: none"> • Delivering Service Excellence • Productivity Measurement & Analysis • Process management: <ul style="list-style-type: none"> ▪ Cost of Quality ▪ Lean Six Sigma ▪ Process Mapping & Analysis
<p>Module 3: Innovation & Service Excellence (Duration: 3 days)</p> <ul style="list-style-type: none"> • Knowledge Economy & Innovation • Service Excellence • Team Excellence 	<p>Module 3: Innovation & Service Excellence (Duration: 3 days)</p> <ul style="list-style-type: none"> • Introduction to Service Excellence & Sales Productivity • Store Management & the Roles of a Store Manager • Minimising Operational Constraints & Focusing on Sales • Setting Goals & Analysing Statistics • Coaching & Motivating Sales Staff • Service Behaviours that Encourage Business
<p>Module 4: Critical Success Factors (Duration: 1 day)</p> <ul style="list-style-type: none"> • Management Commitment • Managing & Sustaining Change • Overcoming Resistance to Change • Training and Education • Planning for Implementation and Control of Productivity Improvement Programme • Briefing on project assignment & Role of Productivity Practitioner 	

As part of the CPP curriculum, participants are required to start a productivity improvement project upon completion of the in-class component. Project guidance will be provided by a professional consultant assigned for this purpose and is for a total of 2 man-days.

Funding & Payment

The course is supported by the Singapore Workforce Development Agency (WDA). Funding is available at 70% and 50% of the course fees respectively for SMEs and MNCs/LLEs/Statutory Boards. Please find the prices payable in the net fee table below:

For SMEs:	Net Fee	Nett Fee with GST
SPA Member (S\$3,700)	S\$1,110	S\$1,187.70
Non-Member (S\$3,950)	S\$1,185	S\$1,267.95
For MNCs/LLEs/Statutory Boards	Net Fee	Nett Fee with GST
SPA Member (S\$3,700)	S\$1850	S\$1979.50
Non-Member (S\$3,950)	S\$1975	S\$2113.25

The schedule of our next runs is as follows:

June - July 2011		
Date	Module	Time
Wednesday, 15 June 2011	Module 1	9-5 pm
Friday, 17 June 2011	Module 2	9-5 pm
Wednesday, 22 June 2011		9-5 pm
Friday, 24 June 2011		9-5 pm
Wednesday, 29 June 2011		9-5 pm
Friday, 1 July 2011	Module 3	9-5 pm
Wednesday, 6 July 2011		9-5 pm
Thursday, 14 July 2011	Module 4	9-5 pm

July - August 2011		
Date	Module	Time
Wednesday, 20 July 2011	Module 1	9-5 pm
Friday, 22 July 2011	Module 2	9-5 pm
Wednesday, 27 July 2011		9-5 pm
Friday, 29 July 2011		9-5 pm
Wednesday, 3 August 2011	Module 3	9-5 pm
Friday, 5 August 2011		9-5 pm
Wednesday, 10 August 2011		9-5 pm
Tuesday 16 August 2011	Module 4	9-5 pm

September - October 2011		
Date	Module	Time
Wednesday, 28 September 2011	Module 1	9-5 pm
Friday, 29 September 2011	Module 2	9-5 pm
Wednesday, 5 October 2011		9-5 pm
Friday, 7 October 2011		9-5 pm
Wednesday, 12 October 2011		9-5 pm
Friday, 14 October 2011	Module 3	9-5 pm
Wednesday, 19 October 2011		9-5 pm
Thursday 20 October 2011		9-5 pm

Core Faculty Members

MR. LAM CHUN SEE

B. ENG IN INDUSTRIAL & SYSTEMS ENGINEERING (UNIVERSITY OF SINGAPORE)

Chun see manages his own consultancy practice, Hoshin Consulting and is also an associate consultant/trainer to the PSB Corporation and Singapore Productivity Association. Prior to running his own practice, he has had years of experience as an industrial engineer with Philips, and trainer and consultant with the then National Productivity Board, APG Consulting and Teian Consulting, He was conferred the Triple-A Award in 1989 for helping to transfer Japanese know-how, particularly in the area of 5S, into local programmes and packages. Throughout his years of consultancy experience, Chun See has assisted many businesses in analyzing their productivity and quality objectives and performance; primarily through the application of the PDCA technique and basic QC tools.

MR. LEE KOK SEONG

M.SC. IN CHEMICAL ENGINEERING (IMPERIAL COLLEGE, LONDON UNIVERSITY), B.SC. IN CHEMICAL ENGINEERING (NATIONAL TAIWAN UNIVERSITY)

Kok Seong has accumulated vast experience in the areas of productivity training and management consultancy throughout his 30 years of experience with the Standards, Productivity and Innovation Board (SPRING). He has provided consultancy

assistance and training for numerous organisations both within and outside of Singapore in the areas of Productivity Management, Operation and Production Management, total Quality Management, Total Productive Maintenance, Shopfloor Management, Occupational Safety Management, Industrial Engineering Applications and Supervisory Management. He has also been greatly involved in the pinnacle Singapore Quality Award (SQA) initiative since its inception in 1993. his track records include the assessments and site visits of award recipients like Micron Semiconductor (formerly Texas Instruments), Motorola, Baxter Healthcare, Philips Tuner Factory and Teck Wah Industrial Corporation Ltd. Mr. Lee is currently a certified SQA Senior Assessor, as well as a resource person for Basic and Advanced Training Courses for Productivity Practitioners, a position he has taken on since 2007.

MR. LOW CHOO TUCK

M.SC. IN INDUSTRIAL ADMINISTRATION (UNIVERSITY OF ASTON, UK); B.SC. IN PHYSICS (NUS); DIP IN QUALITY CONTROL INSTRUCTORS (INTERNATIONAL QUALITY CENTRE, NETHERLANDS); CERTIFICATE IN PRODUCTIVITY DEVELOPMENT (JAPAN PRODUCTIVITY CENTRE); CERTIFICATE IN ADVANCED MANAGEMENT DEVELOPMENT (INSEASD)

Choo Tuck currently provides training and advisory services in productivity and quality management to businesses and government in the Asean region and

Middle East. He was previously the Executive Director of the Restaurant Association of Singapore as well as the Singapore Productivity Association, and was also the Director for Strategic Planning in SPRING Singapore. During his many years of service with SPRING Singapore, he gained wide experience in productivity training, management consultancy and productivity promotion, and has helped more than a 100 businesses in improving productivity, quality control and business excellence, including organisations such as Cycle & Carriage, Motorola, PUB and DBS. On top of that, he has also served as an Asian Productivity Organisation (APO) expert on Productivity for several APO member countries, and was part of a team of experts engaged by the Singapore cooperation Enterprise to provide productivity expertise to the Government of Bahrain in 2007 and 2008.

MR. QUEK AIK TENG

B.ENG (HON.) IN MECHANICAL ENGINEERING (UNIVERSITY OF SHEFFIELD); DIP. IN BUSINESS EFFICIENCY (INDUSTRIAL ENGINEERING_ (PSB-ACADEMY); CERTIFIED MANAGEMENT CONSULTANT (CMC); PRACTISING MANAGEMENT CONSULTANT (PMC); MEMBER, INSTITUTE OF MANAGEMENT CONSULTANTS (IMC) SINGAPORE

Aik Teng currently manages his own consultancy, AT Consulting Services. Ne of his most recent projects includes being the LEAD Project Manager for the Singapore Logistics Association. Prior to running his own consultancy, he has been with SPRING Singapore for 20 years, and was the Head of the Organisation Excellence Department from 2004-05. He was also SQA Lead Assessor and Team Leader up

till 2008 and has been involved in the SQA initiative since its inception in 1993. tasked to start up the consultancy unit within the then Productivity & Standards Board (PSB) to provide training and consultancy services to organisations, his consulting team assisted close to 30 organisations during that period. He was also involved in a project coordinated by the Singapore Cooperation Enterprise (SCE) to assist the Bahrain Labour Fund in their Labour Reform strategy, which included helping the Bahrain government to initiate a Productivity Movement as well as develop the productivity of the local enterprises. In addition, he was appointed as Project Manager to assist the Government of Botswana to implement a national Productivity Movement, from 1994 to 2003. Botswana is currently held as a model of Productivity in the Pan-Africa region.

MR. WONG KAI HONG

MBA IN STRATEGIC MARKETING (HULL), BSC (NUS)

Kai Hong is a business consultant, management trainer and company director. He has spent almost 2 decades in the consumer products industry, having worked with retailers like Isetan, Metro, Royal Sporting House, The Athlete's Foot and Sunglass Hut; brands like Reebok and Doc Martens; and technology group Wearnes Technology. He has been involved with various functions including operations, business development, project management, human resource, training, marketing, logistics, budgeting and general management. He has developed businesses in Singapore and many Asian cities such as Seoul and Beijing.

For registration or more information, write to us at CPP@spa.org.sg.

Alternatively, you could also contact our secretariat:

Ms. Leanne Hwee

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Mr. Ashton Chionh

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