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A Knowledge Supply Chain: Reengineering e-Tourism Curriculum Design

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Abstract

The evolution from an information-based economy to a knowledge-based society requires higher education to produce intellectual outputs to match market and society needs by adjusting its educational process and praxis. Curriculum, as a core factor in refining this process, is therefore a key part of the transformation. Practices of Knowledge Management (KM) or Supply-Chain Management (SCM) have been applied to enhance the efficiency and effectiveness of higher education, but still cannot fill the gap between higher education and society needs. The empirical research in Thailand proposes a Knowledge Supply Chain (KSC), which integrates theories and practices of KM and SCM to close the gap.

Keywords: e-Tourism, Curriculum Design, Knowledge Management, Supply Chain Management, Knowledge Supply Chain

1 Introduction

Since the 1990s, there has been an obvious shift from an information-based economy to a knowledge-based economy (Davenport, 1997). This shift means economic futures will essentially be determined by people's ability to wisely use knowledge, as well as maintain and enhance their knowledge capital in order to innovate and improve their ability to learn and adapt (Psarras, 2006). Education is playing an increasingly important role and is also shaped by future economic, political, social and technological forces. All educational institutes must mirror the surrounding societal milieu to match their outputs to demands (Toffler, 1970). The ultimate goal of higher education is to make available a selection of the virtue, intellectual and technical capital to meet the needs of the society it serves. As the core tool in meeting the intended learning outcomes (Neagley & Evans, 1967; Inlow, 1966; Johnson, 1967), curriculum is the key factor to bring changes to graduates, the future knowledge workers. As higher education has become more productive and business-like in the past two decades, it is not surprising that business management techniques have been promoted as the best vehicles for universities to meet the challenges associated with these changes (Ewell, 1999). A number of business tools have been suggested as ways to strengthen curriculum design by closing the gap between society needs and higher education provision, for example, Knowledge Management (KM) and Supply Chain Management (SCM). Despite this, the higher education has still been regarded as conservative and slows in its response to market requirements (Turki, Duffuaa, Ayar & Demirel, 2007), particularly in serving high technology and knowledge intensive industries, such as e-tourism, also known as IT-enabled tourism (Buhalis, 2003) for instance.

A research was conducted towards the curriculum design in higher education by integrating tools of KM and SCM in Thailand. A Knowledge Supply Chain (KSC) operated with the standardization of Supply Chain Operations Reference (SCOR) model was proposed as the probable solution to close the gap between society needs and university curriculum provision. A case study is selected in e-tourism education, because the insufficient personnel in this domain have weakened the competitiveness of the GMS tourism industry and directly caused tourism revenue leakage in Thailand. Before the introduction of the proposed tools, there is a need to understand the essential of the curriculum and the experiments conducted in the curriculum design.

2 The Curriculum

The commonly recognized definition of curriculum is from the Oxford English Dictionary (OED) as a regular course of study of training at a school or university, which means a set of programs and their contents. Two distinguished ideas about curriculum are derived by educational masters John Dewey (1902) and John Bobbitt (1918), which are regarded as the representatives of "Children's Interests" and "Educative Experience". The former suggested that children's interests should be embedded in formal courses when designing a curriculum; while the latter believed that curriculum are deeds and experiences that the children should learn forthe success in adult society. The two genres brought about the major problem that curriculum planners must bear in mind, namely, to balance what the students want to learn and what the students should learn.

Curriculum Design

Zuga (1989) categorized the approaches of curriculum design into four groups, which are academic curriculum design, technical curriculum design, intellectual process curriculum design, social curriculum design and personal curriculum design. This categorization was later developed by Kerr (1983) and Kelly (1999) into four ways of implementing a curriculum: namely to transmit the knowledge (focuses on the body of knowledge), to achieve a certain goal (focuses on the final outputs), to explore a process (focuses on the process) and to develop a praxis model (focuses on situating the learning experience with the experience of learners) on the basis of the works of Talor (1949), Bobbit (1918), Taba (1962) and Stenhouse (1975). However, gaps always existed between the university and industry, and the disconnect also lied among curriculum designers, lecturers and students. To the best knowledge of the authors, few research has been done to involve the four actors into the whole process of the curriculum design (the curriculum designers, lecturers, students and the employers); neither has mentioned about their functions and roles. A research conducted at the College of Arts, Media and Technology (CAMT), Chiang Mai University, Thailand proposed a Knowledge Supply Chain (KSC) as the potential solution to reengineer a complete process of curriculum design by involving the four actors, aiming to close the gaps mentioned above. In order to better understand KSC, it is necessary to explain two relevant domains, namely Supply Chain Management (SCM) andKnowledge Management (KM).

Knowledge Supply Chain-a Synergy between SCM and KM

Supply Chain Management (SCM) is a philosophy and management process, which emerged in the 1980s from business practices of the time and subsequently gained academic focus during the 1990s (Houlihan, 1985; Oliver & Webber, 1991; Lamber, Larson & Haldorsson, 2002; Svensson, 2003). Researchers from educational and manufacturing fields are currently practicing tools and methods of supply chain management to close the existing gap between the outcome of education and the needs of the job market. While research has proved the feasibility of applying supply chain management to higher education (e.g. Selen, 2001, Dealtry, 2000, O'Brien & Deans, 1996), the research has been mainly applied at executive and managerial levels in universities, with few studies analyzing and improving teaching and learning from the standpoint of how knowledge is created.

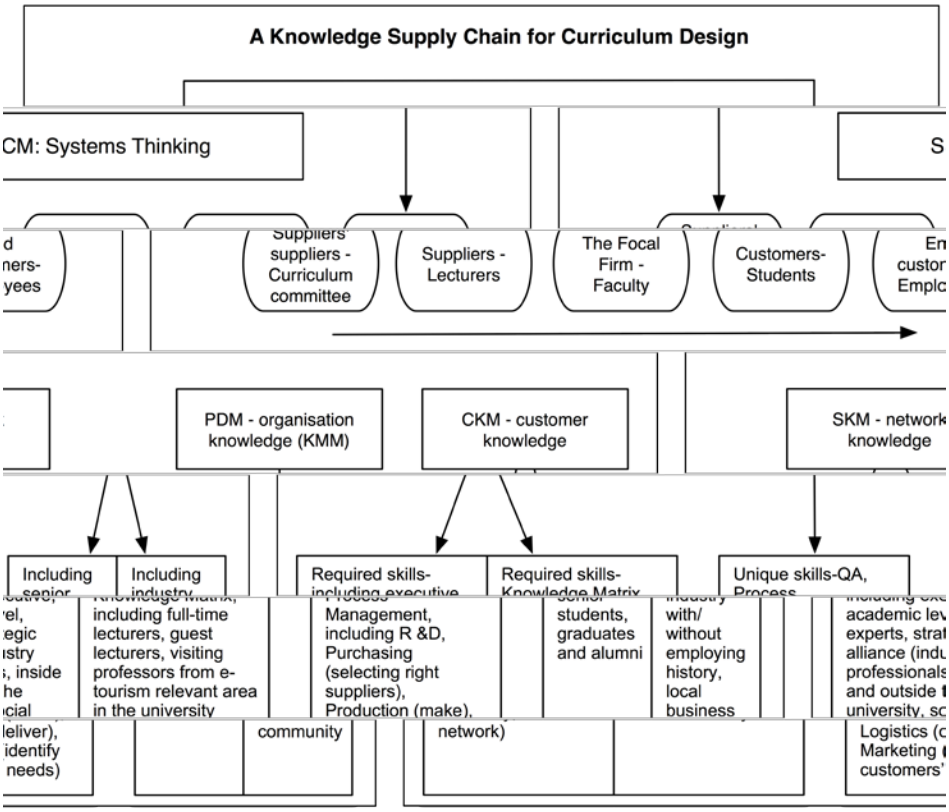
Knowledge Management (KM), as a practice to enhance the competiveness of businesses, is recommended by researchers from both business and educational fields, who believe that KM can be used by higher educational institutes to gain a more comprehensive, integrative and reflexive understanding of the impact of information on their organizations (Petrides & Nguyem, 2006; Davenport, 1997, Lyman, 2000). In terms of curriculum, Kidwell et al. (2000) showed that KM can enhance the quality of curriculum and learning programs by identifying best practice and improving the speed of curriculum revision and update.

Practices to improve the efficiency and competitiveness of higher education have so far been limited to a piecemeal approach using knowledge management, or supply chain management as tools in isolation. To solve the problems of the inefficient and insufficient knowledge supply within the e-tourism curriculum of GMS countries, researchers of

CAMT, Chiang Mai University (CMU), Thailand conducted the research to leverage the synergy of supply chain management and knowledge management. Since 2003, CAMT has been involved in a series of e-tourism projects funded by European Commission. An e-tourism electives program has been implemented at the CAMT since 2009, and in 2010, CAMT became one of the 11 partner research institutes in the Erasmus Mundus Action 2-a Sustainable e-Tourism Project (2010-2014). A Knowledge Supply Chain (KSC) for e-tourism curriculum development was proposed at CAMT, which utilises the Supply Chain Operations Reference (SCOR) model. The SCOR model covers the whole process of how knowledge is planned, supplied, made, delivered and returned in the curriculum. The KSC framework was conceptualized in Figure 1 as followed:

Figure 1:

The conceptual framework of KSC



As the framework shows, in the conceptual KSC for general curriculum design, knowledge flows from suppliers' suppliers (the curriculum committee), to the knowledge end customers (employers in the industry). To run this knowledge supply chain, a powerful management with a systems thinking overview of the curriculum and the corresponding competencies is crucial to make decisions for the entire chain. The focal firm, namely the faculty, delegates the management of knowledge from upstream suppliers to downstream customers to meet customers' needs. Knowledge in this supply chain is grouped into three parts, which are network knowledge, organization knowledge and customer knowledge. These processes are now discussed with regards to e-tourism curriculum.

Network knowledge - suppliers' knowledge management. To supply knowledge to a multi-disciplinary program like e-tourism, the suppliers' supplier (the curriculum committee) should be recruited to study and analyze customers' needs (both students and the industry). Knowledge of strategies, policies, regulation and standards should be generated and sent to the direct tier of the supplier (lecturers), who are responsible for producing required knowledge, such as e-business, IT/IS, tourism and hospitality (Buhalis, 2003), culture and language, based on the outputs from the curriculum committee. Meanwhile, management of a knowledge matrix can help to clarify who knows what, and make the best use of knowledge resources.

Organization knowledge - a knowledge management map. The focal firm, namely the faculty, must bridge the knowledge gap with a supply chain view by leveraging the changing environment, allocating resources, fulfilling direct customers' needs and meeting end customers' expectations. The faculty leader must maintain systems thinking in terms of the objectives, the 'as-is' situation of the faculty, the desired 'to-be' goal as well as the methods and tools to achieve the goal.

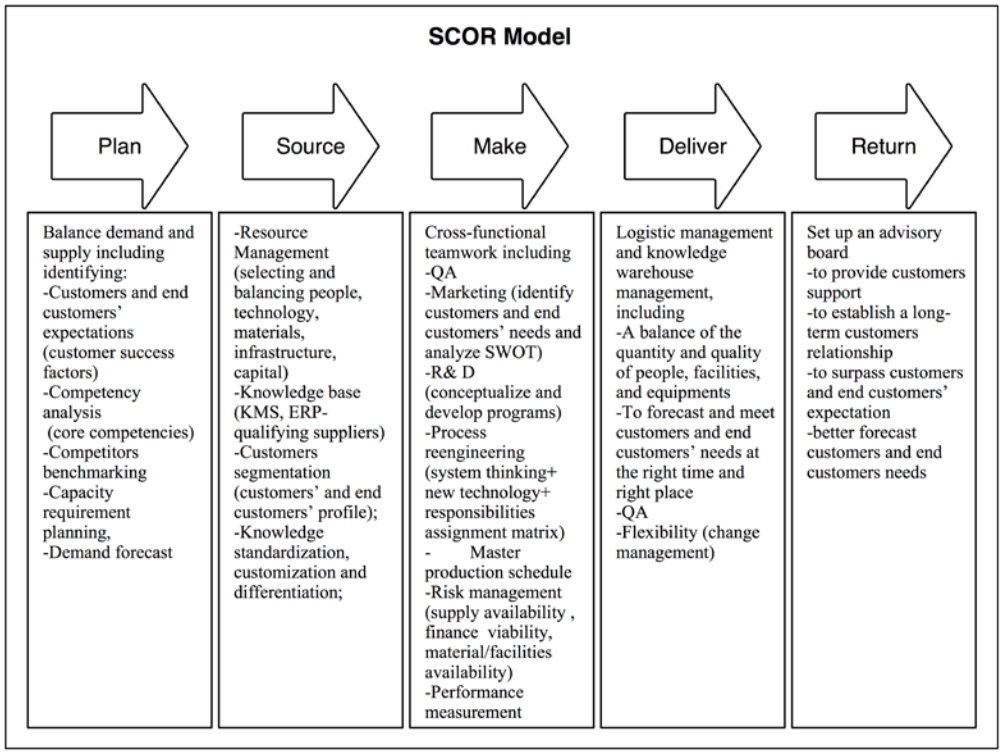
Meeting Customers' Needs - Customer Knowledge Management. Management of customers' knowledge helps the faculty to adapt its curriculum to meet the demands of a changing industry by improving the direct customers' (students') competitiveness. To achieve this, the faculty must understand what customers really want via knowledge delivery and research. Only through the empowerment of students can the satisfaction of end customers (the industry) be met, meanwhile, the focal firm (university/ faculty) can become stronger and more competitive.

A Supply Chain Operations Reference (SCOR) Model. The Supply Chain Operations Reference (SCOR) model was applied to capture the knowledge supplied and demanded in the process of e-tourism curriculum design. The SCOR model was originally created by the Supply-Chain Council, with widespread use of the SCOR model resulting in enhanced customer-supplier relationships, and software systems (Supply-Chain Council, 2011).

The SCOR Model in the research provides a globally accepted and standardized description for any management and production process. The SCOR model is helpful to link process, best practice and technology features into a unified structure to facilitate communication among the partners of the knowledge supply chain. Once a management process is captured in the SCOR model, it can be implemented to achieve competitive advantage, and to measure, manage, control, tune and re-tune to a specific purpose. Utilising the SCOR model in this research fits with the visualisation of knowledge as a product, which can be planned, sourced, made, delivered and returned within the process of e-tourism curriculum design. Figure 2 shows a SCOR model developed and adapted into the KSC for the purpose of generic curriculum design.

Figure 2:

Generic SCOR model developed in this research for the process of curriculum design and development



As Figure 2 shows, the model itself is organized around the five primary processes of Plan, Source, Make, Deliver and Return which encompass all interactions from knowledge supplier to knowledge user in the process of curriculum design, implementation and development. Curriculum Community of Practices (CoPs) which consist of the four key players of the curriculum design and implementation (curriculum designers, lecturers, students and professionals) were allocated in a form of CoPs to these five parts. Some CoPs may overlap, which is very helpful for the same group of researchers to record, trace and supervise the whole process of curriculum design and development. Meanwhile, it is also helpful to close the gap between industry requirements and university provision.

From the knowledge supply chain, knowledge suppliers such as curriculum designers, professionals and lecturers, as well as students will be more aware of the overall holistic process of knowledge flow and the interactions between each of the five processes identified in Figure 2, which will form a shared vision to achieve the desired goal. As a result, the KSC should help GMS developing countries in meeting e-tourism industry needs through an effectively designed higher education system.

3 Conclusions

The evolution from an information-based economy to a knowledge-based society requires higher education to adjust its intellectual outputs to match market and society needs. Curriculum, as the core factor in the quality of educational outputs, is therefore a key part of this transformation. Practices of knowledge management or supply chain management have been applied to enhance the efficiency and effectiveness of higher education, but still cannot fill the gap between higher education and society needs. The research conducted at the College of Arts, Media and Technology, Chiang Mai University, Thailand has proposed a knowledge supply chain, which is defined as *the knowledge flow and its operating process in the circle of design, implementation, and maintenance from*

suppliers' supplier to the end-users. In managing this knowledge supply chain, knowledge management and supply chain management are integrated for the first time. This knowledge supply chain is standardized by the Supply-Chain Operations Reference (SCOR) model and split into five essential processes; namely: plan, source, make, deliver and return. A case study in e-tourism, a new and multidisciplinary field in the Greater Mekong Sub-region (GMS) was selected because tourism dominates the national revenue of these GMS developing countries. A SCOR model was applied to facilitate knowledge flow in the knowledge supply chain of e-tourism curriculum implementation. This research is the first step in using knowledge supply chain in e-tourism curriculum design and development, and ultimately can help developing countries such as Thailand to avoid Tourism Revenue Leakage by improving e-tourism curriculum provision with the aim of meeting industry needs.

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