

# Chapter 84

## Service Science in Higher Education: Productization of Offshore Programs in Transnational Education

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### ABSTRACT

*One of the forms in service innovation for universities in Taiwan is to develop transnational education such as offshore programs where the existent programs were re-innovated by providing new service processes including improved delivery or distribution methods. This study examined how the universities adopted this form of innovation and examined how they productize their offshore programs, corresponding to the four productization practices: specifying, tangibilizing, systemizing and standardizing, in terms of program design, curriculum design, teaching and learning, assessment, and administration. By these productization practices, students and partner universities can have a clearer picture and better understanding of the programs, and the host universities can cut down the administration cost and achieve better efficiency and cost-benefit. This study can be seen as a pioneering study which applies the service science philosophy to redefine higher education and reformulate the process of the service innovation such as offshore program implementation by the productization practices.*

### 1. INTRODUCTION

Service science was coined by U.S. Council on Competitiveness in 2004, emphasizing the importance of the integration among human resources, investment and infrastructure, especially in inno-

vative business process design, organization and management in the service sector (Hidaka, 2006). This idea was further elaborated by IBM who proposed the term ‘SSME (service science, management, and engineering)’ as an interdisciplinary approach to the study, design, and implementation

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of a service system (Paulson, 2006; Al-Badarneh, et al., 2013). Service science is a new discipline to innovate services and service systems with scientific methodology (Kim, 2009). According to Paton and McLaughlin (2008), ‘service science is an emerging discipline that aims to combine fundamental science and engineering theories, models and applications with facets of the management field, particularly knowledge, supply chain and change management, in order to enhance and advance service innovation’.

Service science is emerging as a new and exciting paradigm in response to the world’s shift from a manufacturing to a service economy (Zhang, et al., 2012). Although service science is interdisciplinary, in the field of education, higher education in particular, no literature has been found to investigate how service science is applied to the education sector. The main reason for this may be that ‘education’ or ‘higher education’ is not seen as a ‘product’, nor a ‘service’. Traditionally, there are two main goals for a university to achieve: to create knowledge by research and to disseminate knowledge by education. That means ‘knowledge’ is the most important product/service for higher education which provides the context for all learning, and is the primary focus of individual courses. In some cases, higher vocational education for example, such a knowledge creation and dissemination can also be referred to the skill training.

A basic question is who are the customers of higher education? According to Kanji and Tambi (1999), customers of higher education can be divided into different groups of actors such as current students, potential students, employees, employers, government and industry. Reavill (1998) identified twelve stakeholders, including students and employers, who contribute to or benefit from higher education. Actually, literature has revealed that students and employers are the most important stakeholders in higher education and are the primary customers for a university, in

that universities provide students with ‘knowledge’ and employers with ‘educated students’.

Then what is the production process in higher education, or, to be more specific, how universities turn their input into output? In the field of education, Jauch and Orwig (1997) proposed two educational models describing such a production process in higher education: the teaching model and learning model. In the teaching model, teachers act on students to “transmit” knowledge (production process) and turn the students (input) into educated persons (output), while in the learning model, the learners interact with “guide” and educational materials (production process), and turn students (learners), with the aid of faculty and educational material (input) into educated persons (output). However, doing education is different from manufacturing product after all. Applying the principles and philosophies in the manufacturing industry or even in the service industry to the education one can be ill suited.

This study tries to examine how universities apply the principles and philosophies in the industries to higher education, especially when a new philosophy, service science, emerges as a scientific discipline which seeks to bring together knowledge from diverse areas to improve the organization’s operations, performance, and innovation. In Taiwan, most universities are facing the challenge in the shortage of domestic students and are making every efforts to seek out for the possible sources of students from mainland China and other Asian countries. One of the opportunities is to develop transnational education such as offshore programs where the existent programs were re-innovated by providing new service processes which involve significant changes in the roles of staff, faculty, technology, strategic partners, and/or students.

The purpose of this study, therefore, is to examine how universities in Taiwan adopted this form of process innovation in the development of their transnational education, and how they adopt the ‘service science’ philosophy to

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