

HOW TO APPLY ACADEMIC SUPPLY CHAIN MANAGEMENT: THE CASE OF AN INTERNATIONAL UNIVERSITY

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Supply chain management concepts and models are not just confined to improving business operations in the manufacturing sector. They can also be developed and applied in the service industry by focusing on the service based supply chain. This paper will explore the application of academic supply chain management at an educational institution namely, RMIT University Vietnam. This paper will first identify the upstream and downstream activities at RMIT University Vietnam with reference to the ITESCM (Integrated Tertiary Educational Supply Chain Management) model developed by Habib and Jungthirapanich (2008). It will then do a thorough analysis of the internal and external environment. Finally, based on the analysis, this paper will apply the Supply Chain Operations Reference (SCOR) model developed by the Supply-Chain Council to build a robust supply chain relationship for RMIT Vietnam.

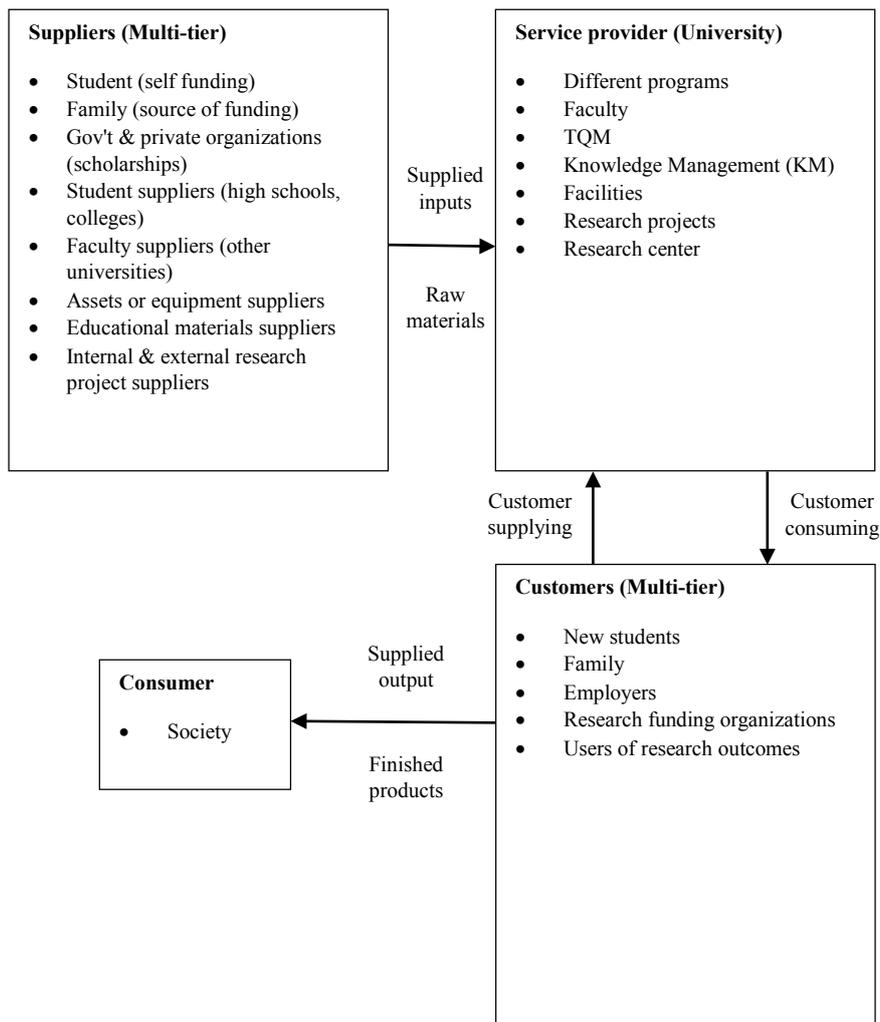
1. INTRODUCTION

In the academic supply chain, an institution works in close collaboration with schools, further education colleges, its current students, university staff and employers of its graduates when designing curriculum to satisfy all the stakeholders (O'Brien & Kenneth, 1996). It is important to have every member of the supply chain involved in the process as well as to develop good communication in information sharing between the upstream, focal firm and downstream. Westbrook & Frohlich (2001) examined upstream and downstream integration simultaneously and concluded that the performance of the focal company improved significantly when there was a strong two-way simultaneous integration between both suppliers and customers. Figure 1

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illustrates a simultaneous two-way integration between both the upstream (education and research suppliers) and downstream (customers) aimed at improving the performance of the focal firm (university).

Figure 1. Single-level, multi-tier, bi-directional supply chain management for the universities



Source: Habib, M. M. & Jungthirapanich, C. (2008)

This ITESCM (Integrated Tertiary Educational Supply Chain Management) model developed by Habib and Jungthirapanich (2008) identifies the multi-tier suppliers, multi-tier customers, service provider (university) and the consumer. It demonstrates how each party that has been identified plays its role in this integrated supply chain to finally deliver valuable graduates to the society. The model will be applied to RMIT University Vietnam, in order to identify the upstream and downstream activities of the institution. According to Habib et al. (2008), supply chain effectiveness depends on the successful integration of both the upstream suppliers and downstream customers.

2. UPSTREAM SUPPLY CHAIN (SUPPLIERS)

For RMIT Vietnam, the main suppliers of students are high schools. These students come mainly from Nguyen Sieu, Phan Dinh Phung, Tran Nhan Tong, Thang Long, Tran Phu-Hai phong, Viet Duc, Nguyen Gia Thieu, Quang Trung (HN), Le quy don, Chu Van An, Hanoi Arms Academy, Lomonoxop, Viet Uc, Kim Lien, Dong Da, Nhan Chinh, Yen Hoa, Marie Curie and Luong The Vinh High School. The student recruitment department does market research to target which high school students are most likely to join RMIT University. They then approach the schools to conduct presentations at schools and also conduct school tours at RMIT itself. The school tours are a collaborative effort between student recruitment department, teaching staff and current students whereby RMIT invites high school students to come and experience the learning environment and actual classroom teaching at RMIT. The other suppliers of students are other colleges and universities. This is done by accepting students who have completed their A-Levels or received their Diploma from a recognized institution. Besides this, RMIT also accepts students from other colleges and universities based on credit transfer application.

Family and relatives are the main source of funding, enabling the students to study at RMIT. Hence, RMIT's role here is to convince parents that, by enrolling their children into an RMIT program, they are putting their hard earned money into a good investment. Government and private organization bodies also help in this task by providing scholarships to bright and excellent students based on educational and curriculum merits. RMIT has to have a good relationship and reputation with the government as well as private organizations for them to be willing to give out scholarship to students to study at RMIT.

As with any other organization, RMIT needs to have suppliers of assets or equipment such as furniture, computers, networking equipment, recreational facilities, etc. More specifically, for an educational institution, RMIT needs to

have suppliers of textbooks, stationary, instruction materials, online database for library purposes, etc. The supplies of equipment, furniture and facilities are handled by the purchasing department while the supplies of educational materials are handled by the library and university bookshop.

As a university, RMIT is expected to produce research outputs that can be of benefit to industries, organizations, governments and society at large. Hence, academics depend on internal and external funds to carry out primary research. Based on the overall performance and profits, the university allocates budget for internal research grant applications for all RMIT staff. Although the main beneficiaries of these funds are academics and research staff, research grants are open to all members of the staff at RMIT including administrative staff. The external funds for research come from the Ministry of Education, private organizations and world bodies such as UNDP, World Bank, etc.

3. FOCAL FIRM (UNIVERSITY)

RMIT University is regarded as the focal firm and service provider. As the focal firm in this supply chain, it is vital for RMIT to play its role and ensure that there is a two-way communication between the upstream (suppliers), focal firm (RMIT), downstream (customers) and consumer (society). The university can produce quality outcomes for the society at large through proper educational management (Habib & Jungthirapanich, 2009). How well the university does, depends on the quality of graduates, research outcomes and how well it applies their respective supply chain management model.

4. DOWNSTREAM SUPPLY CHAIN (CUSTOMERS)

It is vital for RMIT to achieve its learning objectives and outcomes in producing graduates that possess the key graduate knowledge, skills and abilities. The key graduate knowledge, skills and abilities have been outlined in the program brochures. Hence, it only looks good for the university to keep to this promise and produce graduates with desirable qualities. This can be achieved by having an excellent curriculum, faculty capable of executing best practices in teaching and learning, appropriate facilities to enhance the learning environment and strong university culture. Family (parents, siblings, relatives) are also educational customers as they are involved in the whole process from the time a student registers until they graduate and seek employment. It is vital for RMIT to satisfy the needs of both the parents and their children throughout this whole process.

RMIT has to produce graduates that are capable and ready to join the workforce. Whether it is a government or private organization, an RMIT graduate should be able to fulfill their job requirements and needs. Having qualified graduates who are able to take on new roles and tasks for their employer will be a good reflection on RMIT. This will encourage employers to give opportunities in the future to current students for internships and practical training at their organization. It is also a clearer path to gaining permanent employment if the student is able to impress during the internship stint.

RMIT has to produce quality research that can identify problems and give sound recommendations to their research funding organizations. They have to produce both applied and theoretical research that can benefit the government, industries, organizations and society at large. This high quality research has to be published in journals and appropriate academic sources to be shared with relevant stakeholders. Only by producing quality research outputs that benefit their stakeholders, can RMIT encourage more research funding from external suppliers.

Table 1. Teaching notes – examining upstream and downstream integration

Instructional direction	Student understanding	Discussion or simulation
Analyze your university using the supply chain concept and identify its upstream and downstream entities.	Students should be able to differentiate between upstream and downstream entities.	Introduce a discussion: Why is it important for the focal firm to have a strong two-way integration between both upstream suppliers and downstream customers?
Apply the ITESCM model in the context of your university and explain how the multi-tier suppliers, focal firm, and multi-tier customers will work effectively together to provide valuable graduates to society.	Students should understand how each party plays its role in the integrated supply chain to finally deliver valuable products or services to society.	Introduce a discussion: What can organizations do to ensure that every member of the supply chain is involved in the process and there is a good communication and information sharing between them?

5. MICRO-ENVIRONMENT

5.1. Education customers

Education is a service-based industry whereby the product is intangible and consumed at the point of production. The focus has now shifted to customers as

partners in the business whereby they are involved in the service delivery. The main customers of RMIT are students. Customer value takes the perspective of an organization's customers, considering what they want and believe that they get from buying and using a seller's product (Woodruff, 1997). Students expect quality learning and they contribute to the production process when their feedback is given due importance at RMIT. Students' feedback on the instructor through the GTS (Good Teaching Scale) survey is given utmost importance in the contract renewal of teaching staff. In addition, the respective heads of departments will review the GTS score and comments by students and make sure that the Instructor takes the necessary improvement measures in the following semester. Service-based supply chains are unique and customized whereby the instructor has to adjust the teaching and learning practices to suit students' needs and requirements. The university also takes formal feedback in the form of surveys every semester for each subject on the quality of assignment, textbook, online resources, facilities, relevance of course etc. to focus on students as partners in the service experience.

RMIT knows well that they have to satisfy students during the service delivery and after the service delivery by ensuring that the quality of their programs make students employable and equipped with all the necessary skills that make them valued graduates in the job market. RMIT considers family (parents, brothers, sisters, relatives) an important customer as they are the ones who encourage the student verbally and give them financial support to study at RMIT. Parents also want to be involved in the service delivery to their children and RMIT welcomes feedback from family on any aspect with regards to their children's education at RMIT. Parents want to be assured that they are getting the value they expect for the amount of money and time they have invested in their children's education and that graduates are sought by employers. This assurance is given during the service delivery by incorporating best practices in teaching and learning, and after the service delivery by ensuring that the programs are accredited and internationally recognized.

5.2. Government and private employers

Employers expect to employ a graduate, who has the necessary knowledge, skills, and abilities, and is competent to do the job in hand. They should also possess the required soft skills and be eager to learn and improve on the job. This is a challenge for RMIT, as employers often complain that graduates from various institutions lack the soft skills required to perform the job, although they possess excellent academic qualifications. Hence, RMIT's strategy here is to develop programs and assessment tasks which are oriented toward business

practice. A part of the assessment tasks in various subjects requires group work, presentations, interviewing personnel from companies, industry visits and so on to develop and train students on their soft skills as well as thinking 'out of the box'.

5.3. Research customers

Customers who have provided funding to RMIT to conduct research value quality research outputs, which can identify problems and give sound recommendations for their respective organizations. RMIT's strategy here is to identify and encourage research-oriented teaching staff, as well as research assistants to conduct research which can be of benefit to their stakeholders. RMIT rewards and recognizes members of the staff that are research active as a means to encourage their continuous active participation in research which can benefit their stakeholders and society at large.

6. MACRO-ENVIRONMENT

The education industry is continuously evolving and as such is affected by the current and emerging trends in the macro environment. RMIT also faces high competitive pressures from the marketplace and there is a need for the business to be agile and flexible in responding to customer needs without compromising on quality.

6.1. Current trends and issues

Various higher education institutions offer double degrees, e. g. a recent joint venture between the University of Malaya and the University of Wales to set up a new entity by the name of International University of Malaya Wales (IUMW). IUMW offers its undergraduate and postgraduate students the opportunity to get a degree both from the IUMW and the University of Wales. This is an added value to attract potential students, which is not currently offered by RMIT does. While RMIT has a foreign branch campus and many partner institutions which award RMIT degrees, it has not set up a joint venture with another renowned institution to award a dual degree.

Higher education institutions use business agility to offer more flexible mode of study. Universities such as Open University Malaysia, Wawasan University and Asia e-university offer students part-time, online, distance and blended learning programs to suit working adults. They also design their programs to suit working adults by offering executive education to working

adults (executive degrees, masters and PhD, Industry Master and Doctorate). Blended learning is the thoughtful integration of classroom face-to-face learning experiences with online learning experiences (Garrison & Kanuka, 2004). While RMIT Vietnam utilizes blended learning for its full-time students, it does not offer part-time for undergraduate, online distance learning and executive programs to cater for working adults. As such, it still operates like a traditional university which only caters for full-time undergraduate students and postgraduate students (MBA) who have to physically attend classes regularly after working hours. Hence, there is a potential loss of market share to other institutions which are more flexible with their mode of study and cater to this target market of working adults as well as full-time academic students.

6.2. Emerging trends and issues

The education sector is particularly susceptible to technological trends (Redecker, 2009). E-learning and social media are becoming important educational tools in many higher educational institutions. Institutions are having to adapt, accept and embrace these technological trends in their institutions or face the issue of overdependence on traditional teaching and learning methods. Courts & Tucker (2012) stress the importance of embracing technology to facilitate improved learning in institutions. Traditional teaching and learning practices have to be used in line with modern technology to facilitate a productive and enjoyable learning experience.

Online distance learning (ODL) is becoming a trend fast and many institutions are looking to utilize this mode of study which does not require physical resources such as large campus, library and full-time faculty staff. However, ODL requires a well-equipped online library, good virtual communications and experts in the form of adjunct faculty to run their programs successfully. While RMIT does not want to be known as an online university, it cannot deny that institutions offering ODL programs are becoming a big threat to traditional universities such as RMIT.

New degrees, such as network internet, fashion and retail marketing, biometrics, computer game design and so on, are being developed to meet the demands of the job market. Universities have to develop new courses and not just depend on traditional courses such as law, business and engineering to stay competitive.

Information is becoming accessible more easily and freely through open courseware. Hence, universities must ensure that technology does not replace

the instructor but is used as a tool to enhance the learning experience. Biggs and Tang (2011) stress the importance of incorporating student-centered approach to e-learning as a means of encouraging deep learning among students.

6.3. Drivers for change

From the analysis of the current and emerging trends, it can be stated that the education industry is continuously evolving and as such the supply chain of the organization needs to be very flexible to cope with market demands and to stay competitive. RMIT has to focus on customer satisfaction by answering the question what exactly its customers value and delivering the service experience that they expect.

Technology change has to be accepted and the offering of ODL programs, on top of its traditional mode of study programs, seems like a necessity to gain larger market share instead of focusing on a very narrow niche market. Since RMIT has no experience in offering ODL programs, for the purpose of efficient operations, it might be best to outsource this to a trusted partner who has the experience and knowledge in running ODL programs. The same applies for the executive programs. Since RMIT is not experienced in running executive programs, it might be better to initially work with their connections such as industry partners, corporate training and consultancy companies, government and private institutions, that have more experience in developing and delivering ODL and executive education programs. Besides this, RMIT can also drive towards establishing a joint venture to award dual certification, offer new degrees and continue improving student-centered approaches to e-learning.

Table 2. Teaching notes – analysis of the internal and external environment

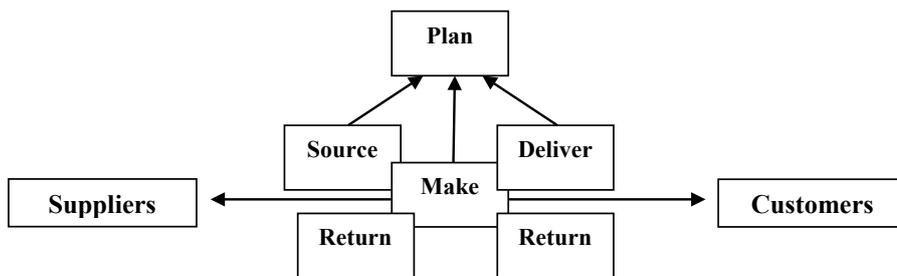
Instructional direction	Student understanding	Discussion or simulation
Analyze the customers of your university, their interests, and impacts on the organization strategy.	Students should focus on micro-environmental factors which the organization can control.	Introduce a discussion: Why is it important for an organization to give full attention to micro-environmental factors which they have control over?
Consider the macro-environment and, from a corporate strategy impact perspective, identify and analyze the current and emerging trends and issues and drivers for change.	Students should focus on macro-environmental factors which the organization has no control over but has to adapt in order to stay competitive.	Introduce a discussion: Why is it a necessity for organizations to adapt and change with times?

7. RECOMMENDATIONS

Education sector is a service-based industry. Hence, the supply chain definition for services as proposed by Ellram, Tate and Billington (2004) reads as: “*Supply chain management is the management of information, processes, service performance and funds from the earliest supplier to the ultimate customer.*”

The Supply Chain Operations Reference (SCOR) model, developed by the Supply-Chain Council (see Figure 2), is applied to build a robust supply chain relationship for RMIT Vietnam. The SCOR model is a promising tool for supply chain strategic decision-making and is organized around five primary management processes of plan, source, make, deliver, and utility.

Figure 2. The Supply Chain Operations Reference (SCOR) model



Modified from: www.supply-chain.org

7.1. Plan

RMIT can make plans to establish a joint venture to award dual certification for prospective students. This establishment can be marketed as an added value for students to gain dual certification from two reputable institutions without having to study two separate programs. RMIT could develop a strategy to offer part time undergraduate courses, new degrees, ODL and executive education programs. The organization has to consider its capabilities and resources in terms of curriculum, faculty, facilities and university culture in its decision to either in-source or look for an outsourcing partner to offer these courses. RMIT has to plan a successful strategy to carry out in-house training on educational technology and student-centered teaching approaches to e-learning for academic staff.

7.2. Source

RMIT has to look for a potential partner who would be interested in setting up a joint venture. This partnership should be the one which could continue for a longer period of time and which would be of mutual benefit to both parties. For example, as already seen in the case of IUMW, the Malaysian government welcomes such landmark partnerships. As such, RMIT could consider establishing a joint venture with a Malaysian public or private university as the support from the government is vital in such partnerships.

Since RMIT Vietnam is not experienced in offering ODL programs, for the purpose of efficient operations, it might be best to outsource this to a trusted partner who has experience and knowledge in running ODL programs. Outsourcing provides low-cost flexibility services, knowledge and expertise and is initially the best option to go with for RMIT until it has gained sufficient knowledge and expertise to operate ODL on its own. RMIT Vietnam can outsource the ODL programs to Open Universities Australia (OUA). OUA is an online higher education organization which is owned by seven Australian Universities and RMIT is one of them. Hence, RMIT Vietnam as a foreign branch campus of RMIT Melbourne could get easier access and full assistance from OUA to offer the ODL programs. RMIT Vietnam can also negotiate with the best online universities in the world such as Kaplan University and University of Phoenix to help them with ODL programs and tie up this collaboration with a service-level agreement.

It is best for RMIT to also outsource the executive education programs (executive degrees, masters and PhD, Industry Master and Doctorate) to universities that are more experienced in developing and delivering courses for working adults who wish to apply workplace knowledge and experience into their studies. The institutions that come into mind for these collaborative initiatives are Asia E University, MIT Sloan Executive Education and Georgetown University's McDonough School of Business. These are just a few of the many options available to RMIT Vietnam.

Training on educational technology and student approaches to e-learning for academic staff can be done by RMIT's Teaching and Learning Unit. Academic staff is required to utilize blended learning for the full-time programs that are offered and since this is a core service it is best to be trained by in-house experts who spend all their time on approaches to improve teaching and learning practices among academic staff.

Part-time options for undergraduate studies and an MBA still remain a core service as the only differentiating factor with the full-time course is the time of delivery which would probably be evening, night or weekend classes. In-sourcing keeps the core service in-house and provides the sense of belonging and self-control (Lau, 2007). Hence, it is important to deliver the core service by full-time academic staff employed by RMIT. The part-time undergraduate and MBA courses can be delivered by academic staff who are willing to work on different schedules such as afternoon till night. It can also be delivered by the academic staff during their regular office hours but the overtime needs to be paid for teaching after regular office hours.

New degrees which will be a core service should be conducted by RMIT's academic staff. However, RMIT will probably need to recruit new staff with the required credentials to teach new courses. Courses such as internet degree, fashion and retail marketing, biometrics and computer design are very practice-oriented courses. Hence, it is very important for RMIT to involve companies in the early stages of course design and delivery. Their input should be incorporated in the syllabus. These companies should also be invited to provide guest lectures and RMIT should work hand in hand with them for internship prospects for final year students.

7.3. Make

In terms of making the programs for the joint venture establishment, ODL and executive education courses, many issues need to be addressed and agreed upon. The curriculum design in terms of textbooks, accredited course contents, lecture documents and so on need to be discussed and agreed between the relevant parties. Faculty capabilities of both parties in terms of qualifications, training, teaching and research need to be assessed. The facilities provided by both parties in terms of classroom, information and communication technology, online library databases, e-learning and distance learning systems need to be looked at as well. University culture must not be taken over by the outsourcing partner as the university culture is a core component of RMIT's identity. RMIT will need to look for benchmark and best practices to learn from and incorporate from the outsourcing partner.

There will be a need for a clear policy for assessment, curriculum development team and curriculum review team. Standard Operating Procedures (SOP) need to be developed on all these aspects and contractual agreements will have to be signed and adhered to by both parties. For the part-time undergraduate courses, policies will have to be developed on working hours

with different schedules and overtime payment. As for the new degrees, the university and companies will have to visit each other frequently. The companies can be involved with university departments through guest lectures, sponsorship of best student, best report prizes, guidance and advice on course content and company plant visits (O'Brien & Kenneth, 1996).

7.4. Deliver

RMIT Vietnam can deliver its own part-time and full-time courses. It has the capabilities to deliver these programs on its own. They can be delivered by current staff on different schedules or staff on regular working hours that are paid overtime for the classes after office hours. New degrees will also be delivered by RMIT as this is the core business. However, they will need to have a two-way communication between the university and companies to design and deliver these programs. As for the joint venture establishment, it will use the faculty expertise and resources of both entities. This is a must as students are awarded dual certification and the value offering of the partnership must be visible to students, parents and stakeholders at large. This will very much follow the concept of International University of Malaya Wales (IUMW).

The ODL and executive education programs can be operated using adjunct faculty members from the outsourcing institution. This is because the partner has the bandwidth and expertise. Adjunct faculty members from the outsourcing institution also enable RMIT to be lean and flexible in its operations and costs. Adjunct faculty members are paid as and when required and payment is made hourly, daily or weekly. They are usually paid hourly as and when required and this reduces wastage for RMIT. Besides that, RMIT will not need to be burdened by providing benefits such as medical coverage, paid annual and sick leave, bonus etc. as compared to hiring full-time academic staff. The outsourcing institution will provide the required online resources, systems, materials, course design and syllabus for both the ODL and executive education programs. All these would be detailed in the procurement process. The service quality, flexibility and cost-effectiveness will have to be delivered as promised in the service level agreement with RMIT Vietnam.

7.5. Utility

Unlike a manufactured product, a service cannot be returned as it is consumed at the point of production. However, service quality can be changed through feedback. In the education sector, feedback from students is very important. RMIT can improve the service delivery based on students' feedback

on experiences through formal surveys and informal communications. RMIT can also make the required changes to service delivery based on feedback from Upstream (Education and Research Suppliers) and Downstream (Customers). RMIT should have a system in place regarding complaints and the response time for the complaint to be resolved effectively.

Table 3. Teaching notes – building a robust supply chain relationship

Instructional direction	Student understanding	Discussion or simulation
Apply the Supply Chain Operations Reference (SCOR) model developed by the Supply-Chain Council to build a robust supply chain relationship for your university.	Students should be able to understand the link between their analysis of upstream and downstream activities, as well as internal and external environment, in helping them to build a robust supply chain relationship for the organization.	Have a discussion about how an analysis of the ITESCM model, as well as internal and external environment, helps to recommend a strategy that the organization could pursue in order to build a robust supply chain relationship.

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KAKO PRIMIJENITI LANAC OPSKRBE U VISOKOM OBRAZOVANJU: SLUČAJ MEĐUNARODNOG SVEUČILIŠTA

Sažetak

Koncepti i modeli upravljanja lancem nabave nisu ograničeni samo na unapređenje poslovnih aktivnosti u proizvodnom sektoru. Oni se također mogu razvijati i primjenjivati u uslužnim industrijama, usmjeravanjem na uslužni lanac opskrbe. U ovom se radu analizira primjena lanca opskrbe na akademsko okruženje, i to kroz primjenu na obrazovnu instituciju Sveučilište RMIT u Vijetnamu. U radu se prvo utvrđuju aktivnosti opskrbnog lanca Sveučilišta RMIT, smješteni "iznad" ("upstream") i "ispod" ("downstream") razmatrane obrazovne ustanove, u skladu s modelom integriranog upravljanja lancem opskrbe u tercijarnom obrazovanju, kojeg su razvili Habib i Jungthirapanich (2008). Nakon toga se provodi detaljna analiza interne i eksterne okoline te primjenjuje model Supply Chain Operations Reference (SCOR), kojeg je razvila organizacija Supply-Chain Council, da bi se prikazali pouzdani odnosi nabavnog lanca na Sveučilištu RMIT.

