

# The BS Accountancy Program of Bicol University (Philippines) as an Academic Supply Chain: A Conceptual Research Note

**Mark Francis G. Ng<sup>1</sup>, Sonnie A. Ramos<sup>2</sup>, Analiza O. Pabilona<sup>3</sup>**

<sup>1,2,3</sup> Bicol University, Legazpi City, Philippines

\* Corresponding Author: Mark Francis G. Ng<sup>1</sup>

**Abstract:** *This research note is an exploratory academic attempt to apply the concepts of supply chain management from an industrial or manufacturing perspective to the context of academia. It forwards the notion that supply chain management concepts and models are not just confined to improving business operations from a production context but can also be applied to an academic perspective. This paper illustrates the application of the academic supply chain in the BS Accountancy Program of Bicol University (Philippine state university). It anchors its discussions on two key supply chain models: the Integrated Tertiary Educational Supply Chain Management (ITESCM) Model developed by Habib and Jungthirapanich (2008) and the Resource Based View (RBV) Theory (Halldorsson et al, 2007) of supply chain management. In addition, this paper also provides a concise discussion of the eight key supply chain management activities present in the industrial sector and how these are applied and implemented in the academic sector. Finally, conclusions and recommendations are forwarded in terms of strategies that may be useful for higher education institutions (HEIs) on how they can further explore and apply the concept of the academic supply chain as well as opportunities for future research directions.*

**Keywords:** Supply Chain, Academic, Accountancy Education, Research Note, Philippines

## I. INTRODUCTION

Supply chain management contributes significantly in how well businesses operate. As a result, the effectiveness of the supply chain plays a crucial role in global trade (Laosirihongthong et al, 2019). However, even if a supply chain is an effective tool for managing corporate operations, it is not sufficient on its own. All members or pertinent important stakeholders in the supply chain must cooperate, integrate, or collaborate fully for supply chain management to be successful (Lee, Udin, & Hassan, 2014; Treiblmaier, 2018). This means that in order to achieve work efficiency and effectiveness (Janvier-James, 2012; Zinn & Goldsby, 2017) and competitive advantage, a critical understanding of the characteristics and the roles played by each function and member in the overall supply chain is a prerequisite (Flynn, Hou, & Zhao, 2010; Sandberg et al, 2022).

The business environment is always evolving and becoming more unpredictable. Supply chain management is becoming increasingly important in today's dynamic business climate because of how the nature of the present business environment necessitates it to facilitate business operations. This issue is present not only in workplaces in industry but also in those in education. All colleges and universities work hard to satisfy enrollment goals while providing high-quality academic performance. This is undoubtedly the case so that academic institutions like universities are to remain viable in the education sector. It remains a difficult objective for all academic institutions and universities to guarantee that they will be able to produce graduates for the appropriate sectors and industries.

The BS Accountancy (BSA) Program of Bicol University (BU) places strong emphasis on the improvement, upgrading, and strict implementation of its curriculum and instruction programs aimed at curricular review, quality instruction, admission and retention, student development, and licensure examination training and preparation. Throughout the years, BU has consistently performed very strongly and excellently in terms of institutional academic performance and the CPA examination training and preparation of its students as evidenced by its above-national passing rates in the licensure examination and the various academic efforts and programs implemented by the department all aimed at intensively and extensively preparing its students and graduates for the CPA licensure examination. Notable strengths of its BSA program include its thorough evaluation and implementation of the BSA curriculum, the instructional

and assessment methodologies it utilizes, excellent and outstanding performance in the CPA licensure examination, and conduct of an intensive and extensive CPA exam training and preparation program for its students whether or not integrated in the curriculum.

The main purpose of this research note is to apply the concept of supply chain management in managing academic programs, specifically in the BSA program of Bicol University. This academic paper adheres to the notion that in the context of an academic supply chain, an educational institution works in close collaboration with other schools and educational institutions, its students, university staff and employees, and prospective employers of its graduates in the design and implementation of its academic curricula to satisfy the diverse needs of all its stakeholders (O'Brien & Deans, 1996; Culot et al, 2022). Thus, all members of the entire supply chain must be involved in the process, and strong communication and information sharing between the upstream, focal firm, and downstream players must be established (Sangari & Mashatan, 2022).

## II. LITERATURE REVIEW

### SUPPLY CHAIN MANAGEMENT (SCM) THEORETICAL LENSES

In analyzing the salient elements, key players, and activities that comprise the academic supply chain of the BSA program of Bicol University, this paper makes reference to two significant academic supply chain management models. The first model (Figure 1) is the **Integrated Tertiary Educational Supply Chain Management (ITESCM) Model** developed by Habib and Jungthirapanich (2008) that illustrates a simultaneous two-way integration between both upstream suppliers and downstream customers aimed at improving the performance of the focal firm (the university and its BSA program). This model is utilized to show the single level, multi-tier, and bi-directional flows and components that make up the academic supply chain.

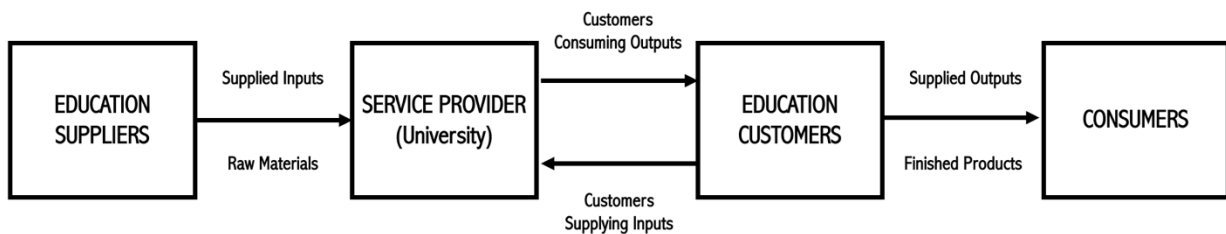


Figure 1  
**Integrated Tertiary Educational Supply Chain Management (ITESCM) Model**  
 Source: Habib, M. M. & Jungthirapanich, C. (2008)

The second model (Figure 2) is based on the **Resource Based View (RBV) Theory** of supply chain management that deals with the coordination and application of relational assets, internal competencies, heterogeneous resources, and capabilities of academic institutions as crucial factors in the academic supply chain (Halldorsson et al, 2007). The construct of these resources assists an educational institution to gain competitive advantages and further transforms its short run competitive advantage into a sustainable competitive advantage.

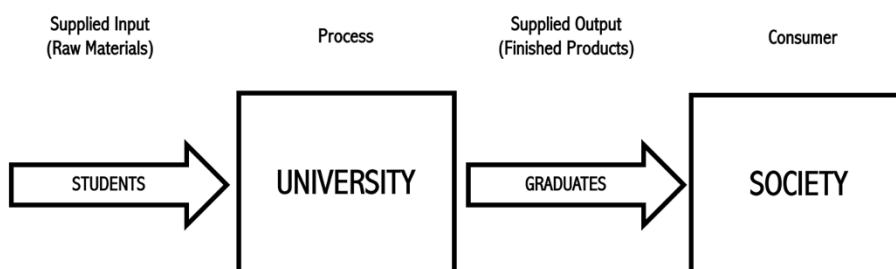


Figure 2  
**Resource Based View (RBV) of Academic Supply Chain Management**

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

### III. METHODOLOGY

This paper draws its conceptual analysis from selected relevant academic literature and peer-reviewed studies published in the last decade (2016 to 2025) identified thru Google Scholar, Scopus, and Regulatory Publications on Higher Education using keywords such as “BS Accountancy”, “Accountancy Education”, “Supply Chain Management”, and “Academic Supply Chain”. These academic literature and empirical studies were then further analyzed using the theoretical lenses forwarded by Habib and Jungthirapanich (2008) and Halldorsson et al (2007), thereby linking these classical supply chain frameworks to modern or contemporary academic contexts. However, this conceptual approach also possesses inherent limitations. The focus on document analysis and the lack of actual empirical analysis limits the generalizability of findings, making the analysis more interpretive rather than predictive. In addition, employing a classical theoretical lens may be perceived as lacking academic provenance in comparison to more established models resulting from more recent scientific studies.

### IV. RESULTS AND DISCUSSION

#### INTEGRATED VIEW OF THE ACADEMIC SUPPLY CHAIN

Habib & Jungthirapanich's (2008) Integrated Tertiary Educational Supply Chain Management (ITESCM) model recognizes the multi-tier suppliers, multi-tier customers, service provider (university), and consumers as the essential players that make up the academic supply chain. It illustrates how each stakeholder in this integrated academic supply chain plays a part in supplying society with valuable graduates by showing how each player contributes to the overall success of the academic supply chain. In order to pinpoint upstream and downstream operations, the model will be applied to Bicol University and how it implements its BSA program. The success of the integration of both its upstream suppliers and downstream clients, according to Habib et al. (2008), determines the effectiveness of the academic supply chain. The salient elements and components in the academic supply chain of the BSA program in accordance with the ITESCM is shown in Figure 3 below.

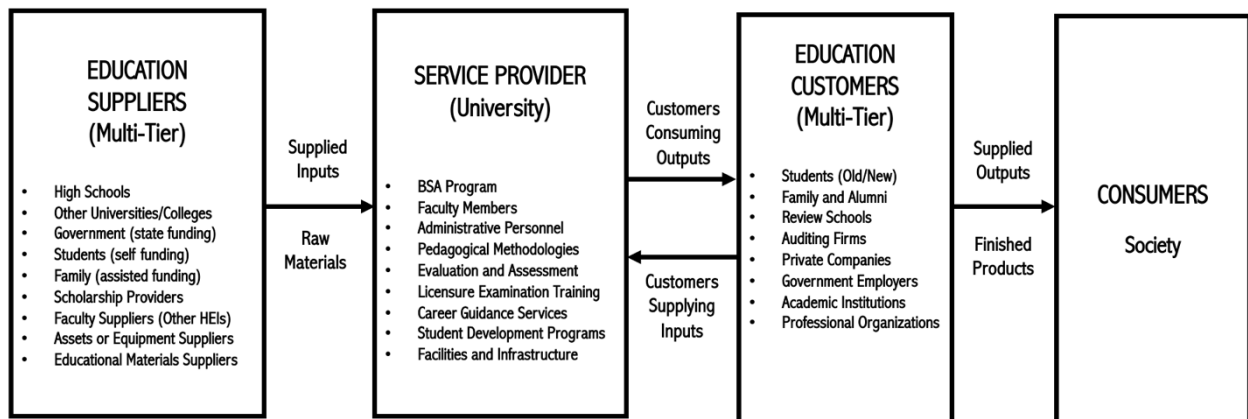


Figure 3  
Academic Supply Chain of the BSA Program of Bicol University

#### Upstream Supply Chain – Education Suppliers

The main suppliers of students to the BSA program of Bicol University are high schools within the Bicol Region as well as a select few from other regions. As the premier state university in the Bicol Region, it has been Bicol University’s thrust to provide quality education and assist in the molding and holistic development of the Bicolano youth. The consistently excellent performance of the BSA graduates of Bicol University is a strong testament to the notable strengths and quality of its BSA program which poses as a unique and effective selling point in student recruitment. To supplement its student recruitment initiatives, the BSA program of Bicol University also conducts and participants thru career

guidance invitations from major high schools in the province and in the region. These career guidance initiatives aim to promote the accountancy education being offered by Bicol University as a part of the long-term career planning of interested prospective high school graduates who wish to take up accountancy as a tertiary degree program. Other colleges and universities are also considered occasional providers of student entrants to Bicol University in the form of shifter, transferees, and second coursers as long as their academic credentials satisfy the university's admission and transfer eligibility requirements. However, since Bicol University is a state university that enjoys government funding and provides free tuition to its students, and because the BSA program is a rigorous academic program subject to a state licensure examination, stringent admission and retention policies are put in place and are being implemented to ensure that only the most qualified applicants are granted entry to the university and only those students who are able to meet prescribed academic standards are retained in the program and bestowed the said academic degree upon graduation.

In terms of funding, the government is the main source of Bicol University's funding requirements since it is a state university and is one of the HEIs in the country that provide free tertiary education thru government financial allocations. Other funding sources also include students (self-funded expenses) and family/relatives (assisted funding) for other necessary academic expenses needed by students. Furthermore, government, private companies, non-profit entities, and non-government organizations (NGOs) also provide necessary educational funding to the university thru scholarships and educational grants provided to bright and excellent students based on educational and curriculum merits. Hence, the role of Bicol University is to convince its stakeholders that by enrolling their children or students into the BSA program, they are putting hard-earned money as well as government financial resources into a good investment thru consistent excellent performance in the CPA Licensure Examination, high graduation rates, and high levels of employability with prospective employers and industry partners. The university also has to maintain a harmonious relationship and good reputation with its scholarship partners and providers for them to be willing to continue providing educational support to deserving students.

Apart from its pool of competent and qualified regular faculty members, the BSA program of Bicol University also supplements its academic workforce by inviting faculty members and professorial lecturers from other universities and those practitioners working in their respective industries. In addition, as with any other organization, Bicol University also needs to have suppliers of assets and equipment such as computers, networking equipment, internet connectivity, laboratory rooms and equipment, accounting software, recreational facilities, and the like. It also needs suppliers of educational materials such as textbooks, modules, research journals, accounting practice sets, online databases, library resources, and the like. These requirements are handled by the purchasing department of the university thru the Bids and Awards Committee (BAC) and in accordance with government procurement law (RA 9184) and other government accounting and auditing regulations.

#### **Focal Firm or Service Provider – Bicol University (BSA Program)**

In the academic supply chain, Bicol University is regarded as the focal firm or core service provider. In addition, the university is in a unique position within the academic supply chain since it does not only provide an essential service to its stakeholders thru the provision of quality accountancy education (BSA program), but it also "manufactures products" in the guise of its students who would eventually become BSA graduates (outputs) and future CPA employees or entrepreneurs. It is for this reason that students are often called as "work in progress" because of the specialized nature of the academic supply chain.

As the focal firm in the academic supply chain, Bicol University plays a vital role in ensuring that there is a two-way communication between the upstream suppliers and the downstream customers and consumers (society). The university accomplishes this task by offering and implementing the BSA program. Delivery of the required basic and advanced accountancy education to students is a role played by its pool of competent faculty members and professorial lecturers who lend both their technical expertise and professional experience in order to provide intensive and extensive educational training and preparation to their students. The non-teaching personnel and administrative staff, on the other hand, provide essential auxiliary support services to both students and faculty members for administrative, financial, and human resource management concerns.

Diverse teaching and learning methodologies are also utilized as part of the intensive academic training of students. Evaluation and assessment techniques, on the other hand, are reflective of licensure examination simulations and high academic standards which also form part of the BSA program's intensive and extensive licensure examination training and preparation for its students. Holistic academic and personal development, meanwhile, are also provided to students thru the conduct of various student development programs and career guidance services. The university also places strong emphasis on facilities and educational infrastructure by providing adequate budget and administrative support.

### **Downstream Supply Chain – Customers**

Similar to its upstream supply chain, the downstream supply chain of Bicol University also involves a multi-tier aspect. These educational customers are also involved in the whole process from the time a student is admitted into the university or program until they graduate and seek employment. Students as well as their family members or relatives benefit from the university's best practices in teaching and learning, appropriate educational facilities to enhance the learning environment, and strong university culture. Review schools, which serve as formal training grounds for licensure examination preparation after graduation, also benefit from academic partnerships, linkages, and consortia with the university in the provision of formal licensure examination review services. Prospective employers such as auditing firms, private companies, academic institutions, and government agencies – representing each of the four sectors of the accountancy profession (public practice, commerce/industry, academe, and government, respectively) – are also part of the downstream academic supply chain that absorbs BSA graduates and formally welcomes them to the accountancy profession. Professional organizations, on the other hand, also benefit from academic services provided by the university thru scholarship partnerships, internship programs, career guidance initiatives, and providing membership opportunities to future CPAs from among the university's BSA graduates.

These customers are also considered as vital stakeholders who make use of or enjoy the essential service provided by the university thru its accountancy education programs. Furthermore, we can also observe that there is a two-way communication and information sharing between the customers and the service provider (university) in that while the customers (clients) are enjoying the academic services provided by the university, they are also involved in a return loop by supplying inputs to the university thru feedback mechanisms aimed at customer service and clientele satisfaction monitoring.

### **Supplied Outputs and Finished Products – BSA Graduates and CPAs**

It is vital for Bicol University to achieve its instructional mandate in producing BSA graduates who will eventually become globally competitive CPAs that possess the key professional knowledge, skills, and values outlined in their formal degree program as well as professional code of conduct. Hence, it is essential that the university, as a provider of academic service, to produce graduates with desirable and competent attributes in order to be leaders and change agents of their profession and the society as a whole. This can be achieved by having an excellent BSA curriculum, qualified and competent faculty, effective teaching and learning methodologies, stringent evaluation and assessment techniques, appropriate educational facilities, transformative learning environment, and strong academic culture. In addition, Bicol University has to produce BSA graduates who will be able to pass the CPA Licensure Examination and become globally competitive and ethical CPAs who are capable and ready to join the accountancy profession and the general professional workforce. Having qualified and competent graduates will be reflective of Bicol University's strong and effective implementation of its BSA program. This will also encourage employers to give various learning opportunities in the future to current students for internships and practical training in their organizations. It is also a worthwhile opportunities for employed graduates to explore various avenues for personal and professional growth with their respective employers who are industry partners of the university.

### **Consumers – Society**

Regardless of whether BSA graduates and CPA alumni of the university seek employment with various companies and organizations, or they choose for themselves a rewarding entrepreneurial path, explore opportunities in other allied professions, or devote their time to charitable and philanthropic work, the final consumer in the academic supply chain is the society as a whole. The accountancy profession is considered a social profession, and they perform a vital service to the community and the larger society by serving as vanguards of truth, accountability, and transparency. Wherever they choose to affiliate themselves in the four sectors of the accountancy profession, CPAs collectively perform a crucial social service not only to their employers but to the general public as a whole. This is why the society in general is considered as the final consumer in the academic supply chain.

### **RESOURCE BASED VIEW OF THE ACADEMIC SUPPLY CHAIN**

The Resource Based View (RBV) Theory, when applied to the concept of the academic supply chain, deals with the coordination and application of relational assets, internal competencies, heterogeneous resources, and capabilities of academic institutions as crucial factors (Halldorsson et al, 2007). The construct of these resources assists an educational institution to gain competitive advantages and further transforms its short run competitive advantage into a sustainable competitive advantage. The application of the RBV theory in the academic supply chain of the BSA program of Bicol University is shown in Figure 4.

When using the RBV concept, students, government support (state education funding), and parental participation are considered the major resources and inputs for the academic supply chain. The formal tertiary education and accountancy education provided by the university, on the other hand, serves as the core and transformative process that moves students from university education towards their entry to the accountancy profess. This transformative process is achieved thru holistic academic and personal development strategies which include internship or practicum, student development programs, and licensure examination preparation among other things. Finally, the output of the academic supply chain are BSA graduates who will eventually become CPAs after passing the licensure examination, and who can be an employee as a job seeker or an entrepreneur as job creator that offers job opportunities to job seekers.

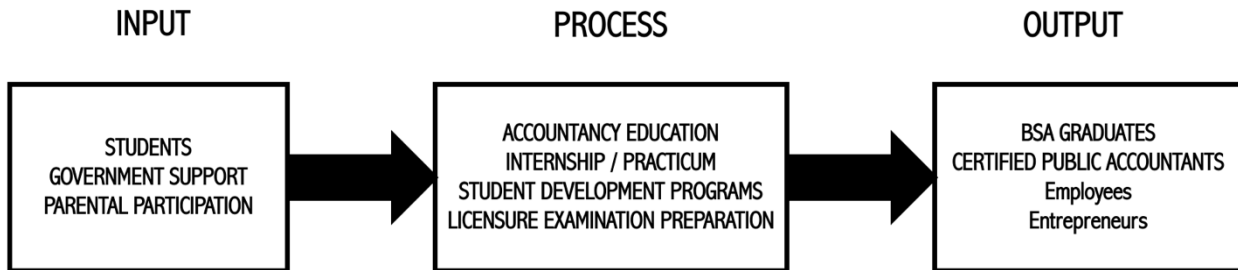


Figure 4  
Resource Based View of the Academic Supply Chain of the BSA Program of Bicol University

#### ACADEMIC SUPPLY CHAIN MANAGEMENT PROCESSES

Aside from the elements and key players who comprise the flow of the academic supply chain, it is also crucial to note that within the upstream and downstream flow of the supply chain are essential activities that facilitate the integration and communication of tangible and information resources (Marbun et al, 2020). These academic supply chain management processes include essential practices and activities that create academic value for customers and final consumers. These processes also enable the coordination and control of resource flows and information flows throughout the entire academic process of the university from sources to customers. The relevant academic supply chain management process in the BSA program of Bicol University is enumerated in Table 1.

Table 1  
Academic Supply Chain Processes of the BSA Program of Bicol University

INDUSTRIAL SUPPLY CHAIN PROCESSES	ACADEMIC SUPPLY CHAIN STRATEGIES	PERFORMANCE METRICS
1. Customer Relationship Management	Academic Partnerships Industry Linkages and Consortia Quality Accountancy Education Intensive Licensure Exam Preparation Effective Accounting Internship	Number of Active MOAs/MOUs Number of Industry Partners Accreditation Status Licensure Exam Passing Rates Student Evaluation Results
2. Customer Service Management	Student Development Programs Student Organization Involvements Guidance and Counseling Services Career and Job Placement Services Other Student Affairs Services	Number of Student Activities Number of Accredited Student Orgs Service Ratings / Service Quality Employability Ratings Clientele Satisfaction Ratings
3. Demand Management	Curriculum Review/Revision Accreditations and Certifications CHED/PRC Academic Inspections Offering of New/Innovative Programs	Frequency of Curriculum Review Accreditation Level/Status Results of Regulatory Inspections Number of Innovative Programs
4. Order Fulfillment	Selective Admission Policies Retention Policies Intensive Licensure Exam Preparation	Enrollment Rate Graduation Rate Licensure Exam Passing Rates
5. Flow Management Process	Teaching and Learning Methodologies Academic Learning Modalities Evaluation and Assessment Techniques Real-World Accounting Internship Conducive Learning Environment	Teaching Effectiveness Evaluation Student Evaluation Results Licensure Exam Passing Rates Number of Employed Interns Clientele Satisfaction Ratings

	Strong Academic Culture	Employability Rates
6. <b>Supplier Relationship Management</b>	Strong University Identity/Reputation Admission Policy/Qualification Process Vendor Selection and Retention Compliance with Govt Procurement Law	SUC Level Ranking Enrollment Rate/Graduation Rate Approved Bids/Awards Approved Purchase Requests
7. <b>Product Development and Commercialization</b>	Curriculum Design/Development Curriculum Review/Revision Accreditations and Certifications	Certificate of Program Compliance Frequency of Curriculum Review Accreditation Level/Status
8. <b>Returns Management</b>	Student Feedback Other Stakeholder Feedback	Teaching Evaluation Ratings Clientele Satisfaction Ratings

**Customer Relationship Management (CRM).** CRM consists of strategies and processes that manages the organization’s interactions with its customers and potential clients. It provides an organization with insights on prospective customers and can use this information to identify points for improvement and build customer loyalty (Perera et al, 2019). In the context of the academic supply chain, CRM is primarily conducted thru forging partnerships and linkages with academic industry partners, provision of intensive and extensive accountancy education and training to student-clients, and bridging the gap between the academe and industry thru effective internship and practicum opportunities.

**Customer Service Management (CSM).** CSM is the supply chain management process that represents the organization’s face to its customers. This is the key point of contact for administering product and service agreements. The goal of CSM is to make the customer’s experience as smooth as possible. In the context of the academic supply chain, CSM is primarily conducted thru the provision of avenues for academic, co-curricular, and extra-curricular activities to students as part of a holistic student development program. This includes opportunities for students to join academic and non-academic events, seminars/trainings/conferences, membership and leadership opportunities in various student organizations, guidance and counseling services, career and job placement services, and other student affairs services.

**Demand Management.** In a typical industrial supply chain, demand management is a technique producers use to forecast and plan how to satisfy customers’ demand for various goods or services. Demand management characterizes anticipating what consumers may need and preparing adequately to satisfy their desires. In the context of the academic supply chain, quality education is the primary service being provided by academic institutions. Customers (students, employers, other stakeholders) demand to receive the level of education consistent with the academic institution’s ideals and academic mandates. These customer demands are achieved primarily thru the conduct of periodic curriculum evaluation/revision/review, subjecting academic programs to external accreditations and certifications, inspections by educational and governmental regulatory bodies such as CHED and PRC, and offering of additional innovative degree programs.

**Order Fulfillment.** This process in a typical industrial supply chain involves inventory management, supply chain management, order processing, quality control, and customer support. In the context of an academic supply chain, this involves transforming inputs (students) from eligible applicants/entrants to prospective employees/entrepreneurs thru high standards of application requirements, quality control, and professional preparation and development. Academic strategies and practices to accomplish these include selective admission policies, strict retention policies, and intensive licensure examination training and preparation to ensure that only eligible applicants are allowed entry into the program and only students who will be able to meet the high standards required of the accountancy profession will be bestowed the BSA degree and allowed to take the CPA licensure examination.

**Flow Management.** Manufacturing flow management in the industry supply chain includes all activities necessary to move products through the plants and to obtain, implement, and manage manufacturing flexibility in the supply chain (Kumar et al, 2021). In the context of the academic supply chain, flow management relates to all the academic methodologies and modalities utilized by the university in providing quality education and a holistic academic experience to its students. These include the utilization of a diverse array of teaching and learning methodologies, learning modalities, effective evaluation and assessment techniques, real-world academic internship, provision of a conducive learning environment, and having a strong academic culture.

**Supplier Relationship Management (SRM).** In a typical industrial supply chain, SRM is a business initiative that many companies undertake to build mutually beneficial relationships with suppliers. Well-designed SRM programs help

companies to increase collaboration by identifying the right suppliers with whom to partner. In the context of an academic supply chain, SRM practices include initiatives to promote the university and its academic programs thru excellent academic reputation as manifested by the employability of its graduates and the quality of the academic programs that it offers. It also involves careful selection of prospective applicants from high schools and other universities by implementing a strict and high standard admission process and policy. When it comes to the purchase of essential educational equipment and instructional materials, SRM is conducted thru careful selection and retention of eligible suppliers thru a public bidding process in accordance with government procurement law and applicable government accounting and auditing rules and regulations.

**Product Development and Commercialization.** In a typical industrial supply chain, product development comprises a series of steps that go from idea generation to post launch review, which help companies analyze the various aspects of launching new products and bringing them to the market. It comprises idea generation, screening, testing, business case analysis, product development, test marketing, commercialization, and post launch review. In the context of an academic supply chain, product development and commercialization is primarily achieved thru innovative curriculum design or curriculum development as well as periodic curriculum review/evaluation/revision. This also includes being up-to-date with the various academic and professional trends affecting existing curricular offerings. This also includes subjecting existing academic programs to external accreditations and academic certifications to ensure consistent educational quality and continuous academic improvement.

**Returns Management.** In a typical industrial supply chain, returns management is the process by which activities associated with returns, reverse logistics, and avoidance are managed within the firm and across key members of the supply chain. This process enables management not only to manage the reverse product flow efficiently, but also to identify opportunities to reduce unwanted returns and to control reusable assets. In a typical academic supply chain, an academic service (education) cannot be returned unlike a manufactured product since it is consumed at the point of production. However, service quality can be changed or improved through feedback mechanisms. In the education sector, feedback from students and other relevant stakeholders are significant. The university can improve its educational service delivery based on students' feedback on the totality of their academic experience through results generated from teaching effectiveness evaluation surveys and other informal communications. Relevant stakeholders, on the other hand, can also provide feedback through clientele satisfaction surveys. Through these feedback loops, Bicol University can make the necessary changes and improvements in their academic service delivery.

## V. CONCLUSIONS AND RECOMMENDATIONS

The development of academic service delivery and cost reduction in the daily operations of academic institutions can both benefit greatly from the educational supply chain. For the academic supply chain to produce graduates of high caliber, high quality educational processes are also necessary. All participants in the academic supply chain must be involved if there is to be a good quality of tertiary graduates, especially when it comes to imparting the necessary knowledge, skills, and ethical values to students. The idea behind supply chain management in academia and industrial supply chain management nowadays are extremely similar. An academic supply chain also has an upstream and downstream component. Collaboration amongst all pertinent key players is also required in the academic supply chain. This boosts students' capacity for both personal and professional growth in addition to improving their readiness for university education. In addition, the collaboration between the university as academic service provider and industry should also be emphasized throughout the education process in the academic supply chain. This is because the two-way communication between both parties is crucial for the process of transformation from student to employee or entrepreneur. Finally, it would be helpful and prudent for higher education institutions to further explore the concept of the academic supply chain and ensure that employers, students, university staff, and other stakeholders work in collaboration to ensure that the needs of all are satisfied. This integrative process involves all key players in the academic supply chain in the decision-making process and gauges the reaction of all sectors to the idea of integrating supply chain management concepts into the university planning structure. Future research directions may also be explored in terms of further integration and collaboration within the academic supply chain and the identification of valuable lessons and best practices from an industrial supply chain perspective and its applicability in the arena of academic institutions.

## REFERENCES

- [1] Culot, G., Podrecca, M., Nassimbeni, G., Orzes, G., & Sartor, M. (2023). *Using supply chain databases in academic research: A methodological critique*. Journal of Supply Chain Management. <https://doi.org/10.1111/jscm.12294>.

- [2] Flynn, B. B., Hou, B., & Zhao, X. (2010). *The Impact of Supply Chain Integration on Performance: A Contingency and Configuration Approach*. Journal of Operations Management.
- [3] Habib, M., Jungthirapanich, C. (2009). *Research Framework of Education Supply Chain, Research Supply Chain, and Educational Management for the Universities*. International Journal of the Computer, the Internet and Management.
- [4] Halldorsson, A., Kotzab, H., Mikkola, J. H., & Skjott-Larsen, T. (2007). *Complementary Theories to Supply Chain Management*. Supply Chain Management: An International Journal
- [5] Janvier-James, A. M. (2012). *A New Introduction to Supply Chains and Supply Chain Management: Definitions and Theories Perspective*. International Business Research.
- [6] Kumar, A., Shrivastav, S.K., Oberoi, S.S. (2021). *Application of Analytics in Supply Chain Management from Industry and Academic Perspective*. FIIB Business Review. <https://doi.org/10.1177/23197145211028041>.
- [7] Laosirihongthong, T., Samaranayake, P., Nagalingam, S. V., & Adebajo, D. (2020). *Prioritization of sustainable supply chain practices with triple bottom line and organizational theories: industry and academic perspectives*. Production Planning & Control, 31(14), 1207-1221. <https://doi.org/10.1080/09537287.2019.1701233>.
- [8] Lee, K. L., Udin, Z. M., & Hassan, M. G. (2014). *Global Supply Chain Capabilities in Malaysian Textile and Apparel Industry*. International Journal of Supply Chain Management.
- [9] Marbun, D.S., Effendi, S., Lubis, H.Z., & Pratama, I. (2020). *Role of Education Management to Expediate Supply Chain Management: A Case of Indonesian Higher Educational Institutions*. International Journal of Supply Chain Management.
- [10] O'Brien, E. M., Deans, K. R. (1996). *Educational Supply Chain: A Tool for Strategic Planning in Tertiary Education?* Marketing Intelligence Planning.
- [11] Perera, H.N., Hurley, J., Fahimnia, B., & Reisi, M. (2019). *The human factor in supply chain forecasting: A systematic review*. European Journal of Operational Research. <https://doi.org/10.1016/j.ejor.2018.10.028>.
- [12] Sandberg, E., Oghazi, P., Chirumalla, K., & Patel, P.C. (2022). *Interactive research framework in logistics and supply chain management: Bridging the academic research and practitioner gap*. Technological Forecasting and Social Change, Volume 178. <https://doi.org/10.1016/j.techfore.2022.121563>.
- [13] Sangari, M.S. & Mashatan, A. (2022). *A data-driven, comparative review of the academic literature and news media on blockchain-enabled supply chain management: Trends, gaps, and research needs*. Computers in Industry, Volume 143. <https://doi.org/10.1016/j.compind.2022.103769>.
- [14] Treiblmaier, H. (2018). *The impact of the blockchain on the supply chain: a theory-based research framework and a call for action*. Supply Chain Management: An International Journal. <https://doi.org/10.1108/SCM-01-2018-0029>.
- [15] Zinn, W. and Goldsby, T.J. (2017), *The Role of Academic Research in Supply Chain Practice: How Much Are We Contributing?*. Journal of Business Logistics, 38: 236-237. <https://doi.org/10.1111/jbl.12175>.