

# Supply Chain Information System Operations Model for Research Management for Asean University Network Quality Assurance at Institution Level

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**Abstract**— The research supply chain Information System operations model for research management for asean university network quality assurance at institution level. The purposes of research study were design and to evaluate supply Chain Information System operations model for research management for asean university network quality assurance at institution level .The sample group in this study consisted of ten experts consisted five experts on supply chain , three experts on information technology and two experts on research. The research findings show that supply Chain Information System operations model for research management for asean university network quality assurance at institution level comprises five main components, namely, main components, suppliers , university , customers and consumers. Evaluation results by the ten experts show the evaluation rating mean of 3.63 with standard deviation of 0.81 that mean supply chain Information System operations model for research management for asean university network quality assurance at institution level and can support sustainable Information system development.

**Keywords**— *supply chain, Information System operations model, research management, asean university network quality assurance at institution level*

## 1. Introduction

Research system is the process whereby individuals acquire knowledge. Therefore, a consideration of research quality should be based on educational goals, according to the policy that “The creation of a stable knowledge-based economy and environmental factors must support Thailand to be a centre of goods and service production in the region based on creative thinking, creation of innovations, and extension of the body of knowledge in order to support the adjustment of the structure of production and service sector in every stage of supply chain. This is to enable the creative economy to be a new mobilizing power that leads toward the balanced and sustainable economy in the long run, together with the creation the

innovation or research quality for asean university network quality assurance and student educations to utilize as goals or a directional framework to develop sustainable quality of the institutions, and to use in self-assessment every year, or for a specified period of time, in order to learn whether educational administration has achieved its goals. These standards are also important for educational service areas or host units to employ as goals in supervision, examination and assessment of quality as a whole to inform quality improvement planning.[7] The awareness of the supply chain management information system model for research management can be practical as a method . To accomplish work procedures, actions and affairs within the organization. It starts from planning, providing accurate information at the time of need, practicing and maintenance, distribution or destruction by giving priority to information exchange, data analysis and information technology will be derived to play a role in changing work processes to be more computerized in order to style occupied custom of information technology not only carrying supply chain and information technology to work but also be able to determine the organization inevitably include It is very important at the progress level. The ASEAN Quality Assurance Network (AUN-QA) is an ASEAN university network that is a collaboration of higher education institutes between member countries consisting of the National Association of East Asia, South Chiang Mai or ASEAN with the aim of establishing to promote educational cooperation which is an essential mechanism for creating a foundation for society and regional unity. From the status declared directly above; consequently, the researchers are concerned in emerging information technology for quality assurance in research management for asean university network quality assurance . [1] The researcher had an idea to design and to evaluate supply chain information System operations model for research management for asean university network quality assurance at institution level for add value and increase satisfaction of consumers.

**2. Related Literature**

**2.1. Information and Supply Chain According to Asean University Network Quality Assurance at Programme Level**

Chansamut [9] said that the article, relationship between information and supply chain according to asean university network quality assurance at programme level AUN-QA at programme level) importance for applying in actual work settings. Based on findings from literature review, the researcher found a large number of papers and articles in supply chain. The relationship between information and supply is a key process to support the education whole activities system from upstream suppliers to downstream consumers. It enables the organization to promptly check the supply chain and information technology to ensure that the organization operates smoothly and effectively based on the determined strategies. The process consisted of suppliers, manufacturer customers, including 11 activities in the supply chain namely, 1) Expected Learning Outcomes, 2) Programme Specification, 3) Programme Structure and Content, 4) Teaching and Learning Strategy, 5) Student Assessment, 6) Academic Staff Quality, 7) Support Staff Quality, 8) Student Quality and Support, 9) Facilities and Infrastructure, 10) Quality Enhancement, and 11) Output. All activities are connected with information communication technology in the educational institute according to asean university network quality assurance at programme level (AUN-QA at programme Level) start from the creation of information, news and resources to apply together to move the goods from the supplier to the customer, resulting in a rapid flow of information and effectively. This truly added the educational institute value as the production satisfactory for the consumers.

**2.2 Quality Assurance**

Quality assurance is the process of determining the quality standards of education and the assessment process to meet the educational quality standards [10]. Internal quality assurance refers to guidelines for assessing the quality of education within the university mission, as graduate production including academic research, academic services, preservation of arts that educational quality assurance can be used to describe all activities and mechanisms which related to quality, both at the system level and the level of teaching in higher education institutions

**3. Research Methodology**

This research has 3 part

**3.1 The part 1 content analysis**

1. Study and analyze related documents and research to the components supply chain Information System operations model for research

management for asean university network quality assurance at institution level.

2. Define research framework of supply chain Information System operations model for research management for asean university network quality assurance at institution level. as drawn from part 1.

**3.2 The part 2 design the model**

1 Design supply chain Information System operations model for research management for asean university network quality assurance institution level.

2 Propose supply chain Information System operations model for research management for asean university network quality assurance institution level.

3. Create the tool for assessing the suitability of supply chain Information System operations model for research management for asean university network quality assurance institution level.

**3.3 The part 3 Evaluation of suitability of model**

1 Propose the designed supply chain Information System operations model for research management for asean university network quality assurance to the ten experts for assessing suitability.

2, Analyze the output data by using appropriateness measurement scale based on 5-point of Likert scale consists of 5 answer options.

**4. Results**

4.1 Research results about supply chain Information System operations model for research management for asean university network quality assurance institution level as followings

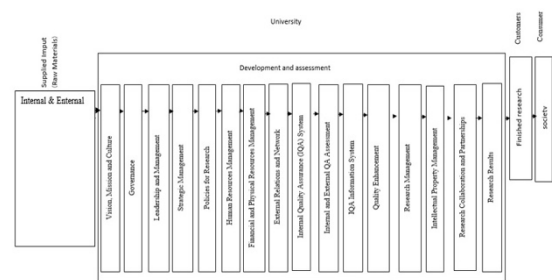


Fig1 : Supply chain Information System operations model for research management for asean university network quality assurance at institution level

**Table 1: Stakeholders each process is related to the following activities:**

Stakeholders	Activities in supply chain	Needs for data
1. <b>Suppliers</b> 1. University -Suppliers of Internal Research Projects 2. State and Private Organizations	Submit a research project proposal form	-quick responses.

Stakeholders	Activities in supply chain	Needs for data
- External Research Projects		
2. university Development and Evaluation 1 Vision, Mission and Culture	1 Senior leaders ensure that the vision and mission meet stakeholders' needs and to their satisfaction. 2 Senior Leaders foster culture including a set of values to align with the vision and mission of the institution. 3 The vision, mission and culture are articulated, cascaded and demonstrated for implementation. 4. Review of the vision, mission and culture is carried out to meet stakeholders' needs and to their satisfaction.	- To be filed and stored systematically to prevent the loss of information.

Table 1: (Continued)

Stakeholders	Activities in supply chain	Needs for data
2. university Development and Evaluation 1 Vision, Mission and Culture	5 The vision, mission and culture, and their development processes are improved to meet stakeholders' needs and to their satisfaction. 1 Governance system including board, council, senate and/or advisory committee is established to set strategic directions given the specific context of the institution, and to ensure accountability, sustainability and transparency as well as to mitigate potential risks. 2 Decisions from governance bodies are translated into action plans, policies and guidelines for implementation 3 Review of the governance system of the institution is carried out. 4 The governance system of the institution is improved for institutional effectiveness and	- Correct and complete evaluation reports.  -quick responses.
2 Governance		

Table 1: (Continued)

Stakeholders	Activities in supply chain	Needs for data
2. university Development and Evaluation 2 Governance	better risk management.  1 Senior Leaders establishes management structure with defined roles and responsibilities, decision-making, communication and reporting to achieve the vision, mission and culture; and strategic goals of the institution. 2. Senior leaders involve in communicating and engaging stakeholders in driving the vision, mission and culture; and strategic goals of the institution. 3 Review of the leadership and management structure of the institution is carried out. 4 The leadership and management structure of the institution are improved for	- To facilitate speedy and accurate data  - To facilitate speedy and accurate data
3 Leadership and Management		

Table 1: (Continued)

Stakeholders	Activities in supply chain	Needs for data
2. university Development and Evaluation 3 Leadership and Management	management effectiveness and to achieve desired levels of organizational performance  1 Strategy planning is carried out to fulfill the vision, mission and culture as well as the strategic goals of research. 2. Strategic plan is cascaded and translated into long and short-term action plans for implementation. 3. Key performance indicators and targets are established to measure the performance of strategic goals of the institution. 4 The strategic planning process as well as key performance indicators and targets are improved to meet the strategic goals of the institution.	- reduction of time wastage.  - To be easily accessible
4 Strategic Management		

**Table 1: (Continued)**

Stakeholders	Activities in supply chain	Needs for data
2. university Development and Evaluation 5 Policies for research	1 System to formulate policies for research is established. 2 Process to monitor the compliance of policies is documented, communicated and implemented. 3 Review of policies for research is carried out. 4 Policies for research are improved for institutional effectiveness and to meet stakeholders' needs and to their satisfaction.	- reduction of time wastage.
6 Human Resources Management	1 Human resource planning (considering succession, promotion, redeployment, termination, and retirement) is carried out to fulfill the needs for research 2. Recruitment and selection criteria including ethics and academic freedom for appointment	- To be easily accessible.

**Table 1: (Continued)**

Stakeholders	Activities in supply chain	Needs for data
2. university Development and Evaluation 7. Financial and Physical Resources Management	1 System to plan, implement, audit and improve the financial resources of the institution to support its vision, mission and strategic goals in research is established and implemented. 2 System to plan, maintain, evaluate and improve the physical facilities and infrastructure such as teaching and learning facilities, laboratories, equipment and tools etc. to meet the needs of research is established and implemented. 3 System to plan, maintain, audit and improve the IT facilities and infrastructure such as computers, networks, backup, security and access rights to meet the needs of research is established and implemented.	- reduction of time wastage.
		- To be easily accessible.

**Table 1: (Continued)**

Stakeholders	Activities in supply chain	Needs for data
2. university Development and Evaluation 6 Resources Management	deployment and promotion are determined and communicated. 3. Competences including leadership skills of various staff categories are identified and established. 4. Training and developmental needs of staff are identified and activities are implemented to fulfill them. 5. Performance management system including rewards, recognition and coaching/mentoring schemes is implemented to motivate and support research. 6 Review of the human resource plans, policies, procedures, and schemes is carried out. 7. The human resource plans, policies, procedures, and schemes are improved to support research	- reduction of time wastage.
		- To be easily accessible.

**Table 1: (Continued)**

Stakeholders	Activities in supply chain	Needs for data
2. university Development and Evaluation 7. Financial and Physical Resources Management	4 System to plan, maintain, evaluate and improve the academic resources such as library resources, teaching aids, online databases, etc. to meet the needs of research is established and implemented 5 System to plan, implement, evaluate and improve the environment, health and safety and access to people of special needs is established and implemented. 1 Plan for external relations, networks and partnerships is established to achieve the vision, mission and strategic goals of the institution. 2 Policies, procedures and agreements to foster external relations, networks and partnerships are implemented.	- reduction of time wastage.
8. External Relations and Networks	3 Review of the external relations, networks and partnerships is carried out.	- To be easily accessible.



**Table 1: (Continued)**

Stakeholders	Activities in supply chain	Needs for data
2. university Development and Evaluation  13 Research Management	<p>1 System to oversee, direct, implement, monitor and review research activities, resources, research staff quality and research related activities is established.</p> <p>2. Strategic approach to source for research funding and to promote research, innovation, collaboration, research excellence is implemented to achieve the vision and mission of the institution.</p> <p>3. Key performance indicators are used to evaluate the quantity and quality of research.</p> <p>4 Research management is improved to raise the level of research and innovation.</p>	<p>- reduction of time wastage.</p> <p>- To be easily accessible.</p>

**Table 1: (Continued)**

Stakeholders	Activities in supply chain	Needs for data
2. university Development and Evaluation 15 Research Collaboration and Partnerships  16 Research Results	<p>4 Research collaboration and partnerships are improved to meet research goals.</p> <p>1 The type and volume of research activities by academic and research staff are established, monitored and benchmarked for improvement.</p> <p>2. The type and volume of research activities by students are established, monitored and benchmarked for improvement.</p> <p>3. The type and volume of research publications including citations are established, monitored and benchmarked for improvement.</p> <p>4. The type and volume of intellectual property are established, monitored and benchmarked for improvement.</p>	<p>- To be easily accessible.</p> <p>- reduction of time wastage</p>

**Table 1: (Continued)**

Stakeholders	Activities in supply chain	Needs for data
2. university Development and Evaluation 14. Intellectual Property Management	<p>1 System to manage and protect inventions, patents, copyrights, research results is established.</p> <p>2. System to record, store and retrieve intellectual property is implemented.</p> <p>3 System to review the management of intellectual property is carried out.</p> <p>4 The management of intellectual property is improved to protect the university and research staff, and public interests.</p> <p>1 System to establish research collaboration and partnerships to meet research goals is established.</p> <p>2. Policies and procedures to foster collaboration and partnerships are implemented.</p> <p>3 System to review the effectiveness of research collaboration and partnerships is carried out.</p>	<p>- To be easily accessible.</p> <p>- To be easily accessible.</p>

**Table 1: (Continued)**

Stakeholders	Activities in supply chain	Needs for data
2. university Development and Evaluation 16 Research Results	<p>5. The amount of research fund for each type of research activity is established, monitored and benchmarked for improvement.</p> <p>6 The result of research and innovation, including commercialization, incubation, establishment of start-ups, etc., is established, monitored and benchmarked for improvement.</p>	<p>- To be easily accessible.</p>
Customers Finished research	- Useful research	- To facilitate the filing and storage of large amount of information for accessibility.
Consumers Society	<p>- Published research</p> <p>- Research income</p> <p>- Praise researcher</p> <p>- Offer research in an academic research conference [8]</p>	To stored systematicall-y to prevent the loss of data

4.2 Explanation on elements of supply chain Information System operations model for research management for asean university network quality assurance at institution level

1 Suppliers

Suppliers of internal research projects (university self funding), suppliers of external research projects (external research funds, Ministry of education, private organizations, etc.) and others who want to send research applying via a computer system .

2 University

University means manufacturer that produces research. It performs the duty to transform raw materials into the finished products. The university will perform its duty of research development and assessment .It is based on the consideration that all supply chain tasks and activities.

3 Customer

Customers mean finished research from the university.

4. Consumers

The customers mean entrepreneurs or the end-of-process component of the model. They include the society in general and entrepreneurs who sended finished research from the university. Finally, the end product of product will add value for customers with supply chain.[1],[2],[3],[4],[5],[6],[7]

**Table 2:** Results of appropriateness evaluation of Supply chain information System operations model for research management for asean university network quality assurance

No.	Items	$\bar{X}$	S.D.	Suitability
1	Main elements	3.62	0.69	High
2	Suppliers	3.65	0.89	High
4	University	3.60	1.17	High
5	Customers	3.60	0.84	High
6	Consumers	3.70	0.48	High
	<b>Total</b>	3.63	0.81	High

From table two, that experts agree that supply chain Information System operations model for research management for asean university network quality assurance at institution level is highly appropriate ( $\bar{X} = 3.63$ , S.D. = 0.81)

**5. Discussion**

According to evaluation by ten experts, supply chain information System operations model for research management for asean university network quality assurance at institution level is considered to be high appropriate and the design was relevant to Chansamut and Piriyasurawong has studied supply chain and information system about

educational [1],[2] In addition, with the study of Chansamut, recommended that supply chain and information technology . [2][3],[4],[5],[6],[8]

**6. Conclusion**

Supply chain information System operations model for research management for asean university network quality assurance at institution level is considered to be high appropriate. The overall evaluation result shows the overall rating mean of 3.63 and standard deviation of 0.81 suggesting that It can support sustainable Information system development

**7. Recommendations**

Supply chain management information system model for human resource management for higher education institution at institution level should be conducted on the creation of required database for developed the model.

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**References**

[1] Chansamut, A., Piriyasurawong., P. Conceptual Framework of Supply Chain Management Information System for Curriculum Management Based on Thailand Qualifications Framework for Higher Education. International Journal of Managing Value and Supply Chains (IJMVSC) . Vol 5 No 4 , 33-45. 2014

[2] Chansamut, A Supply Chain operation Model in Digital for Curriculum Management Based on Thailand Qualifications Framework for Higher Education. International Journal of Supply Chain Management (IJSCM). Vol 10 No 4 , 71-75. 2021.

[3] Chansamut, A An Information System Model for Educational Management in Supply Chain According to Career standards on Thailand Qualifications Framework for Vocational Education International Journal of Supply Chain Management (IJSCM). Vol 10 No 4 , 51-55. 2021.

[4] Chansamut, A Synthesis conceptual framework of Supply Chain Business Intelligence for Educational Management in Thai Higher Education Institutions International Journal of

- Supply Chain Management (IJSCM). Vol 10 No 5 , 25-31. 2021.
- [5] Chansamut, A Supply Chain Business Intelligence Model for Quality Assurance in Educational Management for ASEAN University Network Quality Assurance International Journal of Supply Chain Management (IJSCM). Vol 10 No 5 , 40-49. 2021.
- [6] Chansamut, A. ICT System in Supply Chain Management for Research in Higher Education Institute. University of the Thai Chamber of Commerce journal humanities and social sciences. Vol 36 No 2, 112-121. 2016.
- [7] Chansamut, A supply chain management information system model for quality assurance in educational management for ASEAN University Network Quality Assurance (AUN- QA) International Journal of Research in Industrial Engineering Vol 10 Issue 54, 307-317. 2021
- [8] Chulalongkorn University. 2016. Guide to AUN-QA Assessment at Institutional Level Available at [http://www.aun-qa.org/views/front/pdf/publication/Guide%20to%20AUNQA%20Assessment%20at%20Institutional%20Level%20Version2.0\\_Final\\_for\\_publishing\\_2016%20\(1\).pdf](http://www.aun-qa.org/views/front/pdf/publication/Guide%20to%20AUNQA%20Assessment%20at%20Institutional%20Level%20Version2.0_Final_for_publishing_2016%20(1).pdf)
- [9] Chansamut, A Information system model for educational management in supply chain for Thai higher education institutions. International journal of research in industrial engineering Vol 10 No 2, 84-94. 2021.
- [10] Morgan, C., Murgatroyd, S. 1994. Total quality management in the public sector: an international perspective. McGraw-Hill Education (UK).