

# Supply Chain Pattern in Digital for Research Management for ASEAN University Network Quality Assurance

Artaphon Chansamut

*Office of Dean, Faculty of Home Economic Technology, Rajamangala University  
of Technology Krungthep, Thailand*

artaphon.c@mail.rmutk.ac.th

**Abstract**— The research about the supply chain pattern in digital for research management for asean university network quality assurance. The objectives of research to design and to assess the suitability of supply chain pattern in digital for research management for asean university network quality assurance. The sample group consisted of fifteen experts in the field of information system ,supply chain and research. The data is analyzed by means and standardized deviations statistically. The research result shows that supply chain pattern in digital for research management for asean university network quality assurance is consisted of 5 key elements which are 1) main elements 2) suppliers 3) university 4) customers 5)consumer. The results from experts supply chain pattern in digital for research management for asean university network quality assurance was a high level. It showed that supply chain pattern in digital for research management for asean university network quality assurance could be used to develop the tasks.

**Keywords**— *supply chain pattern in digital, for research management, asean university network quality assurance*

## 1. Introduction

The ambition of the University in Thailand is to leverage its knowledge and expertise to create new value for society through collaboration and societal commitment the University in Thailand have different experiences from research collaborations with industry and government agencies and institutions contribute to realising this ambition, among other things through a strong commitment to providing research-based consultancy services. In order to develop university in Thailand have jointly prepared general framework for the quality assurance of University in Thailand research-based consultancy services. It is based on the experience, procedures and paradigms which already exist at departments which have been involved in research-based consultancy . The description of a general quality assurance system at faculty level is to establish a common framework and ensure learning and improvements across

departments and faculties in the University in Thailand The quality assurance system builds on and is integrated with University practices [10]. Researchers have given the importance to develop research in order to cope with economic, social and political changes. In the business and industrial sector the changes have included the movement toward more and more application of the concept of supply chain management and digital. This is because the business and industrial sector needs to be highly competitive due to increasingly high competitions from both within and outside the country. In order to be highly competitive, organizations in the sector need to have personnel with knowledge, ability and skills who can work efficiently to increase output and products. The organizations, therefore, need to have sufficient information and resources to increase their values and respond to the demand of their clients. Thus, the supply chain management process is a key process to support the organization's whole activities system from upstream to downstream. It enables the organization to promptly check digital system to ensure that the organization operates smoothly and effectively based on the determined strategies. Based on this realization,[1] the researcher has decided to design and to assess supply chain pattern in digital for research management for asean university network quality assurance for application to increase values of society.

## 2 Research Methodology

1 Relevant papers and research works are studied, analysed, and synthesized to

Formulate a concept of the pattern development.

2. The pattern is developed based on the data obtained from the research study used in the formulation of the pattern development concept.

3. The pattern is presented to thesis advisor for consideration and modified it as guided.

4. Create a tool for assessing the pattern suitability.

5 The pattern is submitted to the experts for review and evaluate the suitability

6. The pattern is modified according to the experts' suggestions.

7 Evaluation result on suitability is analyzed using mean ( $\bar{X}$ ) and standard deviation (S.D.). Five Likert-type levels of measurement are identified to assess the model's suitability, as the following criteria : 4.51-5.00 at highest of appropriate suitability 3.51-4.50 at a high of appropriate suitability 2.51-3.50 at moderately of appropriate suitability 1.51-2.50 at a low of appropriate suitability 0.00-1.50 at lowest of appropriate suitability.

### 3 Results

3.1 Research results about supply chain pattern in digital for research management for asean university network quality assurance were presented in figure 1 .

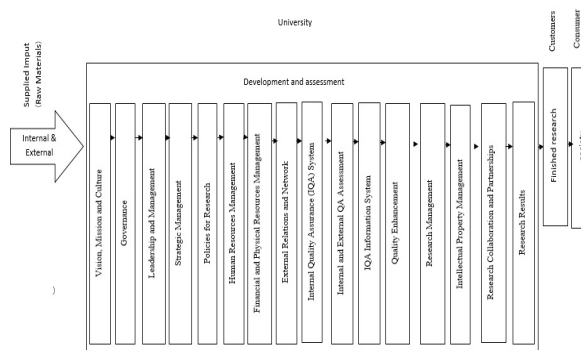


Figure 1: Supply chain pattern in digital for

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

Stakeholders	Activities in supply chain	Needs for data
<b>1. Suppliers</b> 1. University -Suppliers of Internal Research Projects 2. State and Private Organizations - External Research Projects	Submit a research project proposal form	-Quick responses.
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. 5 The vision, mission and culture, and their development processes are improved to meet stakeholders' needs and to their satisfaction.	- To be filed and stored systematically to prevent the loss of information.  - Correct and complete evaluation reports.

Table 1: (Continued)

Stakeholders	Activities in supply chain	Needs for data
<p>2. university Development and Evaluation</p> <p>2 Governance</p>	<p>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.</p> <p>2 Decisions from governance bodies are translated into action plans, policies and guidelines for implementation</p> <p>3 Review of the governance system of the institution is carried out.</p> <p>4 The governance system of the institution is improved for institutional effectiveness and better risk management.</p>	<p>-Quick responses. - To facilitate speedy and accurate data</p>
<p>3 Leadership and Management</p>	<p>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.</p> <p>2. Senior leaders involve in communicating and engaging stakeholders in driving the vision, mission and culture; and strategic goals of the institution.</p> <p>3 Review of the leadership and management structure of the institution is carried out.</p> <p>4 The leadership and management structure of the institution are improved for management effectiveness and to achieve desired levels of organizational performance.</p>	<p>- Reduction of time wastage. - To facilitate speedy and accurate data</p>
<p>4 Strategic Management</p>	<p>1 Strategy planning is carried out to fulfill the vision, mission and culture as well as the strategic goals of education, research and service.</p> <p>2. Strategic plan is cascaded and translated into long and short-term action plans for implementation.</p> <p>3. Key performance indicators and targets are established to measure the performance of strategic goals of the institution.</p>	

Table 1: (Continued)

Stakeholders	Activities in supply chain	Needs for data
2. university Development and Evaluation	4 The strategic planning process as well as key performance indicators and targets are improved to meet the strategic goals of the institution.	- To be easily accessible
4 Strategic Management		
5 Policies for research	<p>1 System to formulate policies for research is established.</p> <p>2 Process to monitor the compliance of policies is documented, communicated and implemented.</p> <p>3 Review of policies for education, research and service is carried out.</p> <p>4 Policies for research are improved for institutional effectiveness and to meet stakeholders' needs and to their satisfaction.</p>	- Reduction of time wastage.
6 Human Resources Management	<p>1 Human resource planning (considering succession, promotion, redeployment, termination, and retirement) is carried out to fulfill the needs for education, research and service.</p> <p>2. Recruitment and selection criteria including ethics and academic freedom for appointmen deployment and promotion are determined and communicated.</p> <p>3. Competences including leadership skills of various staff categories are identified and established.</p> <p>4. Training and developmental needs of staff are identified and activities are implemented to fulfill the them.</p> <p>5. Performance management system including rewards, recognition and coaching/mentoring schemes is implemented to motivate and support education, research and service.</p> <p>6 Review of the human resource plans, policies, procedures, and schemes is carried out.</p> <p>7. The human resource plans, policies, procedures, and schemes are improved to support education, research and service.</p>	- To be easily accessible.

**Table 1: (Continued)**

<b>Stakeholders</b>	<b>Activities in supply chain</b>	<b>Needs for data</b>
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 education, research and service 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 education, research and service 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 education, research and service is established and implemented. 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 education, research and service 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.	- Reduction of time wastage.
8. External Relations and Networks	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.	- To be easily accessible.

**Table 1: (Continued)**

<b>Stakeholders</b>	<b>Activities in supply chain</b>	<b>Needs for data</b>
2. university Development and Evaluation 8. External Relations and Networks	3 Review of the external relations, networks and partnerships is carried out. 4. External relations, networks and partnerships are improved to achieve the vision, mission and strategic goals of the institution.	- Reduction of time wastage.
9 Internal Quality Assurance (IQA) System	1 Structures, roles and responsibilities and accountability of IQA are established to meet the strategic goals and quality assurance of the institution. 2. Strategic QA plan encompassing strategies, policies, stakeholders' engagement and activities as well as QA promotion and training is established to meet the strategic goals and quality assurance of the institution. 3. The strategic QA plan is cascaded and translated into long and short term action plans for implementation. 4 System to document, review and communicate QA policies, systems, processes and procedures is implemented. 5 Key performance indicators and targets are established to measure the performance of the quality assurance in the institution. 6. The strategic QA planning process and key performance indicators and targets are improved to meet the strategic goals and quality assurance of the institution.	- To be easily accessible.

**Table 1: (Continued)**

<b>Stakeholders</b>	<b>Activities in supply chain</b>	<b>Needs for data</b>
2. university Development and Evaluation 10 Internal and External QA Assessment	1 Plan for internal and external QA assessment is established. 2. The internal and external QA assessment is regularly carried out by trained and independent staff and/or experts. 3 The findings and results of the internal and external QA assessment are reviewed. 4. The internal and external QA assessment processes are improved to meet the strategic goals of the institution.	-Quick responses
11 IQA Information Management	1 Plan for IQA information management including collection, processing and reporting data and information to and from stakeholders in supporting education, research and service is established. 2 IQA information including data analytics is relevant, accurate and readily available to stakeholders in a timely manner that aid decision making while assuring integrity, confidentiality and security of them. 3 Review of IQA information management system, and the quantity and quality of data and information as well as the integrity, confidentiality and security of them is carried out. 4. The management of IQA information and their plans processes and policies are improved to support education, research and service.	- Reduction of time wastage.
12 Quality Enhancement	1 Plan to continually enhance institutional quality including policies, systems, processes, procedures and resources to	

**Table 1: (Continued)**

Stakeholders	Activities in supply chain	Needs for data
2. university Development and Evaluation 12 Quality Enhancement	<p>seek best practices in education, research and service is established.</p> <p>2 Criteria for selecting comparative and benchmarking information and partners to improve performance are established.</p> <p>3. Comparative and benchmarking information to enhance QA practices and encourage innovation is carried out.</p> <p>4 Review of the process for selection and use of comparative and benchmarking information is carried out.</p> <p>5 The process for selection and use of comparative and benchmarking information is improved to continually seek best practices in education, research and service.</p>	<p>- Reduction of time wastage.</p>
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>- 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>	- To be easily accessible.
15 Research Collaboration and Partnerships	<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>4 Research collaboration and partnerships are improved to meet research goals.</p>	- Correct and complete evaluation reports.
16 Research Results	<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>	

Table 1: (Continued)

Stakeholders	Activities in supply chain	Needs for data
2. university Development and Evaluation 16 Research Results	4. The type and volume of intellectual property are established, monitored and benchmarked for improvement. 5. The amount of research fund for each type of research activity is established, monitored and benchmarked for improvement. 6 The result of research and innovation, including commercialization, incubation, establishment of start-ups, etc., is established, monitored and benchmarked for improvement.	- Reduction of time wastage
3 Customers Finished research	- Useful research	- To facilitate the filing and storage of large amount of information for accessibility.
4 Consumers Society	- Published research - Research income - Praise researcher - Offer research in an academic research conference [8]	To stored systematicall-y to prevent the loss of data

### 3.2 Explanation on elements of pattern

#### 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 digital transformation pattern.

#### 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] and [7]

**Table 2:** Results of appropriateness evaluation of supply chain pattern in digital for research management for asean university network quality assurance

No.	Items	$\bar{X}$	S.D.	Suitability
1	Main elements	3.56	0.81	High
2	Suppliers	3.63	0.70	High
4	University	3.66	0.48	High
5	Customers	3.53	3.53	High
6	Consumers	3.60	0.73	High
	<b>Total</b>	3.59	1.25	High

From table 2, that fifteen experts agree that supply chain pattern in digital for research management for asean university network quality assurance is highly appropriate ( $\bar{X} = 3.59$ , S.D. = 1.25), that it could be used to develop the tasks..

#### 4 Conclusion

According to evaluation by fifteen experts, Supply chain pattern in digital for research management for asean university network quality assurance is considered to be high appropriate ( $\bar{X} = 3.59$ , S.D. = 1.25), which means that supply chain pattern in digital for research management for asean university network quality assurance could be used to develop the tasks.

#### 5. Discussion

Supply chain pattern in digital for research management for asean university network quality assurance is suitable at high level. The pattern applied the concepts of supply chain . This corresponds to the research of Chansamut and Piriyasurawong has studied supply chain and information system about educational [1],[3],[4],[5],[6],[7] In addition, with the study of Kaewngam, Chatwattans and Piriyasurawong [9] suggesting that supply chain and digital also.

#### 6 Recommendations

There should be case studies of higher education institutions that develop the pattern effectively, if any

#### 7. Acknowledgements

This research is helped by 15 expert from university in Thailand.

#### Reference

- [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
- [9] Kaewngam, A., Chatwattans, P., Piriyaawong, P., Supply Chain Management Model in Digital Quality Assurance for ASEAN University Network Quality Assurance(AUN-QA): Canadian Center of Science and Education. Vol 9 No 4, 12-20. 2019.
- [10] University of Copenhagen.2021.Manual for quality assurance of research base consultancy Faculty of Health and Medical Sciences(SUND) and Faculty of Science (SCIENCE) Available at [https://research.ku.dk/collaboration/dokumenter/Manual\\_for\\_quality\\_assurance.pdf](https://research.ku.dk/collaboration/dokumenter/Manual_for_quality_assurance.pdf)