

Supply Chain Management Information System Model for Electric Power Management in Thailand

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Abstract—The paper aimed to design supply chain management information system model for electric power management in Thailand and an evaluation of the model. A Samples are ten experts in the field of information system and supply chain. The data is analysed by means and standardized deviations. The research result shows that the model consists of eight elements namely main components, seller Power plant generates electricity, Substation, Transmission, Substation, Power Lines and Customers. the assessment of model using Black-Box technique and the result shows the overall rating mean of 3.65 and standard deviation of 0.58, which means that the model is appropriate at the high level and can support an information system development.

Keywords— *supply chain management information system model, electric power management ,Thailand*

1. Introduction

Nowadays ,Electric power management system is the importance in Thailand and Thai people have been craving power. People need power to run their homes, cars, computers, etc. To be able to manipulate power is vital to today's society. Power is defined as “Voltage or Current” which proceeds in a continuous plow of current supply. The current within this equation comes in two flavours Alternating Current Electricity and straight Electric. Every circuit designed today needs power to be applied for the circuit to function. straight Electric is the basis for most circuit designs that goes into everyday products. If a circuit has no power a circuit would not be able to perform its desired function. A variable straight Electric power supply, seen in every electronics lab. These lab power supplies are very good for testing a circuit in the lab but not useful to be used in a product application. These power supplies can be very bulky and not very mobile. There is a need for a power supply that is cheap, reliable, efficient, and small if the practices of supply chain management are effective in its Power supply networking [18] application of the concept about supply chain management information system is applied to an

electric power . It will be optional, according to the criteria or the constraints in the community's resources and technology. because the business 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 the information system to ensure that the organization operates smoothly and effectively based on the determined strategies. [1] Based on realization, researcher has decided to design supply chain management information system model for electric power management in Thailand for application to increase satisfaction for consumers.

2. Related work

Supply chain and Information Management Systems supply chain and Information management systems have the potential to change organizations and promote the emergence of new businesses. Their main goal is to enhance information flow and facilitate the decision making process. An information management system is one of the few elements of supply chain that can offer both improved performance and lower cost. It enables organization to maintain key information in an accessible format and helps to take operational and planning decisions. The adoption and successful implementation of software and network technology contribute in a large way for the supply chain success facilitating the flow of information and enhancing the efficiency of supply chain activities. Logistics activities are key activities in the supply chain, including planning, designing, implementing and managing the flow, storage of

materials and information exchange in order to support basic logistics functions such as procurement, distribution, transportation, inventory management, packaging and manufacturing. Information technologies are seen as a resource of an organization, as a source of its competitive advantage and serve as a catalyst of change in an organization.[18]

Supply Chain and Information system is a goals that all organizations strive to achieve. Supply Chain and Information will help organizations improve efficiency and reduce organizations expenses, High value customers and suppliers can be added or retained by maintaining a reliable Supply Chain and Information. These will promise the organizations to the goal to increase satisfaction for consumers.

3. Research Methodology

3.1 Analyse and synthesize former researches relevant to the elements of supply chain management information system model for electric power management in Thailand

3.2 Study about supply chain management information system model for electric power management in Thailand by interviewing the expert

3.3. Create supply chain management information system model for electric power management in Thailand

3.4 Suggest the model to the advisors for consideration and revision.

3.5 Suggest the model to the experts for consideration by in-depth interview.

3.6. Create the evaluation tools for evaluate the model's suitability.

3.7 Present the designed model to the ten experts consisted of five experts on supply chain management, 5 experts on information system.

3.8 The model is modified according to the experts' suggestions.

3.9 After modification, presenting the model in the form of diagram with report.

3.10 Analyze the results of evaluation of the model by mean and standard deviation consisting of 5 criteria for evaluation according to the idea of Likert scale.

4. Results

Supply chain management information system model for electric power management in Thailand are shown in Figure 1.

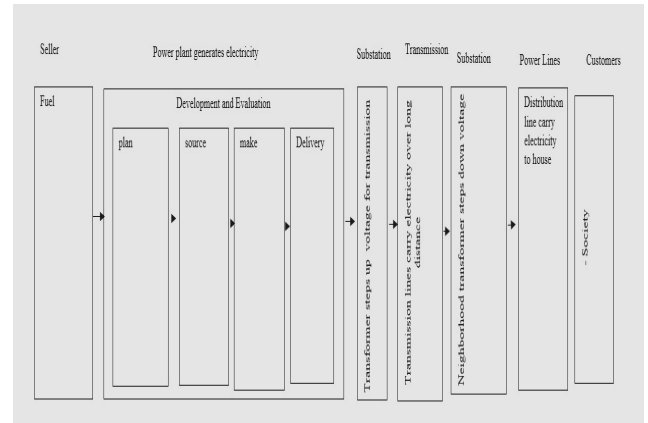


Figure 1: Supply chain management information system model for electric power management in Thailand

From the figure 1 . An electric power supply system in a country comprises of generating units that produce electricity. It performs the duty to transform raw materials into the finished products. The power plant will perform its duty of development and evaluation of each activity, namely plan ,source ,make and deliver. In the part high voltage transmission lines that transport electricity over long distances; distribution lines that deliver the electricity to consumers; substations that connect the pieces to each other; and energy control centres to coordinate the operation of the components. Show electric supply system with transmission and distribution network and linkages from electricity sources to end-user. Like from the sources of energy (production) to the door step of consumer through the distribution system where supply chain management plays an important role to perform it for a successful distribution. A power supply is primarily a buffer for supply power to consumers.[1],[2],[3],[4],[5],[6],[7],[8],[9],[10],[11],[12],[13],[14],[15],[16] and [19]

Table 1: Appropriateness of main components about supply chain management information system model for electric power management in Thailand

No.	Items	\bar{X}	S.D.	Suitability
1	Seller	3.60	0.69	High
2	Power plant generates electricity	3.60	0.69	High
3	Substation	3.60	0.51	High

Table 1 : (Continue)

No.	Items	\bar{X}	S.D.	Suitability
4	Transmission	3.70	0.48	High
5	Substation	3.60	0.84	High
6	Power Lines	3.70	0.67	High
7	Customers	3.63	0.94	High
	Total	3.63	0.69	High

Table 1 Shows that the experts agree that Ssupply chain management information system model for electric power management in Thailand was a high suitability. ($x = 3.63$, S.D. = 0.69)

Table 2 : Appropriateness of seller about supply chain management information system model for electric power management in Thailand

No.	Items	\bar{X}	S.D.	Suitability
1	Fuel	3.70	0.48	High
	Total	3.70	0.48	High

Table 2 Shows that the experts agree that Ssupply chain management information system model for electric power management in Thailand was a high suitability. ($x = 3.70$, S.D. = 0.48)

Table 3 : Appropriateness of power plant generates electricity about supply chain management information system model for electric power management in Thailand

No.	Items	\bar{X}	S.D.	Suitability
1	Development and Evaluation	3.70	0.48	High
	Total	3.70	0.48	High

Table 3 Shows that the experts agree that Ssupply chain management information system model for electric power management in Thailand was a high suitability. ($x = 3.70$, S.D. = 0.48)

Table 4 : Appropriateness of Substation about supply chain management information system model for electric power management in Thailand

No.	Items	\bar{X}	S.D.	Suitability
1	Transformer steps up voltage for transmission	3.70	0.67	High
	Total	3.70	0.67	High

Table 4 Shows that the experts agree that Ssupply chain management information system model for electric power management in Thailand was a high suitability. ($x = 3.70$, S.D. = 0.67)

Table 5 : Appropriateness of transmission about supply chain management information system model for electric power management in Thailand

No.	Items	\bar{X}	S.D.	Suitability
1	Transmission lines carry electricity over long distance	3.70	0.48	High
	Total	3.70	0.48	High

Table 5 Shows that the experts agree that Ssupply chain management information system model for electric power management in Thailand was a high suitability. ($x = 3.70$, S.D. = 0.48)

Table 6 : Appropriateness of substation about supply chain management information system model for electric power management in Thailand

No.	Items	\bar{X}	S.D.	Suitability
1	Neighbourhood transformer steps down voltage	3.60	0.51	High
	Total	3.60	0.51	High

Table 6 Shows that the experts agree that Ssupply chain management information system model for electric power management in Thailand was a high suitability. ($x = 3.60$, S.D. = 0.51)

Table 7 : Appropriateness of power Lines about supply chain management information system model for electric power management in Thailand

No.	Items	\bar{X}	S.D.	Suitability
1	Distribution line carry electricity to house	3.60	0.51	High
	Total	3.60	0.51	High

Table 7 Shows that the experts agree that Ssupply chain management information system model for electric power management in Thailand was a high suitability. ($x = 3.60$, S.D. = 0.51)

Table 8 : Appropriateness of customers about supply chain management information system model for electric power management in Thailand

No.	Items	\bar{X}	S.D.	Suitability
1	Society	3.60	0.84	High
	Total	3.60	0.84	High

Table 8 Shows that the experts agree that Ssupply chain management information system model for electric power management in Thailand was a high suitability. ($x = 3.60$, S.D. = 0.84)

Table 9: Results for evaluation of supply chain management information system model for electric power management in Thailand

No	Evaluation Lists	\bar{X}	S.D.	Suitability
1	Main components	3.63	0.69	High

Table 9: (Continue)

No	Evaluation Lists	\bar{X}	S.D.	Suitability
2	Seller	3.70	0.48	High
3	Power plant	3.70	0.48	High
4	Substation	3.70	0.67	High
5	Transmission	3.70	0.48	High

6	Substation	3.60	0.51	High
7	Power Lines	3.60	0.51	High
8	Customers	3.60	0.84	High
	Total	3.65	0.58	High

From Table 9 ,The evaluation is carried out by submitting the developed model to 10 experts found that supply chain management information system model for electric power management in Thailand is highly appropriate ($\bar{X} = 3.65$, S.D. = 0.58).

5. Discussion

The results of assessment on the model's elements show that the 8 main components of Supply chain management information system model for electric power management in Thailand is considered to be high appropriate ($\bar{X} = 3.65$, S.D. = 0.58), and the design was corresponds to the research of Chansamut and Piriyasurawong has studied supply chain and information system about educational [1] and the results are in accordance to those of chansamut suggesting that supply chain and information system also. [2],[3],[4],[5],[6],[7],[8],[9],[10],[11],[12],[13],[14],[15],[16] and [17]

6. Conclusion

The results of assessment on application of the concept about Supply chain management information system model for electric power management in Thailand is appropriate at the high level development The rating mean of 3.65 and standard deviation of 0.58, which means that the model is appropriate at the high level and can support an information system development.

Recommendation

1. Supply chain management information system model for electric power management in Thailand is considered to be high appropriate if possible it should be appropriately applied in actual work settings.
2. There should be case studies of organizations that develop or implement the model effectively
- 3 The model is considered high appropriated Therefore, if possible it should be implemented in some organization.
4. There should create supply chain management information system for electric power management in Thailand for developed the model.

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