

Innovation for Formulation of Thai Traditional Medicines

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Abstract—Literature review regarding Thai Traditional Medicines (TTM), has shown gap that there are no prototypes available which is suitable for TTM product development. This paper shows the design of new prototype which is suitable for TTM by using questionnaire and In-depth interview methodologies with entrepreneurs of TTM for guidelines to create research concept and tools. From the result of questionnaire, collected data was used to create prototype for innovation of new product development of TTM which is suitable for Thailand. After the constancy of the data collected from questionnaire, the parameters of the prototype will attain constancy and will be converted to software named Decision Support System (DSS).

Index Terms—Formulation, product design, innovation, thai traditional medicines.

I. INTRODUCTION

Thailand is well known for its Thai Traditional Medicines (TTM). Thai ancestors have handed over the deep knowledge regarding Thai Traditional Medicines formulations, from generations to generations. From the literature reviews, many researchers have designed prototypes of processes for product innovation. Anyways, Avlonitis and Papastathopoulou (2006) have concluded that at least there are two prototypes accepted and are widely spread i.e. prototype of Booz, Allen and Hamilton Inc. and prototype called Stage-Gate of Cooper. These prototypes are being continuously being developed since 2001.

However, from literature reviews has shown a gap that there are no prototypes available that is suitable for Thai Traditional Medicines product development. This paper shows the design of new prototype that is suitable for TTM by using questionnaire and In-depth interview methodologies with entrepreneurs of TTM for guidelines to create research concept and tools.

II. METHODOLOGIES

A. Questionnaire

Questionnaire was designed to provide maximum scope regarding Thai Traditional Medicines and was distributed

among 5 companies of Thai Traditional Medicines. From their comments, questionnaire was developed by adding more questions to cover basic and important details regarding TTM. The developed questionnaire was used in In-depth interview.

B. In-depth Interview

The researcher conducted the focus group for discussion and presented details regarding research to manufacturers and producers. Researcher distributed developed questionnaire to the participants of the focus group which was held at Federation of Thai Industries, only 14 that organizations representatives attended the focus group out of 76 organizations.

The result of research was analyzed by Content Analysis and Average (\bar{X}). From the result of general details of manufacturers, the highest education level of manufacturers was Master Degree (64%), the highest position of manufacturers was Managing Director (36%) and Manager (36%), the longest duration of working was 1-10 years (50%), and the most of the company was in the field of Thai Traditional Medicines (36%) and etc.

C. Result

Result showed in Table I.

III. CONCLUSION

The questionnaire was improved by adding important details to it, which were commented by the 5 companies of TTM before In-depth interview was conducted. The improved questionnaire was distributed to the focus group and the result was used to create prototype for innovation of new product development of TTM that is suitable for Thailand.

In this prototype, manufacturers will give scores to each department for each phase (scores are to be filled at the empty column provided before given percentage). The scores will be multiplied by the given number of percentage and then sum up at the end and divided by number of responsible departments.

Criteria:

Excellence	10	Points
Good	7.5	Points
Fare	5	Points
Poor	2.5	Points
Very poor	1	Points

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TABLE I: CONCLUSION OF PROCESS OF DRUG DEVELOPMENT

Phases Departments	Initial screening		Market research		Business analysis		Product development		In-house product testing		Customer tests of product		Market surveillance		Trial production		Pre-commercialization		Market Launch	
	x	y	x	y	x	y	x	y	x	y	x	y	x	y	x	y	x	y	x	y
1. Board of Directors	1	36.4%				10.0%														
2. R&D	10	9.0%		60.0%		10.0%				25.0%										
3. Pharmacists				10.0%		10.0%				12.5%				14.3%						
4. Marketing	5	27.2%		10.0%		30.0%		33.3%				25.0%		14.3%						
5. QC						10.0%		16.7%		12.5%										
6. Sales	2.5	18.2%												14.3%						
7. Production						10.0%		33.3%						28.5%		100%		50.0%		100%
8. Product Registration				10.0%				16.7%		12.5%		25.0%								
9. Stability Test										12.5%										
10. Lab Scale						10.0%														
11. Purchasing												25.0%								
12. Mock up model												25.0%								
13. Designing														14.3%				50.0%		
14. Outsource						10.0%				12.5%										
15. Research of State sector				10.0%																
16. Farmers	7.5	9.2%																		
17. Ex. Lab										12.5%										
18. Pilot Scale														14.3%						
Time (\bar{X})	3 months		5 months		3 months		2 months		1 months		1 months		3 months		1 months		2 months		1 months	
Budget (\bar{X})	50,000 ₺		104,285 ₺		40,714 ₺		57,500 ₺		16,928 ₺		80,000 ₺		728,928 ₺		10,000 ₺		5,000 ₺			

“X” means scores given by the manufacturers “Y” means percentage from. the questionnaire

Formula:

$$\sum = \frac{(x1 \times y1) + (x2 \times y2) + (x \dots \times y \dots)}{n}$$

Example (as shown in the Table 1):

$$\sum = \frac{(1 \times 36.4) + (10 \times 9.0) + (5 \times 27.2) + (2.5 \times 18.2) + (7.5 \times 9.2)}{5}$$

= 75.38% ----- > **Passed the phase I**

** If $\geq 50\%$: means pass, can continue to the next phase.
 ** If $\leq 50\%$: means fail, cannot continue to the next phase.

However, the scores and percentages given to each department and each department of every phase are inconstant. Questionnaire must be distributed repeatedly to the manufacturers to bring scores, percentages, departments responsible for each phase and the standard deviation to its constancy. The result of repeated questionnaire can be collected for statistic information in order to create a complete prototype.

Future research: After prototype attains its constancy,

researcher will create software known as Decision Support System (DSS). DSS software will be used as a trial unless the data collected are steady i.e. valid and significant in statistical analysis. Time and budget will be provided according to the phases. In conclusion, case studies will be conducted by giving this prototype to the Thai Traditional Medicines manufacturers to use in reality and the positive feedback will provide success to the prototype. Therefore, it will provide suitable prototype for new product development of Thai Traditional Medicines in Thailand.

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