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THE INTELLECTUAL PROPERTY KNOWLEDGE OF CAMBODIAN FOOD AND BEVERAGE MANUFACTURING SMES IN PHNOM PENH, CAMBODIA

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ABSTRACT

In order to enhance the capacity of food and beverage manufacturing SMEs, IP and innovation were promoted by the Government of Cambodia to creating more jobs, more production volume, creating more creativity and competitive advantages in the market. However, the level of IP knowledge of Cambodian food and beverage manufacturing SMEs were not specified identification yet and was difficult to set promoting campaigns. The aim of this study was evaluated the level of IP knowledge of Cambodian food and beverage manufacturing SMEs in Phnom Penh. Data was collected from 233 of food and beverage manufacturing SMEs from 12 districts in Phnom Penh, using the questionnaire. The study revealed that Cambodian food and beverage manufacturing SMEs in Phnom Penh have limited knowledge and understanding on amount of those IP tools as in this research study which require all related authorities not only be promoted all IP tools but also need to provide the demand of IP services to all those increasingly amount of food and beverage manufacturing SMEs, respectively.

Keywords: Intellectual Property, knowledge, food and beverage manufacturing SMEs.

Introduction

In this knowledge-economy, Intellectual Property (IP) are playing important roles in all aspects of businesses. IP is a key success factor for the business competitive advantages which the competitiveness in business is increasing dramatically the quality and capacity in production in market demand and the competitive prices of products in the market. Therefore It is important that the businesses required to participate themselves in the process of varies of business aspects to understand and to adapt to rapid change in technology and innovation that IP is very essential to protect on their new products in quality, marketing, branding competitiveness in market competition.

SMEs are also significant parts in economic developments. According to Ms. Yap Lai Pen ASEAN Secretariat 2014[1], SMEs are the backbones of the ASEAN Economic Development and as part for region competitive economy to build the ASEAN community to compete in the region as well as global economy. Food and beverage manufacturing SMEs also contribute to the economy through creating jobs, raw material purchasing for production, exporting products and increasing GDP.

In an effort to present more comprehensive role of SMEs to distribute to Cambodia's economy and its developments, there was a survey that SMEs in Cambodia holds 73% of national employment and 58% of production sectors. Refer to the industry report in Cambodia, food, beverage, and tobacco sector had shared 15.5% of GDP in economic activities in manufacturing [2]. It has been provided that SMEs are playing a vital role in Cambodia's economy that it requires being promoted where it is a key driving factor to enforce and to enable of new business establishments in the nation and in need from all relevant parties to assist in breaking any SMEs' construction barriers [3]. Additionally, the Government of Cambodia has described in the medium term strategies so called National Trade Integration Strategy 2014-2018 illustrated about the importance of IP and SMEs into the national economic growth strategies that it should be conscious of Cambodian development needs[4] which are certainly requires to authorities to promote and educate on the IP knowledge to SMEs especially Food and beverage SMEs to raise the sufficient IP knowledge to face on the changing of domestic and global competition and also to increase the SME's innovation.

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According to a survey on business attitudes to intellectual property 2008, it was very necessary to protect IP right in their business and awareness of intellectual property for considering the value of intangible asset of the businesses[5].Further research by Kislali & Tastan Boz, 2016 said that the requirement of the R&D activities in SMEs can give the information for openness change either innovative or renewal of foods sections[6] which agreed to the IP and innovation survey in 2004 by situation of Hungarian SMEs that manufacturing SMEs are required the innovation and R&D activities to produce their quality products and for international of the market. In such case of Innovation and R&D, IP is very importation to be focused on. It is also important that innovation and R&D in its broadest sense that may be protected through a variety of different of intellectual property rights depending on the nature of innovation. Thus, SME owners or managers must require being knowledgeable on IP knowledge in order to improve products, protection and enforcement on the new invention of the idea and R&D[7]. Therefore the understanding of the level of IP knowledge existing food and beverage manufacturing SMEs are required to aim to raise the public awareness on IP matter and promoting the cluster of innovation. Understanding the IP tools provided by the legal system of intellectual property rights is also needed to enable to SMEs to promptly manage their innovation, knowledge, and creativity.

Objectives

To examine the level of intellectual property knowledge of Cambodian food and beverage manufacturing SMEs in Phnom Penh, Cambodia.

Methodology

The study site of this research was in Phnom Penh City, Cambodia which is divided into 12 Khans (Districts). According to the Economic Census 2011, the number of SMEs in the manufacturing sector, food and beverages in Phnom Penh are 560 establishments. From the sample size determination by Taro Yamane [8], the number of samples, n = 233.The respondents are comprised of SMEs in the manufacturing of food and beverage throughout Phnom Penh and only manufacturing for human consumptions was chosen randomly from the record by Department of Industrial and Handicraft in Phnom Penh in 2015.

The Researcher use questionnaire to collect the data in different aspects according to the requirement of sufficiency data for interpretation the result. There are 1) Personal information on gender, age, Job, education level and General information number of employees, and market interest and 2) the intellectual property knowledge on IP tools by respondents. The questionnaire contained the questions included questions as follows criteria and the open-end questions, and True or False questions also used.

Table 1 Rating Scale

Rating Scale	Mean	Meaning
5	4.50 – 5.00	Have very good IP knowledge
4	3.50 – 4.49	Have good IP knowledge
3	2.50 – 3.49	Have sufficient IP knowledge
2	1.50 – 2.49	Have little IP knowledge
1	1.00 – 1.49	Have very little IP knowledge

The questionnaire are accepted and validated to ensure the content validity by 5 differences skill of experts in IP and research as in Acknowledgement and testing for considered of reliability of the questionnaires by asking 30 people to do the pre-test for testing the reliability of the questionnaires. The result of calculation use Cronbach's Alpha coefficient (>=0.70 as appropriately) shown that there was 0.724 in reliability coefficient was reliable.

The collecting of the data has been started in from the mid of June till the mid of July 2017 accompanied by and one assistant researcher who is a government staff that is responsible for statistical of industries and handicrafts in the area. The research assistant assisted in finding out the location of enterprises and introduction to whom managed the enterprises.

Descriptive statistic was used to analyze the data through cross tabulation, percentages, frequency, Pearson Correlation and compare mean by using licensed statistical software called Statistic Package for Social Science (SPSS®) version 19 from Khon Kaen University.

Results

The personal information of the respondents in food and beverages SMEs in Phnom Penh have shown the results that 53.2% were male and 46.8% were female. The highest percentage of respondents was

aged between from 30 to 50 years old (33.2%). By the job roles in the enterprises, 51.1% were the owner of enterprises, 19.7% are general manager and 29.2% were in varieties of job skill in Administration, Accounting managers. For the education background, the majority of 32 % finished high school, 21% complete secondary school, and 41.6% graduated with Bachelor degree and last, only 4.3% were post graduate study of master degree and 0.4% were doctoral degree. A large number of enterprises establishing between years 2005 and 2015 was 93 (39%) enterprises. A number of employees consisted of under 10 to 100 employees were foods 161 (69.1%) and beverages were 72 (30.9%). Market interest focused on a domestic market were 231 (99.1%) responses as shown in Table 2.

The observation for those 233 respondents were asked whether the respondents aware IP tools for protection the IP rights or not, there was certainly evidence that large among of respondents have better awareness on Trademark rather than others IP tools such as Patent, Industrial design, and Copyrights whereas 163 (70%) responded correctly answered about Trademark. In contrast, the answer regarding IP tools such as patent, industrial design, and copyright answered: "I don't know".

Those 233 respondents asked to rate their level of knowledge on IP tools. The level of IP knowledge was measured by respondents answered the question using a rating scale. The 233 respondents were surveyed about their level of IP knowledge to varieties of IP tools. The results indicated that the test of the output for Trademark was (M=2.19, p=1.029>0.05), Industrial Design (M=1.24, p=0.609>0.05), Copyrights (M=1.24, p=0.633>0.05) and Patent (M=1.17, p=0.538>0.05). The result of Table 3 showed that there were significant differences between the level of IP knowledge IP tools and job roles of respondents whereas the trend of rating shown that Trademark means was higher than other IP tools that it was mean that the respondents were more understanding than others IP tools such as Industrial design, Copyright, and patent. This table also illustrated that 110 (47.2%) respondents have sufficient knowledge, 9 respondents have good knowledge and 2 respondents have very good IP knowledge on Trademark. In contrast, Vast majorities responded that they were had very little IP knowledge on Industrial Design 196 (84.1%) responses and 22 (9.4%) responded that they had little IP knowledge on Industrial designs. Only 15 respondents answered that they had sufficient, good and very good IP knowledge on Industrial designs. Additionally, Respondents 197 (84.5%) and 18 (7.7%) were revealed that they were self-rating very little IP knowledge and little IP knowledge on Copyrights. Table 2 also shown that 206 (88.4%) had very little IP knowledge on patent and 17 (7.3%) responded they had little IP knowledge on the patent.

From the data calculation in Table 4, Pearson correlation illustrated whether or not the correlation Between the job roles of the respondents 233 and the level of IP knowledge on IP tools. From this table, the outputs showed that there was an extremely weak positive correlation r = 0.013 (Pearson Correlation) for Trademark. From the output from this Table 3 shown that the Pearson correlation of Industrial Designs revealed an extremely weak positive correlation r = 0.163 and there is an association relationship between this two variable of job roles of respondents and their IP knowledge at the significance level 0.05. Refer to Copyrights, the Pearson correlation r = 0.082. It signified that it was an extremely weak positive correlation between job roles and the IP knowledge of respondents on Copyright and there was no significant relationship between Job roles and IP knowledge on copyrights. Furthermore, there was also an extremely weak positive correlation of respondents and IP knowledge on patent which Pearson Correlation r = 0.127. The results suggested that there was only one extremely weak positive correlation and significance were r(233) = +0.163, p< 0.05, two-tailed. The correlations of level rating of IP knowledge with job roles of 233 respondents measures were not significant and correlated with IP knowledge on Trademark, Copyright and patent, with the exception of only the level rating of IP knowledge on Industrial Design with common correlated and significant , r(233) = +0.163, p< 0.05.

To study the knowledge about each of IP tools, in Table 5 shown that the average of understanding of IP tools by the respondents was in the range of average from 0.00 to 1.00. The results illustrated that the vast majorities did not answer the questions correctly which was presented below Mean (0.50) for IP tools about Trademark, Industrial Design, and Copyright. However, the respondents have answered correctly for the questions regard to Patent equivalent mean 52.79 %.

Conclusion

The first objective of this research found that the majority of Cambodian food and beverage manufacturing SMEs in Phnom Penh operated directly by the owner of the enterprises and this study found that more that 50% of respondents were completed secondary school and high school and less of respondents graduated their higher degree. The findings also showed that the food and beverage manufacturing SMEs

more focused on producing food rather than beverages and most of their market focused on domestic market. The findings of this study supported the previous Survey on Business Attitudes to Intellectual Property 2008 [5] suggested that the establishment of business aware of the intellectual property were slightly lower in term of Copyright, and Industrial design except for trademark and patent. And it is agreed in this survey that respondents presented the Trademark (M= 2.19) was higher understanding than other IP tools mean. It is also confirmed that respondents had the basic knowledge of IP on patent to answer correctly which equivalent average scoring 0.52 (Median 0.00-1.00).The relationship between the job roles of respondents and level of understanding on IP knowledge on each IP tools, according to this study, was not significance correlation. In Conclusion, The results had confirmed that the respondents have very little understanding and knowledge of intellectual property tools.

Suggestion

There should be more studies conducted relevant to intellectual property that is not only in SMEs enterprise but also all kind of business sectors, in order that there can be aware of IP demand of related businesses and what the IP services to be provided for improving the IP system, innovation and fairly competitive advantages in doing businesses in Cambodia.

Acknowledgement

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Table 2 Profiles of Cambodian food and beverage manufacturing SMEs in Phnom Penh.

Characteristic of respondents and enterprise profile	Frequency (n=233)	Percentage (%)
Gender		
Male	124	53.2
Female	109	46.8
Age of respondents (years old)		
Less than 30	35	15.0
From 30 to 41	75	33.0
From 41 to 50	77	33.2
More than 50	46	19.7
Job roles in Enterprise		
Enterprise owner	119	51.1
General Manager	46	19.7
Admin/Account/ Manager	68	29.2
Education background of respondents		
Secondary School	49	21.0
High School	76	32.6
Bachelor Degree	97	41.6
Master Degree	10	4.3
Doctoral Degree	1	0.4
Enterprises establishing		
Before 1995	46	19.7
Between 1995 - 2005	50	21.5
Between 2005 - 2015	93	39.9
After 2015	44	18.9
Number of employees		
Under 10	100	42.9
Between 11 to 50	123	52.8
Between 51 to 100	10	4.3
More than 100	0	0
Products		
Foods	161	69.1
Beverages	72	30.9
Market interest		
Domestic Market	231	99.1
Foreign Market	0	0
Both	2	0.9

Table 3 Knowledge level on IP tools of Food and beverage SMEs in Phnom Penh (n =233)

IP Tools	Knowledge on IP tools of respondents					(Mean)±SD
	Very little (1)	Little (2)	Sufficient (3)	Good (4)	Very good (5)	
Trademark	90 (38.6%)	22 (9.4%)	110 (47.2%)	9 (3.9%)	2 (0.9%)	2.19±1.029
Industrial Design	196 (84.1%)	22 (9.4%)	13 (5.6%)	1 (0.4%)	1 (0.4%)	1.24±0.609
Copyrights	197 (84.5%)	18 (7.7%)	16 (6.9%)	1 (0.4%)	1 (0.4%)	1.24±0.633
Patent	206 (88.4%)	17 (7.3%)	8 (3.4%)	1 (0.4%)	1 (0.4%)	1.17±0.538

Table 4 Correlation between Job roles versus IP knowledge – IP tools (n= 233)

Correlation between Job roles versus IP tools knowledge		Job role	Trademark	Industrial Design	Copyright	Patent
Job role	Pearson Correlation	1	.013	.163[*]	.082	.127
	Sig. (2-tailed)		.848	.013	.213	.054

*. Significant at the 0.05 level (2-tailed).
**. Significant at the 0.01 level (2-tailed).

Table 5 Average understanding of IP tools by food and beverage SMEs in Phnom Penh (n=233)

Knowledge about IP	Right Answer (%) ($\bar{x}\pm SD$)	Wrong answer		Right Answer
		Wrong (%) ($\bar{x}\pm SD$)	Not Sure (%) ($\bar{x}\pm SD$)	
Trademark	(10.29)	(45.27)	(44.41)	Median (0.0:1.0) Mean ± 0.10 SD ±0.22
Industrial Design	(16.94)	(5.79)	(77.25)	Median (0.0:1.0) Mean ± 0.09 SD ± 0.21
Copyrights	(22.31)	(24.22)	(53.40)	Median (0.0:1.0) Mean ± 0.22 SD ±0.34
Patent	(52.79)	(10.08)	(37.10)	Median (0.0:1.0) Mean ± 0.52 SD ±0.40

THE EFFECT OF CONSUMER CHARACTERISTICS TO THE DEVELOPMENT OF E-COMMERCE

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Abstract

Currently, the speed of access using the internet has entered the 4G era by prioritizing the use of smartphones, resulting in an increasingly dramatic increase in online trading. Many e-commerce sites emerge, thereby generating a dynamic competition between them to attract as many consumers as possible. Therefore, this study aims to explain the relationship of consumer behavior in determining the e-commerce site development strategy using data mining as a tool of analysis. The method used is association rule, sequential and navigational pattern, and performed by K-Means algorithm. The final result formed six clusters that describe the differences in the consumer characteristics.

Keywords: e-commerce, consumer, online shopping

Introduction

The development of the internet has triggered an increase in online shopping activities. Internet media has become a means of intermediaries by increasing the number of sales each year [1]. In the United States, retail spending growth reached 18.1% from 2002 to 2009, while in Europe with 27 member countries experienced an average growth of 5% per year. In the UK, Denmark, the Netherlands, Norway, Sweden online transaction users account for 60% of the total Internet users, while in Greece, Lithuania, Bulgaria and Romania online shopping less than 10% [2]. In Indonesia, survey results show that 5.9 million people had shopped online, with sales reaching $3.5 billion [3].

Based on the above data, it can be concluded that the interest of consumers to do online shopping has the potential to increase every year, therefore the understanding of online market opportunities is very important for business actors who have participated as well as new business actors who want to engage in it, to improve the ability competitive for them.

In addition, online consumer attitudes are a matter of concern to many researchers [4] [5] [6] [7]. So, on the basis of that, finding buyer characteristics can help the company to accurately determine potential market targets that can be used as consideration in developing their business. The Internet has grown rapidly and while its popularity is growing, more and more users are becoming familiar with it and adopting it as a medium for searching information and online shopping [8] [9].

There has been a lot of research to know the style and behavior in recent years. Most of these studies try to identify the factors that affect online shopping with different perspectives and focus and factors in different ways. Most of these studies have an important contribution to understanding the dynamics of online spending. However, there is no coherent understanding of the impact of relevant factors on consumer attitudes of online shopping and the inconsistency of relevant identification between independent and dependent variables. This makes comparisons of different studies difficult, the application of limited research findings, and the prospect of synthesis and integrating the empirical literature within this area are elusive.

We will summarizes the deciding factors that build consumer behavior, the factors that determine the acceptance of online shopping users and the methods that will be used to conduct consumer behavior analysis so that it can be known to be useful in determining e-commerce development strategy.

In this paper, consumer behavior is influenced by four categories of factors, namely: cultural factors, social factors, personal factors and psychological factors [2]. Categories of cultural factors include culture, subculture, and social class. The term culture, in this case, is very complex and involves knowledge, belief, art, law, ethics, customs and many other abilities and habits acquired by an individual simply by being a part of society. While the subculture consists of four categories, namely: nationality,

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religious groups, tribes and geographical location. The social class is a relatively homogeneous subdivision, which is structured hierarchically and its members have the same values of interests and behavior.

The second category refers to social factors and includes group, family, role and social status. Group relations involve all groups that have (personally) direct or indirect influence on one's attitudes or behavior. The family is considered the most significant and well-researched social factor. There are two types of families, namely: family orientation consisting of parents and family that a person creates for one. The position of the individual in the group can be defined in terms of social roles and social status. The term role contains the actions that a person must take in relation to those around him. Each role is connected to a status that demonstrates the appropriate respect of the community.

The third category, personal factors, includes age and life cycle, occupation, economic situation, lifestyle, personality, and self-concept. People change their preferences in products or services according to their age. A person's job is another factor that affects a person's buying behavior. People from different jobs have different needs and thus buy different products and services. The fourth category consists of psychological factors such as motivation, perception, learning, beliefs, and attitudes. Motivation is an internal and complex process that affects people's behavior and is caused by certain motives such as hunger, thirst, recognition, and devotion.

Consumers act and react based on their perceptions. The way a motivated person acts is influenced by his / her perception of the given situation. The greatest part of human behavior is learned. It is said that one's learning is generated through the interaction of motives, stimuli, and reactions. Through acting and learning, people form beliefs and attitudes that affect their buying behavior. Confidence is a descriptive way of thinking about something and is based on knowledge, opinion or faith and may involve sentimental costs, while attitudes regard constant evaluation, emotions, and inclinations towards an object or idea.

Objectives

In this paper, the objectives to be achieved are:
1. Elaborating the empirical evidence from literatures related to consumer behavior in online shop
2. Integrating the results of the study as one factor in determining the development of e-commerce strategy.

Methodology

As time goes by, data on consumer purchase transactions can be valuable information for the company. By using the current information technology, the company is able to collect and store big data about sales transaction and consumer profiles, so that we can know the wants and needs of consumers. To find out more in the relationship of consumer characteristics and sales transactions, we wrote this paper with reference to previous research as a literature study.

In the following study, the first step we have taken is to elaborate the empirical evidence from literature relating to online stores, by analyzing consumer characteristics using data mining [10], based on 2518 transactional data, in which each session is given detailed information on web usage, Including user accounts accessing the website, requesting a Web Page and their order, and the page time period has been viewed. This data is used as the basis of analysis in this study and then grouped into four, namely: usage data, content data, data structure and user data. Usage data contains user page views and session data. Content data is a collection of objects and relationships submitted by the user. The structure data shows the designer's view of the organization's content with the site, including the intra-page structure in HTML or XML tags. Whereas user data contains demographics or other information for registered subscriber identification purposes, user ratings on multiple objects, such as pages, products, traffic history and so on. Based on the data already obtained [11] can be used the combined method to perform the analysis, namely: association rules, sequential patterns and navigation, and cluster approach used to sort transaction data from web pages, using Mineset. E-commerce data collection is replaced by web log data using systematic methods, in the form of e-banking payment transactions, by dividing into 2 groups, Group 1 is about 70% of total transactions and used as training data. Group 2 is about 30% of the total transactions used as test data. The data in the two groups performed data segmentation process based on five factors including age, gender, online in time, address, language, and type of target customer behavior. Furthermore, the data are grouped using the K-Means algorithm [11], so the results are statistically divided into six clusters. The six clusters are:

a. **Cluster 1** is a male consumer aged 21 to 30 years. They access the web site using an old PC to order peripheral products and books from home, from 6:00 to 17:59. The language used is mandarin.
b. **Cluster 2** is the cluster with the smallest size and male consumers. They do online from 6:00 to 17:59 by accessing the e-commerce site to buy books and airline tickets while working.
c. **Cluster 3** is the majority, with the population reaching 26%, out of the total population. They use mandarin at home or at work, consisting of men and women and accessing e-commerce sites for memes of books, CDs, DVDs, flight tickets and other tickets from 12:00 to 23:59 and their age is 21 to 30 years.
d. **Cluster 4** is male customer aged 11 to 20 years old and uses PC from home to order jewelry, flowers and toys online from 0.00 to 05.59.
e. **Cluster 5** is the second largest cluster, female sex, using a PC and place an order online at 6:00 until 17:59. Their age is 21 to 30 know and the types of goods they order are clothing, toys and other child products.
f. **Cluster 6** is male sex cluster aged 31 to 40 years, and places an order online at 12.00 to 23.59 while working and using English. The population of this cluster is 26% of the total population.

Based on the above description, the second step is to integrate the results of research as one of the factors in determining the development of e-commerce strategy, by looking at the type of relationship between buyers and sellers, the scope of goods and services that connect buyers and sellers, and aspects of fundamental competition from the results The interaction of these forces, and shows that the characteristics of the consumer must be an important factor and the dominant strategy of e-commerce companies, so that it will have a positive impact on customer loyalty in line with technological advances, and it is clear that corporate marketing can benefit by processing data into consumer characteristics when shopping Online, to determine the segmentation of the consumer market.

Results

Based on the previous description, we can know four main factors of online shopping user acceptance: consumer characteristics, personal value, website design and product, as seen in Table 1. In addition to the above factors, the level of the desire to update the information technology itself also affects consumer behavior in online shopping, called Personal innovative-ness of information technology [12], so the relationship of all these factors can be seen In figure 1.

The final conclusion obtained shows that the PIIT (Personal Innovative-ness of Information Technology) factor is more dominant in affecting consumers doing online shopping than any other factor. The results of this conclusion obtained from the questionnaire and processed with statistical tests (linear regression) to find out how big the influence of the alleged factors of consumer characteristics in online shopping.

Conclusion

The results of the research presented in this paper show by elaborating the empirical evidence from literature related to consumer behavior in the online shop, We have presented the results of the analysis of consumer characteristics can provide preliminary information to determine e-commerce development strategy. The results achieved in the research further strengthen Eric Clemont's (2000) opinion that consumer characteristics must be a critical and dominant factor of e-commerce company strategy, which will positively impact customer loyalty in line with technological advances [13].

Furthermore, after integrating the results of the study as one factor in determining the development of e-commerce strategy, we can see the type of relationship between buyers and sellers, the scope of goods and services that connect buyers and sellers, and four competitive fundamentals of the interaction results of these forces, as listed in table 1 [13]. The challenge for companies is to create strategies that match the characteristics of customers. The approach given here can help managers find the strengths that determine their best strategy.

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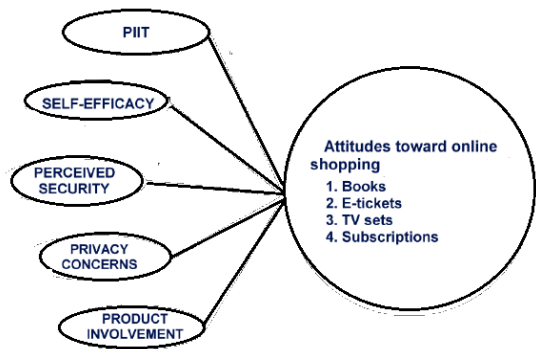
Figure 1. Consumer Factors of Online Shopping

Table 1. Determinants of Online Shopping

Factors	Variables
Consumer characteristics	Personality traits
	The value of self-sufficiency
	Demographic profile
	Acceptance of new IT applications
Value (sense of) personal	Perceived danger
	Perceived convenience
	Perception of website quality
	Perceived benefits
Website Design	Securities
	Privacy
Products	-

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IMPORTANCE AND FULFILLMENT OF JOB MOTIVATIONAL FACTORS: A CASE STUDY OF HOTEL EMPLOYEES IN THIMPHU, BHUTAN

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ABSTRACT

Tourism is considered as one of the key drivers in Bhutan's economy. Since country opened its door to international tourists in 1974 with limited tourism infrastructures, today there are rapid growth of travel and accommodation sectors to cater needs of increasing tourist arrivals. The demand for human resources also has increased especially in the accommodation sectors to ensure the better quality of service to tourists for aligning with country's branding of unique and high-end destination to the world. There have been reports of hotel industry's shortcomings to keep their employees motivated at work despite seeing the growth in tourism in the country. There were limited studies done on human resources, particularly on the understanding of hotel employees' needs and expectations. The purpose of this study were to study the level of importance and fulfillment of job motivational factors of hotel employees in Thimphu City. Secondly, to examine whether there are any gaps in the importance and fulfillment of job motivational factors. The Kovach's ten motivational factors were used to guide this study. The quantitative research method was used for collection of data from hotel employees. The data were analyzed using statistical package for social sciences (SPSS) program. The study found that employees ranked job security, good wages and appreciation for job well done as top important factors. The factors such as full appreciation of job well done, good wages, personal loyalty to employees and promotion & growth were identified for the requirement of greater attention from hotel managers in Thimphu. The result showed there were positive relationship between fulfillment of job motivational factors and overall job satisfaction.

Keywords: Importance, Fulfillment, Job Motivational Factors

Introduction

The hotel industry which is part of tourism sector, a service oriented organization depend widely on human resources to achieve its business goals and maintaining competitive advantage. The level of performance of its employees highly determine the industry's success and effective human resource management is of paramount importance to achieve hotel's business goals and objectives. It is important for hotel managers to keep their employees motivated through understanding of their needs as higher level of employee performance and efficiency has positive correlation to the job satisfaction [1].

The study on standard and classification of hotels in Bhutan indicated there were human resource management issues like lack of training and development opportunities, limited job security and overworked [2]. The hoteliers in the country cited of facing shortage of human resources in some positions since most job seekers prefer in food & beverage and front office departments. The majority of hotels are independent and have problems of reaping reasonable share of tourism benefits which is currently controlled and dominated by tour operators which hinder them to motivate their employees well [3]. These reasons attributed to initiate this study to know the state of employee needs/importance and fulfillment of their expectations from job for coming up with evidence based solutions and recommendations for the hotel industry in Bhutan in context to the study of hotel employees of Thimphu.

Maslow's theory of human need states that individuals have five needs that motivates in our daily life. The theory states that needs occur in five hierarchies of fulfilment of needs namely physiological, safety, social, esteem and self-actualization needs. Further, Maslow's theory assert that the need for higher level needs arise once the lower level needs are satisfied [4]. In the context of human resource management, this theory outlines

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that the manager should know stages of human needs that rightly motivate their employees. Herzberg (1959) postulated Two-factor theory to find out those factors that lead to dissatisfaction and satisfaction to employees. The Hygiene factors and Motivation factors influence job dissatisfaction and job satisfaction respectively [5]. The motivation factors promote growth and development while hygiene prevents only the employee dissatisfaction. Later, hygiene and motivation factors was termed as extrinsic and intrinsic factors [6]. The intrinsic motivation is considered as natural motivation through empowerment and fulfilment of employee's psychological needs. On the other hand, extrinsic refers to motivation which is initiated from outside such as financial rewards and better physical work environment [7]. Kovach came up with ten job motivational factors as depicted in figure 1 to study the motivation of industrial workers in United States in 1946 through the ranking of importance. These ten factors were used by scholars for study of job motivation in various fields [8]. The six factors, appreciation of job well done, being in on things, sympathetic help during personal problems, interesting work, promotion and growth and personal loyalty to employees were classified under intrinsic motivation. The other four factors, job security, good wages, good working conditions and tactful discipline came under the extrinsic motivation [9]. The ranking of Kovach's motivational factors by hotel employees has been differed in past researches according to personal and work characteristics [8]. It was suggested that intrinsic factors play a key role in motivation while extrinsic factors are essential but are not necessary for employee motivation and job satisfaction [10]. However, some researches also concluded the importance of extrinsic motivation for gaining employee commitment, lowering of turnover intentions & employee accomplishments.

Job satisfaction is defined as an outcome of the fit of job characteristics and expectation of employees at work [11]. The study of job satisfaction is conducted from the perspective of need fulfilment of factors that encompasses psycho-physiological need aspects of employees [12]. The differences in importance and fulfilment of job motivational factors according to hotel employees' demographic and work characteristics were noted in past studies [8].

Objectives
- Identify and rank the importance and fulfilment of job motivational factors for hotel employees of Thimphu.
- To identify the gap between hotel employees' importance and fulfilment of job motivational factors.
- To study relationship between overall fulfillment of job motivational factors and overall job satisfaction

Methodology
1. Population and sampling

The target population for this study were non-managerial hotel employees of tourist hotels in Thimphu City. The mix of quota and convenience sampling was applied to obtain information from hotel employees who were conveniently and voluntarily available for the closed ended interview. The questionnaires from 298 respondents were used in this study.

2. Instruments

This study used quantitative research method. The importance and fulfilment of Kovach's motivational factors were rated by respondents on a five-point Likert point scale varying from one as very unimportant to as very important for importance and scale rating varying from one as very unfulfilled to five as very fulfilled for fulfilment respectively.

3. Reliability Test

The questionnaires were pretested on thirty pilot respondents to ensure that scales were free from random errors and to give consistency in measurements. Upon analysis on SPSS version 21. Cronbach coefficient alpha of 0.849 from twenty-two items was obtained, thus passing the reliability of scales that require minimum of 0.70.

4. Data analysis

All data received from respondents were analyzed using SPSS to obtain results for this study of importance and fulfilment of job motivational factors. The mean, standard deviation, frequency and percentage values of respondent's socio-demographic characteristics and Likert-point scale responses were calculated with descriptive statistical method. Kovach's motivational factors were used for getting importance ranking and fulfillment scores.

For identifying gaps between importance and fulfillment of job motivational factors, Importance Performance (IP) analysis was carried out to find out performance of managers/hoteliers' in delivery of those factors. The 'Performance' in the original two-dimensional grid of IP matrix was replaced by the fulfillment in this study. The matrix consists of four quadrants namely, concentrate here, keep up the good work, low priority and possible overkill.

Pearson correlation was used to analysis the existence of relationship between overall fulfillment and overall job satisfaction.

Results

This particular study found that hotel industry in Thimphu were female dominated constituting 65.6% of respondents. Most of the employees were in the age range of 20-27 years (57%), were single (58.3%) and with the education level of secondary education (59.5%). The 38.9% of them fall into monthly salary income bracket of Nu.5001-Nu.7000 (approx. US $ 80-115). The 59.7% of respondents have been working in the industry for one to five years.

The overall mean scores showed job motivational factors job security, good wages and full appreciation of job well done were ranked as top most important by employees. Due to unemployment issues and their family obligations, security of job could have rated as most important factor. The money, being universal need fulfiller had second importance for settlement of life and supporting of family since most of employees are made of younger generation. The third most important factor indicated that hotel employees have higher expectations of rewards and recognitions in terms of monetary as well as for fulfilment of their aims of career advancement through notice of their contribution at work by the management. Some significance differences in importance of job motivational factors were observed with respective employees' age, education level, department, salary and length of service in the industry.

The overall importance of hotel employees showed towards intrinsic motivational factors indicating that presence of proper reward and recognition, involvement in decision-making, employee welfare from employers, interesting work, good promotion & training opportunities, loyalty and respect from employers at work rightly motivate hotel employees of Thimphu.

The result showed that mean scores of overall importance is higher than overall fulfillment with all Kovach motivational factors showing significantly negative gap scores, indicating that employee's expectation of motivational factors were not well-met by the management of hotels in Thimphu. Generally, 88 employees represented the majority with mean score of moderate fulfillment of job motivational factors at their workplace. Importance Performance analysis showed that motivational factors, full appreciation of job well done, good wages and promotion & growth fall into concentrate here quadrant that needed management's attention for motivating their employees. This indicate that employees are less fulfilled of reward and recognition system such as monetary (e.g. pay raise, employee of the month award, etc.) and non-monetary rewards (e.g. appreciation note, consideration for promotion and growth opportunities, etc.). It also showed there may be some issues with system of fair payment of wages by the management as per skills and knowledge one's employee possess. The concentrate here quadrant also showed that management have poor performance in paying attention to needs and wants of employees, and fair treatments. The fulfillment of promotion and development need of employees has been identified in this study, which indicated that management should focus on improvement of performance management and appraisal system to ensure the promotion of right and deserving employees to the higher positions. Further, findings showed there is less opportunity for training and development in the hotel that demand greater attention of the management.

The IP analysis show that hotels on Thimphu are doing well in providing enjoyable work, job security and better working conditions. The involvement in decision-making, sympathetic help from company and less strict rules and regulations are of lesser importance and lowly fulfilled. Thus, falling into the low priority quadrant in IP matrix.

Overall job satisfaction result showed that 120 employees were satisfied with their job and majority of them fall in this level. Pearson correlation result exhibited that there were positive significant relationship between overall job satisfaction and overall fulfillment of job motivational factors (r=.559,n=297,p<0.01).

Conclusion

This study brought Kovach's motivational factors for determining what motivates Thimphu hotel employees and their level of fulfilment of those factors. The study involved collecting data from hotel employees and were analyzed in the SPSS program.

This study found that job security, good wages and appreciation for job well done are important for hotel employees. All the motivational factors exhibited gaps in importance and fulfilment. The importance performance analysis showed that hotel industry in Thimphu have low performance in fulfillment of their employees' need such as rewards and recognitions, promotion and growth, good salary and loyalty and respect. Overall fulfillment of job motivational factors indicated that hotels in Thimphu provide hygiene factors of Hertzberg's two factors that were very important for preventing employees from dissatisfaction.

The findings supported that fulfillment of employee need is important for the overall job satisfaction by showing positive relationship.

Finally, this study could positively contribute to management of hotels in Bhutan to know better of their employees that will help to design right motivational programs for their employees since Thimphu represent highest percentage of hotels in the country.

Acknowledgement

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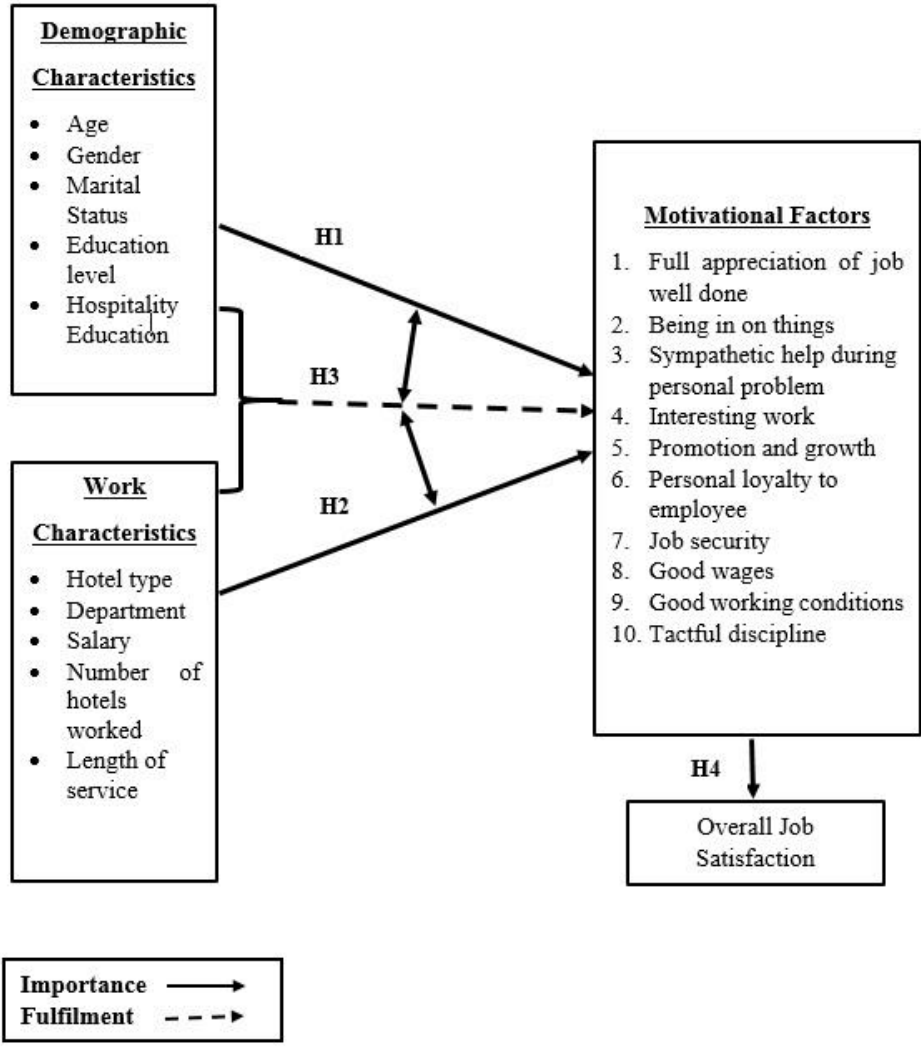
Figure 1 Conceptual Framework

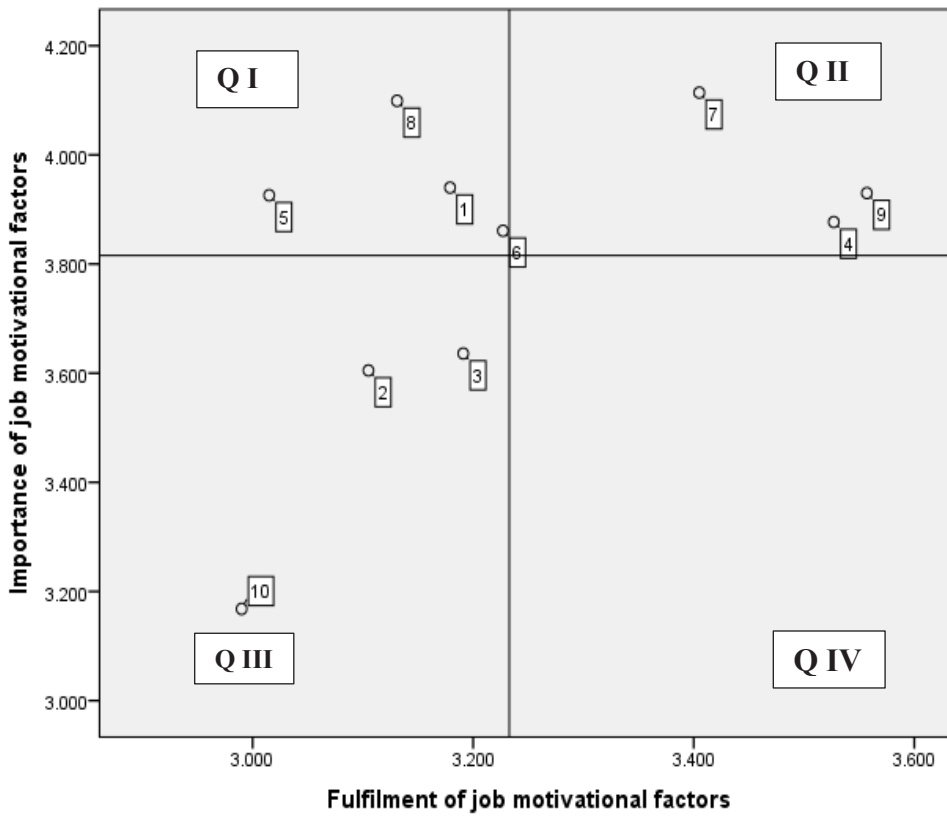**Figure 2** Importance Performance (IP) Analysis Grid showing importance and fulfilment of job motivational factors

Table 1 Pearson Correlation between fulfillment of job motivational factors and Overall job satisfaction

Correlations		Overall job satisfaction	Overall fulfillment
Overall job satisfaction	Pearson Correlation	1	.559**
	Sig. (2-tailed)		.000
	N	297	297
Overall fulfillment	Pearson Correlation	.559**	1
	Sig. (2-tailed)	.000	
	N	297	298
**. Correlation is significant at the 0.01 level (2-tailed).			

Table 2 Details of job motivational factors in IP quadrants

Quadrant I (Concentrate Here)	Quadrant II (Keep up the Good work)	Quadrant III (Low Priority)	Quadrant IV (Possible Overkill)
1.Full appreciation of job well done	4.Interesting work	2.Being in on things	
5.Promotion and growth	9.Good working conditions	3. Sympathetic help with personal problem	
6.Personal loyalty to employees	7.Job security	10. Tactful discipline	
8. Good wages			

MULTI-CRITERIA DECISION MAKING AND OPTIMAL CROP PRODUCTION PLANNING WITH FUZZY PRICE

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Charoenchai Khompatraporn,[2]

ABSTRACT

Agriculture is fundamental to the Thai economy but it faces a challenge as new generations are less interested in farming. This is perhaps due to the income from traditional farming is not satisfying the need of younger farmers who also have limited access to farming resources. This research addresses crop production planning using multi-criteria decision making to select suitable crops, then models crop production plan as an optimization model with fuzzy prices. A numerical example with multiple crop alternatives and limited land of one rai is tested to illustrate how the model can be applied. The results are compared with those from a crisp price model, and it is found that the fuzzy model could yield higher profit than the crisp one. The optimal value from the crisp model (P1) is higher than that of the fuzzy model (P2). This shows that the integration of price volatility, particularly skewed toward the lower bound of the price range, influences the objective value.

Keywords: Fuzzy optimization model, Multi-criteria decision making, AHP, Scoring method, Crop production planning

Introduction

Agriculture is an important driver to the economy of Thailand. About a quarter of the Thai population are farmers. However, younger generations are less interested in farming and leaving the farming sector to other ones. One of the reasons is that farming is risky due to uncertain prices of the agricultural products. Moreover, these generations have limited access to farming resources. Many of them are small landholders. Schipmann and Qaim studied agricultural supply chain in Thailand, but they were more interested in contact farmers and non-contact farmers [1]. Rattanasuteerakul and Thapab financially analyzed and compared organic and non-organic farming in Thailand [2]. Filippi and Stevanato developed an optimization model to best select crops to grow for an individual farmer based on conditional value-at-risk. The model compared single-crop and mix-crop results and found that the mix-crop cultivation yielded higher expected profit over time [3]. Fuzzy approach has also been applied to address uncertainty in many applications such as in transportation with uncertain demands due to seasonality [4] and in a supply chain network in which capacities, objectives, and demands are uncertain [6].

In order to answer the needs of young farmers, first they have to select suitable crops to cultivate and then maximize their income under limited resources and uncertain prices of the crops. To best select the suitable crops, Analytical Hierarchy Process (AHP) is used. AHP is a multi-criteria decision making technique that can consider several criteria simultaneously. It is also one of the techniques that provides accurate decision compared to other methods [5]. The prices of the crops often vary due to several reasons such as seasonality and weather conditions. This uncertainty is integrated in the optimization model to best plan the production of the selected crops in a piece of land of one rai to maximize the total profit. The costs involve are the costs of labor, water, land rental, seeds, and fertilizer. There are 17 crop alternatives and the farmer select a subset of these alternatives to cultivate so that it is manageable in practice. The numerical data used to model fuzzy prices of the crops are based on available historical data of 1.5 years. Finally, the results of the fuzzy price model are compared with those from the crisp price model.

Objectives

To determine the optimal crop production plan for a farmer maximize his/her profit under fuzzy crop prices.

Methodology

First, a subset of the 17 crop alternatives which are herbs and vegetables is selected based on the AHP and scoring methods. The criteria of the AHP are demand, price, price stability, and processing difficulty. The alternatives that have high demands are preferred over those with less demands. Likewise, the

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crop alternatives that have high average prices are preferred over those with lower average prices. The alternatives with high price stability and are not difficult to process are to be preferred over those with low price stability and are difficult to process. Table 1 shows the initial matrix of the AHP method in which the criteria are pairwisely compared. The results from the AHP yield the important weights of the four criteria as shown in the second column in Table 2. The Consistency Index of these weights is 0.07, which is lower than 0.1, and thus is sufficiently consistent to be used [5].

Then each alternative is given a score, ranging from 1 to 3, in each of the criteria. The score of 1 generally means that the alternative is less preferred, and 3 more preferred as shown in Table 3. Then for each alternative the scores are multiplied by the corresponding important weights, and summed to be the total score. The results are also shown in Table 2. The crops to be selected to cultivate are those with the total score higher than 2.00. From Table 2, 10 crops are chosen to be cultivated to maximize the total profit.

Next, the mathematic formulation of the deterministic model (P1), and the fuzzy model (P2) is developed with the following details.

Nomenclature
Index

i = Index of crop i=1,2,3,…,10

Parameters

S_i = Price (THB/Kg) of crop i
Y_i = Output of crop i per seedling (Kg)
Z_i = Selection of crop i (1 = selected, 0 = not selected)
Rl = Labor cost per person (Baht)
Nl = Number of labor required per rai
Dl = Days of labor required
Wl = Labor working hours
P = Plowing hours per rai
D = Disking hours per rai
A_i = Area needed to grow a seedling of crop i (Sq.m)
De_i = Demand of crop i (Kg)
Pl_i = Time required to plant a seedling of crop i (Hours)
Hl_i = Time required to harvest a seedling of crop i (Hours)
Lr_i = Labor time required per seedling of crop i (Hours)
Rc = Land rental cost (THB/month/rai)
Wc = Cost of water (THB/month)
Op = Total output quantity (Kg)
Se_i = Seed cost per seedling of crop i (THB)
Fer_i = Fertilizer cost per seedling of crop i (THB)
Af = Area reserved for utility equipment (Sq.m)

Decision variable

X_i = Number of seedlings of crop i

Deterministic Model (P1)
Objective function

Max profit   = Revenue – Cost   (1)

Revenue $= \sum_{i=1}^{10} X_i \times S_i \times Y_i \times Z_i$ (2)

Cost $= (Rl \times Nl \times Dl) + WC + RC +$
            $\sum_{i=1}^{10} (Se_i + Fe_i) \times X_i \times Z_i$ (3)

Constraints

$\sum_{i=1}^{10} (X_i \times Z_i \times A_i) + Af \quad \le 1{,}600$ (4)

$$\sum_{i=1}^{10}(X_i \times Pl_i \times Hl_i) + P + D \quad \le Nl \times Rl \times Wl \qquad (5)$$

$$\sum_{i=1}^{10}(X_i \times Z_i \times Y_i) \qquad\qquad \le De_i \qquad (6)$$

The objective of the optimization model is to maximize the total profit that is calculated from the revenue and cost. The revenue is obtained from selling the crops that are chosen to cultivate. These chosen crops could be a subset of the 10 crops previously selected. Many costs are involved as earlier mentioned as shown in Equation 3. Equation 4 addresses the limitation of available land of 1 rai (or 1,600 Sq.m.). The area needed for utility equipment is assumed to be 20% of the total available land. Availability of labor is described by Equation 5. To avoid excess supply, Equation 6 limits the cultivation plan not to exceed the demands.

The prices of the crops usually vary due to seasonality and weather condition. The weather condition influences the yields of the crops and consequently the availability of the crops in the market. If there is a lot of supply of the crops in the market, then their prices are likely to drop and vice versa. To address the uncertainty of the prices, fuzzy prices are applied as shown in the objective function of the fuzzy price model below.

Fuzzy Price Model (P2)
Objective function

Max profit = Revenue – Cost (7)

Revenue $= \sum_{i=1}^{10} X_i \times \vartheta(S_i) \times Y_i \times Z_i$ (8)

$$\vartheta(S_i) = \begin{cases} 0, & S_i \le A_i \\ \frac{S_i - A_i}{B_i - A_i}, & A_i > S_i > B_i \\ \frac{C_i - S_i}{C_i - B_i}, & B_i > S_i > C_i \\ 0, & S_i \ge C_i \\ 1, & S_i = B_i \end{cases} \qquad (9)$$

Following the method in [4], the crisp number calculated from the above fuzzy definition with A_i, B_i and C_i can be obtained from Equation 10.

$$\vartheta(S_i) \quad = \frac{A_i + B_i + C_i}{3} \qquad (10)$$

Using the price data of the selected crops during Jan 2016 - June 2017, the values of A_i, B_i and C_i are the minimal, average, and maximal prices per kilogram of crop i, respectively. These prices were posted by the Simummuang Market, which is one of the largest fresh produce markets in Thailand. These values are shown in Table 4.

Results

The mathematical model provides the optimal crop production plan in which the number of seedlings of each crop is determined. The production plans of the two models are almost the same (shown in Table 5). However, the P1 model yields the total profit of 230,823 THB in 3 months, whereas the total profit from P2 drops to only 167,438 THB within the same time period (or about 60,000 THB difference). This is due to the variable in the price of coriander which is highly volatile from 39.7 to 151 THB/Kg, and the price average is likely to skew to the lower end of price range. More details of the total profits of the two models are shown in Table 6.

The solutions also suggest that the farmer should cultivate garlic and gui chai because of their high prices (and consequently profits). The prices of these two latter crops also move relatively in small ranges, compared to that of the coriander.

Conclusion

This research formulate the crop production planning problem for an individual farmer as a mathematical program with fuzzy prices to address the uncertainty of crop prices. The objective of the optimization problem is to maximize the total profit that involves several costs. The AHP method (a multi-criteria decision making technique) is used to select suitable crops to cultivate. Two crops were selected to be the candidates to produce. The optimization models are formulated into two problems. The first one is a crisp (certain) price model (P1), and the other a fuzzy price one (P2). The parameters in the fuzzy prices are based on historical price data of the selected crops.

The solutions (production plans) of the two models are similar, but their objective function values differ. Coriander, gui chai and garlic are the crops mostly selected to cultivate. The total profit of the crisp price model is higher than that of the fuzzy price model. By examining the price of the crops, it is found that the variation of the price of coriander causes this drop in the profit in the P2 model as its price is skew to the lower end of the price range. If the average price of coriander in the future is skew to the lower end of the range, it is possible that the fuzzy price model may yield higher profit that the crisp price model.

A possible limitation of this research is in the demands in which are assumed to be known. This assumption could be relaxed using fuzzy demands in the future research.

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Table 1 Initial matrix of the AHP method

	Demand	Price	Price stability	Processing Difficulty
Demand	1.00	1.00	7.00	7.00
Price	1.00	1.00	7.00	6.00
Price stability	0.14	0.14	1.00	3.00
Processing Difficulty	0.14	0.17	0.33	1.00

Table 2 Important weights and assessment scores for alternative crops

Criteria	weight / Alternative (i)	Corn	Bean	Wheat	Centella asiatica	kaffir lime leaf	Pandanus leaf	Gui Chai	Thai basil	Galangal	Turmeric	Ginger	Fingerroot	Basil Leaves	Garlic	Lemon basil	Coriander	parsley
Demand	0.43	2	3	2	2	3	3	3	3	3	2	3	2	3	3	3	3	3
Price	0.42	1	1	2	2	2	1	2	1	1	1	1	2	1	2	3	3	1
Price stablility	0.09	2	2	1	2	2	3	1	1	2	3	2	1	1	1	2	1	1
Processing Difficulty	0.05	2	3	1	3	3	2	2	2	2	2	2	2	2	2	2	2	2
Total score	1.00	1.58	2.07	1.85	2.05	2.49	2.11	2.34	1.92	2.01	1.67	2.01	1.91	1.92	2.34	2.85	2.76	1.92

Table 3 Criteria scores

Demand			Price (Baht) per weight (Kg)			Price stability (Std Dev)			Processing difficulty		
Low	Mid	High	<50	50>X<100	>100	> 15	3-15	< 3	Hard	Mid	Easy
1	2	3	1	2	3	1	2	3	1	2	3

Table 4 The values of A_i, B_i and C_i

	Corn	Bean	Wheat	Centella asiatica	kaffir lime leaf	Pandanus leaf	Gui Chai	Thai basil	Galangal	Turmeric	Ginger	Fingerroot	Basil Leaves	Garlic	Lemon basil	Coriander	parsley
Minimum (A_i)	4	19.9	20	7.06	48.9	19.3	108	14.6	30.3	54.2	36.5	42.2	13.1	61.7	16.7	39.7	22.9
Average (B_i)	4.5	20.4	20	8.44	51.5	19.9	116	27.6	31.6	59.3	51.7	49.5	24.5	66.1	28.3	85.2	30.4
Maximum (C_i)	5	20.7	20	10.8	54.7	20.3	125	44.7	32.8	64.4	65	62.8	40	71.2	45.3	151	41.5
Crisp Number	4.5	20.3	20	8.78	51.7	19.8	116	28.9	31.6	59.3	51.1	52	25.8	66.3	30.1	91.8	31.6

Table 5 Crop production plan of P1 and P2

Crop glow	Corn	Bean	Wheat	Centella asiatica	kaffir lime leaf	Pandanus leaf	Gui Chai	Thai basil	Galangal	Turmeric	Ginger	Fingerroot	Basil Leaves	Garlic	Lemon basil	Coriander	parsley
Model P1	0	22	0	0	81	0	333	0	0	0	0	0	0	333	2	400	0
Model P2	0	22	0	2	81	0	333	0	0	0	0	0	0	333	0	400	0

Table 6 Revenue, cost and profit in THB of the two models

Model	Revenue (THB)	Cost (THB)	Profit (THB)
P1	373,092	142,268	230,823
P2	309,695	142,256	167,438

International Poster Presentation

MANAGEMENT OF NY DRINKING WATER BUSINESS
IN MUANG DISTRICT, SONGKHLA PROVINCE

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ABSTRACT

The research of the NY drinking water management in the province of Songkhla, Thailand includes quantitative research and Qualitative research. The ojective of this study is 1) to study about the consumer behavior of the NY drinking water business. 2) to compared the management of the NY drinking water business classified by personal factors. 3) to compared the management of the business of NY drinking water classified by consumer behavior. 4) to study about the strategies of the NY rivals, 5) to sepcify the ways to manage the business of the NY drinking water in Songkhla in order to plan up the business operation of the bottle of drinking waters to be effective The sample using in conducting research is devided into two groups comprising the 5 entrepreneurs of the business of drinking water and 384 of the consumers of NY drinking water in Songkhla province by using purposive sampling method. A questionnaire and interview are used as a research tool. The result of the research found that 1) the buying objective is mostly the cleanliness of drinking water at the percentage of 44.0. 2) the personal factors have different of management of the business at the significance level of 0.05. 3) the cosoumer behaviors have diffent of management of business at the significance level of 0.05. 4) the price have been set up o be the same as the rival companies in order to compete in the market and the entreprenures of the business of drinking water should contact the agents selling drinking water in the areas buy setting up. 5) the company should place importance on the management in all four parts of Marketing mixed. The company should emphasize on price and promotion. In terms of price, it should be bargained, and also drinking water should be able to buy with credit. Moreover, in terms of promotion, the company should make an advertisement and promotion on products continuously in order to attract consumers to make a decision to buy drinking water more and more. In doing this, it can make the company reach the new consumers and also it can keep the old customers at the same time.

Keywords: Business management, Drinking water management, Drinking water

Introduction

Water is a basic factor of people lives because water is useful for controling the temperature to be stable in human body. Moreover, it is also a substance that helps the procudure of chemical in the body either the transportation of food and blood circulatory system in order to make a body functions normally and continuously. Apart from that, water also helps in defecating and because of that it makes human body losses water in the average of 2.7-3.2 litres a day. Thus, it is neccessary for people to consume water in oder to replace water that people loss daily. It is siad that people should have some water at least two litres, which are equipvalent to six to eight glasses to make it enough for the body needs in each day [1]. The need of drinking water consumtion will be increasing with the number of the population and the household income and that is the cause of the trend of market expansion of drinking water. However, it is neccessary for the entreprenuer of the drinking water business to find ways or methods to do a marketing for it for the purpose of responding to the consumer needs proplerly.

The purpose of this study is 1) to study about the consumer behavior of the NY drinking water business in Songkhla province, Thailand. 2) to compared the management of the NY drinking water business in Songkhla classified by personal factors. 3) to compared the management of the business of NY drinking water in Songkhla classified by consumer behavior. 4) to study about the strategies of the NY rivals in Songkhla. 5) to sepcify the ways to manage the business of the NY drinking water in Songkhla in order to plan up the business operation of the bottle of drinking waters to be effective. In this regard, the drinking water company will be able to exist in drinking water industry.

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Literature review

The analysis of consumer behavior

The consumer behavior analysis is the study about the behavior of buying the products of the consumers by setting up a list of questions to find out the result. The questions employed in this study is called 6W1H, which are 1) Who is in the targeted market? 2) what do the consumers want? 3) Why do the consumers decide it to buy products? 4) What kinds of things does make people decide to buy the products? 5) When do people consume the products? 6) where can the consumers buy the products? 7) How can the consumers buy the products? [2].

The business management in terms of marketing mix

Marketing mix is a tool using for business operation in the targeted market in order to meet the objectives including product, price, place, promotion [3].

Research methodology

Population and sample

The population using in this research is devided into two groups, which are the consumers of NY drinking water and the entreprenuers of the business of drinking water. This research is done by using purposive sampling method. [4].formula is used in this research at the reliability of 95% and accepted the error value, which is equal to 5%. The sample size is 384 samples.

Research tools and data collection

A questionnaire and In depth interview are used as a research tool to collect the data, the data were collected by using face-to-face with structure questionnaire. The questionnaire consisted of three parts the first part with personal factors, Questions focused on respondents' gender, age, education, occupation and income. The second and third part included question of drinking water behaviors and management of drinking water business. In addition, the management of dringking water business is the marketing mix. Regarding the evaluate, the respondents were aked to give opinions on a five-point Likert scale (1- Not at all important to 5 – very important). The reliability of the measurements in this study was 0.85, which acceptable base on the Cronbach's alpha. Additionally, Indepth interview will be employed with the five entreprenuers of the business of drinking water that are success of management of the drinking water business at Songkhla province. There are five brands of drinking water including 1) Phawong 2) Green world 3) Osha 4) Sunshine 5) Estring. To analyse the data, the researcher analyses the data from the completed questionnaires.

Data analysis

All collected data will then be analysed statistically by using the software program. The satistic includes descriptive statistic, frequency distribution, percentage, mean, standard deviation, analysis of variance: ANOVA, and least-signifant different: LSD.

Results

According to Table 1, it is found that the most consumers are female at the percentage of 57.5 with the age of between 21-30 at the percentage of 43. Their education levels are Bachelor degree. Most of them are self-employed at the percentage of 44.5 with the average income per month between 20,001-30,000 baht at the percentage of 26.3.

According to Table 2, it is illustrated that drinking water in the front shop is found by the consumers the most at the percentage of 60.8. The buying objective is the cleanliness of drinking water at the percentage of 44.0. The bottle size of drinking water that the consumers buy the most is the diamond bottle (6 ml.) at the percentage of 59.8. The consumers prefer buying drinking water at the time of between 10:01-13:00 at the percentage of 35.8. Even more, the consumers buy the bottles of drinking water more than two times a week at the percentage 50.5. The consumers buy one bottle of water per one time the most at the percentage of 53.3. They buy drinking water from grocery shop at the percentage of 50.5. Most consumers make a decision in buying drinking water by themselves at the percentage of 56.8.

According to Table 3, it shows that the average of the business management that consumers give precedence to the decision to buy the products of NY drinking water is at high level overall at the percentage of 3.67. If compared by each part, it is demonstrated that there are three parts, which are at high level, and there is one part is at medium level. The average that has the highest level is a place of buying, which is equipvalent to 3.89. This is followed by products, which has the mean that equal to 3.87. Apart from that, the part that has the highest level has the lowest mean is the price, which is at 3.62. Moreover, the part at the medium level is the promotion, which is at the percentage of 3.28.

According to Table 4, it shows that the differences in demography including age, education level, occupation, and average income per month are given the precedence, which are different at the statistical significance level of 0.05.

According to Table 5, it is found that the consumer behaviors comprising buying period, the quantity of buying per one time, a place of buying, and the participation in making decision in buying are placed importance, which are different at the statistical significance level of 0.05.

The study of strategies of the competitors in the drinking water industry by intervieiwing the entreprenuers from five water companies.

The result of the data analysis, it is illustrated that there are different and varius ways in terms of the business management of drinking water in each company in Songkhla. The standard of business management has not clearly been set up, and thus the researcher summerises about the management of the business of drinking water in Songkhla that the Entreprenuer should have, which is shown as below;

1. The strategy in terms of product – There are two types of driking water package, which are the clear white bottle and white bottle. The entreprenuers emphasize on the clear white bottle one. In this regard, the consumers will have a confidence to buy products because the clear white bottles will have more cleanliness and safety.

2. The strategy in terms of price – The price has been set up to be the same as the rival companies in order to compete in the market. The competetive advantage of this company is having the better packaging as compared to other competitors.

3. The strategy in terms of place – The entreprenures of the business of drinking water should contact the agents selling drinking water in the areas by setting up the conditions and agreement between the entreprenuers and the agents. eg. shop, grocery shop, minimart etc.

4.The strategy in terms of promotion

4.1 Main feature of drinking water should be presented by the mass media to hit the target customers for the purpose of making them remember the brand. For instance, clean, cheap, pure 100%.

4.2 There should have the promotion when the customers buy many packs of water in once. For example, buy six packs of drinking water, get one pack for free.

Discussion

After findings and results have been presented, the researcher will bring the ideas, theories as well as the related research to support the obtained result of this research to make it more reliable in this discussion as shown below;

1. The business management that the consumers place importance toward the NY drinking water in Songkhla province.

The management of drinking water business that the customers give precedence at high level includes product, price, and place. Apart from that, the customers place importance on promotion at medium level.

1.1 Product

it shows that most drinking consumers place importance on the business management in terms of product the most associated with the quality of drinking water, smell and taste of water harmonized with the research by [5]. studying on the topic of the consumer behavior of the bottle of drinking water in the brand of Thep Charoen Pawn in Bang Pa-in, Phra Nakhon Si Ayutthaya province. It says that the consumers give precedence to the factors of marketing components in terms of product the most. If compared by each point, it found that the cleanliness and quality of drinking water have an effect on the consumer behavior of Thep Charoen Pawn drinking water the most. This is because the consumers nowadays pay attention to their health more and more as compared to the past. Nevertheless, consumers always choose the standard and quality of products.

1.2 Price

The research result shows that most drinking water consumers place importance to the business management in terms of price at the highest level, which can be explaint that drinking water is sold with reasonable price. Moreover, the price of drinking water is appropriate as compared with the quality and quatity of it. Furthermore, the drinking water price is lower than other competitors, and also the consumers can buy products with credit. This is in line with the research done by [6].studying on the factors affecting the decision making on buying healthy drinking water by consumer agents in Khon khaen province. It is demonstrated that most consumers give precedence to the setting up the price to be appropriate with the quality because the deflation causes the consumers give priority to the price.

1.3 Place

The result of the research illustates that most consumers give priority to the management of business in terms of place, which is at the highest level. The shop operates everyday, and also the place of selling is near to the customer's house or work place hamonized with the research by [7]. studying on the factors of the marketing components having an effect on buying behavior of Est Cola by consumers in Petchburi province. It found that the consumers give precedence to the place of sale. Another way to say that is consumers can buy products easily because the products are available everywhere so it is convenient for them to buy drinking water.

The summary of the business mangement of NY drinking water in Songkhla province

Product = The products have many sizes with the diversity of the packages. The water is clean, clear without any smell.

Price = The products are set up with the reasonable price, which suits the quality and quantity of drinking water.

Place = Distribution channels should be added more via social network. Even more, the products should be spreaded around in the city to cover all retail shops in Songkhla province.

Promotion = Gratuity should be given to consumers and their families in the important day or special occasion. In addition, if products are bought by consumers in the large volume, the consumers might get an extra one. For example, buy six packs of drinking water, get one pack for free.

Recommendations for further research

1. Planing the marketing strategy of the drinking water business in Songkhla province should be studied more.

2. The product design and packaging development of drinking water should be executed in order to boose the sale.

Acknowledgment

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Table 1 The personal factors classified by gender, age, education level, occupation, and average income per month.

The personal factors	Quatity(people)N=400	Percentage
1. Gender Female	230	57.5
2. Age 21 – 30 years old	172	43.0
3. Education level Bachelor	216	54.0
4. Occupation Engage in personal business	178	44.5
5. Average income per month. 20,001 – 30,000 baht	92	26.3

Table 2 The consumer behavior toward the product of NY drinking water in Songkhla province

Consumer behavior	Quatity (people) N=400	Percentage
1. How do you know the NY drinking water products? The products found available in the front shop.	243	60.8
2. What is the purpose of buying the NY drinking water products? Cleanliness	176	44.0
3. What type and size of the NY drinking water do you prefer to buy? The diamon bottle with the capacity of 6ml.	239	59.8
4. What period of time do you usually buy the NY drinking water? 10:01-13:01	143	35.8
5. How often do you buy the products of Ny drinking water? More than two times a week	202	50.5
6. How many bottles of water do you buy per one time? One bottle	213	53.3
7. Where can you buy NY drinking water? Grocery shop	202	50.5
8. Who does participate in making decision in buying NY drinking water? Oneself	227	56.8

Table 3 The business management having an effect on the decision making in buying NY drinking water in Songkhla province.

Business management	$\bar{x}$	Standard Deviation	Level Comments
1. Product	3.87	.51	high level
2. Price	3.62	.55	high level
3. Place	3.89	.59	high level
4. Promotion	3.28	.82	medium level
Total	**3.67**	**.49**	**high level**

Table 4 The comparison of the business management classified by personal factors.

The personal factors	Source variance	SS	df	MS	F	Sig.
Age	Between groups	3.641	4	.910	3.751	.005*
	Within the group	95.843	395	.243		
	Total	99.484	399			
Education level	Between groups	3.386	3	1.129	4.651	.003*
	Within the group	96.097	396	.243		
	Total	99.484	399			
Occupation	Between groups	3.411	3	1.137	4.687	.003*
	Within the group	96.072	396	.243		
	Total	99.484	399			
Average income per month.	Between groups	5.059	3	1.686	7.072	.000*
	Within the group	94.424	396	.238		
	Total	94.424	399			

* Mean at the significant level of 0.05

Table 5 The comparison of the business management classified by the consumer behavior.

Consumer behavior	Source variance	SS	df	MS	F	Sig.
What period of time do you usually buy the NY drinking water?	Between groups	6.523	3	2.174	9.262	.000*
	Within the group	92.961	396	.235		
	Total	99.484	399			
How many bottles of water do you buy per one time?	Between groups	9.494	3	3.165	13.926	.000*
	Within the group	89.990	396	.227		
	Total	99.484	399			
Where can you buy NY drinking water?	Between groups	7.830	2	3.915	16.958	.000*
	Within the group	91.654	397	.231		
	Total	99.484	399			
Who does participate in making decision in buying NY drinking water?	Between groups	13.509	3	4.503	20.740	.000*
	Within the group	85.975	396	.217		
	Total	99.484	399			

* Mean at the significant level of 0.05

INFLUENCE OF WORK ENVIRONMENT ON EMPLOYEE WORK MOTIVATION IN CES ENGINEERING & MAINTENANCE SERVICE PLC.

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ABSTRACT

Today, the environment of work has become the key factor, which drives the work motivation to the staffs so as to get the work completed effectively. The purpose of this research is 1) to study about the motivation in work practice by staffs at CES engineering and maintenance services co.ltd. 2) to study about the factors in terms of work environment that have an effect on the motivation in work practice by staffs at CES engineering and maintenance services co.ltd. 3) to study about the personal factors that influence on the motivation in work practice by staffs at CES engineering and maintenance services co.ltd. The sample, which is utilised in conducting research, is a group of 200 people from the total number of 402 who work for CES engineering and maintenance services co.ltd. A questionnaire is used as a research tool to collect data. The researcher will employ the quata sampling method, and compare the proportion classified by the number of staffs in each department.

The analytical result of this research found that the work environments, which includes physic, benefits & welfare, colleagues, and boss, have a relationship with the motivation in work practice. Additionally, work achievement, work types, work progress, work environment, benefits & welfare, colleagues, and boss have a relationship with the motivation in work practice. Moreover, the respectability and work environment in the aspect of colleagues also have a relationship with the motivation in work practice regarding the responsibility. Furthermore, it shows that the mean of the motivation in work practice is at high level overall. If those factors are considered by each part, it found that the responsibility has the highest mean. This is followed by work types, work progress, work acheivement, and responsibility respectively. The different age, education level, average income per month have a motivation in work practice, which are not different. According to gender, it found that male has the mean of the motivation in work practice and respectability, which is less than female. The different work experiences have the motivation in work practice in terms of responsibility, which are different at the statistical significance level of 0.05.

According to the result of the data analysis, there are some ways presented by the researcher to improve and develop its company. To begin with, the CES company should place importance on providing the benefits and welfare to the staffs, which suits the cost of living in the present time. What is more, the company should improve the work areas to be appropriate for the type of work. Furthermore, the boss should be fair in terms of making a decision or considering in the assignment of work to the staffs. Even more, promotion needs to be cosidered in the aspect of staffs' capability in working. Moreover, the company should set up the direction of work to be clearly and systematically. Besides, the opportunity should be opened to all the staffs to leave any comments in order to develop its company. In addition, it is neccessary to accept the ability of staffs in order to reduce the gap between staffs and the boss. In addition, the company should provide staffs with the trainning sessions so as to increase the knowledge and ability of work of staffs in the company or organisation. Last but not least, the company should set up the activities in order to make all staffs participate in that event together so that they can share their thoughts. In doing this, it can make unity among staffs in the company.

Keywords: Work Environment, Work Motivation

Introduction

The expansion of the Thai economy in the section of GDP in the thrid quater of the year 2015 can be counted as the percentage of 0.8. The expanding industries are petroleum, motor vehicales, chemical products, and tobacco, which can cuase the economy expansion rapidly. There is a fierce competition and economy development continuously, and it is neccessary for the business industries to find ways to make competitive advantage in doing business. For instance, the administration of basic factors includes human resources, money, material and stuffs, management resources. The most important factor in business is the

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human resource. Thus, the administrator must pay attention to the human resource in order to work for the organisation desperately. The organisation needs to make a motivation in work practice to the group of staffs, and together with the work satisfaction to do a task. In doing this, the organisation can increase products. Moreover, making a work motivation and satisfaction can make staffs feel positive toward the works they are doing. The factors in terms of work types include work achievement, respect, work progress, the relationship with colleagues, superior, work stability, benefits & welfare[1]. Another important factor making the personnel in the organisation concentrate in working is making the work environment to be suitable for the workers so that workers will be satisfied with the environment where they have to work daily. The work environment is regarded as the important thing toward to the staffs' work. It can create a work motivation and satisfaction to workers, and also to make workers be loyal and enthusiastic, which can bring about the working power. Because of that, the organisation can reach the number of the products as it wanted to [2].

CES engineering & maintainance services co.ltd starts its business since a year 2002. The company has been providing services for about 13 years including pipe assembly, steel frame assembly, electricity work, worker supply, together with materials, tools & equipments for the offshore and onshore works, which are concerned with petrolium works where the work environment in terms of physic that is quite dangerous. It may cause any accidents at all times. The work types of the mentioned company needs the environment of work in order to persuade staffs to work. The researcher hereby studies so as to find out what the factors are affecting the motivation in work practice by the staffs in the company. so as to use the result of this study as useful data to improve the staff's perfomance, and also to develop its company to be equal with other organisations.

The study of the influence of work environment has an effect on the motivation in work practice by staffs at CES engineering & maintainance services co.ltd. Thus, the reseracher studies about factors, doing the literature review, as well as the theories realated to the work environment and mortivation in work practice as shown below.

The elements of work environment

1. Physical environment includes sound, music, color, light, temperature. Even more, it can be service places (shop, enterainment places) cafeteria, toilet or all kinds of facilities. Those mentioned places can affect the staffs' satisfaction [3].

2. The environment in terms of benefits & allowance - Apart from salary all staffs will get, the company should provide the allowance, which means the staffs will be able to get extra pay. For instance, holiday pay without any salary deduction, medical fee, food expenses paid per day, travelling expenses, child allowance, education support, together with providing the staffs with the convenience of communication and other office tools using the the company [4].

3. The relationship with colleagues is to have a good relationship among all staffs within the organisation. If the staffs have a good relationship with each other, they will help each other, respect, unite. Moreover, they are willing to join forces to get the task completed and to be effective more and more

4. The boss should be a person who has ability to administrate all works. The boss should be responsible, and also can solve the problems rapidly and correctly. Furthermore, it is neccessary for the boss to make a good relationship with subordinate staffs as always. In doing this, it can bring about the respect from subordinate staffs so that the boss will get a cooperation from staffs excellently [5].

The theory of Work motivation

There will be two factors of the motivation theory associated with the elements in working that can make people feel satisfied or unsatsitified including 1) The external factor is the element concerned with the environment of work. It can be things that are not related to physic. 2) The motivation factor is the supporting factor that can make people satisfied with thier works and make them feel happy to do the tasks comprising work achievement, respect, recognition, work responsibility, work progress, and the types of work that challenge the ability of the workers.

Herzberg offers to respond to two elements but if the organisation needs the staffs work for its company extreamly to produce many good works, and feel satisfaction in working, the organisation should not neglect the response to the element of the reinforce. The organisation should make a work look interesting and challenging to the staffs. In doing this, it is regarded as compensation to the staffs and make them love the work they are going, and also they will not consider of external responding things [6].

Objectives

1) To study about the motivation in work practice by staffs at CES Engineering & maintainance services co.ltd.

2) To study on the factors associated with the work environment influencing toward work motivation by staffs at CES Engineering & maintainance services co.ltd.

3) To study about the personal factors, which have an effect on the motivation of work by staffs at CES Engineering & maintainance services co.ltd.

Methodology

Population and samples

The sample, which is employed in conducting research is a group of 200 people from the total number of 402 who work for the CES engineering and maintainance services co.ltd. According to the data, Taro Yamana formula is used to calculate at the confidence level of 95%, which can accept the deviation of ±5%. The researcher will then use quota sampling method, and compare the proportion classified by the number of staffs in each department.

Research tools and data collection

A questionnaire is used as a research tool to collect data, which is devided into three part as shown below.

  - Part 1 Questionnaire is concerned with the personal factors of staffs at CES engineering and maintainance services co.ltd.

  - Part 2 Questionnaire is involved in the work environment in working devided into four sections including physic, benefits & welfare, colleagues, and boss or superior.

  - Part 3 Questionnaire is associated with work motivation classified into five sections including work achievement, respect, work types, responsibility, and colleagues.

To collect the data in this study, the researcher distributes the questionnaires to the staffs of CES engineering and maintainance and services co.ltd. Regarding the evaluate the respondents were asked to give opinions on a five-point Likert scale (1- Not at all important to 5 – versy important)

Measurement of variable – content a validity of questionnaire items was evaluated by three a professor from the manager of CES engineering and Rajamangala University of Technology Srivijaya expert. A pilot test was conducted to assess how well the research tools captured the constructs it was supposed to measure and to test the comprehension of the questionnaire items. The reliablility of the measurements in this study was 0.88, which acceptedable based on the Cronbach's alpha.

Data analysis

The statistic using for the data analysis

  - Descriptive statistics include percentage, mean, and standard deviation.

  - Inferential statistics include t-test, One-Way ANOVA, (LSD), Partial Eta Squared, correlation.

Results

According to the table 1, it can be seen that most respondents are male at the percentage of 81.5 with the age between 26-35 at the percentage of 54.5. Their marital statuses are married at the percentage of 53.0. Most of them have an education level of vocational certificate or equipvalent to senior high school at the percentage of 31.5. Most respondents have work experiences between 2-4 years at the percentage of 48.5 with the average income per month between 10,001-15,000 baht at the percentage of 36.5.

According to the table 2, it is found that the different gender has the motivation in work practice of the staffs, which is not different at the statistical significance level of 0.05.

According to the table 3, the respondent of different age have the work motivation in both overall image and each parts which are not different. The respondents of different marital status have the work motivation in both overall image and each part which are not different. The respondents of different education level have the work motivation in both overall image and each part which are not different. The respondents of different work experience have the work motivation in both overall image and each parts which are not different.and the respondents of different average income per month have the work motivation in both overall image and each parts which are not different at the statistical significance level of 0.05

According to table 4, it shows that mean and standard deviation of work environment, which has an effect on working are at medium level overall at the mean of 3.47. If compared by each parts, it is found that the thought of respondents are at high level and medium level, which are three points and one point respectively. The boss has the highest mean, which is at 3.59. The second highest is physic at the mean of 3.54. Apart from that, colleagues are at the mean of at 3.53 followed by the benefits and welfare at the mean of 3.20 respectively.

According to the table 5, it is found that the work environments comprising physic, benefits and welfare, colleagues, boss have a relationship with the motivation in work practice in terms of work achievement, work types and work progress at the statistical significance level of 0.05.

In addition, the work environments including benefits and welfare, colleagues, and boss have a relationship with the motivation in work practice in terms of respect. Moreover, the environment of working in the aspect of colleagues has a relationship with the motivation in work practice associated with the responsibility at the statistical significance level of 0.05.

Conclusion

According to the result of this study on the influence of the environment of work toward the motivation in work practice of the staffs at the CES engineer and maintainance services co.ltd., the researcher brings the ideas, theories and other research papers related to this using for supporting the result

and refering in oder to confirm that the finding obtained from conducting the research to be more reliable. The discussion of this research is shown as below.

From the data analysis on the motivation of working by staffs of CES engineering and maintenance services co.ltd., the researcher presents the statistic data, mean, and standard deviation, which are five parts. It is found that it is at high level overall. If compared each parts, it shows that the responsibility has the mean at the highest level. This is followed by work types, work progress, work achievement, and respect respectively, which is harmonized with the research by [7]. studying on the factors of motivation in work practice by staffs at Electric Wire Bangkok Cable Co.Ltd. in the province of Samutprakarn. It is found that the respondents are satisfied in terms of work achievement, interesting work types, and responsibility, which are at high level. Moreover, the respect and work progress are at medium level.

To analyse the data related to the environment in working by the staffs of CES engineering services co.ltd., the researcher presents the statistic data, mean and standard deviation consisted of four parts. It is found that it is at medium level overall. If compared with each parts, it shows that the boss has the highest mean. This is followed by physic, colleagues, benefits & welfare respectively, which is matched up with the research conducted by [8]. studying on the satisfaction toward the work environment and the relation to the organisation by the operation staffs. It is found that the operation staffs have the satisfaction toward the work environment, which is at medium level.

To analyse the data concerning the personal factors of the staffs of CES engineering and maintenance services co.ltd., it is found that the differences in demography including age, marital status, education level, average income per month have the work motivation, which are not different. Yet, the different gender has the work motivation in terms of respect, which is different. Even more, the different work experiences have the work motivation in terms of work responsibiliy, which are different hamonized with the research by [8]. studying on the work motivation of the personel at Pho Tak subdistrict administration organisation. It is found that the comparison of both the different age & education level and the different position have the work motivation in both overall image and each parts, which are not different.

Acknowledgements

Reccommendation for further research

The researcher who is interested in this field should study more on the development form of work influencing the work environment affecting the motivation in work practice by staffs at CES engineering and maintenance services co.ltd.

Due to the differences of data and education factors, the researcher who would like to carry on this topic should study more on the motivation in work practice by following the two factors of Herzberg on the other organisations such as national enterprises or government sectors in order to find out the diversity data.

After the organisation improve its from using the otained result from this research, this research must be conducted continuously so that the researcher will be able to bring the new finding and results, which are different to old study to study more again in order to improve and develop its organisation to see the change that may happen.

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Table 1 The personal factors classified by gender, age, marital status, An Education level, work experiences, average income per month.

Demographic characteristics	The number (of people) N=200	Percentage
Gender		
Male	163	81.5
Female	37	18.5
Age		
No more 25 years old	25	12.5
26-35 years old	109	54.5
36-45 years old	50	25.0
46-50 years old	14	7.0
51 years or more	2	1.0
Marital Status		
Single	87	43.5
Married	106	53.0
Divorced	7	3.5
An Education level		
No more than high school	18	9.0
Vocational certificate or equipvalent to senior high school	63	31.5
Diploma or certificate (Diploma)	62	31.0
Bachelor's degree	57	28.5
Work Experiences		
Less than 2 years	38	19.0
2-4 years	97	48.5
5-7 years	34	17.0
8-10 years	20	10.0
10 Years or above.	11	5.5
Average income per month		
No more than 10,000 Bath	21	10.5
10,000-15,000 Bath	73	36.5
15,001-20,000 Bath	69	34.5
20,001-30,000 Bath	22	11.0
More than 30,000 Bath	15	7.5

Table 2 The comparison of the motivation in work practice of the staffs classified by gender

Description	Gender				t	Sig
	Male		Female			
	$\bar{x}$	SD	$\bar{x}$	SD		
1. Achievement	3.56	0.77	3.81	0.28	1.92	0.05
2. Recognition	3.53	0.84	3.86	0.33	2.35	0.02*
3. Work Itself	3.63	0.80	3.72	0.52	0.70	0.48
4. Responsibility	3.76	0.84	4.00	0.33	1.71	0.08
5. Advancement	3.60	0.80	3.86	0.48	1.82	0.07
Total	**3.61**	**0.75**	**3.85**	**0.28**	**1.85**	**0.06**

* Mean at the significant level of 0.05.

Table 3 The comparison of motivation in work practice by staffs classified by age, marital status, education level, work experience, and average income per month.

Work Motivation		1.Achievement	2.Recognition	3.Work-Itself	4.Responsibility	5.Advancement
Individual factors	Sum Squares	SS	df	MS	F	Sig.
AGE	Between Groups	2.13	4	0.532	1.09	0.363
	Within Groups	94.259	193	0.488		
	Total	96.389	197			
Total Status	Between Groups	0.293	2	0.146	0.297	0.744
	Within Groups	96.096	195	0.493		
	Total	96.389	197			
Total Education Level	Between Groups	0.61	3	0.203	0.412	0.745
	Within Groups	95.779	194	0.494		
	Total	96.389	197			
Total Year of Work	Between Groups	2.088	4	0.522	1.068	0.373
	Within Groups	94.301	193	0.489		
	Total	96.389	197			
Total Average income per month	Between Groups	0.536	4	0.134	0.27	0.897
	Within Groups	95.853	193	0.497		
	Total	**96.389**	**197**			

* Mean at the significant level of 0.05.

Table 4 Mean and standard deviation of the work environment affecting the work practice

Work Environment	$\bar{x}$	Standard Deviation	Level Comments
1. Physical Environment	3.54	0.63	High Level
2. Welfare and benefits	3.20	0.79	Moderate Level
3. Co-Works	3.53	0.68	High Level
4. Supervisor	3.59	0.88	High Level
Total	**3.47**	**0.66**	Moderate Level

* Mean at the significant level of 0.05.

Table 5 The correlation of the work environment affecting motivation in work practice.

Work Environment	Work Motivation				
	1.Achievement	2.Recognition	3.WorkItself	4.Responsibility	5.Advancement
1. Physical Environment	0.221* (0.002)	0.1 (0.158)	0.209* (0.003)	0.026 (0.710)	0.176* (0.012)
2. Welfare and benefits	0.154* (0.030)	0.141* (0.047)	0.169* (0.018)	0.007 (0.927)	0.216* (0.002)
3.Co-Works	0.298* (0.000)	0.301* (0.000)	0.300* (0.000)	0.202* (0.004)	0.329* (0.000)
4. Supervisor	0.320* (0.000)	0.307* (0.000)	0.269* (0.000)	0.097 (0.174)	0.309* (0.000)

* Mean at the significant level of 0.05.

( ) Sig. (2-tailed)

GUIDELINE FOR INCREASE CASH CARD OF THE GOVERNMENT SAVING BANK'S CHATURAPHAK PHIMAN

Pinyapat Chotthanapongsatit[1]
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ABSTRACT

A study of Guideline for increase cash card of the government saving bank's Chaturaphak Phiman, Roi Ed province, aimed to study the customers behavior and marketing mix factor that influencing the buying decision of cash card users and will determine the guideline for increase cash card of the government saving bank's Chaturaphak Phiman, Roi Ed province. The study was using 400 questionnaires from the customers who using this bank and by using the information of card users' behavior, using marketing mix principle (7P) and Strength, Weakness, Opportunities and Threats analysis (SWOT Analysis), TOWS, PESTE and FIVE FORCE. The result revealed that card users only use less than 5 times a month and the most users agreed with the reason that the cash card gave them more convenient in their life. After using marketing mix and SWOT analysis, the author was able to established 2 projects which are 1) Training the staff for a better service and 2) customer proactive project. If the Bank used both project the number of cash card would going up 200 cards per month.

Keywords: Cash Card, Government Saving Bank, Chaturaphak Phiman

Introduction

GSB or Government Saving Bank has been called treasury since 1913, the treasury was created by King Vajiravudh or King Rama the 6th, this treasure purpose was to control and monitoring the income and outcome and you could say the finance of Thailand. After 1947, on 1st of April the treasury got its name change to Government Saving Banking or GSB in faculty of finance. This is because the government saw the important of saving which can improve the country. And now the purpose of GSB is to deposited-withdraw, mortgage, credit and debit card and also selling saving tickets for people in the country [1], So GSB's Chatupaphak Phiman is one of the branch that will apply people more convenient to visit GSB.

Cash Card is one of the way that will help people who got the problem with outlawed loan and helping to cure other suffering in financial way. GSB saw this opportunity would help Thai people in many ways, so GSB coming out with 2 cash cards. The different between these two cards were the amount of cash in card and other requirements and they are called Prima card and People Card. The main purpose of these cards was for emergency used when the card holder needed cash. To apply for people card – customer need to have at least 7,000 bahts per month, the amount that can be cash is up to 5 times the amount of customer's salary but not over 30,000 bahts. And the average interest is around 0.88 to 1% but not over 19% per year. To apply for prima card – customer need to have at least 15,000 bahts per month, the amount that can be cash is up to 5 times the amount of customer's salary but not over 1,500,000 bahts. And the average interest is around 0.88 to 1.12% but not over 19% per year.

The cash card is different from credit card and debit card. The debit card is the card you have to apply with your account and this card only cashable through your account, this mean that you can only withdraw within the amount of money you have in the account and can only be access some amount per day. The credit card is the card you can withdraw money within the range of you have been permit by the Bank. You access the money via credit card machine in most of every shop today and also can be access through ATM (Automatic Teller Machine). And the cash card is the combine of credit card and debit. Which mean the bank will provide a loan to the cash card (the loan is up to the information about your financial that apply when the first entry) and the customers can access through the money with ATM only, can't be use in the shop with a credit card machine. But this money had an interest – the more customer used, the more interest customer need to pay.

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The cards are new product for GSB which means the other Bank already selling these products. GSB cash cards are new in the market which in this study's object was to study the behavior and using marketing mix and SWOT to analyzed and create a project to increase the number of cash card for government saving bank's Chaturaphak Phiman. The important of increase the volume is because when the volume cash card had been sold, the key performance indicator or KPI of this Branch will going up higher and the branch itself will gain more fund and thrust from the Main Branch of GSB.

By study in the behavior of the customers, this will help the study to create a guideline [2] to help GSB's Chaturaphak Phiman to gain more members of cash card which mean the volume of cash card sold will be increase. Also, the marketing mix is a purpose of marketing because marketing mix is the way of analysis marketing factor to helping create a guideline to increase the sale volume.

Objective
- Studying the behavior and marketing mix survey of the customers
- Create guideline to increase cash card sold for GSB's Chaturaphak Phiman in Roi Ed

Research Methodology

The study used questionnaire as a main research for the result [3]. The author handed out 400 questionnaires to customers who came in and used the service in GSB's Chaturaphak Phiman in Roi ed. Chaturaphak Phiman has approximately 80,399 peoples which the author will used 400 examples by using the method of Yamane, Taro [4]. The questionnaires contain 4 parts of question, first part was general questions include age, gender, family condition, occupation and education. Second part was the behavior include the behavior of the customer using cash card. Third part, questions were about marketing mix (7P) and the motivation in getting the cash card. This part using scoring scale to analyze which of the questions or factors that will had the most effect on the customers. The scale contains 5 scores (1 - Very Low, 2 – Low, 3 – Average, 4 – High and 5 – Very High), the questionnaire for this part have the reliability of 0.885. The fourth part was other problems and suggestions, this part will allow the customers to express his/her opinion about cash card and GSB's Chaturaphak Phiman in Roi Ed. All this data will allow the author to study the behavior and the marketing mix factors and analyze what factor could increase the cash card sold.

After gathering all the data and information that needed, for all of the questions will be analyze by using statistic analyzed consist of finding frequency, mean and standard deviation. In the end, the author will use SWOT, TOWS, PESTE and FIVE FORCE to building up a project or a guideline to increase the cash card volume sold in this Branch.

Result

The result from 400 questionnaires, most of the customers were female 60% or 240 people, and 51.3 % or 205 people are between 20 – 30-year-old and 51.3 % or 219 people are single. 142 people or 35.5% are graduated in high schools and 110 people or 27.5 % are students and collegians which 38.3 % or 153 people having a salary between 10,001 to 20,000 baht.

The behavior's study shows that only 32% or 128 people still holding cash cards and 75 people or 18.8% held GSB's cash cards and in this number of cash card holder used the cash card under 5 times per month. The reason for these cash card holder had the cash card was because the convenient of getting the cash in time their needed.

The Marketing Mix's study shows, in the part of Product (First P), most of the customers gave the score for the stability of the bank highest point. In the pricing part (second P), customers gave the most score for the entry fee. In the place part (third P), the customer concerned on how many bank-branches all around the country. In the promotion part (fourth P), the customers had their attention in the gift that the Bank given to the customers. In the personal part (fifth P), the customer wants the staff to concentrate or having more attention in their work all the times. In the physical part (sixth P), the customers caring for the safety and security in the bank. And in the last part the process part (seventh P), the customer wants all the process to going queue by queue. No one should cut the queue or having a special treatment.

The SWOT analysis can be separated into two main groups and the two group are internal factors and external factors. The internal factors are consisted of Strengths and Weakness and external factors are consisted of Opportunities and Threats.

The strengths of GSB's Chaturaphak Phiman are –

1. The Government Saving Bank or GSB is stable because the bank had been created by RAMA VI which mean the bank invested by the king and have been back up by department of financial of Thai land.
2. The Government Saving Bank have lots of branch that the customers can access over the country.
3. The GSB's Chaturaphak Phiman is having an activity to meet the customers outside the bank for customers to deposit their money into their account.

The weakness of GSB's Chaturaphak Phiman are –
1. The staff is lack of knowledge about the product and some are not very profession with the job.
2. The process of the GSB's Chaturaphak Phiman is slow compare to other GSB in the city.

The opportunities of GSB's Chaturaphak Phiman –
1. The GSB's Chaturaphak Phiman is locate near the market which mean close to the people in Chaturaphak Phiman because there is only one market in this amphur.
2. Thailand is being push forward by government to be a cashless society. And that the cash card become quite important to carry around.
3. The GSB's Chaturaphak Phiman can access to the customer easily after the bank's hour.

The threats of GSB's Chaturaphak Phiman –
1. Other banks are already the cash card and already been popular in some area of the country.
2. The village in amphur Chaturaphak Phiman are not very well educated.
3. There are many competitors in the area for example informal loan and bank for agriculture and agricultural co-operatives.

The TOWS analyze is to use the result of SWOT combine together to build up a strategy and there are 4 strategy which are

SO Strategy – from the strength and opportunity of the GSB's Chaturaphak Phiman, the bank itself should provide a service which going into the area when the customer live to give them information about the new product and this also help the customer to always keep in touch with the bank.

ST Strategy – GSB release the product slower than other bank and this can cause the GSB not to be the number one in this completion but GSB is very stable with this strength, the bank could promote more and more often to let the people know the product and how stable of the bank. This will lead to better knowing and will eventually help customers to buy cash card from GSB.

WO Strategy – even though the bank's employees is lack of the knowledge but the government now pushing Thailand to be cashless society and because of the bank located close to the market which mean most people in Chaturaphak Phiman will come here. The best strategy was to train the employees to have better knowledge about the product which will lead to the customers later and that will help the customers to understand the product and make decision easier.

WT Strategy – there are no better strategy than training the employees because of the weakness is the lack of knowledge and the threat is the villager didn't receive any new about the product yet by this project will helping the employees explain and giving useful information about the product and will be able to raise the sale.

PESTE Analyze is to analyze political, economic, social, technology and environment. In the part of environment, the cash card or the Bank itself doesn't cause any of the pollution. In social and technology part, the villagers are using technology as a trend, this mean – if one of the people they knew have the cash card, they will also want to have one because the cash card is new technology and many people would like to catch up with new technology. And the last part economy and political, because of deflation of the economy which cause many people to making a loan with non-bank loan. This will lead to more and more debt and the cash card are in market for the reason to help the loaner to pay the debt with non-bank loan and bring all debt into the bank so the government can help to decrease the debt.

FIVE FORCE is to study the effect that will cause the change in the business which are

Force from the supplier – GSB didn't had any supplier so there aren't any force from this point or very low level.

Force from the customer – the customers have no pressure on the card sold very much even though the card need to be sold to the customers but the customers have to pass all the requirement from the bank in conclude the force from this point is at low level.

Force from new comer – the bank itself doesn't have many new comer and the new comer didn't have very much chance against GSB, KBANK, SCB and other because these banks already in the business for a very long time, the level is at very low.

Force from replacement product – the level is at low because there are no replacement yet and also credit card and debit card are doing a difference purpose for the customers.

Force from other competitor – this force can be consider as very high because other competitor already launch the same kind of product.

After analyzed the result and used SWOT, TOWS, PESTE and FIVE FORCE analysis, the author was able to created two projects which are: "Training for staff", from the questionnaire – the answerers are focused on how active the staff are and also the ability to answer the question and misunderstanding of the customer. So, the staff need to be active and knew all about the bank and bank's products. This project is to teach and train the GSB's Chaturaphak Phiman's staff to have given more attention and concentration to their work and also to teach the staff new information so they can pass those information to the customers, which will help customers to understand and gain more benefit from the product, and when the customer know the benefit about the cash card, this will help customer to make a decision more easier on buying the cash card with this GSB's branch. And the second project is "going to the customer area" – from the strength of this bank, we can see the that bank is already located near the market and most people in Chaturaphak Phiman need to come to the market for shopping and other purpose. By sending some of staff to the market after the bank closed to do bank's work such as promote new products or deposited money with definitely help the bank to gain a lot of benefit over the competitor, and by promote the new product could help the customer to make a decision on buying the cash card with this GSB branch. Because some of the customers aren't able to come the bank within the bank hour and that is the risk of losing customers to another branch or other bank. From these two projects will greatly increase the cash card volume sold for GSB's Chaturaphak Phiman and also will give this branch higher KPI.

Conclusion

From the study of the behavior, marketing mix, SWOT, TOWS, PESTE and FIVE FORCE revealed that most of the customer are female and the age were around 20 -30 years old. And the most reason are the convenient of the card that will help them to doing withdraw the cash easier. But the GSB's cash card are new product in the market so GSB should doing more advertise and let the employee promote the product more and more. But during the working hour, the task to do during the day is busy and by the project of getting to customer would help the employees to have enough time after work to explain the product but still the GSB do need the first project to train the employee to have basic knowledge about the product. These two project will help the customer to understand the product and will help them make decision easier for buying the product.

Suggestion

Advertising is very important part of every company. The advertising not only showing what your company has for sell, it can help you company to promote other promotion that would attach more customer and help you raise the profit and sale volume. The advertising is best co-op with gift or other promotion, this will help to company to have the advantage over other.

Fee are very important subject. All the fee includes entry fee, year fee and other fee can help to attach more customers. The Bank or other company can use fee promotion to attach more customer for example "No Entry fee only this month". This promotion will help customers to make a decision whether to apply member or not and the ones want to be a member apply will apply on that month.

Nowadays, rather than a television there are many other possible and reachable way to get to customers for example internet and social network. These two alternative ways are new way of communication throughout the world because today many people have cellphone and most of cellphones are smart phone and smart phone are accessible to internet. If the advertise were on internet, so it will be sure that most of people around the world will see your commercials and some may want to apply or buy your company's products and/or services and also today is an express life, this mean that everything needs to be done quickly. If the Bank or company can reduce the process, it will and can help to get more customer and quicker but some process is irreducible like the process of check credit bureau so the manager need to be sure which can be reduce and which can't.

For further study, the research could use this information and pattern to study in their own area because in this study only studied in the Chaturaphak Phiman area which are one of the amphur in Roi Ed. By using this information as a guideline can helping other research to know about the behavior of people in the Chaturapha Phiman. And also, to study deeper, other research can also concentrate on the process inside their organization as well because most of activity is coming from the inside the customers are only the outer layer of the whole business.

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THE NEEDS OF USING HEADHUNTER SERVICE IN REGISTERED COMPANIES IN THE STOCK EXCHANGE OF THAILAND (SET)

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Sakchai Jarernsiripornkul[3]

ABSTRACT

The objective of this study is to know the needs of using Headhunter service in recruitment in listed company in the Stock Exchange of Thailand (SET). The core of this study comes from lists of question collected and analyzed from recruiters or managers who has experience and also has a decision power to use or not to use this service and a literature review from recruitment research. .In term of analysis, I have observe the interviewee's appearance and face expression when answering question and also do the literature review and the document research, which are unit of this study analysis. From this study, the motivated group of company using Headhunter can be as follows; 1.) Management has no policy to use headhunter. 2.) Company had used headhunter service before but not success and received bad experience so they discontinued using this service. 3.) Management and recruit person using headhunter have good experience and continue using this service as long as this service can serve their requirements. This study benefits to people who interested in this industry, who would like to work as headhunter or who want to use headhunter service.

Keywords: Headhunter, Needs, The Stock Exchange of Thailand (SET).

Introduction

Human resource is the most important part of the organization; both government and private sector. Recruiting for suitable employee to the organization is also the tough mission of the organization as the competition is searching for quality, not only quantity. In B.E.2560, recruitment agency is continuously grown and the completion is also increasing because the reason that the company using this service more and more and candidates become interested in applying their resume with Headhunter. Employee market is more competitive, human resource department in the company and Recruitment Company also alerted in seeking for right person to the right job in a short time. [1] The company seeks for employee in different professions and also more specification. There are many methods in seeking for employee, such as; job posting, mouth to mouth, friend's recommendation, joining job fair with private organization or Ministry of Labor or engage with Recruitment Company. Therefore, Recruitment Company continuously increases in quantity. Recruitment Company can be divided into 2 groups; which are Recruitment Company and Specific Recruitment Company or Headhunter.

Headhunter is a non-familiar word in Thailand because there has not yet a clear definition. As this word has not been yet translated into Thai language and few people knows about it, headhunter is still used as a transliterated word.

Headhunter is still a small part of business in Thailand. Most of the time, they seek for a specified position or any confidential position which must be kept secretly in the company.

However, in overseas, headhunter is very popular because they can precisely and quickly recruit candidates regarding to overall qualifications - education background, working experience, gender, and English test score - preference towards the company cultures, job specification - experience in competitor companies and business development.

These are the reasons why companies prefer headhunter rather than other recruitment agencies. Since this business has just been spreaded out in Thailand 3-5 years ago, the market demand is still significantly increased. However, the market has still not clearly understood this business and the bottom-line of using headhunter may be doubly identified. [2]

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Recently, Headhunter is one of the most interesting business sectors. People from various occupations prefer to seek for job opportunities through headhunter. [3] With the expertise and competence in this area, which headhunter has advantage over the in-house HR companies facing with the challenge to approach candidates effectively, unsurprisingly, headhunter becomes more preferable.

From above mentioned, it is very usefully important to study headhunter business, which can basically support companies that indeed need this service, recruitment agency and other people knowing and never knowing about headhunter. Also, to study the real need and expectation from companies demanding for this service, it benefits for others to make decision and understand more in this business.

Objectives

To know the needs of headhunter of registered public companies in the Stock Exchange of Thailand (SET).

Methodology

The study of the needs of headhunter's service of registered public companies in the Stock Exchange of Thailand (SET) by these two step.

First step, set procedure for grouping prospect companies;
1) Succeed and sustainability of companies.
2) Company's credibility listed in The Stock Exchange of Thailand (SET).
3) Interviewees' willing.
4) Contact selected groups of companies for set the In- Depth interview. Analyze the interview, conclusion and examine by triangulation theory.

Second step, data collection which two source as below;
1) Study from secondary source which come from research paper, thesis paper,

publications, journals and literature review which related to recruitment process in private organization and the needs of people in recruitment.

2.) Study from interview questions' list which cover all information in recruitment

process, seek candidate, interviewee's attitude about headhunter's service. The interview is conduct as In-depth interview and question list are (1.) Do you know Headhunter (2.) How do you think about headhunter service (3.) Does your company use this service and why (4.) Would you like to suggest about this service and anyone who would like to be a headhunter. Researcher spend one hour and above with interviewee and record all situation for analyze.

Results

This study show the needs of HR department and any authorized people in private organization about choosing headhunter service to seek for candidates in public companies in The Stock Exchange of Thailand (SET) without industry classification. There are three groups in this study.

1.) Management has no policy to use headhunter.

2.) Company had used headhunter service before but not success and received bad experience so they discontinued using this service.

3.) Management and recruit person using headhunter have good experience and continue using this service as long as this service can serve their requirements. This study benefits to people who interested in this industry, who would like to work as headhunter or who want to use headhunter service.

Conclusion

This study helps to know the real need and expectation from using headhunter of public companies in the Stock Exchange of Thailand (SET) which can be a guidance for any companies being interesting in headhunter as well as benefits for candidates. Headhunter is to seek for qualified people for a specific job. This study will show recruitment trend in Thailand this year that headhunter will increase their capacity and serve companies better.

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STRATEGIC PLANNING FOR PRODUCTION AND MARKETING MANAGEMENT ON WAXY CORN OF BAN NONG BUA COMMUNITY ENTERPRISE, BANFANG DISTRICT, KHON KAEN PROVINCE

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ABSTRACT

This study aimed to study the social and economic status on Waxy Corn of Ban Nong Bua Community Enterprise, production management and marketing, consumer behavior and factors affecting the buying behavior of the consumers, SWOT analysis (strengths, weaknesses, opportunities and threats analysis), and bring the results to the strategic marketing planning. The questionnaire was used to collect data from the target population on Waxy Corn of Ban Nong Bua Community Enterprise. A total of 30 samples on Waxy Corn of Ban Nong Bua Community Enterprise were selected by convenient sampling method. The 400 respondents were unaware of the number of consumers. The results of the study reveal that the majority of farmers are female 53.3 percent. The majority of them graduated from primary school. The main occupation is waxy corn farmers. Most waxy corn of Ban Nong Bua consumers are female between 21-30 years old, government officials earn less than 15,000 baht per month. Production management found that most farmers on Waxy Corn of Ban Nong Bua Community Enterprise buy seed by themselves and motivate them to make a decision in growing waxy corns throughout the year. Marketing management found that 23.7 percent of the farmers will sell their own products on roadside shop in the form of boiled waxy corn. The consumer knows waxy corn from family members. The purpose is for household consumption and buying from self-decision making. Factors affecting the consumer decision on waxy corn from the highest level were taste, price, quality, quantity, the convenience store and the merchants. Strategic marketing planning includes: 1) public relations and promotion by having a publicity label and a point of sale, 2) cleaning and caring shop and sellers, and 3) add value of the product with   a beautiful package.

Keywords: Community Enterprise, Buying Behavior

Introduction

Corn is one of the most important economic crops in the world. This is a major food crop that is widely used. In addition to human and animal food, seeds and others can also be used in many important industrial products. Waxy corn is a highly potent plant, easy cultivation, take short production time. Farmers will plant after rice harvest to earn extra income.

Farmers group on Waxy Corn of Ban Nong Bua Community Enterprise, Ban Fang District, Khon Kaen Province, Established in 1998, there are more than 1,000 of corn growing area. Presently, the group on Waxy Corn of Ban Nong Bua Community Enterprise has GAP certified by the Department of Agriculture. In terms of production, farmers are planning their crops to be harvested at different times. On sale, made MOU and distributed to Central Department Store at the point of purchase every week and sold along two side streets at Maliwan Road. [1]

However, there are a number of problems which the farmers are still facing. It was found that the amount of water in the area was not enough for the corn planting season, outbreaks of diseases and insect pests that result in product damage, Production problems because farmers have no producing their own varieties, so they have to order and pay for their corn seeds, and the marketing problems because the output market exceeds demand that the price to buy the product is sluggish and the sales are not exhausted. Also that makes the remaining output quality lower and lose price.

According to these problems, the study participant was interested in studying the management of production and marketing on Waxy Corn in Ban Nong Bua, Ban Fang District, Khon Kaen Province. In order to plan marketing strategies for farmers as a guide to sustainable development and management of farmers.

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Objectives

      1. To study the social and economic status on Waxy Corn of Ban Nong Bua Community Enterprise

      2. To study the production management and marketing on Waxy Corn of Ban Nong Bua Community Enterprise

      3. To study the consumer behavior and factors influencing on buying decision.

      4. To analyze the strengths, weaknesses, opportunities and threat on Waxy Corn of Ban Nong Bua Community Enterprise

      5. To plan the marketing strategies on Waxy Corn of Ban Nong Bua Community Enterprise

Methodology

1. Population

  The population in this study consists of 2 groups:

      1.1 The members on Waxy Corn of Ban Nong Bua Community Enterprise, Ban Fang District, Khon Kaen Province: 78 members (as of March 2017) including 9 committees and 69 members.

      1.2 Consumers are those who buy on Waxy Corn of Ban Nong Bua, Ban Fang District, Khon Kaen Province, for consumption (unknown population).

2. Sample

      2.1 Group on Waxy Corn of Ban Nong Bua Community Enterprise, Purposive Sampling was used by the members of Ban Nong Bua Community Enterprise, Ban Fang District, Khon Kaen Province. The committee consisted of nine members, one chairman, one vice-chairman, and 7 committees, and 69 group members.

      2.2 Consumers on Waxy Corn of Ban Nong Bua Community Enterprise use easy sample selection because of the unknown population. From W.G. CoChran. (Yut Gaiyawan, 2553) [2]

From the formula $\qquad n = \dfrac{P(1-P)Z^2}{d^2}$ (1)

$$n = \dfrac{0.5(1-0.5)1.96^2}{0.05^2}$$

$$n = 384.16$$

      From the calculation of 384.16 samples, the sample size was 400 samples.

3. Tools used in education.

      The study was conducted by questionnaire 2 sets: sample 1, member of Ban Nong Bua Community Enterprise. Sample 2, the consumers of Ban Nong Bua Community Enterprise, Ban Fang District, Khon Kaen Province divided the content of the questionnaire into 5 parts.

      Part 1 General information of the respondents.

      Part 2 Information on the social and economic on Waxy Corn of Ban Nong Bua Community Enterprise

      Part 3 Information on production management and marketing of Ban Nong Bua Community Enterprise

      Part 4 Information on the problem situation of Ban Nong Bua Community Enterprise

      Part 5 Information on consumer behavior and factors affecting consumption of Ban Nong Bua Community Enterprise, Ban Fang District, Khon Kaen Province.

4. Data collection

      Data collection in this study is collected in two types of information.

      4.1 Primary Data collected data from the interviews with the members on Waxy Corn of Ban Nong Bua Community Enterprise and a questionnaire from the consumers are those who buy on Waxy Corn of Ban Nong Bua, Ban Fang District, Khon Kaen Province.

      4.2 Secondary data is the information obtained from the study of the academic papers, research reports, dissertations, books, journals, websites, government documents, and private agencies.

5. Data Analysis

      The steps for data analysis are as follows.

      5.1 Statistical Analysis for the Social Science (SPSS 22)

      5.2 General data Analysis and basic socio-economic characteristics of members and consumers community enterprise, and production management and marketing by using frequency, percentage, mean, maximum, minimum and standard deviation.

5.3 Problems Analysis of members of community enterprise, consumer behavior and factors affecting consumption on Waxy Corn by frequency and percentage. Then the frequencies and percentages were compared to the interpretation criteria.

5.4 The situation Analysis by analyzing strengths, weaknesses, opportunities and threat (SWOT Analysis), TOWS Matrix analysis, to analyze the marketing strategies of Ban Nong Bua community enterprise, Ban Fang District, Khon Kaen Province.

Results

Part 1 General information of the respondents.

According to studies, it has been found that Members of Ban Nong Bua Community Enterprise. Most of them are 16 males or 53.3 percent, Age 40-49 years old. The main occupation of the farmers is planting Waxy Corn.

The majority of consumers of Ban Nong Bua, Ban Fang District, Khon Kaen Province are female, 266 or 66.5 percent, age 21-30 years, or 46.75 percent. They have 260 undergraduate degrees, accounting for 65.0 percent. It is 50.7 percent and has 176 persons or less than 15,000 baht per month, accounting for 44.44 percent.

Part 2 Information on the social and economic on Waxy Corn of Ban Nong Bua Community Enterprise.

According to studies, it has been found that the majority of the farmers in the group consisted of 5 members, accounting for 30 percent of the households in the agricultural household, or percent of the total area of land holding. Their own size of 6 rai accounts for 30 percent. Farmers have loans to use as capital for agriculture. With loans from commercial banks an average of 20,000 baht, the average annual income is between 50,001- 100,000 baht. Revenue from agriculture in 2016 found that the average income of farmers is 300,000 baht and the non-farm income is 100,000 baht. In 2016, it was found that farmers had an average expenditure of 20,000 baht and an average household expenditure of 100,000 baht.

Part 3 Question on production management and marketing of Ban Nong Bua Community Enterprise.

Management of production from the study found that. Most of the farmers planted purple sticky rice Waxy Corn for 83.3 percent, the seed in cultivation farmers buy manually for 100 percent. Motivation to make a decision to grow on waxy corn it can be grown throughout the year for 53.33 percent. The method of watering on Waxy Corn is 93.3 percent. 83.3 percent uses natural water sources for cultivation. Develop and maintain soil using organic manure or fertilizer are 93.3 percent The most common diseases were mildew, 96.7 percent, and the most common insect pests were corn mites. Accounted for 86.7 percent

Marketing management, the main source of income for farmers is 70.0 percent. It will be sold to 23 people or 76.7 percent, bringing the most sold out in the form of boiled corn. 16 people accounted for 53.3 percent.

Part 4 Question on the problem situation of Ban Nong Bua Community Enterprise.

According to studies, it has been found that The most common problems are disease outbreaks and insect pests, including mildew, which damages crops. 80.0% had water shortages in the dry season, 63.3%. Fertilizer problem was expensive due to the price increase every year. 100.0 percent. The shortage of good varieties. Because farmers have to buy seeds themselves. 73.3 percent of sales were not sold in one day, the remaining product quality was reduced and prices were lost. 40.0 percent and the problem of natural disasters caused by corn was 53.3 percent.

Part 5 Question on consumer behavior and factors affecting consumption of Ban Nong Bua Community Enterprise, Ban Fang District, Khon Kaen Province.

From the study of consumption behavior, it was found that 400 respondents known as waxy corn from family members, 207 people accounted for 51.7 percent. 276 self-purchasing decisions accounted for 69.0 percent. The purpose of purchasing decision was to consumer 331 households (82.8 percent) by buying Waxy corn to eat less than once a week, 130 persons or 32.5 percent. The average cost is 50-100 baht, 211 people or 52.8 percent. Consumers were most likely to consumer 382 or 95.5 percent of the cooked, with 279 consumers, accounting for 69.8 percent.

At the price of 3 bags of 20 Baht, 227 people or 56.8 percent, most of them bought from the sellers on roadside shop. 156 people, a percentage. 39.0 The reasons for choosing the most is 314 flavors, 78.5 percent and what stores should improve is the location of the shop, 132 people, or 33.0 percent.

Factors affecting the consumer decision on waxy corn mostly focus on the following areas.

3.1 Product aspects most respondents rated the flavor as the most, followed by the convenient packaging format and freshness.

3.2 Most respondents paid attention to price factors. The price must match the quality and quantity. And there are several levels to choose from can bargain.

3.3 Distribution channels most respondents paid attention to the convenience of the store. There are enough products to distribute. And the place is clean and hygienic.

3.4 Marketing promotion most respondents paid attention to the merchants in their invitations to stop buying souvenirs, followed by exhibitions at events such as booths and samples to taste.

Conclusion

The results are as follows.

Most members on Waxy Corn of Ban Nong Bua Community Enterprise are 16 males, 53.3 percent, Age 40-49 years old. The main occupation of the farmers is planting Waxy Corn.

The majority of consumers of Ban Nong Bua, Ban Fang District, Khon Kaen Province are female, 266 or 66.5 percent, age 21-30 years, or 46.75 percent. They have 260 undergraduate degrees, accounting for 65.0 percent. It is 50.7 percent and has 176 persons or less than 15,000 baht per month, accounting for 44.44 percent.

1. The social and economic on Waxy Corn of Ban Nong Bua Community Enterprise.

The study indicated that the grouping on Waxy Corn in Ban Nong Bua Community Enterprise. There are management methods in the form of committees. The majority of the families are 5 members, accounted for 30 percent. The household labor employed in agriculture was 53.3 percent. The area of land holding in agricultural land was found that most of the farmers had their own land of 6, accounting for 30 percent. Farmers have borrowed money for agricultural use. With loans from commercial banks an average of 20,000 baht, the average annual income is between 50,001- 100,000 baht. Revenue from agriculture in 2016 found that the average income of farmers is 300,000 baht and the non-farm income is 100,000 baht. In 2016, it was found that farmers had an average expenditure of 20,000 baht and an average household expenditure of 100,000 baht.

2. Production management and marketing of Ban Nong Bua Community Enterprise.

Production management found that most farmers planted the common diseases are mildew and most commonly maize insect pests sticky rice Waxy Corn. Most farmers on waxy corn of Ban Nong Bua Community Enterprise buy seed by themselves and motivate them to make a decision in growing waxy corns throughout the year. The way to water the groove most by using natural water sources, land development and maintenance by using manure or organic fertilizer. The most common diseases are mildew and most commonly maize insect pests.

Market management found that. Farmers prefer to sell waxy corn in the form of boiled corn by bringing the output to sell by themselves. The majority of the farmers sell the products to the sellers on roadside shop. Secondly, the distribution was in the form of fresh pods by planning, producing and gathering products, sending Central Department Store to buy at the point of purchase every week.

3. Consumer behavior and factors affecting consumption of Ban Nong Bua Community Enterprise, Ban Fang District, Khon Kaen Province.

Consumption behavior was found that consumers were aware on waxy corn from family members by making a manual purchase decision. The purpose of purchasing decisions is for household consumption by buying waxy corn for consumption less than once a week. The average cost is 50-100 baht. Consumers are most likely to consumer boiled waxy corn by buying traditional varieties to consume at the price of 3 bags 20 baht from the dealership on roadside shop. The reason for choosing the most is the taste and what the shop should improve is the location of the shop.

Factors affecting the decision to consume waxy corn on the product, consumers make a decision to buy waxy corn from the flavors, followed by the convenient packaging, and freshness. Consumers agree that prices must match the quality and quantity. Price is available in many levels and can be negotiable. Distribution channel consumers think that the store is easy to buy, there are enough products to distribute. And the place is clean and hygienic. It affects the decision to consume. Marketing promotion Merchants invited to stop buying, and giveaway Affects consumer decisions.

4. Analysis of the strengths, weaknesses, opportunities and threat on Waxy Corn of Ban Nong Bua Community Enterprise

The results of this study can summarize the strengths and weaknesses of Ban Nong Bua community enterprise, Ban Fang District, Khon Kaen Province.

The strengths in organization are strengthened. Group members are united and cooperative. The chairman of the group has high leadership and coordination and is well advised by various government agencies. Strengths in production management are Farmers are planning their crops to harvest at different times. The output can be delivered to meet the criteria. The strength of marketing management is good taste, the product is fresh and clean. It has a quality seal and it is a well-known product.

The weaknesses in production management are the high price of raw materials. Farmers do not have their own seeds. The cost of ordering and the price increase every year. Marketing management weaknesses are members lacking the knowledge and skills to expand their market. The group cannot expand the market.

For the opportunities and threat of the group of on Waxy Corn of Ban Nong Bua Community Enterprise, the following are the opportunities for organization management: Training and advice is provided

to members in the group. Production management opportunities are: Continuous production development. The group can develop products to meet market standards. Marketing management opportunities are: The product is well known backed by the governmental one-parish project. One product

The barrier to production is nowadays, there are more competitors. Although the government is promoting research and processing of products, waxy corn cannot be produced as a processed product. Marketing barriers are lack of good public relations.

5. To plan the marketing strategies on Waxy Corn of Ban Nong Bua Community Enterprise

The strategic marketing planning on Waxy Corn of Ban Nong Bua Community Enterprise including 1) there should be a publicity label, a point of sale, 2) the store and the seller to clean and buy. 3) value the product with a beautiful package and add value to the product.

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PERFORMANCE IMPROVEMENT FOR STERILE STORAGE MANAGEMENT : A CASE STYDY FOR CENTRAL SUPPLY STERILE DEPARTMENT, SRINAGARIND HOSPITAL, FACULTY OF MEDICINE, KHON KAEN UNIVERSITY

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ABSTRACT

The study aims to determine guidelines for an appropriate improvement in inventory management and to increase the performance for sterile storage management of the Central Supply Sterile Department in Srinagarind Hospital. The study showed that problems with a lack of sterile storage management efficiency. The original system has been run with a combination of experience and estimation. For the study methodology, through interviews with management members, Data analysis was carried out in the form of a Fish Bone Diagram; SWOT analysis; and a pairing of weaknesses, strengths, opportunities and threats in order to formulate the strategic management plan. The sterile medical supply inventory was classified according to ABCD Analysis to obtain supply demand forecasting. A forecasting approach through the Smoothing Technique, reorder point and safety stock were applied to this study using risk analysis as determination criteria. The results from interviews with management regarding the objectives and assessment of sterile storage management revealed that all objectives lined upwith all aspects. SWOT analysis was also conducted. It was found that the strength of the sterile storage management was having the information technology program in place to support inventory management. One weakness was the lack of appropriate inventory management. A pairing of weaknesses, strengths, opportunities and threats was employed to formulate the strategic management plan, the inventory management process improvement strategy, the participation and awareness creation strategy, the information technology implementation strategy, the procurement system improvement strategy and the strategy to increase the competency of personnel performance. The outcomes from specifying medical instruments and equipment were able to be defined in four groups, consisting of Group A, Group B, Group C and Group D. An additional Group D emerged from the information collection of medical instruments and equipment demands from departments using the hospital's services due to the necessity and importance of medical treatment quality. As for the requirement forecast, the reorder point, and safety stock determination, it was found that the inventory quantity could be adjusted to arrive at a decrease of 31 items, an increase of 7 items and 2 items remaining. An expense comparison was examined between the original inventory and the revised inventory, for which the waste decrease totaled 71,762.57 Baht per year.

Keywords: Inventory Management, ABCD Inventory Analysis, Reorder Point.

Introduction

In any kinds of business or organization, if a sufficient amount of stock is available to meet customer demand as closely as possible, this is reflected in the efficiency of inventory management, which will lead to business profit maximization derived from increased sales and decreased costs.

Medical supply management is required to prepare and provide medical supplies to patients and people who obtain services. This plays a significant role, of which the hospital management team has to be aware, to provide sufficient medical supplies for medical treatment to respond to an increase in demand, and to support the government policy to promote Thailand as a the medical hub and to prepare for the transition of Thai citizens into an elderly society.

The study on inventory management in the Central Supply Sterile Department, Srinagarind Hospital, Faculty of Medicine, Khon Kaen University included processes to purchase supplies and to inspect, store and distribute them to each unit in the Faculty of Medicine, Khon Kaen University.

The study revealed that the Central Supply Sterile Department, Srinagarind Hospital, Faculty of Medicine, Khon Kaen University lacks a clear sterile storage management system. The original system has been run with a combination of experience and estimation, without efficient calculating measures for procurement or supply. It was found that sometimes excessive sterile medical supplies were stored causing waste from expiration, whereas, at other times there were insufficient sterile medical supplies. In addition, storage space was not sufficient due to the fact that the space has remained the same in the face of increasing

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demand and the resulting increase in stock. Fundamental information from the report showed that the statistics for sterile medical instruments and equipment for services in 2015 and 2016 was 3,737,269 sets/piece and 3,795,877 sets/piece, respectively. Demand has also increased by approximately 1.5 – 2.0 percent per year. The indicators on satisfaction with sterile medical supplies in fiscal years 2015 and 2016 were presented at 99.92 percent and 99.95 percent, respectively. The report on sterile medical supplies that had expired and were returned to the Central Supply Sterile Department to undergo the re-sterilization process revealed waste cost in the fiscal year 2015 of 254,606 baht and 284,687 baht for 2016. It was also reported that the number of patients admitted to the hospital has increased from 1,300 to 1,600 in 2017, which works out to an average increase of 23%. There is also the possibility that services will be expanded in the future.

Following the aforementioned problems, the researcher has recognized the importance of inventory management in the Central Supply Sterile Department, Srinagarind Hospital, Faculty of Medicine, Khon Kaen University, for which it is necessary to determine guidelines for systematic administration and management in order to further improve and increase the efficiency of inventory management.

Purposes of the Study

1) To determine guidelines for an appropriate improvement in inventory management for the Central Supply Sterile Department, Srinagarind Hospital, Faculty of Medicine, Khon Kaen University.

2) To increase the performance for sterile storage management of the Central Supply Sterile Department in Srinagarind, Faculty of Medicine, Khon Kaen University.

Methodology

Methodology of the study consist of:

1) Data collection

Primary Data – data was collected directly, including a study of the demands of management members, who are upper level supervisors, through interviews examining their expectations for Central Sterile Supply Department operation. Interviews were also conducted with related personnel, namely nurses and assistant nurses, and 10 departments that use the services of the Central Sterile Supply Department. In addition, the head of the Central Sterile Supply Department and the staff were interviewed in order to survey and study the general situation and normal operation, plus the strengths, weaknesses, opportunities, threats and causes of inventory problems.

Inventory Management Data - data was collected, together with studies of documents and information related to inventory management for one year, from January to December 2016. This information included lists of items and the quantities, distribution of each item, the cost per piece for each item, the expenses related to inventory management, the quantity of each inventory item, the in-coming items and the orders for each item.

2) Questionnaires construction

(1) The interviews for high-level executives consisted of interviews and in-depth interviews, consisting of 4 element; 22 interviews, and 1 in-depth interview.

(2) The interviews for internal customers and design construction by fact, consisting of 2 element; 200 interviews.

3) Data processing, a summary of data analysis, and an analysis of the management's expectations of the Central Sterile Supply Department's operation were conducted. Problem analysis was carried out in the form of the Fish Bone Diagram. [1]SWOT analysis,. [2] TOWS Matrix and Strategic Planning were employed in this study. The supply inventory was classified according to ABCD Analysis,[3]. At the quantity of 40, 5 and 10, respectively, in order to position high-value items for the most frequent activity. The inventory was also classified for special items which were inexpensive but required close care and regular monitoring as items in Group A. A forecasting approach through the Smoothing Technique was applied to this study to find out what type of forecasting would turn up an error for each item. [4].The results from the Mean Absolute Deviation: MAD from all five forecasting methods is as follows:

(1) Moving Average 3 Period Moving Average

(2) Weighted Moving Average 3 Period Moving Average

(3) Exponential Smoothing at α is 0.2

(4) Exponential Smoothing at α is 0.5

(5) Exponential Smoothing at α is 0.9

Inventory management improvement through minimum forecasting errors along with adjustment for an appropriate inventory quantity of 40 supply items in Group A was conducted as follows:

(1) Reorder Point (ROP) is the inventory level for which it is needed to place a new order.[5] Reorder Point (ROP) is calculated from

$$\text{Reorder Point (ROP)} = D \times L$$

Demand (D) is quantity required (units per day)
Lead time (L) is the duration for delivery

(2) Safety stock determination targets to manage inventory in order to maintain a sufficient supply quantity to meet personnel demands. Standards to determine Risk Analysis and Risk Priority Number are presented as a percentage of the increase from the reorder point as below: [5]

Determination of Risk Priority Number (RPN)
Severity: Sat 1-5 points
Likelihood: Lat 1-5 points
Detect: Dat 1-5 points

$$RPN = S \times L \times D$$

Determination of possible methods
(1) Forecast accuracy: F
(2) Lead time: L
(3) Target service level: T
(4) Replenishment frequency: R

Criterion scores are divided into 3 groups. The items in Group 1 refer to the scores that are higher than 466, for which the reorder point is determined to increase at 30 percent. Items in Group 2 represent scores at the middle level of 330 – 465 points, for which the reorder point is set to increase at 20 percent. Lastly, the items in Group 3 indicate the low scores, lower than 330, for which the reorder point is expected to increase at 10 percent.

The study also included an expense comparison between the original inventory numbers and the new inventory calculations, by comparing the stock expenses of all items in Group A. This comparison is arrived at by taking the different quantitiesfromthe original inventory and the revised inventory measures for each supply item and then multiplying thatby the cost of each item.

The Results

1) Results from the Fish Bone Diagram, the SWOT analysis and the Strategic Plan.

The study revealed that the main factor in the inefficient inventory management at the Central Sterile Supply Department was a lack of inventory classification according to the ABCD analysis system. It was also found that systematic demand forecasting was not implemented to plan the supply inventory. Under these circumstances, information was employed for SWOT analysis and TOWS Matrix. The strategy was determined and the strategic plan was formulated. The operational plan was then set following the strategy in order to improve appropriate processes for inventory management. A detailed explanation follows:

(1) Strategy 1 – Improve inventory management processes for supply inventory quantities control in order to curbcosts under the quality medical care service level.

(2) Strategy 2 – Build participatory awareness of using medical supplies efficiently in order to encourage and cultivate recognition of resource efficiency.

(3) Strategy 3 – Implement information technology to improve efficient inventory management.

(4) Strategy 4 – Improve procurement system to ensure its efficiency.

(5) Strategy 5 – To increase the competency of personnel performance.

2) The results from the supply inventory classification of 4 groups including Group A, B, C and D, according to the ABCD analysis is below:

It was found that an increase in the supply of items in Group D was due to an understanding among the Central Sterile Supply Department and customers that the items were all necessary and important for patients' treatment to ensure medical care quality. 64 medical supply items from Group D, [3]. Which required close care, plus regular inspection and monitoring as with items in Group A, separated them from the items in Groups B and C.

3) Forecasting method for determining reorder point and safety stock

The study on inventory quantity determination of the Central Sterile Supply Department employed forecasting values with the lowest margin of error to calculate and determine the reorder point and safety stock with an aim to supply and stock items in the Central Sterile Supply Department for further distribution, to ensure sufficient quantities to meet customer demand and to manage inventory efficiency. The reorder point was determined following the formula of demand multiplied by the lead time of procurement and the

preparation process for each item. Safety stock was calculated through risk analysis to determine the percentage increase of safety stock. It indicated that 7 items in Group A have a high score of a 30% increase, whereas23 items had results from groups with medium scores at a 20 % increase and 10 items had low scores with a 10% increase.

    4)   Comparison of expenses between the original inventory determination and the revised inventory determination.

        Based on the revised inventory determination, it was possible to adjust inventory quantities. 31 items decreased in quantity, 7 items increased and 2 items remained the same. An expense comparison was also considered between the original inventory and the revised inventory, for which the waste decrease totaled 71,762.57 Baht per year.[6]

    5)   Guidelines and indicators to increase inventory management performance of the Central Sterile Supply.

     Achievement of sterile storage management was assisted by creating awareness and participation among the Sterile Supply Department and the 10 other departments that entered into an agreement to control and monitor the efficiency of sterile storage management performance at the Central Sterile Supply Department. Key performance indicators were determined including sufficient ratio and lead time ratio, for which Group A and Group D were not under 100%, while Group B and Group C were 97% and 95%, respectively. It was also recommended to set up additional special servicechannels in case of emergencies or any necessity during periods of abnormally highconsumption.

The Suggestions

    1)   The results from the study on sterile storage management efficiency will be beneficial as long as the top and middle management, plus each related unitprovides standardized, quality medical care services with appropriate cost utilization. It was found that most departments have not taken part in monitoring or controlling costs. To correct this, policies and strategies for using sterile medical supplies should be formulated. Departments using sterile medical supplies should participate in inventory and cost control management such as conducting quality reviews and implementing improvement processes according to the Kaizen methods.

    2)   This study employed indicators and targets as tools for measuring inventory management efficiency. However, thiswas not sufficient for the measurement and analysis of inventory management efficiency. In order to complete this measurement, it was suggested to consider the satisfaction of people who obtained services additionally, as part of the inventory management measurement.

    3)   This paper outlined the study to increase the efficiency of the sterile storage management at the Central Supply Sterile Department. This is different from other general inventory systems. As a result, the ABCD analysis and the Demand Forecasting Method which were employed in this study might not be sufficient for this purpose. It was possible to apply other methods such as Just In Time (JIT), which isfor production or delivery processes to produce or present goods at certain quantities and only when they are needed to meet customer demand.

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THE FEASIBILITY STUDY OF REAL ESTATE BROKER INVESTMENT IN KHON KAEN PROVINCE

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ABSTRACT

This independent study aims to study the feasibility on technical, marketing, management and financial aspects of real estate broker investment business by applying the level of competition analysis, general environment analysis and SWOT analysis as tools for this study. The findings show that the samples' behavior of using broker or agent service is for a quick process of selling, buying, and renting a real estate. Land is the most popular real estate which needs a broker the most. The samples spend 1 – 3 months before making a decision to use the service and the strongest influence on their decision of using the service is family. The information source which is used the most for decision making is advice from others. The factors of marketing mix which affect them the most are good service, fast procurement, good advice regarding price, as well as quick service at reasonable price. The total fund is 3,706,000 baht and the payback period is 2 years 7 months and 19 days. The present value is 17,442,442.17 Baht and the rate of return is 47%. Consequently, this project establishment is feasible.

Keywords: Feasibility Study, Investment, real estate broker

Introduction

One of the four basic needs that are important to human life is shelter. Apart from being a residence, it can be a source of knowledge, the beginning of a good quality of life, stability and prosperity. Plus, houses or real estate will increase in value over time. This makes them be needed all the time. Besides, as the ASEAN Economic Community (AEC) has been launched, here come higher levels of trade and the circular flow of assets into the country as well as higher population densities. Due to the increasing demand of houses and lands, entrepreneurs who create a business concept of collecting and supplying land and houses have emerged.

A real estate broker is a person who manages or matches up two parties to contract including signing a real estate contract such as Sale contract, Mortgage agreement or even a limited company who regulates special payouts by clearly splitting commission for agents who sell a real estate property according to its criteria and the set rate of a contract as sales commission for real estate sales [1] the purpose of the real estate broker is to focus on buying, selling, renting and mortgaging real estate in order to provide convenience and quick services to users in all various aspects, so the author had to analyze a feasibility on marketing strategy, management, technical and financial aspects by considering strengths, weaknesses, opportunities and threats (SWOT Analysis) [2] in order to analyze the internal and external environment of the organization by using TOWS Matrix to make strategic choice to support decision makings.

Khon Kaen Province is the fourth most populous province of the country with population of 1,802,288. Moreover, it is the sixth largest city of the northeast region and occupies approximately 10,885.991 km^2 or 6,803,125 Rai. It is a province of operations center of the central northeastern region, located in the middle of northeastern surrounded by 9 provinces: Maha Sarakham, Kalasin, Udon Thani, Nong Bua Lamphu, Loei, Chaiyaphum, Phetchabun, Buriram and Nakhon Ratchasima, which is beneficial for transportation. It is also a hub of logistics network as well as a center for investment of entrepreneurs. Plus, it is a center of education and a center of medical education. For the feasibility study, there was a research study found that Khon Kaen Province still has suitable plots of land for buying, selling, renting and mortgaging.

A feasibility study is a study to assess the value and worthiness of a project by comparing costs with benefits that will arise in the future occurred from a project in order to decide whether it is suitable for investment or not which includes the feasibility on marketing strategy, technical, management and financial aspects.

To decide upon the feasibility study of individuals, personal behavior is a factor to help make decision on using resources such as time, personnels and others that are relevant to the consumption of such products, about which the author needs to thoroughly study. [3]

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According to the study, the author is interested in the feasibility of investment in real estate brokerage which is run as a business of buying, selling, renting and mortgaging real estate to collect information of the real estate in Khon Kaen for buying, selling, renting and mortgaging with a modern database technology and network covering the whole province. There is a tendency to be in demand of buying, selling, renting and mortgaging in Khon Kaen Province and neighboring provinces.

Purpose of the Study

To study feasibility on marketing strategy, technical, management and financial aspects of investment in a real estate brokerage business for buying, selling, renting and mortgaging real estate in Khon Kaen Province area

Research Methodology

To retrieve relevant information of feasibility of investment in a real estate brokerage business in Khon Kaen Province area, the feasibility on various aspects has been analyzed as follows:

1. The feasibility study on marketing strategy aspect is to meet customer's needs and satisfaction towards services, which is used to analyze both the position in the market including behavior of hiring a real estate broker and the 7Ps Marketing Mix [4], namely: 1) Product 2) Price 3) Place 4) Promotion 5) People 6) Process and 7) Physical Evidence. The purpose of studying all the 7 elements is to use the obtained information when creating a marketing plan for a real estate brokerage business. Instrumentations used in collecting data is questionnaire from the total population of 144,407 in the area of Mueang Khon Kaen District, Khon Kaen Province. The size of the sample is derived by calculating the number of population which is the population of 400 using convenience sampling.

The sample size was calculated using Cochran's (1997) formula with the acceptable deviation of 0.05 as follows:

$$n = \frac{P(1-P)Z^2}{d^2}$$

where   n is the required number of sample size.

P is the proportion of a population that the author would like to random (the ratio of 50% or 0.05 is generally used.)

Z is the specified confidence level at 95%.

D is the acceptable margin of error for proportion being estimated at 0.05 with the confidence level of 95%.

$$n = \frac{0.05(1-0.05)1.96^2}{0.05^2} = 384.16$$

After calculating, the number of sample size is 384. In order to get a lower level of deviation, questionnaires were distributed to 400 samples.

The questionnaire consists of four parts as follows; Part 1: General information of the respondents, Part 2: Personal behavior information regarding real estate buying, selling, renting and mortgaging, Part 3: Information of marketing factors that affect the decision to use real estate brokerage services and Part 4: Suggestions and consumer behavior [5] Study of feasibility on investment and general environment analysis [6] Analysis using the framework of PEST Analysis and competitive environment analysis [7] or the Five Force Model, analysis of strengths, weaknesses, opportunities, threats as well as related research studies.

2. The feasibility study on technical aspect consists of an analysis of the suitability of the investment in real estate, location, amenities, decoration and equipment installation inside the building and other details such as details of construction for the investment, including the size of the structure and pricing, the list of service equipment in operation together with their sources, the list of interior and necessary furniture, and its price, the ability to supply land and services to customer, the recruitment of sales and supply persons of land and the cost of sale and supply of land. All concerned is for the method of the project operation to determine the duration and the cost of construction including facilities in all aspects.

3. The feasibility study on management aspect is to help decide on using all resources efficiently and effectively which suit with the operation so as to accomplish the objectives or goals of an organization. It is an analysis of organizational structures, personnels, operating styles, policy formulation such as welfare and sales process with the key of assigning duties of the job. The key components of an organization consist of important subunits of the organization, chains of command and spans of control.

4. The feasibility study on financial aspect is to evaluate the potential of the project whether it can make profits the project owner, which is a study of estimated initial investment, operating expense and return

on investment by applying Payback Period (PB), Net Present Value (NPV) and Internal Rate of Return (IRR) to support investment decisions. [8]

Results

1. Results on Marketing Strategy Aspect

1.1 Results from the questionnaire

According to the results of general information, the majority of all respondents (65.8%) were female. Most of them aged between 21-30 years (46.5%). Most of them were single (83.2%). 98.2% of them completed a bachelor's degree or higher. 45.5% of them were state enterprise employees. Most of them, 60.0%, earned an average monthly income between 20,001 - 50,000 THB and 73.2% of them had present residential address in the Khon Kaen Province area.

The consumer behavior that decided to use real estate brokerage services to be able to buy, sell and rent quicker represents 36.8%. The type of real estate that is in the highest demand is vacant land which represents 42.8%. The time period taken to consider before deciding to use a service is 1 - 3 months representing 49.3%. The person who has taken part in making decision to use the services is a member of the family representing 50.2% and the source of information used in decision making is suggestion from others representing 70.0%.

The Marketing Mix that influences the decision to use real estate brokerage services upon product is the ability of an agent with good service/fast supplying with the mean of 4.50. Concerning the prices including reasonable service charges compared to the services, the mean is 4.38. For the location which includes taking them to the model location, the mean is 4.42. The mean for the promotion including giving advice and services is 4.46. For the servicing personnels, the personnels have knowledge and understandings in the service with the mean of 4.54. Regarding servicing process including effective coordination of personnel among departments, the mean is 4.44 and the mean for physical evidence including a good organization of both inside and outside is 4.18.

1.2 General Environment

Political and legal environment, economic environment, social and culture environment as well as technology environment positively impact on the business.

1.3 Competitive Environment Analysis

The intensity of competition among businesses in the same industry or the increasing severe rivalry and the increasing bargaining power of suppliers are at a low level. The increase of the bargaining power of buyers is at a medium level. Threats from new entrants and substitutes or its barriers are at a high level.

1.4 Strength, Weakness and Threat Analysis, SWOT Analysis and TOWS Matrix

The strengths are 1. The location of the office is settled down, easy to access and convenient for transportation 2. The service is provided in a straightforward manner, not taking advantages of customers. 3. Multichannel contact center is available. 4. There are a variety of services which can meet customers' needs in every way.

The weaknesses are 1. The staff sometimes does not dress appropriately. 2. Sometimes, when the employees meet a customer outside the office, there is no staff taking care of the customers inside the office. 3. The new office might make customers rarely trust.

The opportunities are 1. Technological progress allows customers to view real estate through website. 2. In the future, Khon Kaen Province will be a city of conference and exhibition.

The threats are 1. There are a lot of retail competitors. 2. Poor economic condition might lead to decreasing purchasing power.

1.5 TOWS Matrix Analysis

The SO Strategy uses technology to promote businesses through website, not requiring clients to come to the office but the office still exists for its reliability and a straightforward service will build a good reputation in the online world. The ST Strategy uses the office location as a selling point and a straightforward service to create an advantage over its competitors. The WO Strategy urges the employees about their dressing, schedules them to meet customers outside the office and it requires at least 1-2 staff to be at the office.

2. Results on Technical Aspect

Technical analysis was analyzed on location, design and space improvement, work environment and purchasing necessary equipment. Therefore, the real estate brokerage office in Khon Kaen Province is feasible to invest in terms of technic.

3. Results on Management Aspect

There were organizational and personnel management regarding personnel preparation for working in various positions according to their own aptitudes and quality control and improvement with respect

to service as well as systematically organizational structure. Therefore, the real estate brokerage office in Khon Kaen Province is feasible to invest in terms of management.

4. Results on Financial Aspect

An investment of real estate brokerage office in Khon Kaen Province was in total of 3,706,000 baht, all by the owner. The revolving fund that was defined to be salary, social security, water bill, electric bill, garbage bill, insurance premium and miscellaneous was 1,546,000 baht. The pre-opening expenses of 320,000 baht were fees for certifications. Currently, the value of NPV is 17,442,442.17 baht with positive value and the Internal Rate of Return (IRR) of 47%. Plus, the payback period is 2 years 7 months 19 days. Therefore, the real estate brokerage office in Khon Kaen Province is feasible for an investment.

Conclusion

1.1 Personal characteristics of the respondents

The majority of all respondents (65.8%) were female. Most of them, 186 samples aged between 21-30 years (46.5%). Most of them, 333 samples, were single (83.2%). 98.2% of them, 393 samples, completed a bachelor's degree or higher. 45.5% of them or 182 samples, were state enterprise employees. Most of them, 60.0% or 240 samples, earned an average monthly income between 20,001 - 50,000 THB and 73.2% of them or 317 samples had a present residential address in the Khon Kaen Province area.

1.2 Consumer Behavior

The decision to use real estate brokerage services to be able to buy, sell and rent quicker represents 36.8% (147 samples). The type of real estate that is in the highest demand is vacant land which represents 42.8% (171 samples). The time period taken to consider before deciding to use a service is 1 - 3 months representing 49.3% (197 samples). The person who has taken part in making decision to use the services is a member of the family representing 50.2% (201 samples) and the source of information used in decision making is suggestion from others representing 70.0% (280 samples).

1.3 The Marketing Mix that influences the decision to use real estate brokerage services

On product, good service from broker, the ability of an agent, good service/fast supplying, giving advice about real estate, giving advice about prices of buying, selling and renting real estate, giving advice about real estate law, and following up as well as giving advice to buyers or sellers constantly influence the decision to use real estate brokerage services the most with the mean of 4.42 and the S.D. of 0.63.

Concerning prices, reasonable service charges compared to the services, reasonable service charges compared to quick services, reasonable service charges compared to process ends, and getting privilege for free advertisement of a real estate influence the decision to use real estate brokerage services the most with the mean of 4.47 and S.D. of 0.75.

For location, convenience for transportation, allowing the staff to meet their customers outside the office so that they do not need to come to the place by themselves, and taking them to the model location influence the decision to use real estate brokerage services the most with the mean is of 4.33 and S.D. of 0.64.

Concerning promotion, advertising/ public relations on website and social media, good after sale services, as well as giving advice and services influence the decision to use real estate brokerage services the most with the mean of 4.34 and S.D. of 0.67.

Regarding personnels in service, neat, clean, and reliable dressing, having eager to serve, having good manners and appropriate, having knowledges with the understanding of the service as well as being able to correctly and completely give advice to customers influence the decision to use real estate brokerage services the most with the mean of 4.41 and S.D. of 0.60.

For service processes, quick service, efficient coordination of personnels among departments, as well as suitable duration of buying, selling and renting process influence the decision to use real estate brokerage services the most with the mean is 4.34 and S.D. is 0.58.

Regarding Physical Evidence, decorum both inside and outside the office and servicing with modern equipment influence the decision to use real estate brokerage services the most with the mean of 4.15 and S.D. of 0.65.

1.4 Findings on Technical Aspect

Technical analysis was analyzed on location, design and space improvement, work environment and purchasing necessary equipment. Therefore, the real estate brokerage office in Khon Kaen Province is feasible in terms of technic.

1.5 Findings on Management Aspect

There were organizational and personnel management regarding personnel preparation for working in various positions according to their own aptitudes and quality control and improvement with respect to service as well as systematically organizational structure. Therefore, the real estate brokerage office in Khon Kaen Province is feasible to invest in terms of management.

1.6 Findings on Financial Aspect

An investment of real estate brokerage office in Khon Kaen Province was in total of 3,706,000 baht, all by the owner. The revolving fund that was defined to be salary, social security, water bill, electric bill,

garbage bill, insurance premium and miscellaneous was 1,546,000 baht. The pre-opening expenses of 320,000 baht were fees for certifications. Currently, the value of NPV is 17,442,442.17 baht with positive value and the Internal Rate of Return (IRR) of 47%. Plus, the payback period is 2 years 7 months 19 days. Therefore, the real estate brokerage office in Khon Kaen Province is feasible for an investment.

1.7 Study on Business Environment

Political and legal environment, economic environment, social and culture environment as well as technology environment, and physical environment positively impact on the business. The intensity of competition among businesses in the same industry or the increasing severe rivalry and the increasing bargaining power of suppliers are at a low level.

1.8 Strength, Weakness, Opportunity, Threat, and SWOT Analysis

The strengths are 1. The location of the office is settled down, easy to access and convenient for transportation 2. The service is provided in a straightforward manner, not taking advantages of customers. 3. Multichannel contact center is available. 4. There are a variety of services which can meet customers' needs in every way.

The weaknesses are 1. The staff sometimes does not dress appropriately. 2. Sometimes, when the employees meet a customer outside the office, there is no staff taking care of the customers inside the office. 3. The new office might make customers rarely trust.

The opportunities are 1. Technological progress allows customers to view real estate through website. 2. In the future, Khon Kaen Province will be a city of conference and exhibition.

The threats are 1. There are a lot of retail competitors. 2. Poor economic condition might lead to decreasing purchasing power.

1.9 Marketing Strategies

The results from the study were used to define marketing strategies:

The SO Strategy uses technology to promote businesses through website, not requiring clients to come to the office but the office still exists for its reliability and a straightforward service will build a good reputation in the online world.

The ST Strategy uses the office location as a selling point and a straightforward service to create an advantage over its competitors.

The WO Strategy urges the employees about their dressing, schedules them to meet customers outside the office and requires at least 1-2 staff to be at the office.

Discussion

According to the study, it was found that the marketing strategy analyzes the Marketing Mix. The technical aspect analyzes location, design and decoration including quality control and management. It was found that there was a personnel management to meet the designated position, and there has been a systematically clear organization chart. For the financial aspect, the total investment was 3,706,000 Baht all invested by the owners. The present value is 17,442,442.17 Baht. The internal rate of return (IRR) is 47% and the pay back period is 2 years 7 months and 19 days. Therefore, after having studied all the aspects, it can be concluded that investing in a real estate brokerage business in Khon Kaen Province is feasible and interesting. This is consistent with the study of Porramat Pholdech (2012) who had studied the feasibility of investment in Aurora Beauty Clinic in CentralPlaza at Mueang District, Udonthani Province whose objective was to study the feasibility of investment in Aurora Beauty Clinic in CentralPlaza at Mueang District, Udonthani Province on marketing strategy, management, technical and financial aspects. The results of this study indicated that economic and social factors can promote benefits to the investment with the target group who were men and women, aged between 15-50 years, who gave precedence to maintain their skins, shapes and appearances with the net present value (NVP) of 1,899,180.17 Baht. The internal rate of return (IRR) was 39% and the pay back period was 1 year 8 months 3 days. It was concluded that the investment in Aurora Beauty Clinic in CentralPlaza at Mueang District, Udonthani Province was feasible.

Suggestions

1. Suggestions from the study

The suggestions from the study are as follows:

Product: The entrepreneurs who are interested in investing in a real estate business should pay attention to the ability of real estate brokers, especially for good service and quick supplying. Besides, they should provide advice about prices of buying, selling and renting real estate.

Price: The entrepreneurs who are interested in investing in a real estate business should pay attention to the pricing, provide good and quick service appropriate to the commission received.

Place: The entrepreneurs who are interested in investing in a real estate business should pay attention to have a model place visit for customers and allow the staff to meet the customers outside the office so that they do not need to come to the place by themselves.

Promotion: The entrepreneurs who are interested in investing in a real estate business should pay attention to provide advice and good after sale services.

Personnel: The entrepreneurs who are interested in investing in a real estate business should pay attention to have knowledgable staff with the understanding of the service as well as being able to correctly and completely give advice to customers.

Process: Entrepreneurs who are interested in investing in a real estate business should pay attention to the coordination of personnel among departments effectively and the duration of buying, selling and renting process that should be done with reasonable time.

Physical Evidence: Entrepreneurs who are interested in investing in a real estate business should pay attention to the good organization both inside and outside the office to build more reliability.

2. Suggestions for Future Studies

There should be a study on quality improvement and services of a real estate broker.

There should be a guideline for online marketing, another channel to make the services of a real estate broker more well-known.

Acknowledgements

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THE METHOD FOR DISCOVERING BRAND PERSONALITIES
FOR TOYOTA SURE KHONKAEN

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ABSTRACT

This is Independent study aim to find the supporting brand personalities for Toyota Sure Khonkaen to generate demographic and psychographic appearance by using Appreciative Inquiry, Brand Personality, Myers-Briggs Type Indicator by semi constructed qualitative interview methods by interview groups of customer, owner and all Toyota Sure Khonkaen's employees. The scope of time is 2 months, In that period of time 1 owner, 12 customers and 13 employees were interviewed to finding the present point of view from customer and the future point of view from owner and employees by using Appreciative Inquiry to seek for the strengths, opportunities, aspirations and to set the goal of the direction Toyota Sure Khonkaen are aiming to.

The result show that the future point of view of Toyota Sure Khonkaen the core brand personalities demographic is Sincerity with the traits of Sincere, Friendly and Honest and Competence with the traits of Reliable, Corporate and Confident with the look of Smart casual. The psychographic appearance is to become more extroverts, intuition, feeling and perception by the personality of The ENFP from Myers-Briggs Type Indicator.

Keywords: Appreciative Inquiry**,** Brand Personality, Myers-Briggs Type Indicator.

Introduction

The main problem of Toyota Sure Khonkaen is the lack of unique personality dues to most of the local doesn't recognize that Toyota Sure Khonkaen is difference from the other Toyota Sure franchise. In Khonkaen, There are 2 Toyota Sure Dealers that have the different owner. In this high competitive moment, the brand personality will make the stand out for Toyota Sure Khonkaen for customer perception.

The brand personalities also set the direction for corporate to develop in the same direction, guideline for how the appearance and behavior and all perception that customer will notice or feel about the brand.

The appearance of the brand also affects the general appearance, artwork design for presentation or graphic design. As graphic designer experience, brand personalities are affects the mood and tone of artworks. If the brand direction from brand personality is strong is easier to do artworks.

After the author study other articles about brand personality. The article "Advertising between Archetype and Brand Personality" [1] by Clemens Bechter et al., (2016) have inspired the author. This article studies about the Aaker (1997) brand personalities theories and the Carl G. Jung (1954) Archetype psychology theories about personality before developed to Myers-Briggs Type Indicator or MBTI by Katharine Cook Briggs (1980). Clemens Bechter found the connection between brand personality and psychology theories about human personality that it is related.

The idea of this independent study is to create methods that help generate demographic and psychographic brand personality by using Appreciative Inquiry for SOAR analysis [2] to discover the strengths, opportunities, aspirations and results as the main concept to match with brand personalities for demographic appearance. And for psychographic, using Myers-Briggs Type Indicator. Both demographic and psychographic appearance are gathering by semi-structured qualitative interview methods.

Also use the A a k e r 's the brand dimensions personalities theory is the research about brand personality in America which analyst the American's brand and summarize in to 5 core brand personalities with 42 traits.[3]

The psychographic appearance is based on Myers-Briggs Type Indicator which base on 16 types personalities. Each types separate into 4 main the first letter is energy orientation which is how you get your energy separate into 2 categories, Extrovert and introvert. The second letter is the information perception which is how you perceive your surroundings. Separate into 2 categories, sensing and intuition. The third letter is judgment which is how you make your decision. Separate into 2 categories, thinking and feeling. The last letter is the outer world orientation. Which is how you life deal with environment. Separate into 2 categories. Judging and perceiving. Which will combine into 1 MBTI personality type. [4]

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The Interviews focus on 3 main targets. As Sakchai Jarernsiripornkul [4] lectured in class of 2017 for service marketing strategy, it categorized in to 3 parts. Company, employees and customers. By company, the aim is to interview the future point of view of company owner for Toyota Sure Khonkaen. By employees, the aim is to interview the future point of view of employees for Toyota Sure Khonkaen and customers, the aim is to interview the present point of view for Toyota Sure Khonkaen.

After the interview, the result will be the present demographic and psychographic view of customers compare to future demographic and psychographic of owners and employees. The result will show the direction of which must be increase or decrease and which brand personalities will support the brand or making the brand stand out for the other same franchise dealer.

Objectives
1.) Searching for the positive direction by using appreciate inquiry for Toyota Sure Khonkaen's branding personalities from the point of view of owners, employees and customers
2.) Find the method that interpret the brand into demographic and psychographic
3.) Compare the present point of view of brand to the future point of view of brand for improving brand personality's direction

Scope of the study
1.) This study focus of 3 different target groups. Owners, Employees and Customer. Owner and employees must be the part of Toyota Sure Khonkaen or used to work for Toyota Sure Khonkaen and the customers must at least be the regular customers or walk-in customers.
2.) The period of interview taking 2 months for Interview the customers. The reason to scopes the period of time is to make sure that this study finished in time. The customers from used car segment are much more less than the new car segment. This can't guarantee neither the number of customer that walk-in nor willing to participate with the study. In this case it's better to set the limitation by time not by the minimum customer interviews.

Methodology
This study is a qualitative research with semi-structured interview that the structured base on objectives of the research. The period of interview taking 2 months to collected the data. The target of the interview can be categorized into 3 groups. Owner, employees, customers. Which owners and all employees in Toyota Sure Khonkaen must be interviews for the future brand personality's point of view for Toyota Sure Khonkaen's direction. Another section is about present brand personality's point of view for Toyota Sure Khonkaen. Which base on customer's perception.

The present brand personality's points of view for Toyota Sure Khonkaen are separate in to 3 parts
1.) The first part is The Clemens Bechter's Look,Feel and Talk implementation. This part aiming to interpret what's Toyota Sure Khonkaen look likes, feels and the tone Toyota Sure Khonkaen communicate in the present by interviewee's perspective. This implementation let's interviewee imagine about if Toyota Sure Khonkaen were a person. What it be likes? How it looks? What it makes interviewee feel and how it talks?
2.) The second part is brand personality implementation. This part help customers generates the present brand personality base on Aaker's Dimensions of Brand Personality article (1997) [4] sort by rating and choose the top 3 personalities sub traits in every 5 dimensions.
3.) The third part is Myers-Briggs Type Indicator. Adapt to use for the present psychographic point of view that customers think about. If Toyota Sure Khonkaen were a human. Which type of Myers-Briggs Type Indicator will suit Toyota Sure Khonkaen best?

The future brand personality's points of view for Toyota Sure Khonkaen are separate in to 4 parts
1.) The first part is Appreciative Inquiry implementation. Using SOAR analysis to find the strengths, opportunities, aspirations and results to compare and combine with the structured interview results from brand personalities implements. Which expect to create the new unique personality that not including in the brand personality but still related. The personality will be generated by the core strengths and opportunities, which owner and employees agree to follow. This part also included with advisor's suggested questions about the important factors that helps creating Toyota Sure Khonkaen's brand personality, The starting factors and budgets for brand personality building.
2.) The second part is The Clemens Bechter's Look,Feel and Talk implementation. This part aiming to interpret what's Toyota Sure Khonkaen look likes, feels and the tone Toyota Sure Khonkaen communicate in the future by interviewee's perspective. This implementation let's interviewee

imagine about if Toyota Sure Khonkaen were a person with will it be like? How it looks? What it makes interviewee feel and how it talks?

3.) The third part is brand personality implementation. This part help owner and employees generates the future brand personality base on Aaker's Dimensions of Brand Personality article (1997) sort by rating and choose the top 3 personalities sub traits in every 5 dimentions.

4.) The fourth part is Myers-Briggs Type Indicator. Adapt to use for psychographic point of view that owners and employees think in the near future. If Toyota Sure Khonkaen were a human. Which type of Myers-Briggs Type Indicator will suit Toyota Sure Khonkaen best?

After gathering all interviewed data for the present and future demographic brand personalities. The author analyzed information of Part 1 and 2of the present point of views and generate to result of nowadays brand personalities and The author analyzed information of Part 1,2 and 3 of the future point of views and generate to result of the new direction of brand personalities by matching and connecting to Aaker's Dimensions of Brand Personality. The different information or comment will be add to similar categories for variation. This part will show the result of demographic brand personalities in present and future direction.

Another part is psychological brand personalities. The author analyzed information of Part 3 of present point of views from customer and compare with part 4 of future point of views from owners and employees this will help interept the psychological brand personalities that Toyota Sure Khonkaen aiming to be by using Myers-Briggs Type Indicator. After compare the result will show how much Toyota Sure Khonkaen have to increase or decrease in any specific type.

Results

After interview the owner, employees and customer.

The result of present point of views shows that the core strengths of Toyota Sure Khonkaen nowadays are quality, comfort, supportive, friendly and equally services.

The Quality that customers have mentioned will create the reliability, trust and the feeling of spends the worthy price for used car. Some customers impress with the car condition. They feel that Toyota Sure Khonkaen took care of the car well.

The Comfort is the facility that comfortable, clean, large open space and near theirs place.

The Supportiveness is the ways Toyota Sure Khonkaen gives suggestion to customers with the useful information, all requirements, truths and they provide all the answer for customers with service mind.

The Friendliness is the informally, casual service. Likes friend give advice to friend

The equally service is treat every customer equally not judge by the looks of the customer appearance. Some customer feels disrespect when they walk in to some other show room with casual dress and was treat not appropriately.

The look and appearance of Toyota Sure Khonkaen in customer opinion is in the middle age person, neat, clean, good-looking, casual, warm hospitality with the plain and formal dress code.

The feeling of customer of Toyota Sure Khonkaen is feel good and feels welcome about how employees taking care of them with respect and equally

The ways Toyota Sure Khonkaen Talk is polite and humble. Customers feel like they talk to family members with not much selling attention, forcing or bothering.

For the brand personality the most agreeable of customer is sincerity trait with the sub traits of sincere, honest and real. The second trait is competence with the sub traits of reliable, technical and leader. The third is ruggedness with the sub traits of masculine, outdoorsy and rugged. The fourth is sophistication with the sub traits of good-looking, upper-class and charming. The last is excitement with the sub traits of spirited, up to date and independent.

After compare the strength and brand personality the conclusion of present demographic is a plain honest consulter, clean and neat appearance with low excitement. And the present brand personalities of honest, sincere, reliable, and trustable and respect the other.

Present point of views for Myers-Briggs Type Indicator that represent psychographic is INFJ stand for Introvert, Intuition, Feeling and Judgment as the person INFJs are complicate, quiet and not an emotional expressive. They are creative and care about the other. INFJs have the sense the feeling or intension of the other. INFJs are reliable, serious about the deadline and dependable. INFJs often be a good consulter. [5]

The result of future point of views show that the demographic and psychographic of Toyota Sure Khonkaen aiming for.

The interviews about the opinions of owners and employee's point of views of Toyota Sure Khonkaen are family-like and quality standard.

The family-like are the ways employee treat customer and colleagues as their family members or brotherhood. They treat other with kindness, supportiveness and giving the best advice with sincerity. Some employees feel like the workplace is a second home to them.

The quality standard is about the product quality base on Toyota Sure Standard and Employees experience. This ensures the customers.

The SOAR analysis the interviews for the Toyota Sure Khonkaen's strength are the looks of "Professional Handy man" a man who is capable at all sorts of work with expertise and In Toyota Sure Khonkaen the employees are an expert in their job. They are team worker with experience, pay attention to every detail, answer to all the questions with sincerity. The customer could trust in product and service.

The Toyota Sure Khonkaen's opportunities are the looks of "Well-known person in second hand car market". Dues to more cars in the stock with varieties, Great negotiation and inspection skills for estimation of selling and buying second hand cars, have more supporting Toyota branches for trade-in and huge facility.

The Toyota Sure Khonkaen's aspiration is to be one stop servicer. Who have concern in quality, sincerity service mind, Quick service, continued improvement and present more in advertising.

The result of Toyota Sure Khonkaen expected is the increasing in repurchasing, sale and team work improvement. These are the results of what owner and employees think will happen. If we could archive the aspiration. The important factors for success are cooperation in the corporate. Every person in Toyota Sure Khonkaen and Toyota Khon Kaen are able to communicate and open-minded cooperate for the same direction, same goal and self-Improvement for expertise. Starting with employees start to communicates with the colleagues for ice breaking for open up to each other's to cooperate with other departments also sharing and improve the knowledge together. For the investment, owners and employees agree that. Most of the investment is all about the human. The morale, the motivation and the kindness are important part of this development. The budget for investment will be for the improvement course for improving skills, persuasive conversation and personal appearance course.

The Clemens Bechter's Look, Feel and Talk of Toyota Sure Khonkaen. The look of Toyota Sure Khonkaen is Smart casual and agile look. With the appearance of good-look, polite, neat and clean. The color schemes are tint tone or black and white. Toyota Sure Khonkaen will make customer feels impressed, reliable, trust, friendly or family-like. The tone of how Toyota Sure Khonkaen talk is polite, reliable, and informal.

For the future brand personality the most agreeable of owners and employees is sincerity trait with the sub traits of sincere, friendly and honest. The second trait is competence with the sub traits of reliable, corporate and confident. The third is ruggedness with the sub traits of rugged, outdoorsy and masculine. The fourth is sophistication with the sub traits of charming, good-looking, and upper-class. The last is excitement with the sub traits of spirited, unique and daring.

After compare the strength and brand personality the conclusion of present demographic is a person with knowledge, expertise and connections. As a well-known handyman. Dressing in smart casual uniform.

Future point of views for Myers-Briggs Type Indicator that represent psychographic is ENFP stand for Extrovert, Intuition, Feeling and P – Perception as the person the ENFPs are always searching for the new possibilities and new-found interests. They energize and stimulate others through their enthusiasm. ENFPs are able to sense the needs of others and to offer those help and appreciation. They are often having a wide range of interests and friends. They bring zest, joy, liveliness, and fun to all aspects of their lives. They are at their best in fluid situations that allow them to express their creativity and use their charisma. They tend to idealize people and help other people explore their creative potential also discovering the deeper meaning in people and ideas. ENFPs can be disappointed when reality fails to fulfill their expectations. They are easily frustrated if a project is strict or easily bored by details.[6] [7]

After author got both result of future and present demographic and psychographic brand personalities. Then compare the future result with the present result to see which are different and which are the 3 target groups think in the same way. The different will show what Toyota Sure Khonkaen have to create or maintain it.

The future demographic of Toyota Sure Khonkaen is aiming to be one stop servicer. The appearance that supports this aspiration is "well-known handyman". After compare with the present appearance, "the plain generic middle age salesman". The strength that Toyota Sure Khonkaen has to maintain is sincerity, honest, reliable, charming, good-looking, upper-class, rugged, outdoorsy, masculine and spirited. The differentiation Toyota Sure Khonkaen have to create is friendly, corporate, confident, unique and daring.

The future psychographic of Toyota Sure Khonkaen is ENFP. From INFJ to become ENFP. Toyota Khon Kaen has to be more extroverts and more perceptive. To be more extroverts is to express more, as some employees mention. Toyota Sure Khonkaen must pay more attention to advertising. Express brand image to customer. Create more awareness in Khon Kaen society, And as the appearance of well-known person. Also the employees who represent the extroversion must be more sociable and be the person who spends time with social more. Be like freindly local politician than self-preserve advocate. To be more perceptive is to adapt and not too strict with the limitation. Find the best possible options, solutions or outcomes for customer. As an ENFP. Toyota Sure Khonkaen should be more creative and exciting as the Intuition and be sincere and friendly as The Feeler.

Conclusion

This study discovery the positive brand personality that relate with SOAR analysis by bringing what owners and employees sharing about the positive advantage of Toyota Sure Khonkaen. By comparing with customer's perspective, Author is able to generate the brand personality with demographic and psychographic by using semi-structured interview, appreciative inquiry, Aaker's the brand dimension , personalities theory, Clemens Bechter's look,feel and talk method and Myer-Brgg Myers-Briggs Type Indicator.

The present result of Toyota Sure Khonkaen demographic is a plain honest consulter, clean and neat appearance with low excitement. And brand personality of honest, sincere, reliable, trustable, and respect the other. With the present psychographic of INFJ stand for Introvert, Intuition, Feeling and Judgment as the person INFJ is complicate, quiet, creative, and care about the other.

The future result of Toyota Sure Khonkaen demographic is a well-known handyman with smart casual appearances. Toyota Sure Khonkaen have to maintain sincerity, honest, reliable, charming, good-looking, upper-class, rugged, outdoorsy, masculine and spirited. Toyota Sure Khonkaen have to create differentiates friendly, corporate, confident, unique and daring. With the future psychographic of ENFP stand for Extrovert, Intuition, Feeling and Perception as the person ENFP is friendly, creative, care, adaptive, open-minded and spirited

Toyota Sure Khonkaen five core brand personalities of customer and cooperate are quite the same. By the order of sincerity, competence ruggedness sophistication, and the last is excitement.

Suggestions

1.) If the research have more period of time. The scope of research could expand to analyst the behavior that will make the brand personality happen. After have the list of brand personality friendly, honest, and sincere. The next step is to make the strategy out of the list. If Toyota Sure Khonkaen want to be friendly. What will Toyota Sure Khonkaen do to be friendlier. For example. To be more friendly, all employees must smile as a standard operating procedure.

2.) Time is the most value resource for this research. Due to the short period of study and day by day routine. If the number of interviewees could be interview, the research could be more accurate.

3.) The time we spent on long interviews. The less truth we might get. Some interviewees just try to finish the conversation. When they spent too much time. So they just answer. Just for finished the interview.

4.) For the brand presenter. You could use MBTI questionnaire to find who the right presenter is for the brand is. For example. If your cooperate personality is ENFP. You sent the questionnaire to superstar and see if the result matches your brand personality or you could interview your target group of which superstar they think are ENFP.

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A VOLATILITY PRODUCT STOCK MANAGEMENT SYSTEM USING ANDROID NEAR FIELD COMMUNICATION AND BACK OFFICE WEB: A CASE STUDY OF GOLD STORE

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ABSTRACT

Near Field Communication (NFC) has been one of the implemented ubiquitous computing in recent times. NFC is designed with a secure form of data exchange. This NFC device is capable of being both an NFC reader and an NFC tag. This unique feature allows NFC devices to communicate peer-to-peer. In this paper, the NFC technology is presented and integrated into Android application for gold trading. The system was developed to assist vendors in trading gold products. Since gold is a velocity product, the users can record the data on the tag using the android application, and this data will be shown on a display. Besides, there is a back office program which helps to record the daily financial data on a work flow. The proposed system was developed and applied so as to manage a gold store. The results from this experimentation showed that the additional components can significantly improve the accuracy and completeness of information transaction. Tools for development are "Android Studio" and "Java Script," which are used for coding the mobile application; "PHP" and "Dreamweaver" are used for connecting the database on the web of back office program application. From the survey results at the Tungsomboonsuk (Yaowarat) gold shop, the use of application and back office program has satisfied the users in terms of time saving tool to check and protect the assisting application, including the lost and imitative items so as to save more recording data base.

Keywords: Android, Appropriate Technology, Gold Store, Near Field Communication (NFC), NFC Tag

Introduction

From the investigation, a high risk of a gold business for business owners is robbery. Hence, they need to be careful to manage their assets in order to protect any loss from both inside and outside people. Originally, a process of checking a number of goods before placing on the shelves and storing in a stock is responsible manually by a staff. This process would cause the staff to waste time tremendously and make mistakes. Moreover, nothing is guaranteed whether a valid number of goods are counted; therefore, the NFC for gold store checked application would benefit the gold shop owners in terms of checking and protecting any mistakes which may occur [1]

From the issue mentioned above, the researchers have developed the application software for checking goods called The Near Field Communication Technology (NFC), which is modern and popular as well as being able to work together with a smart phone. [1] With the following process, the NFC is created in a form of a tag; the data on the tag hanging with a piece of gold will be scanned by only one touch on the smart phone. Then, the scanned data will be collected in the MySQL data base system. [2] This method can help gold shop owners to check their goods in a stock and reduce a risk of wrong checking and collecting goods. Moreover, the shop can have trustworthiness from customers.

Objectives

To apply a suitable technology for gold stock checking: Near Field Communication (NFC).
To store the important data of the gold shop safely by saving the data in the MySQL database system.

Methodology

This research studied an assistive application, which the Near Field Communication (NFC) technology has been applied to help transfer the data from one device to another. [3] Then, the selected smart phone available for the NFC application was evaluated in the research.

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1. The users are required to download and install the application on their smart phone first. Then, the NFC will be readable.

2. The back office system is developed by the Dreamweaver program. This program enables the users to categorize the stock lists and add or delete man power data easily and accurately.

3. The application development is created by Android Studio system, and its work process is divided into two parts: Shop owners' section and Employees' section

3.1 With the use of the application, the shop owners can create their own list which includes selling activities, left stock items, new items, and new photo uploaded.

3.2 The employees can log in to the application by using their own username and password. Their duty is to make sales through the application.

Adding NFC Support in an App

The researcher started with a new project and a blank activity. It is important to select a minimum SDK version of level 10, because NFC is only supported after Android 2.3.3.

```
1    <uses-sdk
2        android:minSdkVersion="10"
3        android:targetSdkVersion="17" />
```

The default layout generated by Eclipse is almost sufficient for us. Added an ID to the TextView and changed the text.

```
1    <TextView
2        android:id="@+id/textView_explanation"
3        android:layout_width="wrap_content"
4        android:layout_height="wrap_content"
5        android:text="@string/explanation" />
```

To get access to the NFC hardware, it is importance to have to apply for permission in the manifest. If NFC is required, the app cannot be installed on devices without it and Google Play will only display app to users who own a NFC device.

```
1    <uses-permission android:name="android.permission.NFC" />
2
3    <uses-feature
4        android:name="android.hardware.nfc"
5        android:required="true" />
```

The MainActivity should only consist of the onCreate() method. The system can interact with the hardware via the NfcAdapter class. It is important to find out whether the NfcAdapter is null. In this case, the Android device does not support NFC.

```
package net.vrallev.android.nfc.demo;

import android.app.Activity;
import android.nfc.NfcAdapter;
import android.os.Bundle;
import android.widget.TextView;
import android.widget.Toast;

    public static final String TAG = "NfcDemo";

    private TextView mTextView;
    private NfcAdapter mNfcAdapter;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
```

```
        mTextView = (TextView) findViewById(R.id.textView_explanation);

        mNfcAdapter = NfcAdapter.getDefaultAdapter(this);

        if (mNfcAdapter == null) {
            // Stop here, we definitely need NFC
            Toast.makeText(this, "This device doesn't support NFC.", Toast.LENGTH_LONG).show();
            finish();
            return;

        }

        if (!mNfcAdapter.isEnabled()) {
            mTextView.setText("NFC is disabled.");
        } else {
            mTextView.setText(R.string.explanation);
        }

        handleIntent(getIntent());
    }

    private void handleIntent(Intent intent) {
        // TODO: handle Intent
    }
}
```

Steps for system designed

This research analyzed an overview of the construction system so as to understand how it works. Then, the user can use the application to download the data from the data base. If the NFC's tag is touched, the data appeared on the application will be displayed.[4] The work flow in each section is shown in Figure1.

1. The owner can apply both two parts of the management system consisted of a web application system and mobile application. The first part is for the owner to login and be able to edit the information; moreover, the owner can use mobile application to login into the system; it then shows the owner parts, which can also show information on a mobile from a mobile touch NFC Tag. As shown in Figure2.

2. Employees can integrate this system into the mobile application. First, employees must login into the system. As the parts of employees are shown, there is a sale menu. Then the employees can use a mobile touch with NFC Tag for selling or checking any detail product. As shown in Figure3.

The development tools

1.1 Photoshop
Photoshop is used for graphic design. It can help edit a photo professionally. This program consists of various tools to support a printed media, video, multimedia, and website written in a set of program named "Adobe Photoshop."

1.2 Android Studio
Android Studio is used to write application software. It enables a number of work processes. It is easy to use in various creations. [5] Also, there are many ways to create APK file which supports a scan tool to work effectively.[6]

1.3 Java Development Kit
Java Development Kit is used to develop JAVA program of Sun Microsystems Company.

2. Back office section

2.1 MySQL

MySQL is used to collect the data by managing the data base in SQL language which can collect, find, list, and download the data.[7] The relational database as shown in Figure4.

2.2 PhpMyAdmin

PhpMyAdmin is used to manage the MySQL data base in order to manage DBMS for MySQL and create a new data base or a new table easily and comfortably. Moreover, there is a function for SQL data base test. [8]

2.3 XAMPP

XAMPP is the program for reproducing the one's personal computer to function as a website server. It can be used for both the main device and the connecting one. This helps check a website effectively even though the Internet is disconnected.[9]

2.4 Dreamweaver

Dreamweaver is the program that works in a process of WYSIWYG. The work process supports design program by working as HTML Generator. The program creates the HTML monitor code itself automatically.

Results

The result is evaluated from users' satisfaction by asking questions on what they need. Moreover, the application is designed to meet their needs as much as possible. The process for each part is as follows:

1. Owner shop section

Usability of Management system helps the owner to use this application easily since each part is categorized clearly. The owners can check the employee information, product type, stock, list all products, a total of products; they can also search the data of gold's and print a guarantee card conveniently. For the application, the shop owners can list the available items and sales. Moreover, the pictures of any new arrival items can be uploaded via the application.

2. Employee section

The employees can use the application by filling up their user name and make a sale via the application. For the parts of employee, there is a sale menu only.

The result is evaluated from users' satisfaction by asking questions on what they need and designing the application to meet their needs as much as possible.

Conclusion

From the survey result at the Tungsomboonsuk (Yaowarat) gold shop, the researcher found that the use of application and back office program has satisfied the users in terms of time saving for goods checking, assistive application, lost and fake items protecting, and more safe data base recording. Also, the system limitations are: 1) The application is can be used with Android only 5.1.1 and up; 2) The application is designed for the gold shop only.

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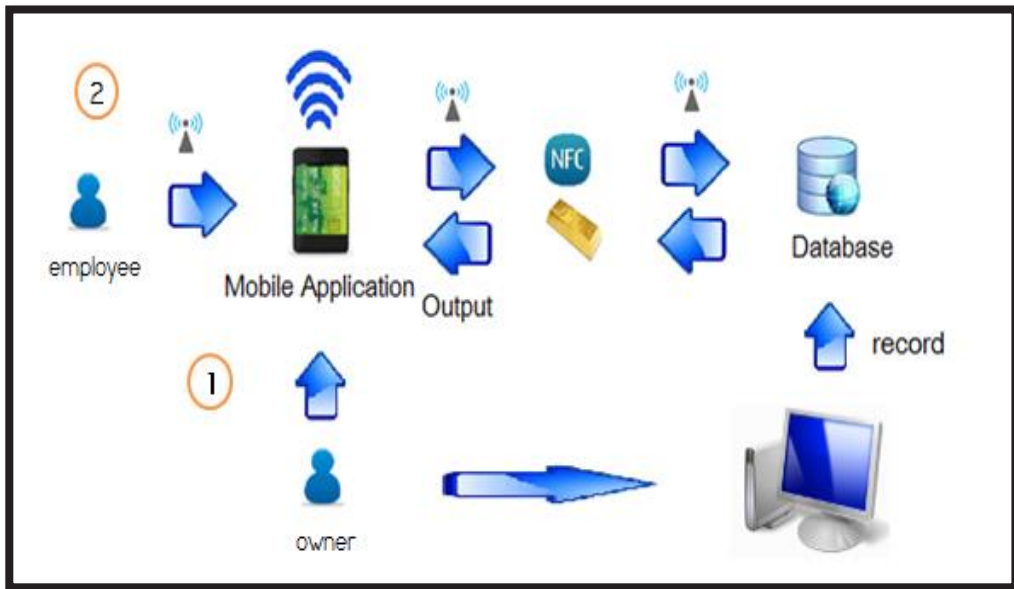**Figure 1:** System Architecture

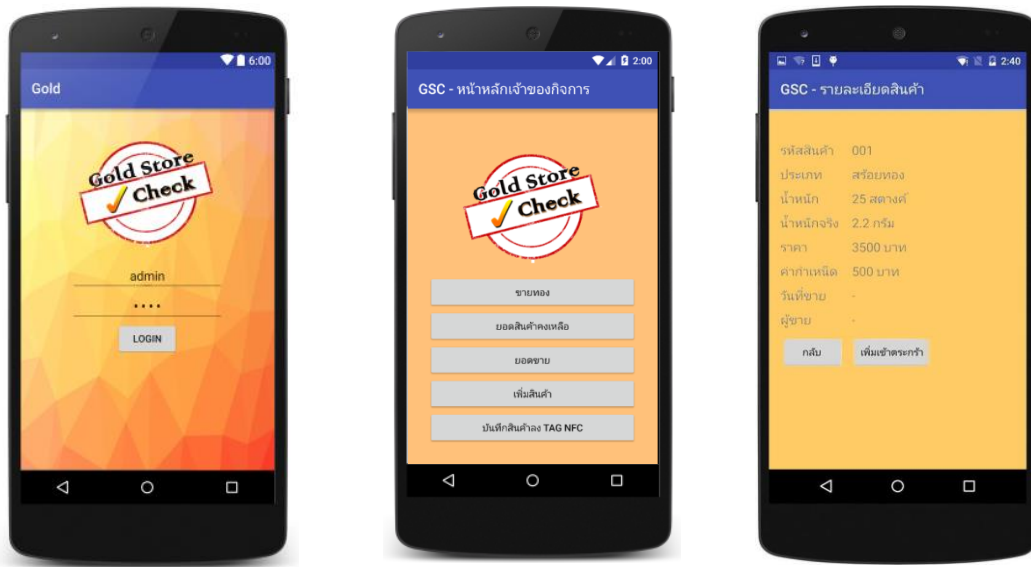**Figure 2:** The Touch Connection between NFC Smartphone and NFC Tag

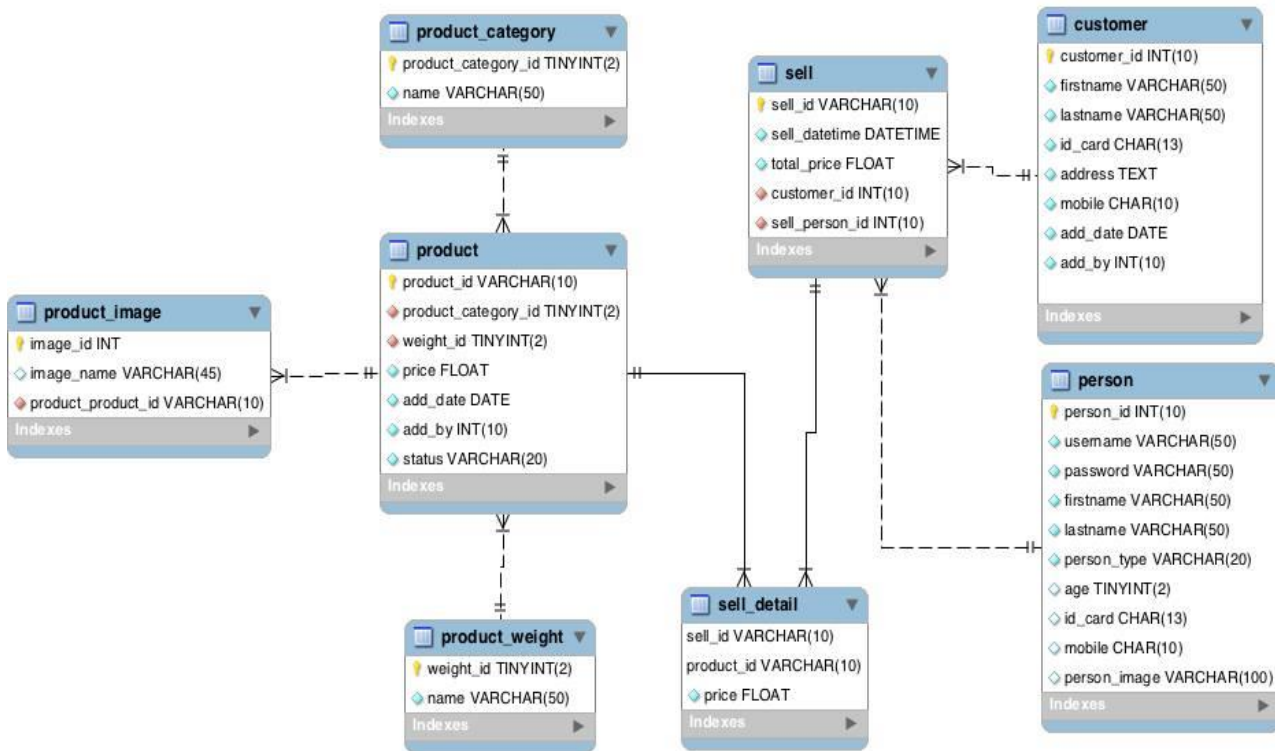**Figure 3:** Screen Shot on Mobile Application with NFC

Figure 4: Relational Database Model of the Web Application System

MARKETING STRATEGY FOR INCREASE SALE OF THAI INTER LUNGKHA LEK CO., LTD KHON KANE PROVINCE

Veerapol Ratchadasakul[1]
Prachak Bouphun[2]

ABSTRACT

This study of guideline for increase sale volume of Thai Inter Lungkha lek Co., Ltd, Khon Kaen province by Veerapol Ratchadasakul, was to studied the behavior of the customer who using Metal Sheet or in Thai we called "LungKha Lek" and studied the principals of Marketing mixs to make a guideline and strategy on how to improve the sale volume of the company by using customer's behavior, market principal and SWOT Analysis (Strengths, Weakness, Opportunity and Threats). The study used 400 questionnaire to observe and gather the information that needed for the research analysis. The study showed that most reason for using metal sheet for building and fixing the house was because the price of the installation is cheaper than other material which most customers used to build and fix 11 -15 times per year. The reason for they came to the company is because of the speed and the correction of each jobs. After the study, the author was able to came out with two strategies which were 1) Get in touch and 2) pushing forward the business which hopefully will increase the sale volume for 30 percent.

Keywords: Metal Sheet, Strategy, Thai Inter Lungkha Lek

Introduction

Metal sheets are one of the building material that can be used for roofing or it can be used for wall as well. The Metal sheets are the latest material and nowadays is cheaper compare for the strength and price to other material, this mean that the metal sheets are stronger than zinc sheets (zinc sheet is the name of the material for roofing) and cheaper than tiles. Metal sheet contains the compound of zinc and aluminum which make itself very strong and also this material cover with the layers of corrosive proof, color and coating materials. All of these layers will help the metal sheet to last longer (BlueScope is one of the company that will guarantee their product (metal sheet) for 2 – 25 years) and have more strength. Thai Inter LungKha Lek Co., Ltd is one of the metal sheet factory in Khon Kaen which will transform the roll of metal sheet to the metal sheets itself. One coil of sheet has the length of 3,500 meters to 4,000 meters. Each of coils will have different color and thickness for the customers to choose. In Thai Inter Lungkha Lek Co., Ltd, we have around 30 – 40 coils up to the season of selling. These stocks will have more than 10 colors and around 10 thickness different which started from 0.20 mm. and going up to 0.47, for the color we have zinc and basic color for example red blue green brown and special color like natural brown (natural color mean the color itself doesn't create glare) and sparky red (extra glare).[1]

Since 2014, Thai Inter Lungkha Lek Co., ltd providing metal sheets to all customers who willing to buy. From the beginning, this company only sold not many color as present but when the customers would like to get a different color that not existed in this company, we would be looking for and will try to find that color for customers and right now we have more than 20 different color and thickness for wild range of customers needed. Not only Thai Inter Lungkha Lek Co., ltd sell metal sheet but we also provide the customers an information they would like to know whether how to use and what should they used. For example, customer want to build a garage but don't know which thickness and didn't accurately know the length and amount that they have to ordered, In Thai Inter Lungkha Lek Co., Ltd – we got a team that will go out to the customer resident or structure that they need metal sheets to measure and calculate for them and also suggested what thickness they should use. And at the end of process we can also delivery them the ordered they made no matter how far but we will delivery free for first 20 KM around Khon Kaen City and after 20 KM is up to the price of the fuel needed.

The problem of Thai Inter Lungkha Lek Co., Ltd is that, nowadays there are many factories like this in every way in Thailand especially in Khon Kaen have about 10 factories. This is because the fund needed or investment that need to invest in this business didn't cost as much compare to other business. These other factories are causing Thai Inter Lungkha Lek Co., Ltd to loss 13% of the profit compare to last year (year 2016). So, in

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this study will be using Marketing Mix and customer behavior information to analyze the guideline or strategy to help bringing Thai Inter Lungkha Lek Co., Ltd profit back to it should be or even going up high that year 2016.

Objective
- Study behavior and marketing mix of customers
- Create strategy or Project to increase the sales for Thai Inter Lungkha Lek Co., Ltd, Khon Kaen Province for atleast 30 percent
- Study the problem and/or obstacle for Thai inter LungKha Lek Co., Ltd Khon Kaen that cause the decrease in sale volume

Research Methodology
The study used 400 questionnaires which calculated by using Yamene (1967). And came up with 381 sample and rounding up the number to 400 sample/questionnaires. The questionnaire were handed to customers came to Thai Inter Lungkha Lek Co.,Ltd, Khon Kaen Province. In the questionnaire contain 3 parts: 1) the behavior of customer in using metal sheet, 2) study the Marketing mix by using 3 scale question, the reason for 3 scale is that most of the customers can't separate the different between high and highest priority.

Process
This study use questionnaire to collect all information needed for this study. The questionnaire had been filled by customers who came to Thai Inter Lungkha Lek Co., Ltd. The author got 400 questionnaires for 400 samples [2] the first part of questionnaire was about behavior when the customers want to buy or use metal sheet for any reason or purpose as they wanted. The questions about behavior in the questionnaire were hot often do you buy metal sheet in one year? What is your purpose of using metal sheet? Have you ever buy metal sheet from Thai Inter Lungkha Lek before? Why do you using metal sheet from Thai Inter Lungkha lek? And how do you know Thai Inter LungKha Lek? The second part of the questionnaires using Marketing Mix (4P) to study what factors effect customer the most on choosing what factory or company that customer want to go? These marketing mix contain Product, Price, Place and Promotion. And the last part of the questionnaire was about suggestion and problem that the customer get from using metal sheet from Thai Inter Lungkha Lek Co., Ltd. After gathered all data, the next part is using SWOT to analyze to get the result and in the end, the author will be able to create projects which will help Thai Inter Lungkha Lek Co., Ltd to increase sale volume and profit.

Result
From 400 questionnaires that has been handed out, the author found that 339 people or 84.8% use metal sheet for building, not for fixing and other. 286 people or 71.5% came to Thai Inter Lungkha Lek Co., let because of this company working fast and the jobs were well done without mistake. Most people (162 people and 40.5%) knew Thai Inter Lungkha lek Co., ltd from their relative. And most people building and fixing their resisdent or building with metal sheet 11 – 15 times per years. And all of 400 people in questionnaires were willing to continue using metal sheet in the future.

From the Marketing Mix part of the questionnaire, most of the customers were concentrate on the price of metal sheet used to setting up. This mean that people will continue on using the metal because it is the cheapest way on building the roof and confirm by first P (Product) that customers like the metal sheet because they are easy to setting ($\bar{x}$ = 2.86, S.D. = 0.46). In the second P, nowadays customer mostly care about the price of setting up the material rather than the material itself ($\bar{x}$ = 2.87, S.D. = 0.47). In the third P, the customers focusing on the location of the company ($\bar{x}$ = 2.79, S.D. = 0.75) – this means how easy for them to come and made order with the company if the company is far that may cause the customers to go elsewhere. And the last part, the customer would like to see more advertisement about the company so they would know where the company is and what are your company is selling to them ($\bar{x}$ = 2.49, S.D. = 0.66).

SWOT is to analyze the external and internal factors of the company which can be separated into STRENGTHS, WEAKNESS, OPPORTUNITY and THREAT, the first two factors are internal factors and the last two are external factors.

The STRENGTHS of Thai Inter Lungkha Lek Co., Ltd. –
1. The company located closed to many villages and this is making the villagers easy to come to this company.
2. The company having a fast service and not likely to be delayed, the cause of delay is raining or the customer aren't ready to be delivered yet. Mostly when the customers come and made the order, the company only take 0.5 hours to 48 hours to produced and delivered up to the how many they ordered.

3. This company have enough supply for mostly all customers' demand. The company always keep the stock to be enough at all time but if the lack happened that would mean the supplier of this company is lacking as well.

4. This company only used product that come with guarantee, this mean when the customers got any problem with the product, the company will send out a team of engineer to look for problem and is the guarantee not voided the product can be claimed.

The WEAKNESS of Thai Inter Lungkha Lek Co., Ltd. –

1. Some of the staff in this company aren't well-known about the product, this can cause the struggle when the customers ask about the product and will cause the delay in the process.

2. Some of products aren't in this company because of the supplier of this company didn't had the product as well and this can cause this company to lose customers to other company.

3. The company located near villages but for other customers, this may seem faraway for them to come.

The OPPORTUNITY of Thai Inter Lungkha Lek Co., Ltd. –

1. The economy when the research had been done isn't well enough, this make this product are best seller on roofing material compare to other material like tile that can be very expensive compare to this metal sheets.

2. There isn't any other replacement material that can replace this material within the range of property compare to price. This made the metal sheets still being best seller in this business.

The THREAT for Thai Inter Lungkha Lek Co., Ltd. –

1. The investment can easily invest in metal sheets factory due to the fund needed isn't because much compare with other roofing materials.

2. The price of the supply when the research had been done is still rising can that cause the metal sheets price to rise as well. This cause the profit to reduce if the price sold to customers stay the same but of rising the price also can cause the customers to go to other companies.

TOWS analyze is to analyze the strategy from the SWOT and the strategy were:

SO Strategy – because of the situation in Thai economy that is still deflation and the metal sheets are one of roofing material that are beautiful and cheap with this the strength and opportunity this company should doing more advertising and promotion to raise the company's sale.

ST Strategy – from the point of the high price of the material, is may cause the sale to decrease but with the strength point of the quality of the material and using advertising this company could still make the sale remain the same.

WO Strategy – the weakness of this company was some of the employees still didn't have enough knowledge but the economy still deflation. The company can raise the sale by giving the employee more information about the product so this can be pass to the customer and will completely remove this weakness.

WT Strategy – because of the employees not very well know about the product and to save money from the giving those employees training. The employees will little knowledge could studying by learning from more experienced employees.

PESTE analyze is to study the outside of the company environment and the result are

Political – the political have not matter on the sale of this company because of no matter what the customer still need a roof for their residents or their building.

Economy – the economy are having a high effect on this company because of the deflation the customers would like to save money and metal sheets are cheap and strong, so this material were good in this economy.

Technology – the technology are not very effective because villager around this company already knew this company but still the technology could help this company to doing better advertise and bringing in more customer other from the village around the company's area.

Social – Social are very effective because most of the customers knew this company in the social in the village for example they told each other how good or bad about everything and because of small village people can spread the word very easy. So the company have to make good reputation to bringing in more customer.

Environment – this company didn't cause any waste. The small piece of metal are sold to the dumpster, so this company having negative effect to the environment.

FIVE FORCE analyze is to analyze the force which can affect the company in 5 ways. 1) Force from new comer: this force are high because of the investment of this kind of company didn't cause much and there are a lot a metal sheets factories are building up around Khon Kaen province as well. 2) Force from the customers are very high as well because of the there are many companies like this and the customers are able to choose which they want to used. 3) Force from replacement item – metal sheet are still cheap and strong compare to zinc

and tile and still no replacement in this material, this force had very low effect. 4) Force from supplier – the supplier had a medium effect because there are many of suppliers in Thailand and the company are able to choose which one if the best. 5) Force from the business competition – nowadays there are a lot of this kind of company and every one are try to gather most of the segment but there aren't many company with a high reputation, this mean this force had medium effect on the company.

From the result and after analyzed by SWOT, TOWS, PESTE, FIVE FORCE the author was able to create 2 project which will help to increase sale volume and profit of Thai Inter Lungkha Lek Co., ltd and those projects are 1) getting to where the customers live because some of customer aren't convenient come to Thai Inter LungKha Lek Co., ltd so this company can give the customer more service and this will surely increase the company's sale. 2) pushing forward the business, this project is to go beyond selling only metal sheet but to set up a team of roofing set up and take the setting-up roofing job to increase the sale of Thai Inter Lungkha Lek Co., ltd. This 2 projects could raise the sale higher by 30 percent.

Conclusion

By studying the behavior the research most of customers knew this company by their own relative or other people in the same village and some of the customers knew because of the advertising which from the questionnaire also agreed that customers is more concern to the advertising rather than the gift from the company. And also the result show that the customers concerned about the setting up the most so the researcher came up with the project which provide the setting up team which will help this company to expand the business and gain more sale. The setting up team isn't a free service but will help the customer to make the decision easier to buy the metal sheet from this company.

Suggestion

First of all, the company had to be very trustable for all customers because this business customer had to paid first before making the metal sheets or for some customers with a good credit can pay later after the ordered had been delivery. By making the company look trustful will help this kind of business to get new customers or having advantage over other competitors.

To get to customers is very important task in today business competition, no matter what you doing if your brand doesn't that popular or the best the customers will not know and that will make your company go down hills. So, to get in where the customers are will help your company to gain the relationship with customers and also it is a free advertisement themselves. The customers will see what and where you company is doing and they willing to visit your company for once. But when the customers come to your company, don't let the opportunity passed away. By doing a good service for all customers that will help you raise the reputation of the company and mostly Thai people are always talking and commenting to each other, a good service will make customers told other and there will be more and more customer wanted to come and buy what you sell to them.

Giving customer's information of your products will also help your product to be known throughout the area. Even through the information is accessible via the internet or smart phone but on the internet sometimes didn't have much information and can't be asked. So, it is the job of the company to tell the customers what is good of your products and what come with it. This will help the customers to understand and knowing how to use the product properly with full advantage.

For further study, this study only uses 400 example who came to Thai Inter Lungkha Lek Co., Ltd. That mean in other area further from this company can cause a different result. By studying somewhere else such as in the North of Thailand, people have different way of life style can cause a different way to increase the sale volume of for the company. So basically, studying the life style of where your company are will help you to understand and able to create more efficiency promotion that made your company have advantage over the competitors.

Nowadays the same product but different brand cause very little effect on decision making, the service is one of the main effect that cause customers to come and order in your company. This mean studying only marketing mix 4P is may not enough from some business (but still work on some of business) so in further study, by studying marketing mix 7P or 8P may result in better project to guideline to increase the sale volume of your company.

Reference
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