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Editorial

Welcome to the eighth issue of the UTCC International Journal of Business and Economics (UTCC IJBE). We, the editors, appreciate greatly the support of the University of the Thai Chamber of Commerce and the Thailand Management Association (TMA), as well as the sponsorship of the Kellogg College, University of Oxford in asking us to become involved in this endeavor as editors of the UTCC IJBE.

Over the past few years, we have noticed the rapid development of business, economics, and accountancy within the industrial, academic and governmental sectors. More and more people are talking, researching and applying business, economics, and accountancy within a myriad of contexts. There is much excitement in the field.

The UTCC IJBE has been established in response to this increased interest in business, economics, and accountancy issues as a forum for interested parties to advance their knowledge and science of the said discipline. The geographical scope of the journal is not solely limited to Thailand and the surrounding region.

This eighth issue of the UTCC IJBE represents a compilation of submitted papers. It is hoped that this issue will set a new benchmark in terms of academic publications in Thailand, especially in the field of business, economics, and accountancy.

The Editors would like to invite academicians, practitioners and policy makers to submit their manuscripts on business, economics, accountancy, and other related disciplines. Through the support of our Editorial and Advisory Board, we hope to be able to provide academic articles of the highest quality to all our readers.

Suthawan Chirapanda
Gilbert Nartea
Editors

The Editors

Editors-In-Chief

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Leadership Style in Family Business

by

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Abstracts

The objective of this research is to study the leadership style in family business employing questionnaire to collect data from a total of 58 family business owners. The study finds first generation owners (founders) having a tendency to be DP and Entrepreneurial the most, with the second generation owners being DP and Transformational the most while the third generation owners being DP the most. On the level of AD leadership scores, the first generation scores the highest followed by the third and second generations, respectively. The relationships between leadership style and sex, age, education, work duration in the company, and relationship with founders are found significant. The leadership qualities contributing to success are decisiveness, open to suggestions, honesty, morality, always seeking for new approaches and knowledge, leadership, and justice, respectively.

Keywords: Leadership Style, Family Business, AD, DP, Entrepreneurial, Transformational

1. Introduction

Family businesses succeed and fail like all other businesses. They may be different from others in their leadership styles. The search for the best leadership style is therefore a challenging task because of the emotions tied in the business and the family. Within the context of family business, leadership may have a slightly different meaning than that generally understood. By definition, family leadership means the art of making other believe and implement the vision of the owner of the family business. The tasks of the leader of a family business is different from those of other businesses in that they are not limited to the business of the family but extent to the taking care of the family. Family business leaders face much more complicated tasks than other business leaders. The complications involve the transfer of business operation from one generation to the next through the history from founding to expansion and fully-grown stages. The leadership qualities required for each stages may be different. Family business leaders must be able to handle the various problems in the transfer process. They must have the skill in resolving conflicts and taking care of the delicate situations. "While being very strong and rigid about values, they should otherwise be flexible in changing their leadership style as the situation and the context change." (Jain, 2012)

There are three basic leadership styles in family business. The first is the Autocratic method, by which the control and decision making of the business are totally done by family members. In many of the family businesses, the founders would control the business until retirement and hand over control to other family members. The second is the Democratic method by which other family members involved in the business would be able to voice their opinion in how the business should be run. And the third is Bureaucratic method by which everyone has to follow the prescribed rules and regulations without exceptions (Morgan, 2012). Another researcher classifies leadership styles into three basic types (U.S. Army Handbook, 1973 cited in Ejaz, 2011) namely: Autocratic or Directive, Democratic or Participative, and Delegative or Non-Directive. The Autocratic or Directive leaders would inform the subordinates of goals and objectives and the methods to achieve them while the leaders would make the decisions themselves on how to conduct business. The Democratic or Participate leaders would allow employees to participate in the decision process involving business methods and policies, however the leaders have the final say whether to accept the things proposed. The Delegative or Non-Directive leaders would delegate decision making to the subordinates and assess the resulting outcomes. In addition, the current business environment has bring about a new leadership style called Transformational leadership based on the conviction that organizational motivation would be successfully develop through the employees' faith in the organization (or its leader). Such a leader will initiate new tasks in the organization, support the search for new approaches to solve problems, and facilitate a learning environment for everyone in the organization (Bass, 1985; Avolio, Bass and Jung, 1999). Another leadership style under investigation by researchers is called Entrepreneurial Leadership focusing on the leader being self-employed and very important in solving organizational crisis. These various leadership styles are widely studied and researched.

Nevertheless, there is no one leadership style best suited for family business. Because each family has its own distinctiveness and each business also has its own different attributes, the business and the employees should be aligned in the same direction of company vision. The leadership style should be appropriate for the work practices of the employees. The selection of family member with the most suitable leadership style is the best way to lead the business and maintain the strength of family business. Currently, there are few researches on the leadership styles of successive generations of family business owners due to the difficulty in obtaining the relevant data. Such researches are significant to the determination of the most appropriate leadership style to be adopted for family businesses given the stages of development and the surrounding circumstances in order to run the business efficiently and sustainably.

2. Research Methodology

2.1 Measures

The study investigates the leadership style in the owners of small- and medium-size family businesses in Thailand with annual sales of 1,000 million Baht or less. The sampling process is purposive consisting of 58 samples. The instrument for the study is a questionnaire that covers attributes of leadership styles consisting of:

2.2 Entrepreneurial Style

Having high competitive spirit, seeking new approaches to gain competitive advantage, taking risk, brave thinking, decisive, willing to try new things, focusing on results, and awareness of real ownership providing determination to do the best create successful business, by pushing for business success while still relying on the principle of low cost-high profit.

2.3 Authoritative Style/Directive Style (AD Style)

The owner mainly gives orders and directives, making decisions by himself/herself and seldom delegate authority to subordinates. Relying on rewards and punishment. The employees must learn what are expected of them and the work they have to do to maintain the prescribed standards. Everyone must consistently understand the role of the leaders.

2.4 Democratic Style/Participative Style (DP Style)

Allowing employees to express and exchange opinions with the leaders. Their suggestions on the problems are discussed to screen for the best to be implemented. They are given feedbacks on their performance for further development, providing incentives for them to be participative in the decision making process. The leader will consult the employees asking for their inputs and bring those in to serious consideration in his/her decisions.

2.5 Transformational Style

Being highly admired and respected by the employees, a ideal role-model for them. Having great influence on the thoughts and works of the employees. Arousing inspirations in surrounding people. Enthusiastic and positive thinking. Encouraging and creating employee confidence in using their creativity to solve work problems and learn from experience. Taking care of each employee's needs for career success and advancement by providing counseling, careful attention and making him/her feel valuable and significant in the organization.

2.6 Research Questions

The study begin with the assumption that leadership styles of family business owners are different in each generation. The main research questions were as follow:

Question 1: *What are the leadership styles in each generation of owner?*

Question 2: *What are the relationship between leadership styles and demographic variables?*

Question 3: *What are important leader qualities conducive to successful family business?*

3. Research Results

The study sample of family business owners are mostly male (58.93%), with age range of 26-30 years (24.10%), education qualifications of higher than bachelor degree (48.65%), being the offspring of the business founder (53.40%), of second generation (55.20%) followed by first generation (29.30%) and the third generation (15.50%) respectively. The average duration of work with the family business is 7 years and the average age of business is 25 years. The relationships between leadership styles and relevant variables are given below.

3.1 Leadership Styles

3.1.1 First Generation (Founder)

The results (Table 1) for the first generation shows the highest average score for the DP leadership style ($\overline{X}$ = 4.13), followed by Entrepreneurial ($\overline{X}$ = 4.12) and Transformational ($\overline{X}$ = 4.04) respectively, with the lowest for AD leadership style ($\overline{X}$ = 3.48). Testing for differences between the leadership styles (Table 2), the AD leadership style is found to be statistically significantly different from Entrepreneurial, Transformational and DP leadership styles at 0.05 level. The first generation owners (the founders) are thus tend to be of DP, Entrepreneurial style the most with some mixture of Transformational style.

Table 1 Leadership Styles of the First Generation Owners

Variables	Frequency (n)	$\overline{X}$	SD	Assessed Level of Fitness
Leadership Styles	17			
Entrepreneurial		4.12	.469	Most
AD		3.48	.652	Highly
DP		4.13	.490	Most
Transformational		4.04	.511	Most

Testing for Differences between the Leadership Styles

Table 2 Leadership Styles Differences of the First Generation Owners

Variables	t	df	p
Entrepreneurial – AD	3.966	16	.001
Entrepreneurial – DP	-.081	16	.937
Entrepreneurial - Transformational	.759	16	.459
AD – DP	-3.217	16	.005
AD – Transformational	-3.549	16	.003
DP - Transformational	.753	16	.462

3.1.2 The Second Generation Owners

For the second generation (Table 3), the DP leadership style has the highest score ($\overline{X}$ = 4.09) followed closely by Transformational ($\overline{X}$ = 4.08), both of which have the assessed fitness of the most. The AD leadership style has the lowest score ($\overline{X}$ = 3.14). Testing for the differences between the leadership styles (Table 4), the results find no statistically significant differences between the DP and Transformational styles at 0.05 level, indicating that the second generation owners tend to posses the DP and Transformational leadership styles the most.

Table 3 Leadership Styles of the Second Generation Owners.

Variables	Frequency (n)	$\overline{X}$	SD	Assessed Level of Fitness
Leadership Styles	32			
Entrepreneurial		3.81	.496	Highly
AD		3.14	.617	Highly
DP		4.09	.440	Most
Transformational		4.08	.561	Most

Testing for Differences between the Leadership Styles

Table 4 Leadership Styles Differences of the Second Generation Owners

Variables	t	df	p
Entrepreneurial – AD	5.271	31	.000
Entrepreneurial - DP	-2.766	31	.009
Entrepreneurial - Transformational	-2.278	31	.030
AD - DP	-7.442	31	.000
AD – Transformational	-7.962	31	.000
DP - Transformational	.149	31	.882

3.1.3 The Third Generation Owners

For the sampled group of the third generation (Table 5), the averaged score for the DP leadership style is the highest ($\overline{X}$ = 4.04) followed by the Entrepreneurial style ($\overline{X}$ = 3.98) and Transformational style ($\overline{X}$ = 3.58) with the assessed fitness of the most, highly and highly respectively. The AD leadership style has the lowest average score ($\overline{X}$ =3.22). Testing for the differences between the leadership styles, there is no significant differences between the DP, Entrepreneurial, and Transformational styles at the 0.05 level (Table 6). The third generation owners appear to have the DP leadership styles the most with some mixture of Entrepreneurial and Transformational styles.

Table 5 Leadership Styles of the Third Generation Owners.

Variables	Frequency (n)	$\overline{X}$	SD	Assessed Level of Fitness
Leadership Styles	9			
Entrepreneurial		3.98	.406	Highly
AD		3.22	.674	Highly
DP		4.04	.433	Most
Transformational		3.58	.703	Highly

Testing for Differences between the Leadership Styles

Table 6 Leadership Styles Differences of the Third Generation Owners

Variables	t	df	p
Entrepreneurial – AD	3.387	8	.010
Entrepreneurial - DP	-.338	8	.744
Entrepreneurial - Transformational	1.488	8	.175
AD - DP	-3.742	8	.006
AD – Transformational	-1.783	8	.112
DP - Transformational	2.214	8	.058

3.2 Leadership Styles for all Generations

Comparing the leadership styles across generations (Table 7), the sample group the DP leadership style is considered the most fitted style with some mixture of other styles in each of the generations.

Table 7 Leadership Styles of All Generations.

Variable		Frequency (n)	$\overline{X}$	SD	Assessed Level of Fitness	F	p
Leadership Styles							
Entrepreneurial Gen.	1st	17	4.12	.469	Most	2.440	.097
	2nd Gen.	32	3.81	.496	Highly		
	3rd Gen.	9	3.98	.406	Highly		
Overall		58	3.92	.488			
AD Gen.	1st	17	3.48	.652	Highly	1.644	.202
	2nd Gen.	32	3.14	.616	Highly		
	3rd Gen.	9	3.22	.674	Highly		
Overall		58	3.25	.643			
DP Gen.	1st	17	4.13	.490	Most	.104	.901
	2nd Gen.	32	4.09	.440	Most		
	3rd Gen.	9	4.04	.433	Most		
Overall		58	4.10	.447			
Transformational Gen.	1st	17	4.04	.511	Most	2.815	.069
	2nd Gen.	32	4.08	.560	Most		
	3rd Gen.	9	3.58	.703	Highly		
Overall		58	3.99	.588			

3.3 Correlations of Leadership Styles with Other Variables

3.3.1 Leadership Styles and Sex

The statistical analysis (Table 8) found significant difference between the sexes for the Entrepreneurial leadership style at 0.05 level. In this case male business owners are more likely to be of entrepreneurial style than their female counterparts. No significant differences were found between the sexes for other leadership styles.

Table 8 Leadership Styles and Sex.

Variables		Frequency (n)	$\bar{X}$	SD	t	df	p
Entrepreneurial		33	4.03	.495	2.175	54	.034
Male							
		23	3.74	.452			
Female							
AD		33	3.34	.666	1.168	54	.248
Male							
		23	3.14	.627			
Female							
DP	Male	33	4.09	.510	.080	54	.936
		23	4.08	.370			
Female							
Transformational		33	3.97	.456	-.079	54	.937
Male							
		23	3.98	.760			
Female							

3.3.2 Leadership Styles and Age

The age variable (Table 9) is found to be correlated with Entrepreneurial Leadership Style at statistically significant level of 0.05, indicating that leaders with higher age would have greater tendency to be of entrepreneurial leaders.

Table 9 Leadership Styles and Age

Variables		Frequency (n)	r	p
Age	Leadership			
Styles				
	Entrepreneurial	58	.264	.046
	AD	58	.177	.184
	DP	58	.066	.624
	Transformational	58	.224	.091

3.3.3 Leadership Styles and Education

Education (Table 10) is found to be correlated with DP Leadership Style at statistically significant level of 0.05, indicating that the owner-leaders with higher education qualifications have a greater tendency to be of DP leadership style.

Table 10 Leadership Styles and Education

Variables		Frequency (n)	r	p
Education	Leadership			

Styles				
	Entrepreneurial	37	.176	.297
	AD	37	.136	.423
	DP	37	.350	.034
	Transformational	37	.267	.110

3.3.4 Leadership Styles and Relationship with Founders

The analysis of the data (Table 11) found the different relationships with the founders to be correlated with different assessed level of fitness for Transformational leadership style at statistically significant level of 0.05, indicating at least one pair of association for the two variables. Pair-wise testing (Table 12) found grand-child relationship to be of lower assessed level of fitness for transformational style than that of spouse and offspring relations.

Table 11 Leadership Styles and Relationship with the Founders

Variables		Frequency (n)	$\overline{X}$	SD	F	p
Entrepreneurial		7	4.20	.447	1.448	.241
Spouse						
	Offspring	31	3.79	.499		
	Grand child	8	4.00	.428		
	Founder	4	3.85	.660		
Total		50	3.89	.502		
AD		7	3.29	.807	.858	.470
Spouse						
	Offspring	31	3.19	.608		
	Grand child	8	3.13	.650		
	Founder	4	3.70	.416		
Total		50	3.24	.631		
DP		7	3.97	.373	.303	.823
Spouse						
	Offspring	31	4.12	.437		
	Grand child	8	4.03	.459		
	Founder	4	4.15	.342		
Total		50	4.08	.418		
Transformational		7	4.06	.660	3.000	.040
Spouse						
	Offspring	31	4.10	.584		
	Grand child	8	3.43	.571		
	Founder	4	4.05	.252		
Total		50	3.98	.611		

Testing for Difference

Table 12 Pair-wise Test for Leadership Styles and Relationship with Founders

Variables	(I) Relationship	(J) Relationship	Mean Difference (I-J)	p
Transformational	Grand Child	Spouse	-.63	.040
		Offspring	-.68	.005
		Founder	-.62	.084

3.3.5 Leadership Styles and Duration of Work with the Family Business

The analysis (Table 13) found duration of work with business to be correlated with the Entrepreneurial and AD leadership styles at statistically significant level of 0.05, indicating that the longer the leaders have worked with the business the more likely they would be of Entrepreneurial, or AD styles of leadership.

Table 13 Leadership Styles and Duration of Work

Variables		Frequency (n)	r	p
Duration of work	Leadership Styles			
	Entrepreneurial	30	.555	.001
	AD	30	.413	.023
	DP	30	.039	.837
	Transformational	30	.274	.142

3.4 Leader Qualities Conducive to Successful Family Business

A total of 43 respondents provided their opinions on the leader qualities contributing to take the family business to success with more than one response allowed (Table 14), the quality receiving the highest number of responses is the Decisiveness (and willing to take risk) with 37.21 percent of total respondents, followed by Open to Suggestions (23.26 percent) and Honesty (20.93 percent) respectively.

Table 14 Opinions on Leadership Qualities Contributing to Success of Family Business.

(n=43)

Leader Qualities	Frequencies (n)				Percent
	1st Gen.	2nd Gen.	3rd Gen.	Total	
1. Decisiveness	4	10	2	16	37.21
2. Open to Suggestions	1	7	2	10	23.26
3. Honesty	4	3	2	9	20.93
4. Morality	6	2	0	8	18.60
5. Always seeking new knowledge	2	5	1	8	18.60
6. Leadership	4	1	3	8	18.60
7. Justice/Fairness	2	3	1	6	13.95

4. Discussion

4.1 Leadership Styles of Family Business Owners

The first generation owners (the founders) of age range 41 – 65 and above are more likely to be DP and Entrepreneurial leaders with some mixture of Transformational ones. This could be the consequence of the early stage of business called Entrepreneurial Stage requiring leaders of change for growth, creativity for advancement (Sarnrattana, 2003). The founders have the sense of ownership fully committed to the business with Entrepreneurial Spirit. The commitment for success leads to willingness to take risks, decisiveness, accepting new approaches, and readiness to face failure. These are in line with researches findings indicating the requirement of Authoritative and Entrepreneurial leadership styles during the Start-Up period of business (Goleman, 2000; Flamholtz, 2000 cited in Hillburt-Davis, 2012). As the business expands, the abilities or skills of owners may be insufficient to manage the business. There is a need for capable persons or a larger management team (Jamornmarn, 2012), and the management style has to be more delegated and open for greater employee participation in the decision making. This is to enable the operations to response promptly to the changing competitive environments (Manotangworaphan, 2010). The finding is consistent with the research of Slahuddin (2010) indicating that the Baby Boomers of 52-69 years old would be confident in the Participative leaders. The DP leadership style allows the employees to participate in the decision making on what to accomplish and the policies to implement them, although the final decision is still with the leaders whether to accept the proposed measures. (U.S. Army Handbook, 1973 cited in Ejaz, 2011)

In addition to the two leadership styles mentioned above for the first generation, there are also transformational leaders in this group due to the fact that the current business situation is highly competitive. The leaders may adopt the Transformational style to strengthen the business. One of the factors contributing to the survival of family business is the ability to adapt in economic crisis because the leaders of family business has the decisive authority not having to depend on a large number of shareholders with potentially different ideas. The business could implement the chosen strategy effectively and quickly (Mulligamas, 2011). This could explain why the AD leadership style is still present for this generation although not to the large extent as the other three styles. It may still be necessary for the business. The AD style is more prevalent for this generation than for the second and third generations. This is necessary while there is still no clear directions and the new vision is being form, employees have to be directed to drive the vision (Goleman, 2000).

For the second generation owners with age range of 20 – 65 years and above, the DP and Transformative leadership styles are the most prevalent while the AD style least prevalent. As the inheritors of business in the second generation, they have a perspective different from the first generation (founders) in their knowledge-base and higher education qualifications more relevant to business management. They would also be more secure financially and able to take risk in their investment. The prominent feature of the second generation owners is the desire to build a distinctive brand or to widely publicize their business. They get the opportunity to experiment with their creative ideas, and expect to help run the business or to take over control in the capacity of owners but not knowing when (Beddor, 2009 cited in Tianput, 2012).

However, if during the second generation the business is expanding outside experts may be brought into the management team substituting the original team from the parent generation. To what extent the team could work together in unity through the creation of trust or the resolution of conflicts would depend on the approach and management style of the leaders (Jamornmarn, 2012). Consequently, DP leadership style is expected to be prominent because it allows the employees to

voice their opinions and take part in the decision making. The Democratic Leaders would facilitate organizational flexibility, responsibility, and the constant generation of new ideas (Goleman, 2000). This is consistent with the research findings of Salahuddin (2010) pointing out that the Generation Xers of 32-52 years old are supportive of Participative leadership, fairness, ability, and straightforwardness. They would lead through challenging new ideas and incorporate them into their decision, consistent with Yukongki (2010) findings that in modern Thai organizations, the leadership style would be skill-based, incorporating experience and ideas of others. The tasks are delegated but the leaders retain veto power. By relying on team work and participation, the leadership style of the second generation owners would be low on the AD style fitness score. The AD style is not suitable for working in team of experts with experience greater than the leaders (Goleman, 2000). If the business is in the growth stage, there is a need for Transformational leaders to turn the efforts of co-workers and follows to a level much higher than normally expected of them by developing their capabilities and expanding their potentials. They would be made aware of the vision and missions of company and management team, and encouraged to pay greater interests to the benefits of the organization, the group, and the society for the survival of the business (Bass, 1985; Avolio, Bass and Jung, 1999). This is consistent with the research results indicating that family business during expansion/growth period would need Democratic and Interactive/Cooperative leadership styles (Goleman, 2000; Flamholtz, 2000 cited in Hillburt-Davis, 2012).

For the third generation owners of 20 – 45 years old, the DP leadership style is the most prominent, mixed with some Entrepreneurial and Transformational styles. They are from the new generation just entering business with some influence from the previous generation. It is also pointed out by research that the new generation would prefer DP leadership style which allows team members to voice their opinions and to participate in the work and decision-making process, even though the leaders have the final call. This is appropriate for a team setting and quality focus rather than speed (Thaloengsri, 2011), even if this means higher costs from the never-ending series of meetings and the apparent lack of leadership for the employees' viewpoint (Goleman, 2000). The third generation owners exhibit the AD leadership style in second order following the first generation. This may be the consequence of a need for them to implement the set vision of the company, although this leadership style is not as prominent as the other three. A study on the strategy having great influence on new generation of Thai executives indicates that they are willing to accept behaviors beneficial to the organization more than their former behaviors (Ralston et al, 2005). The findings of GLOBE project also point to the Team-oriented and Participative leadership styles being the most efficient models for Thailand (Gupta et al, 2002).

Some of the third generation owners also exhibit Entrepreneurial leadership style due to the fact that being a member of the family they would have inevitably a sense of ownership. Given the opportunity to take part in the decision-making and to offer their opinions by the DP leaders, they would feel a heightened sense of ownership to act entrepreneurial. They could do this because they are not under the wing of the founders as much as the second generation. In some case the creativity in the organization has dwindled by the third generation and there is a need for a new blood forcing some restructuring of the business. Researchers have found that during the revitalization or demise stage of business, the organization should be led by executive with Authoritative and Entrepreneurial leadership styles (Goleman, 2000; Flamholtz, 2000 cited in Hillburt-Davis, 2012). As to the third generation exhibiting some mixture of Transformational leadership, it is suitable for many situations in the organization where the leaders must rely on the faith and confidence of employees in their leaders to create inspiration to drive the business forward. This is consistent with the work of Salahuddin (2010) that shows the Nexters generation of 32 – 52 years old to be leaders of Transformative or Participative styles.

On the other hand Greiner (1972) study finds that executives of small businesses would change their leadership styles either to protect the business, to assure survival, or achieve success. Even in the same line of business, the leadership style could varies with the stages of the life cycle of business (Greiner, 1972; Churchill and Lewis, 1983; Clarke and Pratt, 1985). There is still no research to confirm any one leadership style to be the best. It depends on the management approach and the surrounding circumstances facing the leaders in each case.

4.2 Correlations of Leadership Styles with Other Variables

This study finds the Entrepreneurial leadership style to be more prevalent among male than female. They could be explained by the gender differences in their conceptual and organizational practices. Female leaders tend to focus on relationship more than tasks and are less formal in command structure. Male executives would focus on tasks more than relationship and prefer to adhere to formal line of command. The female are more able in undertaking several tasks at the same time while the male work best focusing on the task at hand (Hillburt-Davis, 2012). The male family-members are therefore better suited to work in capacity of business owners.

The DP leadership style is more prevalent among business owners with higher educational qualifications. This could be the consequence of their effective application of learned leadership principles and theories to their organizations, consistent with the findings of Niffenegger et al (2006) concluding that the new generation of Thai would accept the DP leadership style much more easily than the older generations due to the higher education level and the changing social values.

The higher the age of the family business owners, the more likely their leadership style would be Entrepreneurial. This is in line with the finding that the leaders working with the family business for a long period would exhibit Entrepreneurial and AD style at highly fitted level. The older the leaders and the longer time they have spent developing the business dealing with obstacles and achievements, the greater sense of ownership they would possess. The successful leaders would have accumulated valuable experience, make decisive judgments and foresee insightful vision for the business. They would be aware of the fast-changing world situations, and the impending impacts to understand how the business has to react, especially in what the business has to offer to its customers. These are the qualities of the Entrepreneurial leadership style. On the other hand, these older leaders with their seasoned encounters in the business circle so much as to see through the ongoing competitive maneuver would exhibit AD leadership style by setting goals, objectives and methods with their own decisions. They would announce policies without suggestions from subordinates, and even guide them in certain situations where information about the problems is available (U.S. Army Handbook, 1973 cited in Ejaz, 2011).

On the findings that different relationship with the founders of leaders would be correlated with different assessed level of fitness of Transformational leadership style indicating the lower assessed level of fitness for the grandchild than for the spouse or offspring, the explanation could be more likely for spouse and offspring with closer association with the founder to enable them to exert influence and exercise power to implement definite changes.

4.3 Leader Qualities Conducive to Successful Family Business

Regarding the survey of opinion on important leader qualities essential for the success of family business, the first generation believe that morality and honesty are the basic foundations of every decent thing. The leaders, having to set the direction for the business and requiring a large number of people to perform accordingly, must be decisive. The second generation owners give

explain from in-depth interview that decisiveness is needed for the advancement of the company while open to suggestions is needed to be comprehensive and getting the right solution to the problem. Lastly, the current competitive environment forces leaders to seek new knowledge and approaches to navigate the business to success. The third generation leaders believe that the family business organization needs an appropriate executive with decisiveness to make timely changes relevant to the situation and willingness to listen to others for wider perspective for greater development of the business. In addition they emphasize that honesty is quality every leader should have. This is consistent with the study of Thaloengsri (2011) pointing out that leaders in Eastern cultures pay attention to morality, considerations, matters of the heart and opportunity for career advancement.

5. Conclusion

The aim of this research was to investigate leadership style in family business. Our results indicates that the first generation leaders (the founders) tend to exhibit DP and Entrepreneurial leadership style the most with some mixture of Transformational style. The second generation leaders tend to exhibit just DP and Transformational styles. And the third generation leaders tend to exhibit DP style the most with some mixture of Entrepreneurial and Transformational styles. The assessed level of fitness for AD leadership style is highest for the first generation followed by the third and second generation respectively.

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Analysis on Influence of Excise Tariff to the State Revenue and Sustainability of Cigarette Industry Business (A System Dynamic Approach)

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Abstract

Excise is one of the sources of the state revenue and gives a very important contribution to the State Revenue and Expenditure Budget (APBN), particularly in the sector of domestic revenue. Seeing the great amount of revenue obtained from cigarette excise, the Government plans to increase the excise tariff every year with the hope of obtaining bigger excise revenue compared to that in previous year. Such increase of excise tariff will also indirectly reduce cigarette consumption of the smokers who, in majority, are the poor, thus improving their health. On the other hand, the increase of excise tariff when being imposed without prudent calculation can create negative impacts to the sector of cigarette industries causing bankruptcy and termination of thousands of their workers to be jobless. Observing this matter, the policy in cigarette excise tariff has a systemic impact to the state revenue, so that each scenario in excise tariff policy needs to be considered deeply and properly and also to use the suitable tools. So far, a systemic study on cigarette excise tariff policy has never been thought over thoroughly in the effort to maximize the state revenue and to continuously support the cigarette industry business, so that it is worried that the excise policy applied by Government tends to be not maximum and impartial to all parties (the cigarette industries and the Government itself). Therefore, solution to this problem is performed by a modeling which applies a system dynamic approach. This approach serves to illustrate the model as a whole and to perform simulation of the Government policy scenario. Based on research, a result has been obtained declaring that the scenario of fixed excise tariff increase provides ideal and supporting impacts to the sustainability of

cigarette industry business and to the state revenue, namely by increasing the excise rate annually at the sum of 5%, 10% and 30%.

Keywords: Excise Tariff, System Dynamic, Cigarette Industry

1. Introduction

Excise is one of the sources of state revenues and gives a very important contribution to the State Revenue and Expenditure Budget (APBN), particularly in the sector of Domestic Revenues. Cigarette excise gives the greatest proportion of contribution to state revenue compared to that of the two other types of excises, namely ethyl alcohol and beverages containing ethyl alcohol. Data in 2010 showed about 95% of total excise revenues derived from the machine-rolled clove cigarette products, hand-rolled cigarettes and machine-rolled white cigarette products. This excise contributes about 8-9% of the total state revenue from all sectors ('Neraca' Magazine, 2010). According to Rachmat (2010), based on Bank Indonesia's 2008 Annual Report and the Report on Excise Output Sharing Fund and that of 2010, the value of state revenue from cigarette excise revenues from 2001 to 2010 continued to increase at the average rate of 18% per year, and reached around IDR 56 trillion in 2010 from IDR 11.1 trillion in 2001. However, when calculated based on the total excise revenue as a whole, the percentage of cigarette excise revenues in 2010 (95%) is lower than that in 2008 (98%). This is an explainable result as a reaction to the impact of people awareness upon the danger of smoking and opposing any form of services from the cigarette products, including consuming such cigarette. The government has also responded by issuing social policies supporting the people reaction, such as prohibition on smoking in public places (Tanjungsari, 2009).

Realizing the importance of state revenue deriving from the sector of cigarette excise giving very big contribution to the state treasury every year, the Government plans to increase the excise tariff in 2011. As stated at the Publication on Policy on Excise for Tobacco Products in 2011, the policy in increasing this excise tariff is made in the scheme of achieving the revenue target for the 2011 State Revenue and Expenditure Budget deriving from the sector of tobacco excise, namely at the sum of IDR 60.07 trillion. This policy in excise tariff is only applicable at two groups of tobacco factories, namely the ones producing the *machine-rolled clove cigarettes* (SKM) and the *hand-rolled clove cigarette* (SKT). Other groups of tobacco factories (producing sliced tobacco, cigar, *'klobot'* – cigarette wrapped by corn husk, *'kelembak menyan'* – cigarette mixed up with incense of gum benzoin, and others) are not subject to this policy, because the Government wants to protect them, in which they tend to be small in their manpower proportion and in their business development (Regulation of Minister of Finance, 2011).

Although the reason of the government in issuing such excise tariff policy is mostly to achieve the target of State Revenue and Expenditure Budget (APBN) – 2011, this policy indirectly gives the impact to the decrease of cigarette consumption and improvement in the level of people health. Based on the data from *Basic Health Research* in 2010, it is found out that approximately 34.7% of the Indonesian population is active smokers who are mostly living at rural areas, with low level of education and low economic status. In term of economic power, it is true that poor people are very sensitive to the price (Ross & Chaloupka, 2006). Due to this excise increase, majority of cigarette consumers of the poor class tend to reduce the consumption or even not to consume the cigarette any more. This, at the same time improves their health.

At present, government policy apart from increasing cigarette excise in controlling the adverse effects of smoking to the health is just at the initial stage of reminding people upon the

danger of tobacco/cigarettes. Another step taken by the government is issuing the Law No. 36 the year 2009 on Health, declaring that nicotine is an addictive substance. In addition to policy issued by the Government, a growing number of communities having great concern to health and environment make their opposition by issuing their own policies. For example, the Indonesian Islamic Mufti Council (MUI) issued a 'fatwa' (binding instruction) that the cigarettes are forbidden for children and women. However, the fatwa is still considered indecisive and anti gender because it does not prohibit adult males (Rahmat, 2010). Various regulatory policies are either from the government or from the organization or community have the positive aim to reduce the danger of smoking, but the policy of increasing excise rates is more effective, because this policy is evenly applied to all parties (groups of all ages, economy, and gender) and directly affects the demand, namely the cigarette consumers. Cigarette excise tariff policy certainly has a positive impact to people health and state revenue, but it will have a negative impact to all sectors of tobacco industries, including as well the small-scale cigarette industries. Wibowo (2003) using data from the Central Statistics Agency (BPS) shows that in 1997 there were 226 tobacco companies, in 1999 increased to 247 companies, and in 2002 dropped to 244 companies. Growth in the number of tobacco industry will increase demand for labor. From the manpower absorption point of view, in the period 1997 - 2002 the number of workers engaged in this industry showed an increase at in the average growth of 4.08% of the tobacco industry workers per year.

Considering the economic crisis in Indonesia in 1998, it proves that the tobacco industry can survive, or in other words, it is not affected by the monetary crisis. However, if the policy of increasing cigarette excise is not deeply and properly thought over, the tobacco industry is likely to experience bankruptcy. One of its examples is the one occurred in the area of Malang in 2011. The Tax and Excise Service Office of Malang East Java noted that there were 45 tobacco companies had gone out of business due to higher excise rates. From the former amount of 224 factories, now there are only 179 left (Sriwijaya Post, 2011). Bankruptcy causes the entire cigarette industry workforce has the potential to be unemployed. Mechanization of the industry is another threat that could potentially lead to unemployment. Especially for the tobacco industry producing the machine rolled clove cigarettes and machine-rolled white cigarettes, in which the demand for these two types of tobacco products is higher than the others. (Tjahjaprijadi & Indarto, 2003). The tobacco industry also realizes that people are getting more and more sensitive to the health and begin to understand the negative effects of smoking (Antariksa, 2010). Due to people's awareness and implementation of excise tariff policy increasing the retail price of cigarettes, cigarette demand will decrease, and causes the decline in company profits. When profits are declining to the point of bankruptcy, the tobacco industry is likely to terminate lots of its workers.

Such situation makes the cigarette excise tariff policy dynamic and causes pro-contra opinion among people and Government. In one hand, the impact of this policy is able to increase the state revenue, but on the other hand, it can lead the cigarette industry to bankruptcy causing unemployment for the cigarette workers. Based on two research gaps which have been reviewed in the previous about the there is no research reviewing the impact of excise tariff policy to the cigarette industry and all current research is only in cigarette industry so that there is no research which conduct the relationship between cigarette industry and cigarette excise tariff. Therefore, an analysis needs to be carried out to know how large the impact of excise tariff policy is to the state revenue and to the sustainability of cigarette industry business in order to be able to obtain the win-win solution, meaning increasing the state cash revenue and remains supporting the survival of cigarette industry.

Due to the fact that the excise tariff policy to the tobacco industry and the state revenue have a systemic connection, each policy scenario should be considered properly and use the right tools as

well. So the goals to be achieved in this research is to predict the impact of policy scenarios on income excise tariff to the state revenue and to the behavior of the tobacco industry and also to obtain the suitable policy scenarios in excise tariff, so that it will not reduce state revenue and give other implications related to the future of business in tobacco industry.

2. Research Methodology

The problems tariff excise on industry this cigarette is a complex problem. the complexity of this problem can be seen from the many variables affect the system, the scope of the problem and the long of the period study (30 years). In this study used simulation methods to accommodate the complexity of the problem cigarette industry. Borschev and Filippov (2004) describe the differences between the methods of analytical and simulation models as shown at figure 1. Analytical methods (commonly called static models) is a functional result of mutually influential input (number of parameters). Analytical solutions do not always exist, or it is sometimes difficult to find a solution. While dynamic simulation or modeling more easily applied. Simulation is a model of the execution process occurs at a specific time (discrete or continuous). In general, a complex problem requires a time parameter as a dynamic factor, then the simulation modeling is a better approach.

Ummatin (2009) describes the problems that can be applied in a dynamic system has at least two characteristics, namely:
1. Problem needs to be dynamic, meaning that the dynamic tendencies involving complex systems which behavior patterns are constructed by the system with time.
2. Those problems must involve feedback (feedback loop). Thus reflected causal relationships between variables.

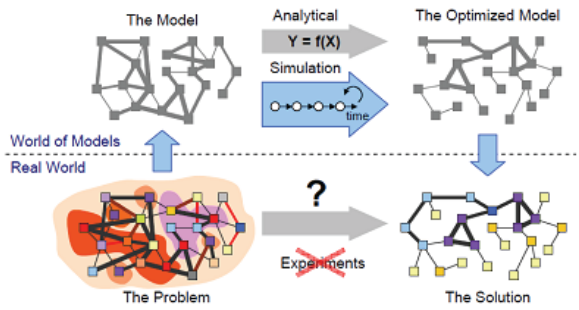

Figure 1 Comparison between Analytical Method and Simulation
(Source: Borshchev & Filippov, 2004)

Referring to the problems already been mentioned at the introduction, the first step in this research is to identify the existing condition of the system to be observed. Previously, in order to strengthen the basis of research, a literature study is made as a guide in solving problems and in achieving research goals. Having learned the variables of identification on the existing conditions influencing to the model, an input-output diagram is further developed by classifying the controllable input variables and the uncontrollable input variables, as well as the expected output variables and the unexpected output variables in order to maximize its positive impacts of the policy to the problems encountered by cigarette industry and in anticipating the unexpected negative impacts.

Input output diagram illustrates the variables affects the observation system as shown at figure 2. Influential variable is classified in order to make it easier to understand the position of each

of the variables in the system. Controllable input or commonly called the independent variable is the amount that is filled by the modelers to simulate the behavior of the observed system. Controllable input variables included in the study of Cigarette Excise Tariff, Retail Selling Price and Cigarette Market Transaction Price. Uncontrollable input is an input variable in the model but the amount of data in fix condition, uncontrollable input has gotten from secondary data on the related agency. Uncontrollable inputs in this study are inflation, the Consumer Price Index, Tobacco and Clove Production and Population. Environmental variables considered in this study are the Government Excise Tariff Policy and Population. Expected output is a positive impact of the application of excise tariff policy with parameter Tobacco Industry Profits and State Revenue from excise. While the Unexpected output is the inverse of the Expected Output.

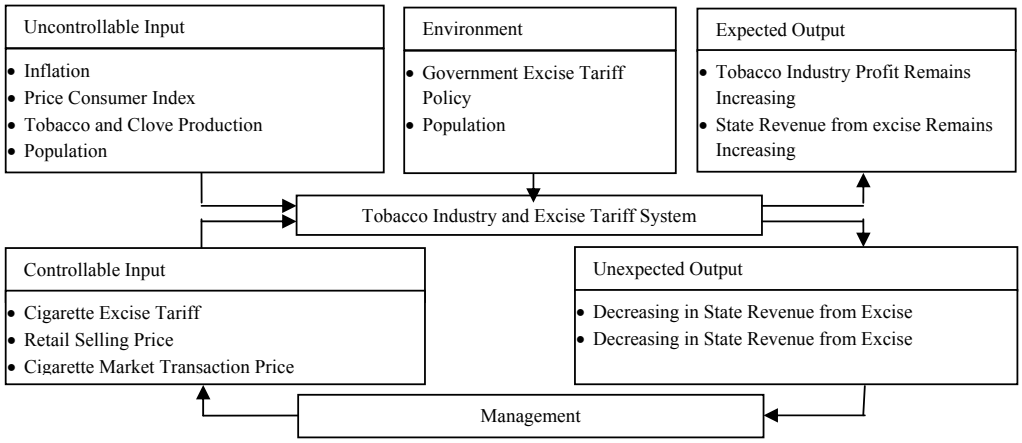

Figure 2 Input-Output Diagram

Starting from the standpoint of reality in the problems covering the scopes of tobacco industry and knowledge on variables based on the previous input diagrams, the research framework is then developed in six analytical aspects, inter alia: analysis on excise tariff system, analysis on cigarette production, analysis on cigarette demand, analysis on cigarette customers, analysis on human resources in tobacco industry and analysis on tobacco and clove agriculture. It is expected that the outputs of analyses can be used to obtain the sustainability in tobacco industry and to increase the state revenue. The developed research framework is shown on Figure 3.

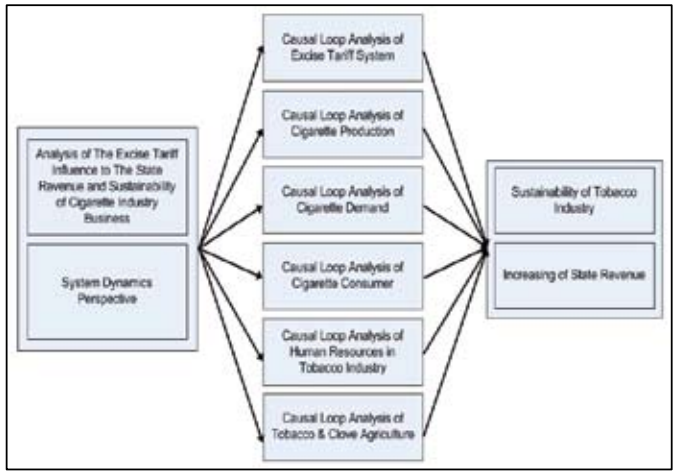

Figure 3 Model Framework

The next step after defining the research framework is to develop the causal loop diagram. According to Wang (2008) explains dynamic system is developed by considering feedback loops, variables and equations. Feedback loop is defined as a closed chain of causality. Causal loop diagram intended to know the relation among the respective research variables in term of problems encountered by tobacco industry as well as to approximate the patterns of complex behavior of problems in tobacco industry from the viewpoint of the basic behavior of the respective causal relations. Muhammadi et al (2001) describes the determination of positive and negative feedback must first be determined which is the cause and which become effect. The developed Causal Loop Diagram is shown in Figure 4.

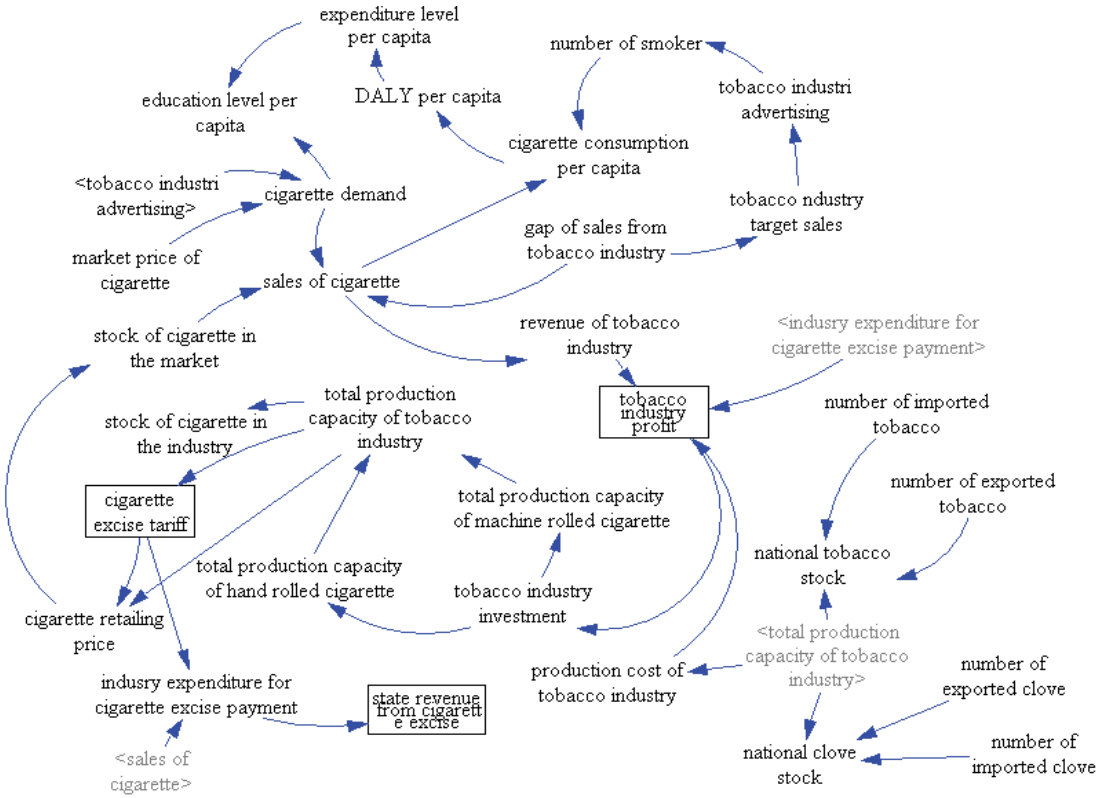

Figure 4 Causal Loop Diagram

2.1 System Dynamics Simulation Model

After conceptualizing the model, the next step is to formulate a model using stock and flow diagram. Model presented by Forrester (1968) is the basic of experimental investigations that are relatively inexpensive and time-efficient than if it is conducted experiments on real systems. Stock and flow diagram will be able to describe the system in detail because it will pay attention to the influence of the relationship between the variables each time, so there will be a variable indicating accumulation results in a system called 'level', as well as a variable constituting the system activity and affecting the level, namely the 'rate'. Mathematical formulation is carried out at the preparation stage of stock and flow diagram in Vensim software. Having got the model mathematically formulated, the model will then be able to be simulated. In order to make this research represents the real problem and to make author easier when building the model, the problems are divided into several sub models. Sub-models in this study are as follows:

- Tobacco Industry Sub-model

This sub model illustrates the variables affecting the accumulation of profits of tobacco industry, namely tobacco industry revenues and expenditures of the cigarette industry. Accumulated profits of cigarette industry in the form of level are obtained by calculating the difference between the income rates of the cigarette industry and the expense rate of tobacco industry.

- Cigarette Production Sub-model

It describes the production of cigarettes per type of cigarettes, namely SKT (hand rolled clove cigarette), SKM (machine rolled clove cigarette) and SPM (machine-rolled white cigarette) along with each faction, Group I, Group II and Group III. The rate of production is affected by the total labor productivity (for cigarette of SKT type) or a total production capacity of machine-rolled cigarettes (for cigarettes of SKM and SPM types).

- Cigarette Demand Sub-model

Total demand is influenced by the price of market transactions, the number of active smokers, amount of expenditures on cigarettes per quintile level of spending, and the fraction of the number of smokers by level of expenditure.

- Cigarette Consumer Sub-model

The addition rate of cigarette consumers is affected by the influence of big cigarette advertisement campaigns to increase consumer of cigarettes, the number of inhabitants and the total percentage of smoker candidates. Total percentage of smokers is the sum of the percentage permitted per quintile spending levels.

- Cigarette Industrial Resources Sub-model

This sub-model describes resources in cigarette industry production, which includes labor, raw materials, and production capacity of machine-rolled cigarettes.

- Excise Tariff System Sub-model

The applied system is the *Excise Tariff System of 2010*, classifying the factories into several groups. Value for the retailing price per pieces variable, is determined by the cigarette production type and factory production capacity.

- State Revenue Sub-model

The state revenue sub-model describes the state profit received from the tobacco industry. Income received from the tobacco industry is in the form of cigarette excise revenues, constituting the addition of three variables, namely acceptance of SKT cigarettes revenues from SKM cigarettes, and revenue of SPM cigarettes.

- Tobacco and Clove Agriculture Sub-model

This sub-model describes the farming of tobacco and cloves constituting the main source of raw material in production of cigarettes. As boundaries of this study, the focus of this sub-model is only to describe domestic stocks of tobacco and cloves.

- Health Level Sub-model

The health level sub-model set up here refers to *Disability Adjusted Life Years* (DALY), but discussion on DALY in this study is in macro level and not detailed. DALY in this study is applied to find out how much the level of spending and level of education per capita is.

2.2 Model Verification and Validation

Verification of the model is to test the conformance of logic on the model and to confirm no errors occur on the model built. The verification process is done by the unit and error checking on the model. Validation of the model is to test whether the model has already been capable to represent or describe the actual system. The model validation used is the model structures test proposed by Shreckengost (1985), the model parameter test, the limits adequacy test, the extreme conditions test, and the model behavior test using method proposed by Barlas (1996). The output testing is performed at the variable of state revenue from excise, total manpower employed in tobacco industry, and production of tobacco industry. Validation test is conducted by means of several testing as described below:

- Model parameter test.

Model parameter test is carried out is 2 ways, namely by input variable validation and by logic validation in inter-variable relation.

- Extreme condition test

The aim of extreme condition test is to test the ability of a model, whether it can function well or not in an extreme condition, so that it can provide contribution as an instrument in evaluating a policy.

- Model structure test

This model structure test (white-box method) is intended to know whether or not the built model structurse has already been in conformance with the actual system structure.

- Model behavior test

The model behavior test or replication is performed to know whether or not the model has already behaved similarly with the actual condition or repfresentative.

3. Simulation Result Analysis

In Table 2, it shows clearly that at the existing condition, the tobacco industry profits will continuously proceed to positive gain every year. Although at the average it continues to increase, the graphic shown is little bit wavy, indicating a fluctuating net income in that year. The decrease in net income is due to the smaller rate of earnings than the expenditure of the tobacco industry. Thus, the annual profit gained by the tobacco industry becomes smaller. At the existing condition in which the excise rate has not yet undergone an increase, the biggest expenses are contributed by the production cost in raw material sector. The tobacco industry purchases raw materials when stock of raw material at the warehouse is running low. Meanwhile, in each purchase the tobacco industry always buys in great amount for the purpose of long-term security of stock for three years. So, at the time of purchase of raw material, the tobacco industry must spend a large amount of cost and slightly reduce its net income by then. Also, seeing a great demand from the tobacco industry, the farmers tend to raise the price of their commodities.

The next simulation result is the state revenue from cigarette sector as shown in Table 3. The result of state revenue is likely to increase steadily and does not indicate any decline in the rate of revenue. The revenue from cigarette excise in 2030 will increase five times as much compared to that in certain periods. This indicates that the existing condition of the state revenue in 2010.

4. Design of Excise Tariff Policy Scenarios

Design on scenarios already been applied to existing models will give impacts to particular variables constituting the goal of research. Variables include accumulated profits of the tobacco industry and the state revenue. The organized scenarios are divided into two main scenarios each of which has several sub-scenarios.

4.1 Scenario 1

The first scenario is to provide a treatment change in excise rates. The basic value of excise rate is the one used in 2010, namely at 0% and then the different numbers of excise rate are implemented as shown as in Table 1.

Table 1 Name Sub-scenario in Scenario 1

Sub-scenario	% increasing of excise tariff
Scenario A	0
Scenario B	5
Scenario C	10
Scenario D	30
Scenario E	57
Scenario F	100

In this scenario, the accumulated profits of the tobacco industry will be dropped if the excise rate is increased as shown in Table 2. It is reasonable and appropriate logic, in which the higher the excise rate is, the greater the tobacco industry expenditures will be. Growing expenses are associated with the growing prices of raw materials and the cost of repayment of excise itself. Although the tobacco industry profits drop down and cause momentary loss, they are still able to survive so as not to totally bankrupt.

Table 2 Simulation Result of Scenario 1 on Cigarette Industry Profit Accumulation (million Rupiah)

Year	Scenario A 0%	Scenario B 5%	Scenario C 10%	Scenario D 30%	Scenario E 50%	Scenario F 100%
2005	5,258,106	5258105.731	5,258,106	5,258,106	5,258,106	5,258,106
2010	29,443,746	29443746.27	29,443,746	29,443,746	29,443,746	29,443,746
2015	73,472,731	61227276.04	56,588,499	48,100,224	38,480,179	26,936,125
2020	103,009,939	85841615.79	81,905,165	69,619,390	55,695,512	16,708,654
2025	137,880,874	114900728.3	106,866,078	64,119,647	38,471,788	9,617,947
2030	168,250,230	140208524.8	133,314,041	111,983,794	22,396,759	3,359,514

The percentage increase in excise rates for scenario A, scenario B and scenario C, the cumulative gain of the tobacco industry still points out the increase, with the average results shown by scenarios A 20% higher than scenario B, and 25.21% higher than scenario C. Meanwhile, scenario D makes the accumulation of tobacco industry profits increase in a lower rate than the initial scenario and the third from 2020 began to show a downward trend. Scenario E and F had caused the tobacco industry accumulate net profit condition in zero dollars in 2020 and 2025. But after the year (2020/2025), the tobacco industry still survive with the accumulated earnings showing no increase. This is because the tobacco industry has to collect revenue from the sale of cigarettes already been

available previously in the market. The revenue collected would be a capital for the next production. However, this production could not be directly stabilized, because excise rates are too high. Thus, the tobacco industry will produce when they get income from cigarette sales, then production will cease along with the low profits earned.

Higher tax rate will lead to greater expenses to pay for excise in tobacco industry so that the greater revenues are obtained through customs. Table 3, shows that scenario F and E provide higher revenues among the four other scenarios, despite cigarette sales decline as the high tariffs imposed. However, this only lasts for 10 years from the application of scenario F and E, which show a downward trend thereafter. It shows that, in a scenario in which F and E start showing a downward trend, the tobacco industry lose a moment, and cut production. When the accumulated profits have been filled and not come to zero, the cigarette production begins again. This cycle will continue until the tobacco industry is really unable to produce. Meanwhile, four other scenarios will continue to show the increasing revenues, even it is able to exceed the tax revenue generated by the scenarios of E and F.

Table 3 Simulation Result of Scenario 1 on State Revenue from Cigarette Excise (million rupiah)

Year	Scenario A 0%	Scenario B 5%	Scenario C 10%	Scenario D 30%	Scenario E 50%	Scenario F 100%
2005	18,230,130	18,230,130	18,230,130	18,230,130	18,230,130	18,230,130
2010	32,099,006	32,099,006	32,099,006	32,099,006	32,099,006	32,099,006
2015	47,964,581	53,082,049	54,674,510	56,314,746	27,942,631	28,501,483
2020	69,746,426	75,221,835	77,478,490	79,802,845	38,938,002	39,716,763
2025	80,870,257	107,264,568	110,482,505	113,796,980	45,446,957	46,355,896
2030	96,626,413	172,819,968	178,004,567	183,344,705	66,319,676	67,646,070

Health level is indicated by the variable of DALY per person. The higher the excise rate is applied, the more decreasing the amount of cigarette consumption will be, so that the DALY per person will be less. The less DALY they have, the more productive time they get, so that they can have a large income and followed by the bigger spending level. In Table 4, it appears that the scenario F can make DALY per person 94% decline from the existing condition.

Table 4 Simulation Result of Scenario 1 DALY per person (year)

Year	Scenario A 0%	Scenario B 5%	Scenario C 10%	Scenario D 30%	Scenario E 50%	Scenario F 100%
2005	11.59	11.59	11.59	11.59	11.59	11.59
2010	6.13	6.13	6.13	6.13	6.13	6.13
2015	5.99	5.70	5.26	3.90	2.97	1.88
2020	6.23	5.93	4.82	2.56	1.65	0.86
2025	6.48	6.17	4.25	1.82	1.04	0.44
2030	6.62	6.31	4.08	1.36	0.65	0.27

4.2 Scenario 2

This Scenario 2 is the continuation of Scenario 1. This scenario has the same amount of sub-scenarios as Scenario 1, with different sub-scenario names as shown at Table 5. Additional input is simulated on scenario 2, namely the restrictions on the number of cigarette production.

Table 5 Name Subscenario In Scenario 2

Sub-scenario name	% Increase in Excise Tariff
Scenario G	0
Scenario H	5
Scenario I	10
Scenario J	30
Scenario K	57
Scenario L	100

The difference between this scenario and Scenario 1 is the presence of restriction condition development of cigarette production on the model. The limitation of this cigarette production will start in the year 2015 at the maximum amount of + 260 billion pieces of cigarettes. Such condition addition is quoted from the Roadmap of Tobacco Processing Industry issued by Ministry of Industry. (Ministry of Industry, 2009).

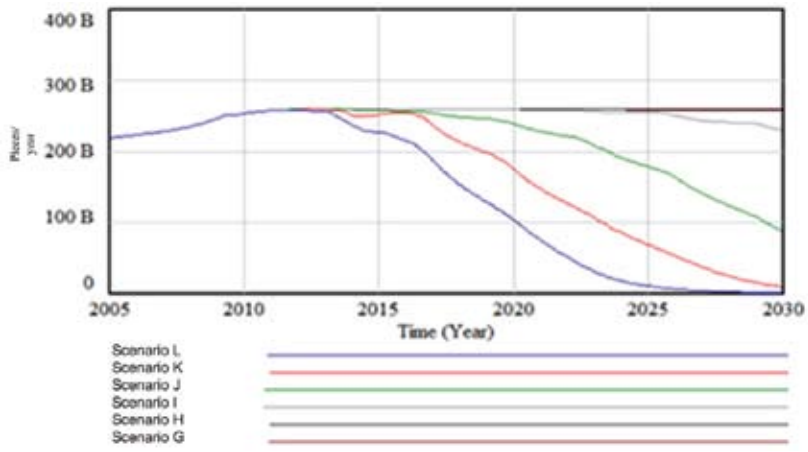

Figure 5 Simulation Result of Scenario 2: Total Cigarette Production

Due to the implementation of the government's restrictions on cigarette production, starting in 2015, the tobacco industry will undergo a constant production. However, because the tobacco industry has a large rate of increase in production capacity each year, the tobacco industry will reach a production value of 260 billion pieces of cigarettes by 2015, as shown at figure 5. So, in that year, production will be kept stable until meeting the production restrictions when entering the year 2015. Scenarios G and H show the flat production conditions in 2015 until the end of the simulation period. Scenarios J, K, and L, show the conditions of production beginning to decline before 2015, while scenario 1 shows the conditions of production decline before 2020. This decline is caused by the decrease in production capacity, triggered by the collapse of the tobacco industry in that year.

Observing its impact to the accumulated profits of the cigarette industry, scenarios G, H, and I, remained showing the always positive and increasing results every year. Results shown by the other three other scenarios give the impact in the form of a decrease. Simulation result of Scenario 2 on the accumulation of tobacco industry profits is shown in Table 6.

Table 6 Simulation Result of Scenario 2: Accumulation of Cigarette Industry Profits (million rupiah)

Year	Scenario G 0%	Scenario H 5%	Scenario I 10%	Scenario J 30%	Scenario K 50%	Scenario L 100%
2005	5,258,106	5,258,105	5,258,105	5,258,105	5,258,105	5,258,105
2010	29,443,746	29,443,746	29,443,746	29,443,746	29,443,746	29,443,746
2015	70,411,367	61,227,276	56,588,498	48,100,223	38,480,179	26,936,125
2020	98,717,857	85,841,615	81,905,164	69,619,390	55,695,512	16,708,653
2025	132,135,837	114,900,728	106,866,078	64,119,646	38,471,788	9,617,947
2030	161,239,803	140,208,524	133,314,040	111,983,794	22,396,758	3,359,513

The percentage increase in excise rates for scenarios G, H and I, indicates that the accumulation of cigarette industry profits remain increasing, with the average results as shown by scenario G which is 13% higher than scenario-H, and 17% higher than scenario I. Meanwhile, scenario J makes the accumulation of tobacco industry profits increase with the rate lower compared to the three initial scenarios and commencing from 2020 will begin to show a downward trend. Scenarios E and F, cause the cigarette industry undergo an accumulation of net profit of zero rupiahs in 2022 and 2027. But after the year (2020/2027), the tobacco industry can still survive despite its accumulated profit does not indicate any improvement.

The government's step to make restrictions on cigarette production factually does not affect the amount of the state revenues deriving from the cigarette excise. It is proven that the increase in excise tariff imposed to cigarette production under restricted condition, the government still gains even bigger revenue. The higher the excise rate is applied per year, the bigger revenue obtained by the government.

Table 7 Simulation Result of Scenario 2: State Revenue from Cigarette Excise (million rupiah)

Year	Scenario G 0%	Scenario H 5%	Scenario I 10%	Scenario J 30%	Scenario K 50%	Scenario L 100%
2005	18,230,130	18,230,130	18,230,130	18,230,130	18,230,130	18,230,130
2010	32,099,006	32,099,006	32,099,006	32,099,006	32,099,006	32,099,006
2015	47,964,581	52,285,818	53,581,020	54,062,156	28,067,311	25,565,831
2020	69,746,426	74,093,507	75,928,920	76,610,731	39,111,744	35,625,936
2025	80,870,257	105,655,600	108,272,855	109,245,101	45,649,741	41,581,239
2030	96,626,413	170,227,669	174,444,476	176,010,916	66,615,595	60,678,524

But this excise revenue is going straight downhill when the tobacco industry undergoes an accumulation of its profits reaching zero rupiahs. This fits the logic in which when the tobacco industry has reached the cumulative gain of zero in its value, then the industry will no longer buy the cigarette excise, so that the government's revenue from excise will reduce and come to zero.

Table 8 Simulation Result of Scenario 2: DALY per person (year)

Year	Scenario G 0%	Scenario H 5%	Scenario I 10%	Scenario J 30%	Scenario K 50%	Scenario L 100%
2005	11.59	11.59	11.59	11.59	11.59	11.59
2010	6.13	6.13	6.13	6.13	6.13	6.13
2015	5.64	5.53	5.10	3.78	2.88	1.82
2020	5.86	5.75	4.68	2.48	1.60	0.83
2025	6.10	5.98	4.12	1.77	1.01	0.43
2030	6.23	6.12	3.96	1.32	0.63	0.26

In the DALY per person, scenario 2 exhibits the same behavior with that of scenario 1. However, because the scenario 2 applies conditions limiting cigarette production, then the existing conditions of scenario 2 (sub-scenario G) of DALY per person will be lower than that of scenario 1. Table 8 shows that scenario L is able to make DALY per person declining significantly than the scenario G (existing condition).

5. Scenario Comparison

Observing the data on the table of impacts on implementation of scenarios on each variable, it is shown that the sub-scenarios of the annual excise tariff increase at the sum of 0%, 5%, 10%, 30% can provide the most ideal results to two scenario conditions (production limitation and without production limitation). This ideal condition means that during the simulation period, the cigarette industry remains having positive increase in its profit accumulation, and the cigarette industry remains obtaining the increase in its excise revenue. However, among those four sub-scenarios on excise tariff increase, the sub-scenario of excise tariff increase at the sum of 30% (scenarios D and J) can give the value decreasing effect during the end period of simulation. Thus, it can be stated that the percentage at the sum of 30% becomes the ideal high limit in increasing the excise tariff in the four ideal sub-scenarios. Whereas the two other scenarios will make the variable values (profit accumulation of cigarette industry and state revenue) decrease till zero before completion of the simulation period.

6. Analysis and Conclusion

In the current situation, excise rates act as determining factor for continuity of business in tobacco industry. The higher the excise rate is, the more capable it can kill the tobacco industry business through large expenditures for full payment of excise which gives huge excise revenue to the government. However, based on research, the excise revenue will not last for long time because the high excise tariff will reduce production of cigarettes, so that the revenue will be smaller and smaller.

By running the simulations on existing conditions for 30 years, the condition of the accumulated profits of the cigarette industry will continue to increase and the state revenues from cigarette excise are also experiencing the same thing. This is due to non-existence of excise tariff increase on existing conditions, so that the tobacco industry is able to make maximum production and the state revenues from excise will also increase (in line with the increase in cigarette production). The scenarios either for restriction on cigarette production or without restriction on

cigarette production, the simulation results from the sub-scenario of excise tariff increase show that tobacco industry's accumulated profits will decline in line with the high excise rate imposed. Even with a excise rate increase of 57% (Scenarios E and K) and the excise rate of 100% (Scenarios F and L), the accumulated profits from tobacco industry will reach zero, as well as state revenues from excise will also reduce. This condition is caused by the increase in expenditures for the full payment of excise giving more burdens to the production costs in tobacco industry, so that the tobacco industry will gradually reduce its production and will also cause the decrease in the state revenues from excise.

From the simulation results, it is known that the sub-scenarios of annual excise tariff increase that will remain providing great benefits of excise revenue for the state and not extinguishing the cigarette industry (although any increase in excise rates leads to reduced profit accumulation of tobacco industry) are Scenario A/G (0%), scenario B/H (5%), scenario C/I (10%), and scenario D / A (30%). The research that could be conducted for the future is about going deep into the interaction of cigarette industry with tobacco and clove agriculture and it is expected to deepen and to review health level specifically.

Based on the results of a simulation in table above it is shown the impact of policy scenarios namely level of increase in excise tariffs and restrictions on the number of cigarette production. The impact is measured as follows: Cigarette industry profit accumulation, DALY, and State revenue from cigarette excise. So that the policy makers, in this case the government has considerations in order to make policy related to the amount of the appropriate excise tariff and production restrictions on cigarette industry. There are many aspects that can be further research to fill the gaps in this research. Further research related cigarette industry is considered tobacco and cloves agriculture sector deeply. It is also necessary to study the effect of the cigarette industry in welfare and health community.

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The Relationship between Family Influence, Stewardship Leader and Firm Performance in the Thai Family Business

by

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Abstract

This is a quantitative research focus on family business. The family business has become internationally interesting topic. Several research papers investigate the impact of family influence, stewardship leader on business performances. Many family business research papers were done in developed countries, on the other hand only a few study was done in developing countries. This study intended to explore the family influence in family business in Thailand, and stewardship leader in family business in Thailand. Further, this study could help to advance the development of the family firm theory. In addition, the study developed the model of how family influence could lead to better business performance, how family influence could bring stewardship leader, and stewardship leader could also lead to increase business performance. The study seeks to expand the scholar of doing research in the family business field in Thailand. The data were collected in Thailand, from 400 small and medium size family businesses in Thailand. A list of family businesses was generated from various source, includes Family business Research Center of the University of the Thai Chamber of Commerce. The primary data was collected through questionnaire sent to the family business companies under study. The structural educational model (SEM) via Lisrel program was used to analyze the data. The result of the study showed the significant positive relationship between Family influence and business performance, family influence and stewardship leader, as well as the relationship between stewardship leader and business performance

Keywords: Family Business, Performance, Stewardship Leader

1. Introduction

Family business represent the most frequency form of business around the world as well as vital to global economy, national economy and local business. According to Chua, Chrisman, & Steier (2003), the family business were unique as the result of family will influence the decision making, and the family business could be different from other kinds of because the family system and business system were interacted. Some literature pointed that the family system in family business makes family business success; however, some literatures argued that the family system should be separated from business. As this result, there was a room to study the characteristics of family business with compost of

the level of trust, commitment as well as altruism to impact the performance of family business, and this could make family business outperform. The researcher explored the unique of family business in Thailand to investigate the relationship of family influence and the performance of the organization, using a variety of performance indicators. In conclusion, family business is very important to the economy in the global and could create the wealth for all countries.

The study focuses on family business in Thailand, because Thai economy depends so much on family business. In Thailand, family business play an important role in creating new job, new business as well as encourage the economic development for the Thai local economy. In addition, the increasing of specialization on global business, the outsourcing strategy from multinational enterprise, and tough competition from regional economic partnership agreement could encourage the family business in Thailand to be compatible.

Previous researches have focus on performance of family business, management practice of family business as well as competitiveness of family business, however, there were some critique such as only a few study of family business field were done in Thailand, and there is a need to be more study about the competitiveness and performance of family business in Thailand. In addition, there was only a few empirical evidence supported the explanation of why the family business Thailand exists.

According to the Agency Theory, which explains that the interest of principal and agency are aligned, lead to lower agency cost. For this reason, the family business should outperform the non family business due to the lower cost of monitoring. Daily & Dollinger (1992) argued that there is no statistically significant support that the performance of family business and non family business are different. The researcher found that the literature about the relationship between the family influence on business and family business performance is lacking.

According to the stewardship theory, financial attachment as well as emotional attachment could make the top management team from family member devote to effort to the organization, because they concern on the survival of the organization, (Miller & Le Breton-Miller, 2006). For the reasons above, the performance of the family business is affected by the stewardship leader. On the contrary, there were lacking of empirical study of the relationship between performance of the family business and the stewardship leader in family business

According to Miller & Le Breton- Miller (2006), from the stewardship theory, when the family ownership and control increase, the emotional investment in the company and people should increase. The level of stewardship attitude will increase by focusing on long term tenure, learning, and committing to build long-term capability, when the CEO of the family business organization come from family member. The level of stewardship leader should increase, when the level of family influence increase. However, there were lack of statistically significant support the relationship between family influence and stewardship leader.

This study intends to explore the family influence in family business in Thailand, and stewardship leader in family business in Thailand. In addition, the study will test the model of how family influence could lead to better business performance, how family influence could bring stewardship leader, and stewardship leader could also lead to increase business performance.

1.2 Research Questions

The research questions that focus on the relationship among family influence, measured by the F-PEC scale, stewardship leader, and family business performance in the study are follows.

1. What is the relationship of family influence, measured by the F-PEC scale, and the business performance in Thai family business?
2. What is the relationship of stewardship leader and business performance in Thai family business?
3. What is the relationship of family influence, measured by the F-PEC scale, and the stewardship leader in Thai family business?
4. What is the impact of family influence, measured by the F-PEC scale, and the stewardship leader on the business performance in Thai family business?

2. Literature Review

2.1 The Performance of Family Business

The performance of family business has become popular topic among the family business since 1988. The measurement of employment growth is widely used to measure the success of small-scale business. In line with Daily & Near (2000), Chrisman et al. (2004), and Schulze et al. (2001) confirm that the performance of family business is focus on sale growth, employee growth.

2.2 The Family Influence

According to Chrisman et al. (2005),the success or failure of the family firm depend on the family influence on business, and the family influence means the characteristics of the interaction between the individual family business members, the family unit and the business its self which lead to business synergy. Klein et al. (2005) explain that the family influence of the family business is measure by three components which include the scale of experience, power and culture. The experience is measure by the type and the level of involvement to the family business. The power is measure by the source of power as well as the legitimate authority of the power. The culture of family business is measure by the cohesion of values among family member and extends those values to the business.

2.3 Stewardship Leader

Davis et al. (1997) explains that the stewardship leader has higher-order need achievement, collective serving, intrinsic motivation, commitment to value and has stewardship behavior. In addition, Miller and Lee Breton-Miller (2006) point that family business organization focus on long term perspective rather than non family organization, because it concern on the benefit of the next generation of the family. Stewardship theory explains that the stewardship leaders of the organization serves the organization for the benefit of the organization rather than pursue his or her self-interest and the leader's motivation and reputation are ties with the organization. The stewardship leader is motivated by the higher level of need, which is intrinsically, to act for the collective benefit for the organization. Miller & Le Breton- Miller (2006) also point that the stewardship leader especially in the family business organization, the leader is family member or emotional link with the organization, normally commit to

the mission of the organization, concern on the employee and the stakeholders, and motivate to do their best for the family business organization.

3. Research Methodology

For the study, this research used quantitative approach to collect and analyzes data. The famous family business resent literature which were published in the major publication of family business field liked Journal of Entrepreneurship Theory &Practice and Family business Review such as Davis, Allen and Hayes (2010), Zahra et al. (2008), Sciascia and Mazzola (2008), Kellerman et al. (2008), Rutherford et al. (2008), and Schulze et al. (2001) also used quantitative method to study the performance of family business.

The independent variable, the moderating variable and the dependent variable were validity test and reliability tested by the structural equation model (SEM), to assess the relationship between latent variable and observe variable. According to the related researches and the quality of the explanation of latent and observe as well as mediator variable, the Lisrel program were used to test the various predictors of the performance of the Thai family business.
The population includes all the family business in Thailand where business meets the study definitions. According to the practical consideration, the study focuses on the accessible population. The accessible population includes the family business that meets the following criteria: the ownership of family 51% or more, the intention to pass the business to the next generation (Astrachan & Shanker, 2004; Poza, 2004), the understanding of family influence on management of business (Gersick et al., 1997; Poza, 2004), and the maximum of employee are 250.

The data were collected in Thailand, from small and medium size family business. A list of family businesses will be generated from various source, includes Family business Research Center of the University of the Thai Chamber of Commerce. The primary data will be collected through questionnaire sent to the family business companies under study. The data will be collected by simple random sampling method, using the list provides from the Family business Research Center of the University of the Thai Chamber of Commerce. Every, 10^{th} entry will be picked to ensure randomness. The number of sample size should be 400, according to Taro Yamane formula. The data will be collected via questionnaire sent to 400 family business firms across Thailand. The questionnaire will be sent to management of family business

4. Results

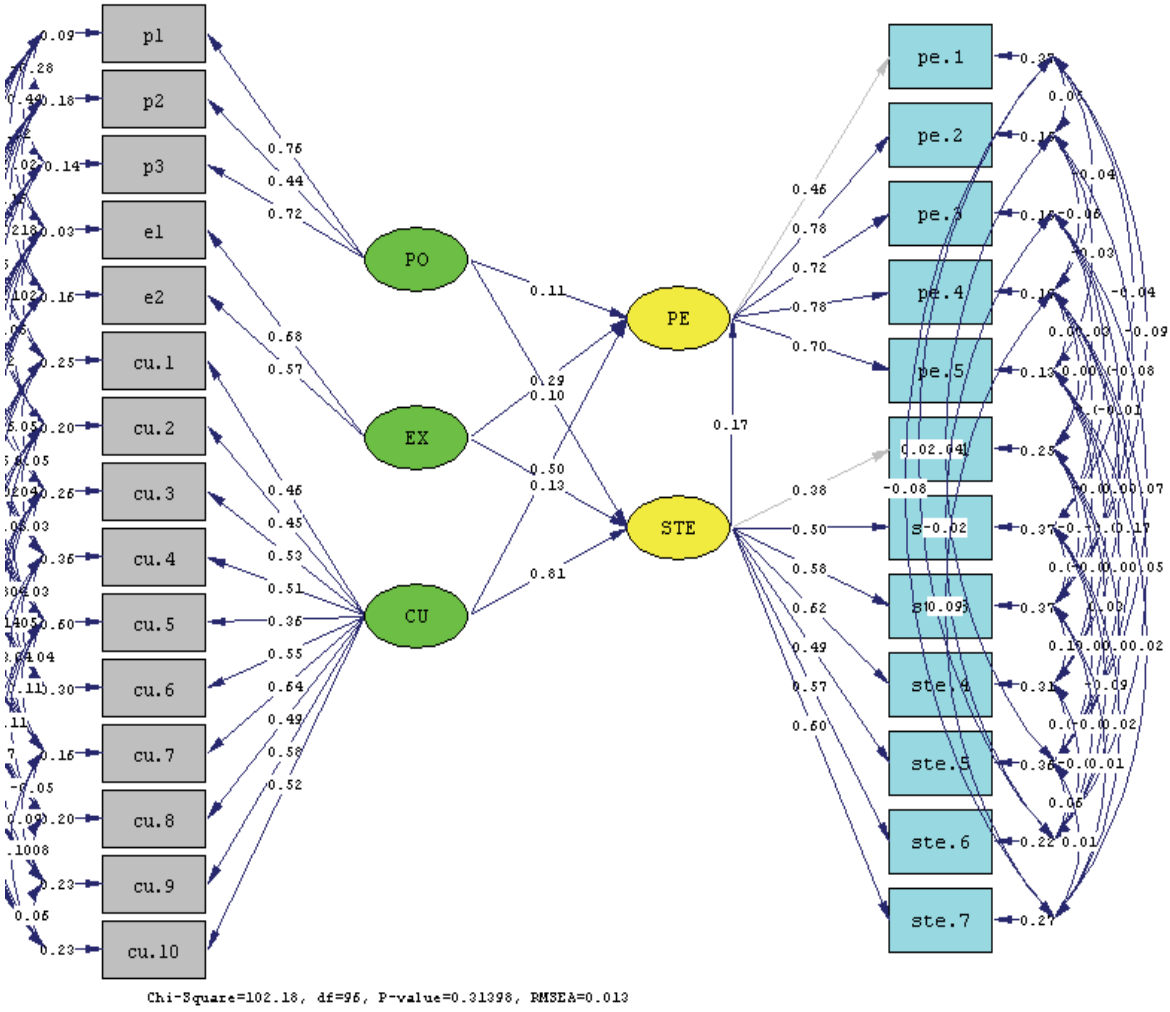

Figure 1 model

Table 1 The results

Variables		Factor Loading		SE	t
		b	Std. Solution		
Measurement model					
Matrix LX					
PO	P1	0.76	0.93	0.19	3.98
	P4	0.44	0.72	0.04	10.39
	P6	0.72	1.16	0.06	11.74
EX	E1	0.68	0.97	0.04	16.19
	E2	0.57	0.82	0.04	16.13
CU	CU1	0.46	0.67	0.03	14.82
	CU2	0.45	0.71	0.03	16.15
	CU3	0.53	0.72	0.04	14.83
	CU4	0.51	0.65	0.03	14.57
	CU5	0.36	0.42	0.04	8.55
	CU6	0.55	0.71	0.03	17.50
	CU7	0.64	0.84	0.03	20.06
	CU8	0.49	0.73	0.03	16.50
	CU9	0.58	0.77	0.03	18.05
	CU10	0.52	0.73	0.03	16.82
Matrix LY					
PE	PE1	---	0.61	---	---
PE2		0.78	0.89	0.05	14.99
PE3		0.72	0.88	0.05	13.87
	PE4	0.78	0.87	0.06	12.95
PE5		0.70	0.89	0.05	13.66
STE	STE1	---	0.61	---	---
STE2		0.50	0.63	0.05	9.47
	STE3	0.58	0.69	0.07	8.94
STE4		0.62	0.74	0.06	10.83
	STE5	0.49	0.63	0.05	9.96
STE6		0.57	0.78	0.05	12.41
	STE7	0.60	0.76	0.06	10.83
Structural equation model					
Matrix BETA					
STE→ PE			0.17	0.17	0.09
2.00					
Matrix GAMMA					
PO→ PE		0.11	0.11	0.03	3.66
PO→ STE		0.10	0.10	0.03	3.89
EX→ PE		0.29	0.29	0.04	6.73
EX → STE		0.13	0.13	0.04	3.13
CU→ PE		0.50	0.50	0.09	5.37
CU→ STE		0.81	0.81	0.07	11.20

Table 2 The Summary of model fit and the Correlation Matrix among the variable

Chi-square (χ^2) = 104.27 df = 96 χ^2/df = 1.086 (<2.0) P = 0.313 (> 0.05) GFI = 0.98 (---> 1) and (> 0.9) AGFI = 0.93 (---> 1) RMR = 0.028 (---> 0) RMSEA = 0.0013 (---> 0)								
Variables	PE1	PE2	PE3	PE4	PE5	STE1	STE2	STE3
(R^2)	0.37	0.79	0.77	0.76	0.78	0.37	0.40	0.48
Variables	STE4	STE5	STE6	STE7	CU1	CU2	CU3	CU4
(R^2)	0.55	0.40	0.60	0.58	0.45	0.51	0.52	0.42
Variables	CU5	CU6	CU7	CU8	CU9	CU10	EX1	EX2
(R^2)	0.18	0.50	0.71	0.54	0.59	0.54	0.93	0.66
Variable	PO1	PO2	PO3	PE	STE			
(R^2)	0.87	0.53	0.85	0.55	0.68			
Correlation Matrix		PE	STE	PO	EX	CU		
PE		1.00						
STE		0.63	1.00					
PO		0.20	0.13	1.00				
EX		0.34	0.15	0.23	1.00			
CU		0.64	0.81	---	---	1.00		

The figure 1, table 1, and table 2 which show the modified causal relationship of model that fit with the empirical evidences, due to the fact that χ^2 = 102.96 and degree of freedom = 96, and (χ^2/df) = 1.06, and P-Value = 0.313. The number explains that the overall model was fit with the empirical data (P-Value is more than 0.05, and (χ^2/df) is less than 2).

In addition, the overall model fit as well as the goodness fit index are acceptable due to the fact that goodness of fit index (GFI) =0.98 and adjusted goodness of fit index (AGFI) =0.93. Moreover, the root mean square residual (RMSEA) is equal to 0.013, which close to 0, and the slope of Q-plot is more than diagonal line. In conclusion, according to the reasons above, the model is satisfied.

The table 2 represents the estimated parameter as well as the statistic testing for the model of how power of family (PO), family business experience (EX), family culture (CU), and stewardship leader (STE) could influence on family business performance (PE). According to the modified structural model from the Lisrel program, the factor loading of each factor LX, which includes family power,

experience and family culture, the factor loading of each variable are positive from 0.42 to 1.16 and all value are significant at .05 ($p<0.05$) and all of the t-value are bigger than 1.96.

For the family experience (EX), all of the observe variable, which include the number of year that family business have been operated and the generation of the family business could indicate the experience of family business at 0.05 significant level ($p<0.05$). All of the observe variable of family business experience have positive loading factor, 0.97 for the number of year that family business have been operated 0.97 and 0.82 for the generation of the family business.

For the family culture (CU), all of observe variable also significantly indicate the latent variable at 0.05 level ($p<0.05$). All of the observe variables have positive loading factor from 0.42 to 0.84. The observe variable of family culture include family members feel loyalty to the family business, family members are proud to be the part of family business, family members intend to participate with the family business on long-term, family members influence on business, family member share similar value, family member care about the fate of the family business, family members willing to put the extra effort to help family business be successful, Family and business share similar value, family members agree with family business goal, plan and policies, and family members support the family business in discussions with friends, employees, and other family member. The highest loading factor is 0.84 for family members willing to put the extra effort to help family business be successful, and the lowest loading factor is 0.42 for family member share similar value. For the LY, According to the modified structural model from the Lisrel program, the factor loading of each factor LY, which includes family business performance (PE) and the stewardship leader of the family business (STE), the factor loading of each variable are positive from 0.61 to 0.89 and all value are significant at .05 ($p<0.05$) and all of the t-value are bigger than 1.96.

The study revealed that all of observe variable for the latent variable family business performance (PE), which include firm's growth in number of employee, firm's growth in market share, firm's growth in sale volume, firm's growth in profit, and firm's overall financial satisfaction. The highest loading factor is 0.89 for both firm's growth in market share and firms overall financial satisfaction. The lowest loading factor is 0.61 for firm's growth in number of employee.

For the matrix GA in structural equation model, all of loading factor have positive value and all of t-value are bigger than 1.96. The study show that the exogenous variable which include family power (PO), family business experience (PO) as well as family culture (CU) have positive relationship with all of the endogenous variables which include stewardship leader (STE) and family business performance (PE) at 0.05 significant level ($p<0.05$). The loading factors of GA have a value from 0.10 to 0.81. The highest loading factor is the relationship between family culture and stewardship leader (0.81), whereas the lowest loading factor is the relationship between family power and stewardship leader (0.10). For the matrix BA in structural equation model, all of loading factor have positive value and t-value are bigger than 1.96. The loading factor for the relationship between stewardship leader and family business performance is 0.17 and also significant at 0.05 ($p<0.05$).

According to the table 2, the correlation matrix table, the independent variable which include family power (PO), family business experience (EX) and family culture (CU) and the mediating variable, stewardship leader (STE) have a positive relationship with dependent variable, family business performance (PE) at 0.05 significant level. The correlations are from 0.13 to 0.81. The lowest value is

the correlation between family power (PO) and stewardship leader (STE), whereas the highest correlation is between family business culture (CU) and stewardship leader (STE).

According to the structural equation of this study, the squared multiple correlations are quite high, it rank from 0.18 to 0.93. For the family power (PO), the highest R-Square is PO3, the number of family member in the management team of family business. For the reason above, the number of family member in family business management team give the highest explanation of family power, where as the number family member as employee could have lowest explanation of variance family power. According to the structural model of this study, the squared multiple correlations of family business experience (EX) are also quite high, it rank from 0.66 to 0.99. It could inferred that both the time that family business have been operated as well as the number of generation of family business could explain the variance of family business experience very well. The squared multiple correlations of family culture (CU) are rank from 0.18 to 0.71. The lowest R-Square of family culture is CU5, family member share similar value, whereas the highest R-Square of family culture is CU7, family members willing to put the extra effort to help family business be successful.

According to the structural model of this study, the squared multiple correlations of stewardship leader (STE) are also quite high, it rank from 0.37 to 0.60. It could infer that each observer variable of stewardship leader could explain the variance of stewardship leader of family business very well. The squared multiple correlations of family business performance (PE) are quite high as well, it rank from 0.37 to 0.79. The highest R-Square of family business performance is PE2, the growth in market share, whereas the lowest R-Square is PE1, the family business growth in employment. Lastly, the R-Square of stewardship leader (STE) is equal to 0.68, the number is quite high. This means the independent variable, which include family power (PO), family business experience (EX), and family culture, (CU) could explain 68% of the variance of mediating variable, stewardship leader, STE. In addition, the R-Square of family business performance (PE) is equal to 0.55; the number is also quite high. This means the independent variable, which include family power (PO), family business experience (EX), family culture, (CU), and mediating variable, stewardship leader, (STE), could together explain 55% of variance of family business performance. In conclusion, the value of all R-Square and correlation matrix of each variable is quite high, acceptable and significant at 0.05 level ($p<0.05$).

Table 3 The Summary of Hypotheses testing

Hypotheses	Results
There is a positive relationship between power and business performance.	Supported
There is a positive relationship between family experiences and business performance.	Supported
There is a positive relationship between culture and business performance.	Supported
There is a positive relationship between stewardship leader and business performance.	Supported
There is a positive relationship between power and stewardship.	Supported
There is a positive relationship between experience and stewardship leader.	Supported
There is a positive relationship between culture and stewardship leader.	Supported
Power and stewardship leader together will have positive relationship to business performance.	Supported
Experience and stewardship leader together have positive relationship to business performance.	Supported
Culture and stewardship leader together will have positive relationship to business performance.	Supported

5. Discussion

The result of this study also in line with the agency theory, which explained the agency cost, could occur when there is conflicting of interest between the agent (manager) and the principal (owner of the firm). The agency cost associated with identifying, detecting, preventing the agency problem as well as the cost of failure of control managerial opportunistic behaviors, could lower when the power of family increase.

The result of this study in line with other study such as Pearson et al. (2008), and Nahapiet & Ghoshall (1998), which applied RBV theory with family capital theory and suggest that the family business capital resource compose of network tied, share vision, share language, trust, norm, obligation, expectation, identification and family business capital resource come from time, interaction, interdependence, closure, which referred to culture of family. In addition, the family business capital resource, which includes culture, has a positive relationship with family firm capability, which composes of effective information exchange, collective goal and collective action.

The result of the study could be explained by the stewardship theory, as well as supported by other study in family business and leadership field. For example, Gersick et al. (1997) explains that the family business prepare the corporation for the next generation, the intension to pass the corporation to the next generation, which encouraged the sense of stewardship.

The result of the study was also supported by the Stewardship theory, as well as other resent study such as Zahra et al. (2008). According to stewardship theory, the stewardship leader has direct relationship with the firm's strategic flexibility, which enhances the performance of the organization. This study also in line with the study of Fama & Jensen (1983), which pointed that the stewardship leader could provide the advantage to family business because agency cost between principal and agent is low.

6. Conclusion

According to the literature review of the study, there was also a gap in this field, such as there was no clear relationship between the family firm performance and family involvement in ownership of the family firm, especially in the developing country likes Thailand. In addition, there were no clear relationship between family influence on business and stewardship leader, and no clear relationship between stewardship leader and family business performance. The study could fulfill the gab by providing empirical evidence in Thailand to support the relationship between family influence, stewardship leader, and business performance.

According to the objective of the study which intent to explore the family influence, stewardship leader, as well as the performance of family business, the result of the study revealed the significant influence of power of family, experience of family business, and family culture to the stewardship leader, the influence of power of family, experience of family business, and culture of family to the performance of family business, as well as the influence of stewardship leader to the performance of family business.

The study also found that in general, the high value of means of the culture construct, the means values indicated that the family member which have highly commitment to the business, and that commitment composted of personal belief, a willingness to contribute to the family organization, and the desire of relationship to the family organization. The mean value of family business performance explained that the family business were increasing in employment at high level, increasing in market share, increasing in sale volume as well as increasing in business's profit.

The characteristic of the stewardship leader in this study, which include the leader who were concerning on the organization interest more than their own interest, long-term consideration, concerning on relationship, concerning on reputation, concerning on human resource, and sacrifice his own interest for the benefit of the organization, the mean value of the observe variable were considered high, which implied that the leader of the family business in this study have high sense of stewardship leader.

7. Implementation

The results of the study have practical implications for the manager of family business as well as manager of business in general. The different between family business and non family business should be the overlap of family system and business system.

This study also confirms that stewardship leader is the key to success of performance in family business. This study added that the power of family, experience, and family culture play a key role in indicating the level of stewardship leader, which has far more implication for strategic posture of the family business as the result of responsibility of stewardship leader to form the firm's culture. For the reason above, the stewardship leader is a key figure to give the direction to the firm. Consultants as well as practitioners should encourage the sense of stewardship leader to the leader of the firm by adapting strategic human resource practice and special leadership training program.

This study particularly present that practitioner should pay much attention to family culture, the empirical data reveal the strong positive significant relationship between family culture and business performance. The observe variable of culture which have high R-Square such as CU9 (Family members agree with family business goal, plan and policies), CU7 (Family members willing to put the extra effort to help family business be successful), CU5 (Family member share similar value), and CU8 (Family and business share similar value), therefore, in order to strengthen family culture the practitioner as well as family business consultant should focus on seminar, workshop and training.

The seminar, workshop, and training should emphasize on the routinely open discussion about the business value, family value, goal, plan, policies of family business. It is vital that every family member should understand and support the decision of family regarding of family business's future as well as that they agree regarding family business plans, goal, and policies. It is essential to strengthen a sense of pride within the family business.

The power of family through proportion of share hold by family member, family member as employee, and family member as management team could give business an advantage of concentrate ownership and management. Creating values visible and open is the only potential way of strengthen

relationship between family and business. According to the result of the study, the family business which has symbiotic relationship between family value and business value should have superior performance. If family business fails to do so, could lead to the problem, when business system is not synchronize with family system. When family culture is characterize by conflicts, all family members are not integrate, business value and family value are conflict, the family business could be destroy.

8. Limitation

The following limitations apply to the findings in this study were included the study focus on small-and-medium-sized family business, the study was done primarily on family business in Thailand, and the survey responses represent a given point of time. The empirical data were limited and could not capture change over times as might be possible with longitudinal data.

9. Recommendations for Future Research

The study of the relationship between family influence, stewardship leader and performance of family business opens many possible rooms for future research. These suggestions were derived from the research finding as well as conclusion of the research.

This study focused only small-and-medium-sized family firms as the result, there is need to explore the large family businesses to see if the result of the study could also apply to large family businesses.

This study included only family business in Thailand and therefore there is a room for studying the family business in South East Asian country, such as Singapore, Malaysia, Indonesia, Cambodia, Philippine, Brunei, Loa and Myanmar, to see whether the finding of this study could also apply to other South East Asian country. There is a need to extend the model of family influence (measured by power, experience and culture), stewardship leader, and family business performance to study the family business from other South East Asian countries to see whether they have the same relationship with this study.

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Assessing Information Logistic Development in Supply Networks

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Abstract

The digitization of business-to-business (B2B) information logistics has become an important issue to supply networks when trying to increase their performance. The digitization has already been successfully implemented in the invoicing processes of many organizations. However, developing other network processes towards the digital information logistics mode has become a great challenge. There is a growing need of information about this phenomenon but only few studies in scientific literature address it. To answer to this gap, the contribution of this study aims to identify and assess the key factors affecting the information logistics development in a B2B network in terms of different business processes. The study applies an explorative case study approach with the Delphi method and an internet based decision support software as the main data collecting methods. Several identified field experts were used to identify and analyze the data in iterative rounds.

1. Introduction

The development of the information logistics in the supply network process is often considered the first necessary step in the implementation of collaborative B2B processes (Lee et al., 2000, Fawcett et al., 2009). In this, the development of telecommunications, and more specifically and recently by utilizing the Internet, is considered one of the major boosts to B2B integration. With this development communication and knowledge sharing with supporting tools and concepts have increased their importance in supply networks (Alexander, 1985). For example, skills building in IT

are mentioned as one of the main management concerns (3rd out of 10) in business (Luftman and Kempaiah, 2007).

The benefits of information logistics and B2B integration should not be underestimated. Transformation from manually based processes to electronic and automated information logistics have been discussed in only a few studies. Perego et al. (2010) studied the benefits of supply network integration (a case of an order-to-payment process) involving manufacturers and specialized retailers in the home appliances industry and showed that the potential savings amount to up to 80 per cent of the costs, almost equally shared between buyer and seller. Indeed, the development of information logistics is considered one of the most essential parts of B2B integration (e.g. Dinter et al., 2010).

In the last two decades, companies have started to improve internal as well as external business process integration, in terms of electronic payment, electronic invoicing and even procurement and logistics processes of information as a whole. The key focus is on process transparency across the supply network and the main motivation is to improve the efficiency; to reduce the handling cost of information and to benefit from real-time information (Hoving el al., 2007). Electronic Invoicing development started during the last decade. Electronic payment and invoicing has acted as one of the key components of B2B integration and it is the catalyst to optimize the information logistics in procurement and logistic processes (Koch B. 2012). The total volume of invoices in Europe is estimated to be 32 billion, compared to 350 billion in the whole world. The estimation of electronic invoicing penetration varies between 18% in Europe and 5% in the world (Koch B. 2012). Thus it can be said that the impact of electronic and automated processes is huge not only due to its economic aspects but also due to its environmental aspects regarding the whole society.

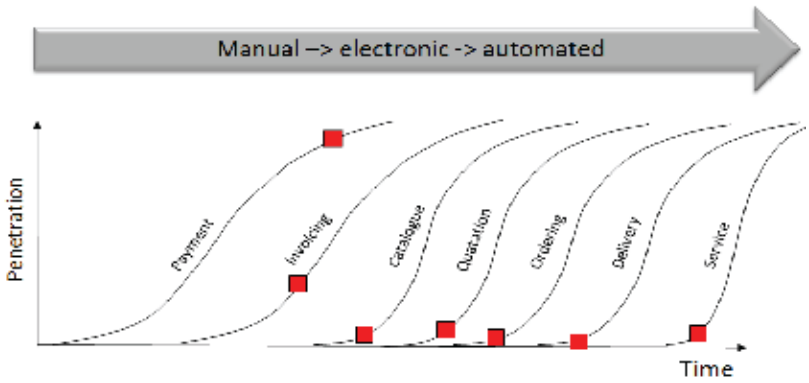


Figure 1 Illustration of the Development of Supply Network Information Logistics

As can be seen, the digitization of business-to-business (B2B) information logistics has become an important practical issue to the supply networks when trying to increase their performance. The digitization has already been successfully implemented in the invoicing processes of many organizations. However, developing other network processes towards the digital information logistics mode has become a great challenge. There is a growing need of information about this phenomenon from the practitioners, but only a few studies in scientific literature address it. In this, the lack of scientific literature in this field opposes difficulties in addressing the subject in among academics, in terms of imperfect conceptual understanding. Therefore, the objective of this study is to provide new information and knowledge by identifying and assessing the key factors affecting the development of information logistics in the supply network in terms of different business processes. The study applies an explorative case study approach with the Delphi method

and an internet based decision support software as the main data collecting methods. Several identified field experts were used to identify and analyze the data in iterative rounds.

The rest of the study is structured as follows: The second section will briefly present the relevant literature regarding information logistics development. Thereafter the third section will present the empirical study with the methods used, followed by the empirical results. Finally, we will conclude the paper by presenting the key findings of the study.

2. Literature Review

Information within the supply network has become a vital element for B2B integration, performance and successful management implementation (Chen et al., 2011). Information exchange in the supply network refers to the extent to which information is communicated between the network partners. To enable dynamic actions and decision-making, the information exchange and information quality are very important issues for coordination operations within the supply networks (Li and Lin, 2006; Fiala, 2004). Most approaches to network information focus on certain user groups or processes without discussing the integrated, network-wide information logistics (Dinter et al 2010; Inmon et al., 2008; Kimball et al., 2008).

According to Dinter et al. (2010), information logistics can be defined as "the planning, implementation, and control of the entirety of cross unit data flows as well as the storage and provisioning of such data". Information logistics should provide value to the whole network not only by benefits but by cost reduction and eliminating risks as well (Dinter et al 2010). Information logistics planning supports businesses to achieve strategic goals in the long term by harmonizing technical solutions used in short-term business needs. The planning and implementation of information logistics requires many stakeholders in different levels of the network.

Information logistics in a supply network can be understood from the system point of view, meaning that the whole network forms an interoperable subsystem where information is exchanged electronically end to end and offering the right information at the right time and in the right place and analyzed correctly for people's use (Dinter et al 2010; DeLone W.H and McLean E.R. 1992; DeLone WH. (2003); DeLone WH. (2004). In doing this, ICT is typically considered an enabler to (re)design, manage, execute, improve and control business processes both within and between organizations (Melao, 2009). However, according to Dinter (2012), companies are no longer primarily concerned with establishing analytical IS but rather challenged by continuously operating and further developing these systems according to changing business requirements and emerging potentials of IT innovations.

Information logistics in terms of B2B integration includes the improvement of business processes by the use of ICT in intranets, extranets and the Internet to conduct business. B2B integration has been defined by The International Centre for Competitive Excellence as ''the integration of key business processes from end user through original suppliers that provides products, services, and information that add value for customers and other stakeholders" (Liu j. 2005). B2B integration can be understood as collaborations within supply chain partners using ICT in business interaction, which is the exchange of a business document over the internet in a business process as part of information logistics.

Sheth (1996) lists four paradigms (Global competitiveness, TQM philosophy, Industry restructuring, Technology enablers) that have an enormous effect on organizational buying behavior.

These paradigms have led towards global sourcing and from transactional relationships towards closer relationships in the supply chains. Company borders are blurring and the competition is nowadays more or less between supply chains. In the complex and uncertain world where agility is crucial for companies' survival, efficient ways of sharing and using information have become critical for business success. Typical benefits of Internet-centric business models are listed by Bakos (1998) in the following: Reducing search costs by facilitating the comparison of price, products and services; Reducing lead times; Improving production and supply capability; Managing demand; and Improving personalization and customization of product offerings. Harland et al. (2003) state that electronic business and Internet increase the speed and complexity in supply network. Companies are more dependent on each other and also dependent on the ICT and this requires efficient risk management.

The role of information technology to enhance the overall logistics competence has been discussed by several authors (Closs et al., 1997; Evangelista and Kilpala, 2007; Gunasekaran and Gnai, 2003). Evangelista et al. (2012) studied the impact of information technology on company performance from the logistics service provider perspective. Their results indicate strong relationships between technologies, transactional capabilities and firm performance.

The adoption of applications for information logistics requires proper understanding of the adoption readiness of companies in the supply chain. For example, Richey et al. (2012) investigated that the factors of technological readiness had a significant effect on logistics service quality (e.g. Personnel Contact Control, Order Accuracy and Condition, Information Quality, Order Discrepancy Handling, Order Release Quantities). It follows that it is also necessary to turn this technological readiness into smart choices on process and application.

3. Empirical Study and Methods

The focus in the empirical part of the study is on the supply network between internationally operating companies in Finland. The study was conducted as part of the project Virtual Service, which aims to create a process and data model to manage an organizational digital business ecosystem. The supply network is significant to the study environment and the organizations in question operate in 36 different countries, globally. The informants from the organization were selected based on their responsibilities in the organizations and their knowledge of the field. All of the informants had extensive knowledge about the business processes and the information they included.

The research process was conducted in four main steps (Figure 2): (1) A literature review and formulation of research support groups by establishing an expert Group and a focus Group, (2) discovering the current state of the art, (3) finding the factors hindering information logistics development, and (4) finding and validating key factors affecting supply network development.

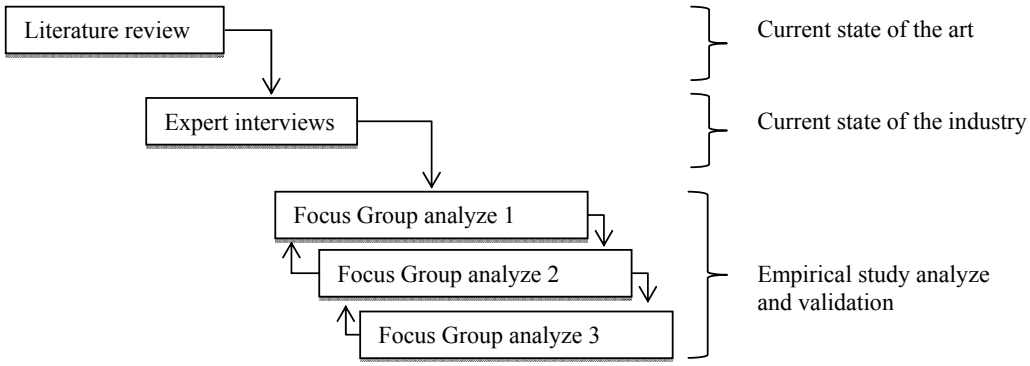


Figure 2 Research Process

The expert group was formed from experienced representatives of the standardization units in all continents. The expert group members represented the state of art knowledge in the information logistics of standardization units: the OASIS Universal Business Language (UBL), RosettaNet GS1 and the United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT), and altogether 8 experts (see Appendix 1). The interviews of expert group members were executed by researcher during the visits 2011-2012. The interview where conducted on open discussion by topic question of how information model should be embedded to digital business ecosystem integration. The researcher used B2B integration framework to guide open discussion. Each interview last 60-80 minute and they were audio recorded. All audio data were lettered to text documents and then documents were coded by using special designed software for coding (Atlas.ti). The success factors were created based on analyses of coding results.

The focus group was formed from the representatives of the participating companies in the two case supply networks. The focus group members represented two focal firms, their key maintenance partners and service suppliers: 7 industry partners, 6 industry service partners, 4 financial service partners and 2 ICT service partners, and altogether 18 business managers (see Appendix 1).

The qualitative interviews that comprised the primary method of data collection during the first phase of the empirical research identified the relevant factors affecting the information logistics in the different processes in the supply network. The qualitative research approach was assumed to facilitate the in-depth and detailed study of the phenomenon in its natural settings in a real life context from the perspective of the interviewees. This approach was appropriate for the researchers' aim to make sense of the phenomena by interpreting the meanings people attach to them (Yin, 1994). Neither a prior research hypothesis was proposed nor prior assumptions made to allow an open-minded exploration of the phenomena (Voss et al. 2002). A discovery-oriented approach was used (Yin, 1984). A natural conversational interview style was assumed to allow a natural flow of discussion led by the interviewees. The aim in the interviews was to gain a holistic understanding of the logistics of information in different processes in a supply network.

The expert panel discussions supported by internet based group decision support software were conducted. The purpose was to gather, verify and analyze data with iterative rounds similar to the Delphi method (see e.g., Norman 1963; Fowles, 1978). Delphi as “a method for structuring a group communication process” was considered helpful in that it enabled to iteratively facilitate the communication between the focus group members (Linstone, 2011). The panel comprised of selected organizations from the studied organizational networks. The panel discussions were facilitated and

directed by the researchers to allow the systematic progress of the subjects. An overall consensus was reached and the results from each round were given to the panelists.

4. Key factors in information logistics development

Business information is generated in business processes. The information exchange within organizations is designed based on business processes and the information is transferred by using electronic messages. Figure 3 illustrates generic information logistics configured for a supply network. The design defines the overall selection of processes and how they are related to each other, forming a core process model for B2B integration. The design illustrates how the processes are defined in different standards. Supply chains or business domains are using different business process standards. The interoperable information logistics needs to be design also between the different standards as defined in Figure 3.

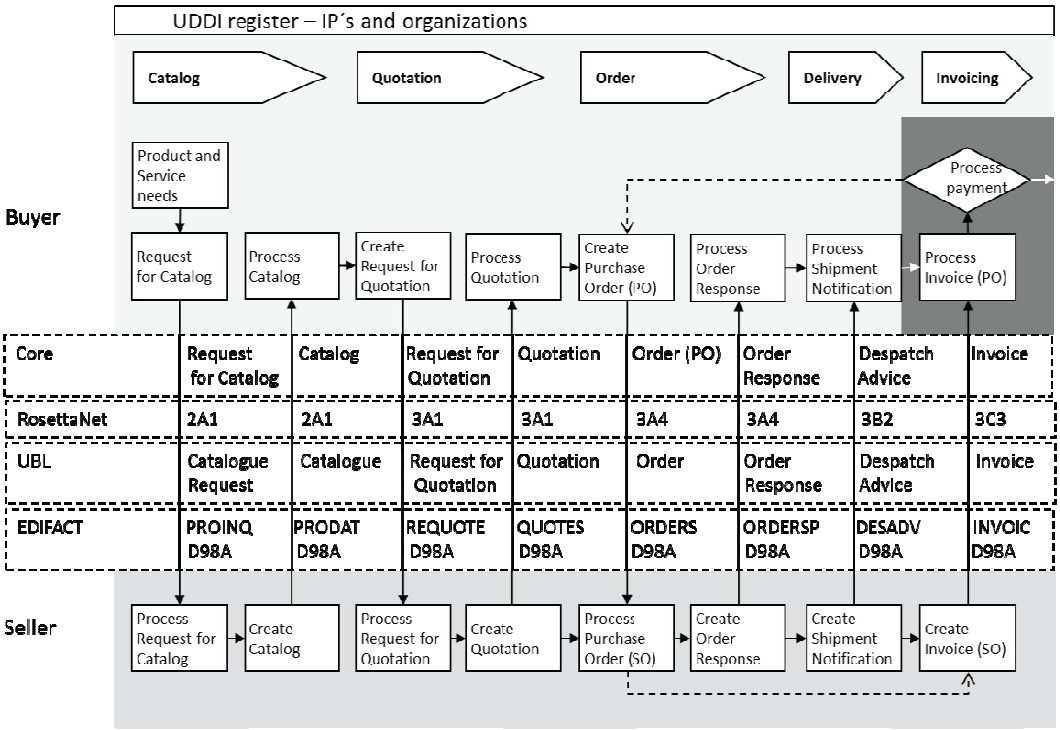
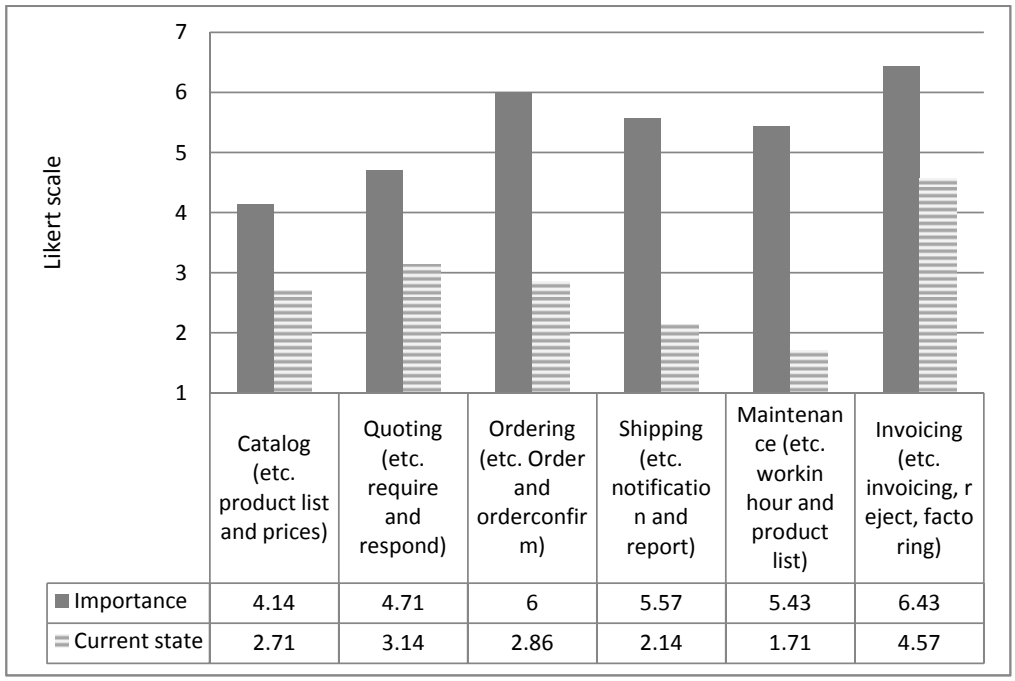


Figure 3 A Process Model of Information Logistics

4.1 Empirical Findings: The Need for the Development of Information Logistics

The first focus group session started by discussion about information exchange based on business processes. More precisely, the main question was defined as: "how is value exchanged electronically for goods, services or information by using electronic payment systems?" The payment process was considered to have an direct influence on the speed and complexity of transactional services. The role of electronic invoicing was discussed as an exchange of the ownership of products or services and how that is related to payment. It was openly discussed and analyzed how electronic payment had changed the whole business model of the banking industry and

how electronic invoicing is related to payment. The banking industry has had the key motivation to coordinate the information exchange in invoicing and payments as a value add service to customers. The second step was to analyze and validate the importance of information logistics development on major business processes and the current level of information logistics in the processes of electronic invoicing. As a result, the importance of digitizing ordering processes were prioritized using a Likert scale (1-7), one being the lowest possible state or importance and seven being the best possible state or highest priority for development (see Figure 4). The overall interest in digitizing the procurement and logistics processes as a whole was an unexpected result. Even the product catalog, meaning electronic product information exchange, was clearly identified as a key priority. An interesting result was also the need to organize the working hour information in industry maintenance. The service business is growing and service products often include working hour and product information. The focus group was represented by two focal multisided large companies and they need to maintain more than 200.000 products in their systems. An electronic catalog will reduce the errors and increase the efficiency of continuous daily updating of product information. An order can be placed only based on updated product information. The rating results can be assessed as a message that the representatives understood the development needs for information logistics in a wider scope instead of the earlier development of single processes like payment and invoicing.



	Catalog (etc. product list and prices)	Quoting (etc. require and respond)	Ordering (etc. Order and orderconfirm)	Shipping (etc. notification and report)	Maintenance (etc. workin hour and product list)	Invoicing (etc. invoicing, reject, factoring)
Importance	4.14	4.71	6	5.57	5.43	6.43
Current state	2.71	3.14	2.86	2.14	1.71	4.57

Figure 4 Rating the Current State and the Importance of Information Logistics Development in Different Processes of Electronic Invoicing

4.2 Factors Hindering the Digitations of the Supply Network.

The second session with the focus group included open discussion of the situation of information logistics as-is in organizations. The representatives had different views as information end users, as intermediates in information channelling or as service providers. They used information in different roles as a buyer, seller or value add service provider. They had a long experience of working with heterogeneous supply networks represented by many SME´s.

After discussions, the workshop listed the key factors hindering the digitation of the supply network. All responses were discussed and rated by all members (a Likert scale of 1 to 7). The rating results are presented in Figure 5. The most demanding issue was the lack of a common information model, meaning that there was a wide discussion on how to establish a common information model based on global business standards that could be used in the service environment of a multisided large company. A second remark on the results is related to the understanding of the benefits compared to the costs of investments, especially in a multi-stakeholder environment. Clearly we can also identify these as one of the obstacles to having management mechanisms and tools to coordinate information logistics development.

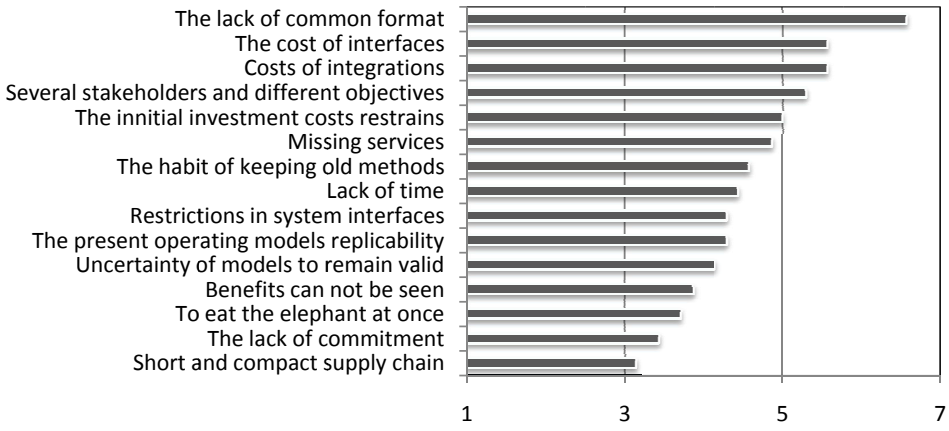


Figure 5 The rating results on the hindering factors in information logistics development.

4.3 Key Factors Affecting the Supply Network

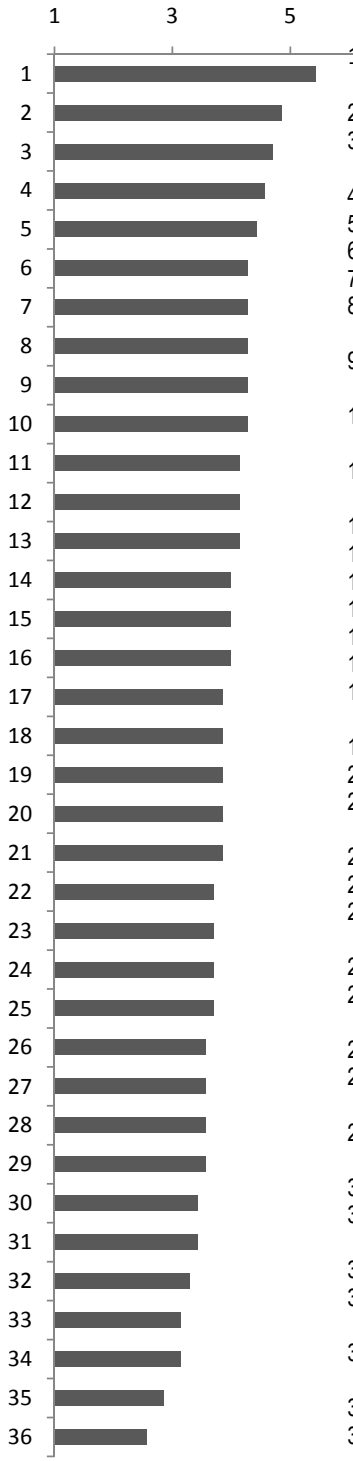
The third session organized with the focus group started by presenting the key factors affecting the information logistics development. These factors had been developed based on a literature review and during the discussion and interviews of the expert group. The questionnaire presented statements and asked to answer them using a 7-point Likert scale. Value 1 on the Likert scale denoted that they have not started the actions required and value 7 denoted that they have fulfilled all actions required. The rating results are presented in figure 6.

The questionnaire was structured in a way that common business elements and the stakeholder involved could be analyzed. The questionnaire used for rating the results is presented appendix 2. The rating results indicate that the readiness and the willingness to find common standards to solve the interoperability of information logistics are clearly understood by all stakeholders.

The following points were discovered as the main findings:

1) Executives at the strategic level understand the value of real-time information but they have not chosen the companies for the integration.
2) Business managers understand the importance of real-time information (logistics). The B2B integration performance is not measured and communicated.

3) IT experts have been able to design an integration plan. However, the detailed practical implementation on the service portfolio level is under development.
4) Process standards are not yet in wide use and there is a big gap in the understanding of common standards, which are not understood to speed up integration.
5) Information integration has been outsourced to intermediate services.
6) The lowest scores in the service portfolio explain that real integration has not been planned. We lack a list of interoperable services and there are also many testing services that have to be built for data and process testing.



1. Our executives are aware of B2Bi benefits and are therefore committed to using common standards across the value network
2, Our executive have defined and prioritized the business units where integration is implemented
3. The usage of standard documents have improved information by real-time, error-free and reliable
4. The usage of industry standards has made it possible to integrate the supply chain
5. The IT structure includes the key responsible persons for each module
6. We have experts available for implementing
7. Interoperable systems support real time B2B collaboration in the business network
8. The IT structure tells where the information is located, where it is collected and where it is distributed
9. We have a compact graphical drawing of IT structure of our enterprise to help discussions and development
10. Our executives are aware of the potential that B2B integration will enable and actively participate in development
11. Shared, standard processes allow IT systems to process and exchange business documents at a desired level of automation
12. The usage of industry standards have made it possible to integrate supply chain
13. We have nominated key process owner for all critical business processes
14. We know which services of our customers and suppliers are ready for integration
15. We have utilized experts who know how to use standards
16. Our B2B integration plan supports business units in achieving their objectives and goals
17. We have test methods available for information integration
18. The roles and responsibilities of the B2Bi experts in organizations are clearly defined and communicated to partners
19. The usage of standards has made rapid integration and scalability possible
20. The IT structure describes the core user groups internally and within network
21. Our executives have defined what standards are used for the integration of business process information
22. Open information sharing has sped up integrations and brought us the targeted benefits
23. Information is exchanged as standardized electronic documents between IT systems
24. We have agreed to usage of standards in our integrations and we have reached faster our target benefits
25. The IT structure tells in which business locations the process integrations will be implemented
26. Organizations are able to carry out the targeted B2Bi and at the intended level of automation by dispensing the manual processes
27. Guidelines and supporting services aid in B2Bi process implementation in the network
28. Management has prioritized business processes where integration has been sped up with the use of standards
29. Our executives have real-time information of our business units and supply chain to support decision making
30. We have an information repository available to our B2Bi in the business ecosystem
31. Managers are collecting and sharing real-time business information to increase efficiency and cut non-value work
32. We have test methods available for process integration
33. Management measures supply chain performance against the company's performance measures such as delivery accuracy, error-free
34. Our B2B integration plan will support the company's strategic goals and enable the emergence of new strategies
35. Our company IT budget can be presented according the IT structure
36. Management has prioritized customers and suppliers where integration will be executed

Figure 6 The Rating Results of Key Factors Affecting Information Logistics Development

5. Conclusions

Information logistics development and B2B integration is increasing in importance in many fields of business. While the businesses have a clear need to go forward with developing their information exchange, the current literature is unable to give answers to the emerging questions. This study contributes in several ways: Firstly, we analyse the present state and need for development in different electronic business processes. Secondly, we identify and assess the hindering factors in the information logistics development. Finally, we presented the key success factors that should be considered in the information logistics development.

By using a focused sample and one supply network as a research unit, it was possible to test the information logistics from a practical perspective and to get in depth understanding of the phenomena. The results were evaluated by an academic research group together with the practical implementers in the case organizations. The applied Delphi method with internet based decision support software worked well for stakeholder participation and contribution. The questionnaire was organized according different stakeholders (see appendix 2). The test and validation results are presented in figure 6.

The purpose was to create common knowledge for information logistics to speed up B2B integration in a supply network. Although all participants had a long experience of the topic, they had not had a common platform to discuss information logistics in a same forum, from different perspectives; business needs, standardization requirements and technology possibilities. There exists fragmented knowledge in each field of research but information needed to be made available for common use in a heterogeneous environment in order to support desired actions.
This study was able to define the common business process standards used in information logistics figure 3 and broaden the discussion for network-wide information logistics (Dinter et al 2010; Inmon et al., 2008; Kimball et al., 2008). The lack of common information model and the cost of integration are the key hindering factors. The interoperable information logistics needs to be design also between the different standards as defined in figure 3.

The research was executed in multi-stakeholder environment and within competing networks. The collaboration, discussions and rating in focus group indicates that the readiness and importance is in overall business integration after the experience of electronic payment and invoicing as shown in Figure 4 (Richey et al. 2012).

Development of information logistics requires good collaboration and knowledge sharing between different stakeholders in supply networks. Executives and business managers have an important role on establishment of network integration.

This study has several limitations due to its qualitative and explorative nature, which should be taken into account when interpreting the results. However, we hope that the study will raise more discussion on the importance of the subject and work as a catalyst for further studies.

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Appendix 1

Assessing information logistic development in supply networks

Expert Group interview 2011–2012

Organizations	*County*	*Occupation*
UBL Universal Business Language	USA	Board member
UBL Universal Business Language	Australia	Board member
UN/CEFACT	Australia	Director
GS1 RosettaNet	USA	Director
RosettaNet	Singapore	Director
GS1 EU	Brussels	Director

Organizations	*County*	*Occupation*
UBL Universal Business Language	USA	Board member
UBL Universal Business Language	Australia	Board member
UN/CEFACT	Australia	Director
GS1 RosettaNet	USA	Director
RosettaNet	Singapore	Director
GS1 EU	Brussels	Director

Focus Group valuation 2012

Organizations	*County*	*Occupation*
B&B TOOLS Service Center Oy	Finland	IT-Manager
CGI Suomi Oy	Finland	IT-Services
CRH Finland Oy - Rudus-Finsementti	Finland	Procurement Manager
Eksote	Finland	IT-Manager
Empower Oy	Finland	Director
Enfo Oyj	Finland	Manager
Flowrox Oy	Finland	Executive Director
Itella Information Oy	Finland	Product Manager
Lappeenrannan Energia Oy	Finland	Executive Director
MaestroYhtiöt/Mediamaestro Oy	Finland	Executive Director
Nordea Pankki Suomi Oyj	Finland	Head of Payments Infrastructure
Nordkalk Oy Ab	Finland	Purchasing Manager
OP Palvelut Oy, Yrityskanavat	Finland	Head of IT Banking
Ovako Bar Oy Ab	Finland	Maintenance Director
Oy Botnia Mill Service Ab	Finland	Maintenance Director
Sampo Pankki Oyj	Finland	Head of IT Banking
Stora-Enso Oyj	Finland	Country Manager Purchasing
UPM Kymmene Oyj	Finland	Head of Maintenance Support

Appendix 2

Questionnaire measuring success factors in B2B integration management and orchestration

Please indicate the degree to which you have implemented these practices in your business.

1= we have not started the required actions 7= we have accomplished the required actions

SF	Practice	Likert Scale 1 2 3 4 5 6 7
	Questions especial focused for Strategy/Executives	
1	Our B2B integration plan will support the company's strategic goals and enable the emergence of new strategies	O O O O O O O
2	Our executives have real-time information of our business units and supply chain to support decision making	O O O O O O O
3	Our executives have defined what standards are used for the integration of business process information	O O O O O O O
4	Our executive have defined and prioritized the business units where integration is implemented	O O O O O O O
5	Our executives are aware of the potential that B2B integration will enable and actively participate in development	O O O O O O O
6	Our executives are aware of B2Bi benefits and are therefore committed to using common standards across the value network	O O O O O O O
	Questions especial focused for Business model/Managers	
7	Our B2B integration plan supports business units in achieving their objectives and goals	O O O O O O O
8	Managers are collecting and sharing real-time business information to increase efficiency and cut non-value work	O O O O O O O
9	Management has prioritized business processes where integration has been sped up with the use of standards	O O O O O O O
10	Management has prioritized customers and suppliers where integration will be executed	O O O O O O O
11	Management have actively participated in B2B integration planning and they have nominated the process owner to all major processes	O O O O O O O
12	Management measures supply chain performance against the company's performance measures such as delivery accuracy, error-free	O O O O O O O
	Questions especial focused for Information model/IT experts	
13	We have a compact graphical drawing of the IT structure of our enterprise to help discussions and development	O O O O O O O
14	The IT structure tells where the information is located, where it is collected and where it is distributed	O O O O O O O
15	The IT structure tells in which business locations the process integrations will be implemented	O O O O O O O
16	The IT structure describes the core user groups internally and within the network	O O O O O O O
17	The IT structure includes the key responsible persons for each module	O O O O O O O
	Questions especial focused for Standardization/ Stand. experts	
18	Our company's IT budget can be presented according to the IT structure	O O O O O O O
19	The usage of standards has made rapid integration and scalability possible	O O O O O O O
20	The usage of standard documents has improved information by being real-time, error-free and reliable	O O O O O O O
21	The usage of industry standards has made it possible to integrate the supply chain	O O O O O O O
22	The usage of industry standards has made it possible to integrate supply chain	O O O O O O O
23	We have utilized experts who knowhow to use standards	O O O O O O O
	Questions especial focused for Integration / Message operators	
24	We have agreed to usage of standards in our integrations and we have reached our target benefits faster	O O O O O O O
25	Interoperable systems support real time B2B collaboration in the business network	O O O O O O O

26	Information is exchanged as standardized electronic documents between IT systems	O O O O O O O
27	Shared, standard processes allow IT systems to process and exchange business documents at a desired level of automation	O O O O O O O
28	Guidelines and supporting services aid in B2Bi process implementation in the network	O O O O O O O
29	The roles and responsibilities of the B2Bi experts in organizations are clearly defined and communicated to partners	O O O O O O O
	Questions especial focused for Service portfolio / Users	
30	Organizations are able to carry out the targeted B2Bi and at the intended level of automation by dispensing the manual processes	O O O O O O O
31	We know which services of our customers and suppliers are ready for integration	O O O O O O O
32	We have test methods available for information integration.	O O O O O O O
33	We have test methods available for process integration	O O O O O O O
34	We have an information repository available to our B2Bi in the business ecosystem	O O O O O O O
35	We have experts available for implementing	O O O O O O O
36	Open information sharing has sped up integrations and brought us the targeted benefits	O O O O O O O

Recent Researches and Future Research Directions in Textile Supply Chain Management

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Recent Researches and Future Research Directions in Textile Supply Chain Management

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Abstract

Textile industry has played an important role in growth of global economy. Textile products are basic need of human beings. Textile supply chain has a complex structure and management of various activities among different members of textile supply chain is a challenging task. There is an emerging literature on textile supply chain management, progress of research is uneven, as most research focuses on distribution and marketing activities without fully considering the whole range of different suppliers involved in provision and consumption of textile products. The objective of this study is to investigate recent researches and to propose future research directions in textile supply chain management. This research concentrates on development of conceptual and practical ideas which faithfully explain various ways to overcome complexities in textile supply chain management.

Keywords: Textile, Supply Chain Management

1. Introduction

Textile products are basic need of people just after food. These products pass through a series of companies and through various time-consuming processes in each company. Demand fluctuations and lead time uncertainty create various issues in the textile supply chain. In order to respond the quick demand of customers, the considerable stocks at appropriate stages of supply chain are required and it is a great challenge to achieve a balance in such a complex chain due to highly globalized nature of the industry. Major problems are long distance, poor planning, excessive transportation cost, and logistics inefficiencies. Chandra & Kumar (2000) found that one of the common problems encountered in

managing a textile supply chain is that of synchronization of activities throughout the life cycle of its products. A major US study found that the time a typical garment spent travelling through a pipeline, from fiber to retailer, was 66 weeks, and of that, only 11 weeks were taken up with processing. The balance of over one year was storage time (Al-Zubaidi & David, 2004). Therefore, a textile end product remains average 11 weeks (77 days) in entire supply chain, if no stock is maintained. This shows that minimum lead time is more than 2 months. Recent researches avoided the textile supply chain. Rajput & Bakar (2011) claimed that few attempts have been made to investigate supply chain management (SCM) in textile/apparel industry. Time consuming and labor intensive processes are the characteristics of textile/apparel and perhaps due to which implementation of modern SCM is obstructed in this industry. Su & Vidyaranya (2011) stated that a careful review of existing research articles appearing in the professional journals reveals that very little publication space has been devoted to the subject about the textile-apparel-retail supply chain. Consequently, there is a great need to clarify concepts of SCM in textile supply chain and develop practical decision making tools to overcome the difficulties in implementation of modern SCM in textile business.

The key objective of this research is to establish the research guidelines for participants of the textile supply chain and research scholars to initiate endless experiments in the field of textile SCM. For the achievement of our objective, we establish various supply chain thinking concepts in different areas of textile SCM. We are concerned to discover, understand, and analyze various practical problems in textile SCM. Specifically, we were interested to bridge the gap between knowledge and practice in the textile SCM literature. Future research shall use the outcomes of this study to formulate, analyze, and optimize various decisions in textile SCM.

This research successfully rotates the concentration of textile business from organization-to-organization competition towards the supply-chain to supply-chain competition. This research not only provides a conceptual and practical framework to textile supply chain practitioners but it also contributes to SCM field by proposing various ways to deal with complex supply chains. This research offers a golden opportunity to understand, analyze, and experiment to textile specialists as well as the research scholars who are new to textile SCM discipline. Therefore, this research is unique in its characteristics and simultaneously covers textile discipline, SCM discipline, and explains various ways to integrate several decisions.

2. Behavior of the Textile Supply Chain Management and Existing Problems of Textile Industry

Textile products, textile machinery, and various textile materials are exchanged among various countries of the world. Different countries have different living standards and demand of these textile products is uncertain due to quick changes in consumer behavior and fashion. Each product requires different materials, styles, and specifications at each stage. Textile manufacturing supply chain is part of the global supply chain.

Textile supply chain is not comparable with service supply chains including Health Care supply chain, Finance supply chain, etc. Bottlenecks at any company can result in an unbalanced chain, which can make it difficult to achieve quick response in such a complex supply chain. There are countless possibilities to design various structures of textile supply chain. Figure 1 shows a simple structure of

textile supply chain. Figure 2 represents the globalized behavior of textile supply chain. Table 1 enlists the symbols used in the Figure 2.

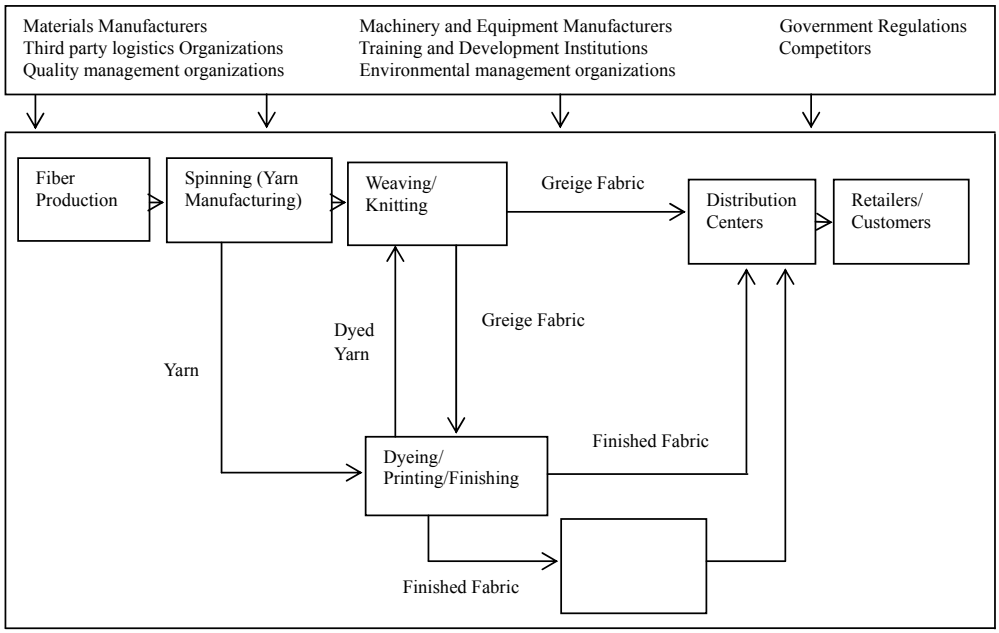

Figure 1 Textile Supply Chain Structure

Table 1 Symbols Used in Figure 2

N_{DT}	Natural fibers manufacturing companies in the home country.
S_{DT}	Synthetic fibers manufacturing companies in the home country.
N_{GB}	Natural fibers manufacturing companies in the foreign countries.
S_{GB}	Synthetic fibers manufacturing companies in the foreign countries.
YS_{DT}	Yarn manufacturing companies in the home country.
YS_{GB}	Yarn manufacturing companies in the foreign countries.
FM_{GB}	Fabric manufacturing companies in the foreign countries.
FM_{DT}	Fabric manufacturing companies in the home country.
FP_{DT}	Fabric Processing companies in the home country.
FP_{GB}	Fabric Processing companies in the foreign country.
GH_{DT}	Garment/ Home Textile manufacturing companies in the home country.
DW_{DT}	Distribution Centers/ Warehouses in home country.
DW_{GB}	Distribution Centers/ Warehouses in foreign countries.
R_{GB}	Retailers in the foreign countries.
R_{DT}	Retailers in the home country.

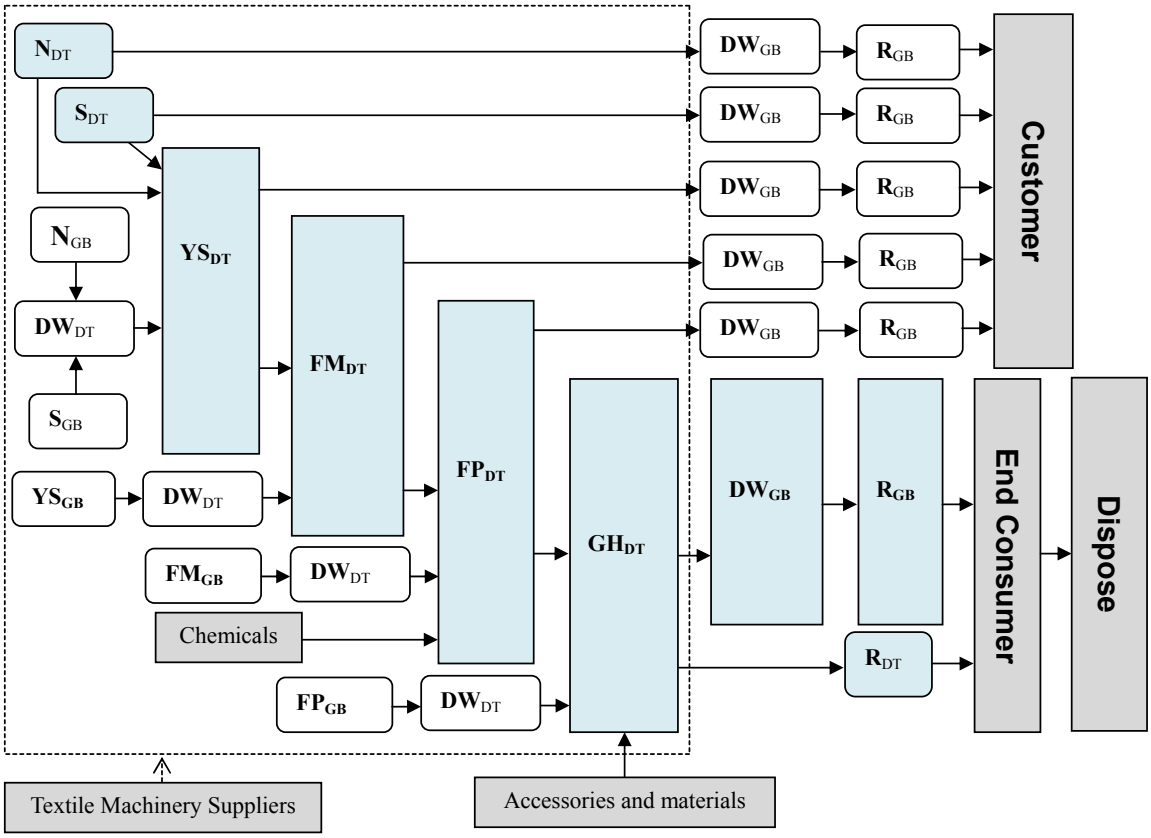

Figure 2 Behavior of Textile Supply Chain

Textile products include Hats, Trousers, Shirts, Pants, Jackets, Under Garments, Socks, Gloves, Skirts, Sweaters, Bed Sheets, Quilt Covers, Towels, Curtains, Fibers, Yarns, Fabrics, etc. Right configuration of textile supply chain across the globe for a specific textile product will result in high efficiency and flexibility. Management of various activities at different textile companies needs different strategies, and different processes at different stages need separate solutions. Lead time of Garment/Home Textile Manufacturing is uncertain at the highest level, so it is the first bottleneck process in the textile supply chain. Second bottle neck is the Fabric Processing, and the third bottleneck process is Fabric Manufacturing. We can adopt various strategies to smooth the working of these bottleneck processes. Upstream members can share some risk to smooth the bottleneck processes. Fabric Manufacturing department can stock some Yarn in advance, so that as soon as the demand arrives, the Weaving/Knitting can be started. The coordination with Retailer makes it possible for Fabric Manufacturing to find the possible future orders in which the specifications of the fabric are known. So, as the orders arrive the Fabric Manufacturing can move some of the fabric to Fabric Processing. Similarly, the Fabric Processing department can stock some Greige fabric in advance for which Fabric Manufacturing has completed, so that as the Retailer's orders arrive, the Processing of fabric can be started, completed and sent to Garment/Home textiles manufacturing immediately. Location of Fabric Manufacturing must be established closer to the Fabric Processing. If it is not possible, or the fabric is

imported globally, the strategic partnership of Fabric Manufacturing and the Fabric Processing can be practiced. If facilities are closer to one another, the fabric can be transferred quickly and in smaller economical lots so that some features of lean manufacturing concepts can be implemented to reduce the lead time because the lead time is the first preference to achieve quick response in textile supply chain. Also, lean manufacturing concepts will reduce the inventory costs and increase the visibility in supply chain. If there is the hope for business growth in the future, then capacity can be expanded to achieve the competitive advantage. Solution to various facility location problems can eliminate the bottlenecks in textile SCM. Otherwise, outsourcing of production process can achieve remarkable capacity flexibility.

On time availability of chemicals to the Fabric Processing will support the supply chain participants to shrink the lead times. Similarly, various trims and accessories are used in Garments/Home textiles Manufacturing (e.g. labels, thread, zippers, buttons, elastic, cords, rings, etc.). If any of these materials is missing, then it can increase the lead time to a highest level. Sometimes, some of these materials are provided by customer or the manufacturer is required to source from another country, or city. If any material is delayed due to some natural problem, the result may be delay in shipment, obsolescence of inventory, or may be loss of customer. Sometimes, the manufacturer has to send this shipment through airlines, which increases the costs to an unbearable level. An efficient, quick, easy, and online materials requirement planning system must be implemented for trims and accessories in the garment industry. The long term relationships with materials suppliers will help to mitigate this bottleneck in the textile supply chain. Only a balanced supply chain can give a minimum total cost of supply chain.

Quality control issues are the biggest hindrance in achieving balanced supply chain and satisfaction of customers. Estimation and removal of the defects at proper stage will save all the supply chain partners. What is the impact of quality issues as they move from one stage to another and then to final customer? If a quality issue comes at the Retailer stage, the Retailer may send back to manufacturer, or may be dissatisfied. If a whole lot is rejected at customer level due to wrong specifications, and another same lot with wrong specifications is ready at the manufacturer, it may result in greater loss. How this type of behavior will make disruptions in the textile supply chain? There is a need to quantify and eliminate these bottlenecks, so that a smooth supply chain can be achieved.

We conclude that the structure of textile supply chain involves various complexities. If we try to model and optimize all aspects of textile supply chain simultaneously, it will be very difficult to capture every aspect and strategy used at various stages. Key idea is to find the specific problem, perform "what-if analysis" and try to eliminate bottlenecks keeping in view the impact of that problem on entire textile supply chain. Simulation modeling is the best solution to perform analysis of such a complex supply chain. There are various research areas in textile supply chain which need special considerations. These areas are quality control issues, information system drawbacks, poor feedback, invisibility, waste management, recyling, gobalization, outsourcing, machinery manufacturers, chemical supply, materials supply, etc. Table 2 summarizes the existing issues of textile industry.

Table 2 Existing Problems of Textile Industry

Problem	Reference
Excessive tools changeovers	(Silva & Magalhaes, 2006)
More lead times & late dispatch of fibers	(De Toni & Meneghetti, 2000)
Lack of short term production planning	(Elamvazuthi et al., 2009)
Inefficient Supplier selection	(Teng & Jaramillo, 2005)
Weak purchasing /sourcing department	(Su & Vidyaranya, 2011)
Poor coordination of suppliers & customers	(Birtwistle et al. 2006)
High cost of global sourcing.	(Jin, 2004)
Increased lead times & quality variation	(Caputo & Palumbo, 2005)
Inaccuracy of inventory holding system	(Al-Zubaidi & David, 2004)
Quick changes in fashion	(Lam & Postle, 2006)
Ignorance about mass customization	(Lam & Postle, 2006)
Unsuccessful forecasting and manufacturing	(Thomassey et al., 2002; Thomassey et al., 2005),
Less focus on product design	(Moon et al., 2012)
Dynamic buyer´s needs & fickle demand	(Hussain et al., 2012)
Poor results of Quick Response	(Hwang & Seruga, 2011)
Value-added products	(Hwang & Seruga, 2011)
Short product cycle and forecasting errors	(Bae & Traci, 2005)
Lack of marketing and management skills	(Finch, 2004)
Incorrect location of distribution centers	(Kumar et al., 2011)
Replenishment problems	(Dong & Leung, 2009)
Loss of competitiveness.	(Bruce et al.,2004; Yen & Elsie, 2003; Zhang et al., 2010)
Limited implementation of Vendor Managed Inventory (VMI)	(Choi, 2012)
Independently separated divisions	(Chandra & Kumar, 2000)
Selection of feasible ERP system solutions	(Cebeci, 2009)
Poor IT setup & Information invisibility	(Kwok & Kenny, 2009)

3. Categorization of the Key Studies and Future Research Directions in Textile SCM

In this section, we categorize the textile SCM in eight categories and propose future research direction. Textile SCM covers not only the specialized field of textile materials science but it also covers a broad range of areas which are common in various other types of field. It is difficult to categories the textile SCM based on the literature existing in textile science. Therefore, we found a few articles in the field of textile SCM (Bakar, 2011). However, a closer look at these articles is very important to reach at

meaningful conclusions. The following section investigates the key researches available in the field of textile SCM which motivate us to move in various possible directions.

We could categorize the textile SCM based on available literature in textile SCM, but we were worried that important categories and concepts might be skipped. Therefore, we gain support from general SCM literature and categorized textile supply chain management with the help of many considerations. Giunipero et al. (2008) highlighted thirteen categories of SCM which were identified in an investigation for a decade of SCM published literature in renowned academic journals. The research goal was to systematically capture trends, gaps and the future direction for the SCM field as depicted in the SCM literature and covered by a wide cross-section of nine peer-reviewed journals. They claim that these categories can serve as a basis for future research.

These categories of SCM are per following

1. SCM Strategy.
2. Supplier Development/Selection and Management
3. Outsourcing.
4. Time-Based Strategies; Just-in-time, inventory management, supply chain agility and flexibility, cycle time, postponement and supplier managed inventory.
5. Alliances/ Relationships.
6. E-Commerce/World Wide Web.
7. Information Technology
8. Environmental/Social Responsibility.
9. SCM Frameworks, Trends and Challenges.
10. Quality.
11. Human Resource Management.
12. Buyer Behavior.
13. International/Global supply chain concepts.

According to Sanders (2011) supply chain strategy is a long-range plan for design and ongoing management of all supply chain decisions that support the business strategy. Four building blocks of supply chain strategy are operations strategy, distribution strategy, sourcing strategy, and customer service strategy.

In section 2, we investigated behavior of textile SCM and highlighted existing problems of textile industry. Now, we perform categorization of the key studies in textile SCM based on three types of analysis; (a) our understanding from section 2; (b) thirteen categories of SCM (Giunipero et al., 2008); and (c) strategic framework proposed by Sanders (2011). In this section, we also discuss the findings of key researches and propose research directions in textile SCM. The categories in which we found difficulty in searching articles in textile SCM, we investigated general relevant literature for the purpose of suggesting future research directions. We proposed eight broad categories of textile SCM as shown in Figure 3.

Supply chain strategy must be aligned with business strategy. We categorized this relationship as “Strategic management in textile supply chain”. Rajput & Bakar (2011) claimed that most researched topic in textile/apparel supply chain is “supplier selection and evaluation”. Least researched topics in the supply chain literature are “supply chain flexibility” and “outsourcing”. Environmental SCM is an

emerging concept. These topics were treated as separate categories due to their highest importance in textile SCM. "Textile production process management" was identified a major category in textile supply chain because inventory consists of largest percentage of resources in textile supply chain. "Supply chain coordination" category includes alliances/ Relationships, E-Commerce/World Wide Web, and Information Technology. It is very important to highlight "Textile machinery manufacturers supply chain" due to its highest importance in textile SCM. Therefore, "Textile machinery manufacturers supply chain" is another category of textile SCM. SCM Frameworks, Trends and Challenges, Quality, Human Resource Management, Buyer Behavior, International/Global supply chain concepts, and risk management can be integrated in eight categories of textile SCM.

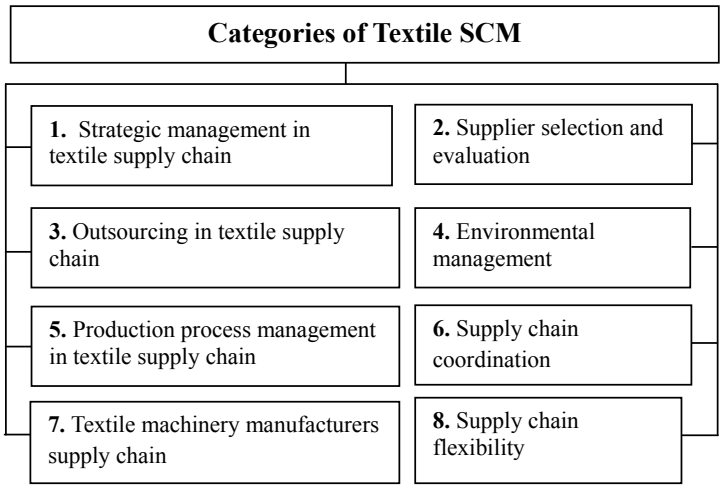

Figure 3 Categorization of recent researches in textile SCM

3.1 Strategic Management in Textile Supply Chain

Hussain et al. (2012) developed and ranked various strategies with respect to the implementation in textile supply chain based on SWOT analysis of the textile industry as shown in Table 3. This study performed SWOT analysis of textile industry in Pakistan.

Future Research Directions: Future research needs to evaluate global textile supply chain which can help to formulate business strategy. For better strategic management in textile supply chain, we need to find the recent situation of the global textile business, and highlight the general trends in the whole textile environment. Then we should identify the right combination of products, processes, and potential markets which are more attractive, fruitful, stable, and suitable for the business success. Then, we need to evaluate the resources and various strategies which will support the long-range goals of a textile business.

Sanders (2011) stated that a company must have a long-range strategy if it is going to maintain a competitive position in the market place. A business strategy is a plan for the company that clearly defines the company's long range goals, how it plans to achieve these goals, and the way company plans to differentiate itself from its competitors. A business strategy should leverage the company's core

competencies, or strengths, and carefully consider the characteristics of the marketplace. Supply chain strategy is a long-range plan for design and ongoing management of all supply chain decisions that support the business strategy. Four building blocks of supply chain strategy are operations strategy, distribution strategy, sourcing strategy, and customer service strategy.

Table 3 Main Strategies in Textile SCM

Ranking	STRATEGY
1	Developing Effective Linkage between Industry, Academia and R&D Institutes.
2	Skill Development Programs.
3	Establishing Down Stream Facilities in Stable, Near to Market and Competing Regions.
4	Expanding Non-cotton Fiber Base.
5	Establishing Industrial Parks with Common Facilities of Design & Development Centers, ICT Application Centers & Effluent Treatment Plants etc.
6	Diversification of Product Range.
7	Development of Market Access Strategies.
8	Establishing Downstream Facilities in Competing Regions.
9	Improving Domestic Chemical Industry.
10	Improving Logistics.
11	Work in Close Collaboration with Competitors.
12	Development and Implementation of Long-term & Coordinated Policies.
13	Developing Domestic Engineering Industry.
14	Applying Export Incentives.
15	Introduction of Industry Relief Packages.

Source: Hussain et al. (2012)

Therefore, the integration of business strategy and supply chain strategy will help to identify and achieve the long term goals of textile industry. Strategic planning is the fundamental part of the success of any business. Next step is to implement the strategy because without effective implementation strategic planning will be useless. Chen et al. (2008) stated that implementation of the strategy has a high impact on the survival and death of business directly. Sheehan (2007) found that there is anecdotal evidence that many well-formulated strategies fail due to poor implementation. Charan & Colvin. (1999) claimed that 70% of strategies fail due to poor execution. Therefore, effective management of supply chain will support the supply chain strategy and ultimately support the business strategy of the textile companies. Various decisions including in-house capacity expansion, outsourcing, supplier selection, brand development, technology adaptation, key products selection, and market search for product selling are the base to formulate the business strategy and these decisions are directly related to supply chain strategy. Implementation of supply chain strategy is directly related to next seven categories of textile SCM that we have clarified in the next sections.

3.2 Supplier Selection and Evaluation

Teng & Jaramillo (2005) proposed a model for supplier selection and evaluation in textile industry which has structure as shown in Figure 4. Based on this structure they proposed a matrix by using weighted-point model. The input for estimating the weights should come from the members of

cross functional teams. Chen (2011) stated that traditional supplier selection and evaluation methods focus on the requirements of single enterprises, and fail to consider the entire supply chain. Chen (2011) performed the supplier selection and evaluation process as shown in Figure 5 and used Taiwanese textile industry to illustrate the application of methodology.

Step 1: Identifying enterprise competitive strategy through SWOT analysis. This study performed the SWOT analysis of the Taiwanese textile industry.

Step 2: Selecting the criteria and indicators of supplier selection for establishing a supplier selection framework based on the competitive strategy.

Step 3: Screening potential suppliers through the data envelopment analysis (DEA).

Step 4: Ranking the potential suppliers by using a multiple criteria decision making model), TOPSIS Technique for order preference by similarity to ideal solution.

Su & Vidyaranya (2011) claimed that many firms still evaluate the suppliers informally, having no formal supplier certification program or no formal tracking. They performed an empirical investigation of global SCM practices of the firms in the U.S. textile and apparel industry. The results of this study are summarized as follows:

- Many firms still evaluate the suppliers informally, having no formal supplier certification program or no formal tracking system.
- The result showed that there is a continuous change in the supply market, and there is a need for supplier evaluation systems and supplier selection practices.
- There is a need that more firms should realize the importance of supplier evaluation systems in the management of suppliers and their effects on buyer firm performance.
- Suppliers should be evaluated on the basis of "ability to meet buyer firm's need", "Supplier capability", "communication", "product quality", and "strategic consideration".
- There is a need to commit resources to purchasing/sourcing development

Future Research Directions: Based on above discussion on Supplier selection and evaluation, we conclude that there is a need to develop the supplier selection and evaluation models in textile SCM focusing the benefits of buyers firms and supplier firm in a balanced manner. The balance in the mutual benefits will enhance the strong integration, long term benefits, lowest costs, excellent quality, growing economic conditions of countries, and greater future opportunities. SWOT analysis of global textile supply chain can identify a different enterprise competitive strategy, evaluation criteria, and performance indicators. Existing analytical methods of supplier selection can be modified and enhanced to develop highly efficient supplier selection and evaluation methods in textile SCM. Whole supply chain must be kept in mind while setting the supplier selection and evaluation criteria for any participant.

There are various categories of suppliers in the textile supply chain which include spinning, weaving, processing, garment/ home textile manufacturing, chemicals suppliers, trims and accessories suppliers, transportation suppliers, textile machinery and various supporting materials suppliers which affect the performance of supply chain. Interdependence of various suppliers must be considered in the supplier selection and evaluation processes. These supplier selection, evaluation, and strategic sourcing practices will dramatically reduce the lead time of overall supply chain. Further as the existing supplier selection and evaluation methods do not consider risks in an integrated model (Wu et al., 2013), we can integrate various risks associated with supplier selection and evaluation in the future models in textile

SCM. This will change the probability of supplier selection and also require different solution methods. Figure 6 shows that all participants in textile SCM (except retailer) are suppliers to at least one stage.

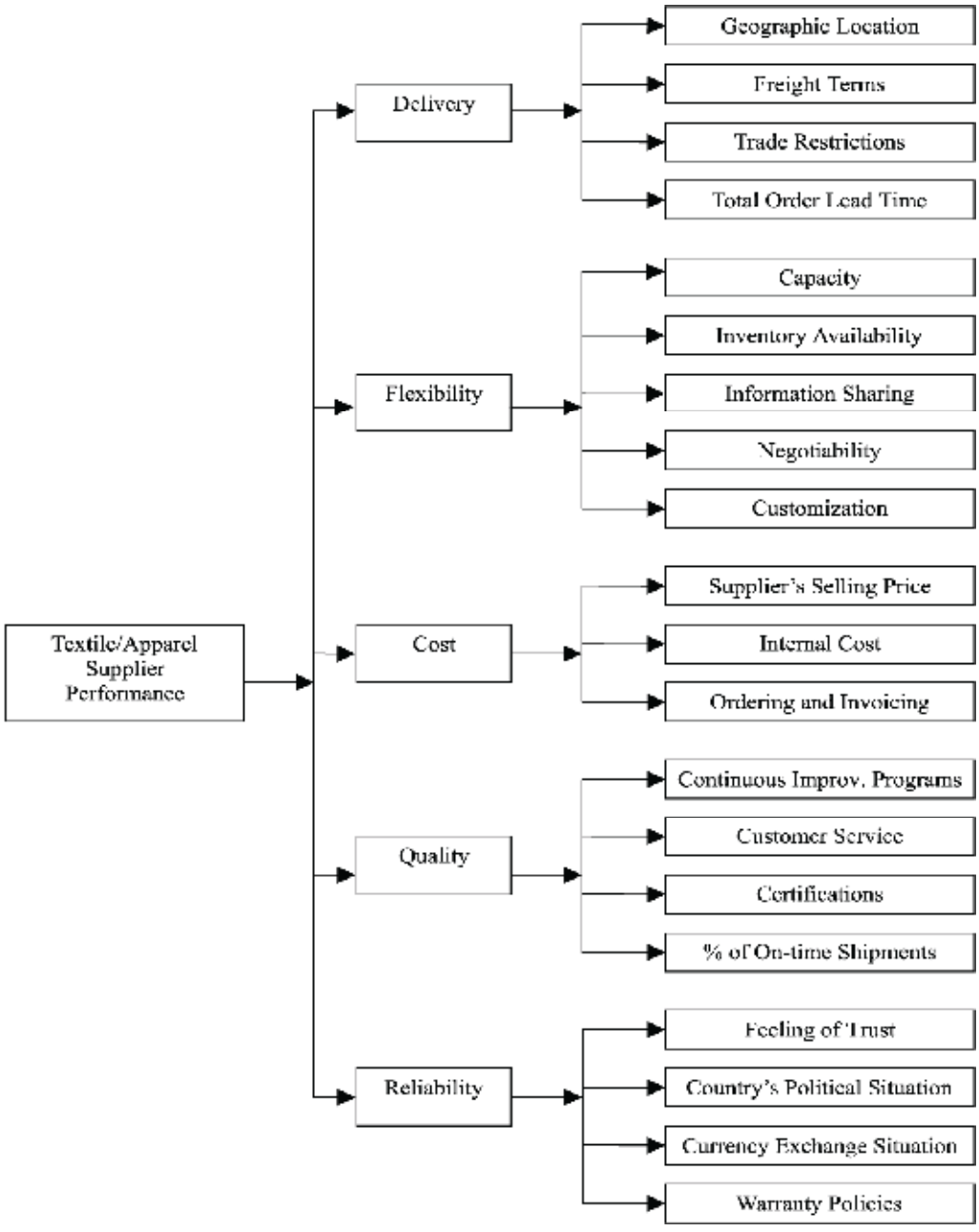

Figure 4 Supplier Performance Evaluation Matrix Structure
Source: Teng & Jaramillo (2005)

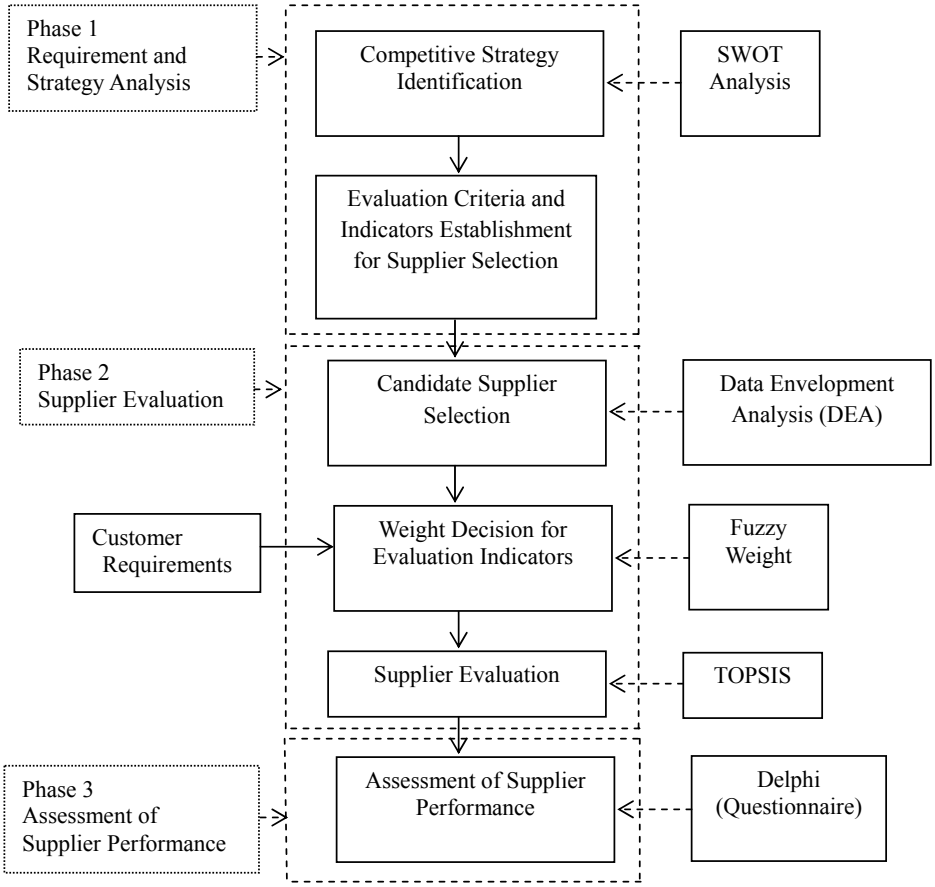

Figure 5 Supplier Selection and Evaluation Process for Supply Chain

Source: Chen (2011)

The selection of one supplier for any member of textile supply chain will affect the performance of the other members which are directly are indirectly connected with this supplier due to uncertain demand, uncertain lead time, and highly globalized nature of industry. For example, if we have everything (e.g. Cut fabric, trims, and accessories, etc.) available with us for manufacturing a Polo shirt except a brand label which was promised by supplier and delayed due to some reason. Various types of disruptions in whole supply chain may occur. Some important areas of future research in textile SCM can be summarized as follows.

1. Multi-objective supplier selection and order allocation models with different risks associated with both the "supplier selection" and "interdependencies of various suppliers".
2. Effect of interdependencies of various suppliers on the performance (e.g. lead time, costs, quality, flexibility, disruptions, and customer satisfaction) of the supply chain.
3. Effect of globalization (Language barriers, culture difference, disputes) on supplier selection in textile SCM.
4. Tradeoffs between strategic benefits of partnerships with suppliers and supply chain flexibility.

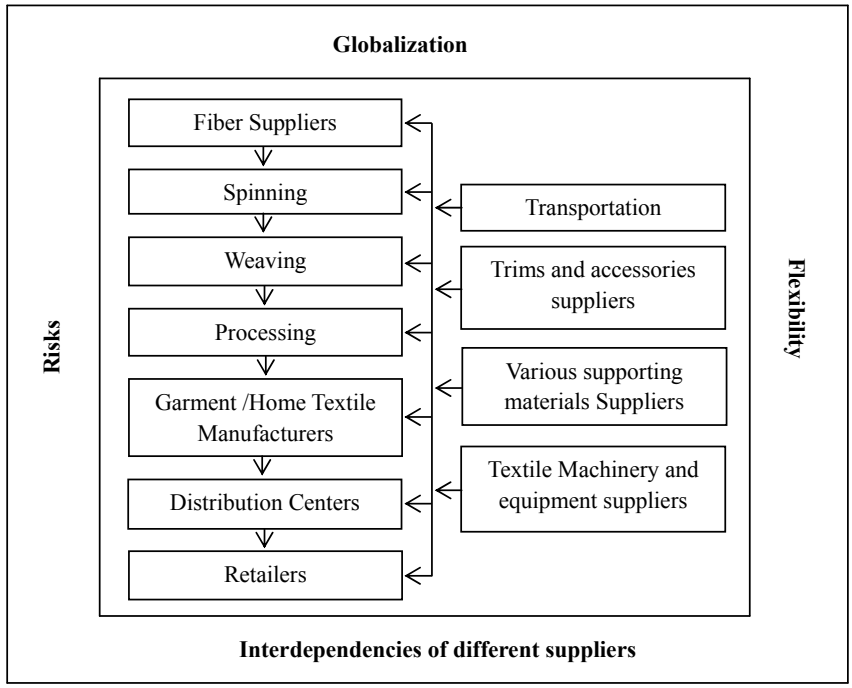

Figure 6 Conceptual Model of Supplier Selection and Evaluation

Various kinds of analytical modeling can be performed to capture the behavior of textile SCM, then supplier selection and evaluation decisions can be evaluated and optimized. First step in achieving the goals of supplier selection and evaluation in such a complex supply chain is to assess various situations, issues, and real losses due to bad practices of supplier selection and evaluation. Second step is to conduct various "what-if analysis" of various scenarios. Then, simulation analysis can be performed to identify best policies for a specific problem. Finally, the analytical modeling and optimization techniques can be adopted to implement best policies for the problem.

3.3 Outsourcing in Textile Supply Chain

Outsourcing in supply chain is categorized as a least researched topic in recent research (Rajput & Bakar, 2011). Therefore, we will employ special efforts to elaborate the concepts of outsourcing. Textile industry supplies the textile and apparel products in every corner of the world. Outsourcing the parts of textile production process had been considered a key approach since decades. At the same time, outsourcing had initiated various conflicting objectives, barriers, uncertainties, and risks which made it difficult for textile companies to survive and compete in the constantly changing global environment. As a result, the insourcing or reshoring is emerging as a prominent trend in the recent literature. In case of textile industry, it seems impossible to keep whole textile production process in home country due to various key factors e.g. largest difference of labor costs in different parts of the world, much higher capital costs, environmentally unfavorable nature of industry, and availability of raw materials on competitive prices. Existing research in outsourcing literature lacks practical and analytical decision making tools in supply chain management. There is a lack of perspective and practical models to express outsourcing decision processes particularly for logistic activities of supply chain so this category of SCM needs more exploration to fill the research gaps (De Boer et al., 2006; Rajput & Bakar, 2011).

Global textile and apparel markets can be categorized in three broader types as developed, emerging, and developing markets as shown in Table 4 (Falk & Wolfmayr, 2008; Größler et al., 2013; Cardona et al., 2012; Aktas et al., 2011; Javalgi et al., 2009; Li & Wang, 2010; Gereffi & Memedovic, 2003).

Table 4 Global Textile and Apparel Markets

1. Developed markets		
Australia	Greece	Portugal
Belgium	Ireland	Sweden
Canada	Italy	UK
Denmark	Netherlands	USA
Germany	Norway	France
Finland	Spain	Austria
2. Emerging markets		
Brazil	China	Turkey
Russia	Indonesia	
India	Mexico	
3. Developing markets		
Vietnam	Pakistan	Bangladesh
Myanmar	Sri Lanka	Colombia

Different parts of textile production process/ supply chain can be outsourced as separate process. The Figure 7 shows that outsourcing can result in substantial benefits in textile SCM to achieve overall low costs and high flexibility. At the same time, there are various risks involved with outsourcing which may affect the whole textile business. Therefore, careful analysis of each textile process is essential and right process should be assigned/ outsourced to right place. If different parts of the process are required to be assigned/ outsourced at same country, the right combination of processes will result in best outsourcing policies.

Future Research Directions: Based on above concepts, we are motivated to propose various directions for future research. Quantitative studies including analytical models and simulation analysis can be performed. Figure 8 shows the conceptual model of outsourcing in textile supply chain management

Topic 1: Managing the tradeoffs between different conflicting objectives including cost, quality, flexibility, and delivery.

Nature of risks	If outsource	Production process	Nature of process
Outsourcing may be highly risky	May use new ideas from dynamic global environment	**Product Development and Marketing**	Core competencies
		Key Inspection Processes	
If establish subsidiaries, then location risks are more likely to occur	Outsourcing has substantial effect on total cost and can result in highest capacity flexibility	**Yarn Spinning Production Process**	Highly Capital and Labor Intensive, Environmentally unfriendly nature
		Fabric Manufacturing Production Process	
		Textile Processing Production Process	
Loss of customer and market shares, Threat of future competition	International outsourcing has substantial effect on total cost	**Fabric Cutting production process**	Highly Labor Intensive
		Fabric Sewing Production Process	
Loss of control	Use third party Transportation and warehouses	**Textile Shipping**	Capital and Labor Intensive
		Textile Warehousing	

Figure 7 Outsourcing in Textile Supply Chain

Topic 2: Managing the Tradeoffs between Different Motives of Outsourcing

Possible motives of outsourcing are listed in Table 5 which are reported by various studies (König & Koskela, 2012; Quélin & Duhamel, 2003; Tijun et al., 2012; Liu et al., 2012; Scott et al., 2011; Mauri & Neiva de Figueiredo, 2012; Kang et al., 2011; Willcocks et al., 2011.)

Table 5 Outsourcing Motives

Reduce operational costs	Enhancing flexibility	Improve asset utilization
Reduce capital invested	Concentrating on core business	Reduce fixed assets
Access to external competencies	Establish strategic relationships	To increase efficiency
Improve quality	Acquiring expertise	To reduce risk of capital commitment
Convert fixed cost into variable cost	Gaining recognition	Corporate Social Responsibility
Control over internal departments	Releasing resources	Access to innovativeness and ideas
Profit sharing	Reengineering organization	

Topic 3: Managing the tradeoffs between outsourcing motives and risks.

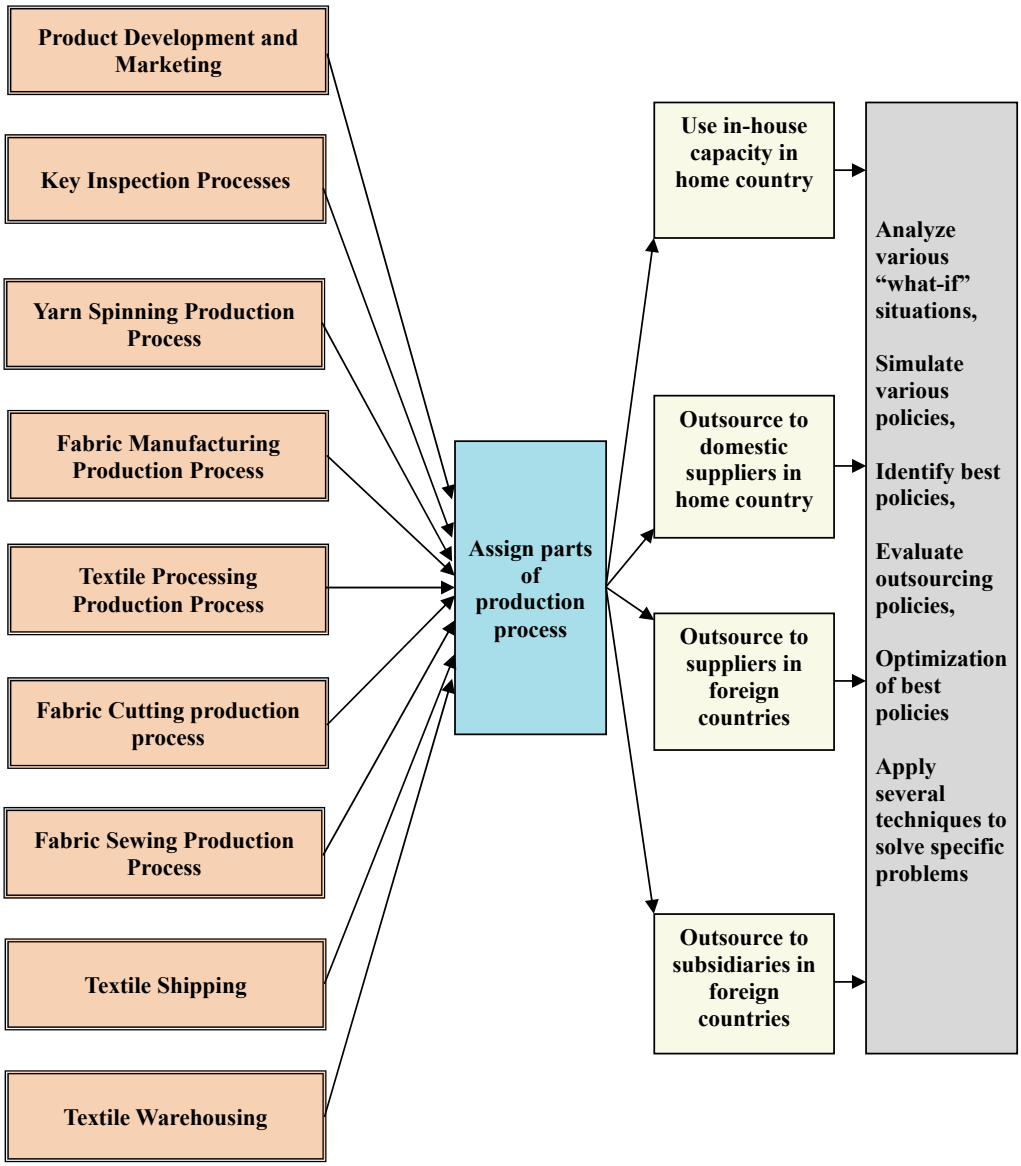

Figure 8 Conceptual Model of Outsourcing in Textile SCM

In the outsourcing literature, remarkable importance to various risks has been presented. We identified various risks from the outsourcing literature (Martinez-Noya et al., 2012; Zutshi et al., 2012; Tsai et al., 2012; Nassimbeni et al., 2012; Aubert et al., 2012; Sodhi & Tang, 2012; Kutlu, 2012; Rogers et al., 2012; Aubuchon et al., 2012; Rajput & Bakar, 2011; Alaghehband et al., 2011; Tijun et al., 2012; Liou et al., 2011; Hsiao et al., 2011; Scott et al., 2011; Liu & Nagurney, 2011; Mauri & Neiva de

Figueiredo, 2012; Kang et al., 2011; Willcocks et al., 2011; Kam et al., 2011; Yu & Lindsay, 2011.) which can be integrated into outsourcing models in textile SCM as shown in the Table 6.

Table 6 Risks Associated with Outsourcing Decisions

Capital commitment	Poor physical Infrastructure	Ecologically unfriendly raw materials
More asset specificity	Difficulty in quality inspection	Unavailability of raw materials
Task interdependence	Lack of skilled labor in home country	Threat of future competition
Upgrading and maintaining machinery	Labor turnover	Exchange rate fluctuations
Natural disaster (e.g. fire or flooding)	Poor human resource policies	Disclosure of commercial secrets
Corporate social responsibility	Poor telecommunication infrastructure	Loss of control
Terrorist activities	Searching or switching supplier	Poor strategic resource development
Political instability or corruption	Convoluted/ complex contractual terms	Loss of customer and market shares
Electricity and gas shortage	Lack of monitoring	
Late and unreliable deliveries	New product introduction	

Different types of risks can be integrated into outsourcing models. For example "Capital commitment" risk in textile supply chain has more probability if a company in developed market does not outsource. If this company outsource to domestic suppliers, the risk of "Threat of future competition" have more probability. But, if a company in developed market constructs a subsidiary in low cost market, then the "Political instability" risk may have more probability. Similarly, various types of risks can be integrated into outsourcing decision models according to specific problem and outsourcing options.

Topic 4: Tradeoff between outsourcing motives and risks for location selection in textile SCM.

Topic 5: Analysis of the outsourcing related costs and production related costs for different markets and different countries.

Outsourcing and production related costs (Handley et al., 2013; Anwar, 2012; Größler et al., 2013; Sodhi & Tang; 2012) are listed in the Table 7.

Table 7 Outsourcing and production costs

Production related costs	**Outsourcing related costs**
Inventory Holding Cost	Transaction costs
Labor cost	Training cost
Raw materials cost	Transportation cost
Quality assurance cost	Quality assurance cost
Capital cost	Technology transfer cost
Setup cost.	
Material handling cost.	

Tradeoff between these costs can be represented as shown in Figure 9. Various types of "what-if analysis" can be performed to manage tradeoff between different types of costs. Impacts of outsourcing and reshoring can be analyzed. Then, different policies can be identified and simulation studies can be performed to investigate the various outsourcing decision. Relevant risks can be integrated into these decisions.

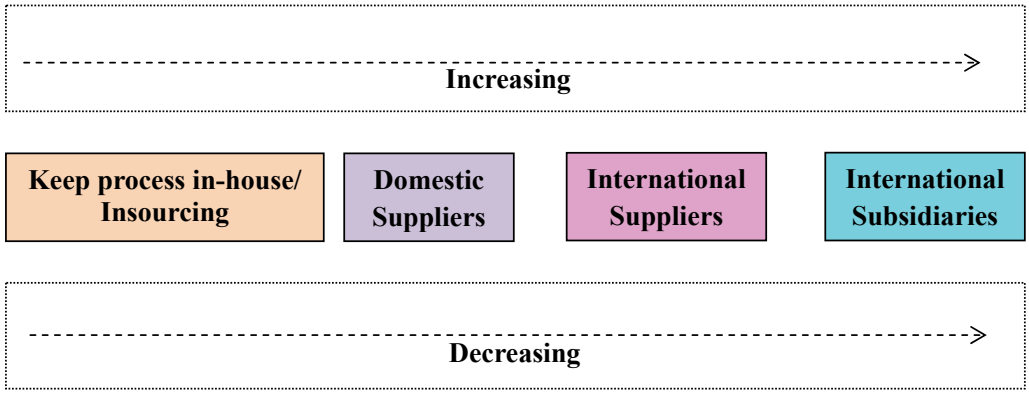

Figure 9 Tradeoff between outsourcing and production costs

Topic 6 Analysis of the Transaction costs for different markets and different countries.

Important transaction costs as shown in Table 8 are reported by many studies (Größler et al., 2013; Aubert et al., 2012; Sodhi & Tang, 2012; Kutlu, 2012; Gunnewiek, 2012; Liu et al, 2012; Alaghehband et al., 2011)

Table 8 Transaction Costs

Frequency of transactions	Negotiation costs	Administrative costs
Governance cost	Monitoring costs.	Opportunism costs
Searching or switching costs	Contract enforcement costs	Information collection cost

Topic 7: Tradeoff between environment adoptability and potential risks in textile supply chain through outsourcing product development activities.

Topic 8: Multi criteria model for quality management for outsourcing to emerging and developing markets in textile SCM.

Topic 9: Analyze the critical barriers in the selection process of offshore outsourcing vendors.

Critical barriers are highlighted in the outsourcing literature (Khan et al., 2012; Qin et al., 2012; Nassimbeni et al., 2012; Khan et al., 2011) as shown in Table 9.

Table 9 Critical Barriers of Outsourcing

Cultural conflict	Maintaining trust	Geographical distance
Language barrier	Hidden costs	Country instability
Lack of Face-to-face communication	Objective misalignment	Lack of project management
Cultural barrier	Lack of expertise with the outsourcing	Lack of protection for intellectual property rights

Topic 10: Assessment and Measurement of disturbances related to demand, supply, process, and control-related disturbances?

Topic 11: Modeling the strategic partnership between clients and provider for changing the trends with the passage of time in textile SCM.

Topic 12: Balancing the conflicting objectives between clients firms and outsourcing provider firms.

Topic 13: Modeling the interactions between costs reduction and environmental pollution due to outsourcing in textile supply chain.

Topic 14: A multi-period outsourcing decision model to predict the impact of outsourcing on business performance over time.

Topic 15: Balancing the potential financial benefits of outsourcing with significant employee related issues (layoffs or employee transfers) that arise with outsourcing and complicate the implementation of the new sourcing arrangement.

Topic 16: Impact of increasing labor costs and environment control costs of outsourcing among different markets.

Topic 17: Third-party logistics outsourcing models for increasing interaction between buyer and provider in textile supply chain.

Topic 18: Comparison between different countries for outsourcing with respect to integration of risk in outsourcing models to for decision making.

Table 10 shows the comparison of China and India with respect to outsourcing. (Olson & Wu, 2011; Kumar, 2012; Sepehri et al., 2009; Rahman & Wu, 2011)

3.4 Environmental Management in Textile Supply Chain

Choi (2012) found that sustainability and ethical SCM is an emerging issue all around the world. As an industry which is associated with pollutants (dyeing chemicals, CO_2 emission etc.), the textiles and apparel industry is usually termed as an environmentally unfriendly industry. Recent techniques include compulsion of carbon footprint tax on garment products, sustainability rules and guidelines, ISO certification (ISO14000), and corporate social responsibility.

Table 10 Comparison of China and India with Respect to Outsourcing

India	China
More information technology outsourcing	More manufacturing outsourcing
Technical education of workforce	Lacking technically skilled labor pool
English language speaking abilities.	Lack of English speaking
Tax exemption and tax incentive schemes.	Much better tax and financial incentives to companies
Telecommunication infrastructure	Poor telecommunication infrastructure.
Better IT infrastructure and internet access.	Medium IT infrastructure and internet access.
Poor physical Infrastructure.	Good physical infrastructure
Much easy regulation of entry and exit	Difficult regulation of entry and exit
Poor regulatory environment	Good regulatory environment
More sustainable and steady economic growth	Accelerated growth rate and any global economic downturn could spell disaster.
Time zone attractiveness	Time zone limitations
Favorable political environment and world's largest democracy.	More transparent political environment.
Executive management opposition may lead to loss of control of the offshore business.	Political risk in the government's interfering with free enterprises.
Low cost workforce.	Low and increasing cost workforce.
Lack of supervision there can be affect quality and performance of outsourcing business.	Growing reputation for product quality and on time delivery.

Environmental issues are destroying the natural environment day by day, and there must be no compromise with next generations to continue this trend for personal benefits. Environmental sustainability is the global issue and each individual in the world is responsible for taking part in the betterment of the environment. There is an increasing tendency of supply chain participants to work together within and across the supply chains for various mutual benefits including outsourcing, sharing

transportation facilities, training & development, and environmental sustainability. Carelessness will cause the long term destructions in the environment due to harmful effects of various processes in textile supply chain. Manufacturers in the different echelons are not free from the job after the dispatch of textile materials to next stages. It is the responsibility of each participant to coordinate with other participants to take part in the implementation of green supply chain. Hence, this area is the most important area to be reflected in the textile supply chain. Manufacturers can coordinate with buyers to design the products which are environmentally friendly. The use of less toxic materials, easy to be recycled materials, and recycling of the solid waste in the supply chain are perspective future research areas. We can estimate the value of green supply chain management in textile supply chain by the following evidence.

"Consumers purchase 2.15 million tons of new clothing and shoes each year in the UK. In order to make room for all the new clothes, they are throwing away the old. Over 1.4 million tons of clothes are sent to UK landfill every year. Textiles present particular problems in landfill. Synthetic (man-made fibers) products do not decompose. Woolen garments do decompose, but in doing so they produce methane, which contributes to global warming and climate change. The World Health Organization estimates that 150,000 people die every year from climate change. Meanwhile, the fashion industry is producing new styles and trends. Toxic pesticides and other chemicals are being used to grow cotton and energy is being used to transport products around the globe. Specifically, the grasslands of the Alashan Plateau in China have been turned into a dustbowl due to over grazing of goats for cashmere. In Uzbekistan, 85% of the Aral Sea has disappeared as a result of drainage for cotton production (http://www.traid.org.uk)."

Future Research Directions: For the purpose of future research establishment, we illustrate the concept of recycling of textile products as shown in Figure 10. This Figure represents two ways for the collection of textile products (e.g. garments, towels, home textiles, etc.). First way is that end consumer may return the garment after use. But, this requires the highest awareness among the consumers about environmental benefits to society. Second way is to collect the textile products from waste stream. Because this collection cannot be used directly as raw materials for new garment, so first step should be reuse the products (e.g. resell on low prices, offer to poor people, or send to poor countries). Dotted lines show the recycling of textile products. Last step should be energy recovery from various textile materials. As we move from consumer towards the energy recovery plants, we can recover intermediate solid wastes from various textile processes and try to reuse and finally we recover energy. This process requires the collaboration of various supply chain members, but it will save lives of several thousand human beings which may suffer from several diseases due to bad effects of these solid wastes.

More specifically, Figure 11 represents another conceptual model for textile products collection from retailers and bringing back to relevant supply chain member.

Where

R_1, R_2, R_3 ... R_n,	Retailers storing the textile products
DW	Distribution centers/ Warehouses
GH_1, GH_2, GH_3 ... GH_n,	Garment/ Home textile manufactures
TW	Third party warehouse

We propose the following perspective topics for this research.

1. A multi-retailer textile products recovery model for sustainable SCM with third party warehouse. In this model, third party logistics must be responsible to bring textile products to the relevant manufacturer directly from retailers to manufacturer.
2. A multi-retailer textile products recovery model for sustainable SCM with third party logistics through own warehouses of supply chain members. In this model, a third party may be responsible to bring textile products to the relevant warehouse.
3. A multi-retailer, multi-supply-chain model for textile products recovery model for sustainable SCM with third party logistics through own warehouses of supply chain members. In this model, a third party may be responsible to bring textile products from various separate supply chains, separate at warehouse, and send to relevant manufacturer. This model may require collaboration with competitors, but environment safety is responsibility of every member of every supply chain.
4. Tradeoffs between various environmental management programs and performance of textile supply chain can be evaluated. Some of these environmental management programs are listed below.

- Environmental Management Systems like ISO 14000
- Eco-labeling like Oeko -tex- 100, and EU eco-label
- Cleaner Production Technologies
- Effluents & Waste Management techniques
- Health and Safety programs
- Environmental awareness
- Environmental Risk Management
- Green product design

These are some basic ideas for environmental management in textile supply chain. Future scholars may deduce various types of ideas from these conceptual models. Before optimization of these models, it is suggested to perform various kinds of simulation and "What-if analysis" to understand the tradeoffs between personal benefits and environment sustainability.

3.5 Production Process Management in Textile Supply Chain

Silva & Magalhaes (2006) proposed a Heuristic method in which lots of similar products must be generated and sequenced in ten unrelated parallel machines, in order to minimize tool changeovers and avoid late dispatch of fiber to spinning unit. This uses the simultaneous lot sizing and scheduling of several types of fibers. De Toni & Meneghetti (2000) performed simulation to analyze how the product planning process (e.g. planning period length, material availability, the link between production orders and customer orders as regards color mix) can affect the network performance from time-based point of view. Results described that internal time performance can enhance the external time performance. Production planning is performed in the knitting supply chain (Figure 10). The model proposed is a single-stage model with parallel uniform machines.

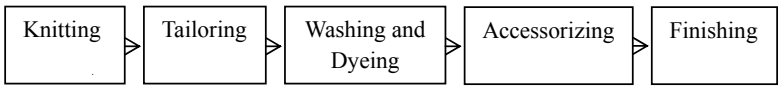

Figure 10 Production Planning in Knitting Supply Chain

Source: De Toni (2000)

Elamvazuthi et al. (2009) used fuzzy linear programming to determine monthly production planning details and profit for a home textile company. Karabuk (2008) Proposed a stochastic programming model for yarn production planning problem. It includes uncertainty in the form of discrete demand scenarios. More efforts are required in generating scenario inputs to stochastic programming model. The work team is not willing to generate scenarios and explain the results of these scenarios to the supply chain managers. A solution to this problem is to automate creation of demand scenarios from historical forecast errors. Caputo & Palumbo (2005) proposed a methodology to assess the feasibility of manufacturing re-insourcing strategies for jeans manufacturing. Rajput & Bakar (2011) proposed a dynamic production system model to determine the optimal value of quality investment which causes the production system to reach a reasonable quality level and minimize the production cost. Kwok & Kenny (2009) proposed an RFID-based intra-SC system for a chain made up of a fiber producer, fiber dyeing producer, yarn spinning producer, knitting and finishing producer, distributor, and a textile retailer exists in the literature.

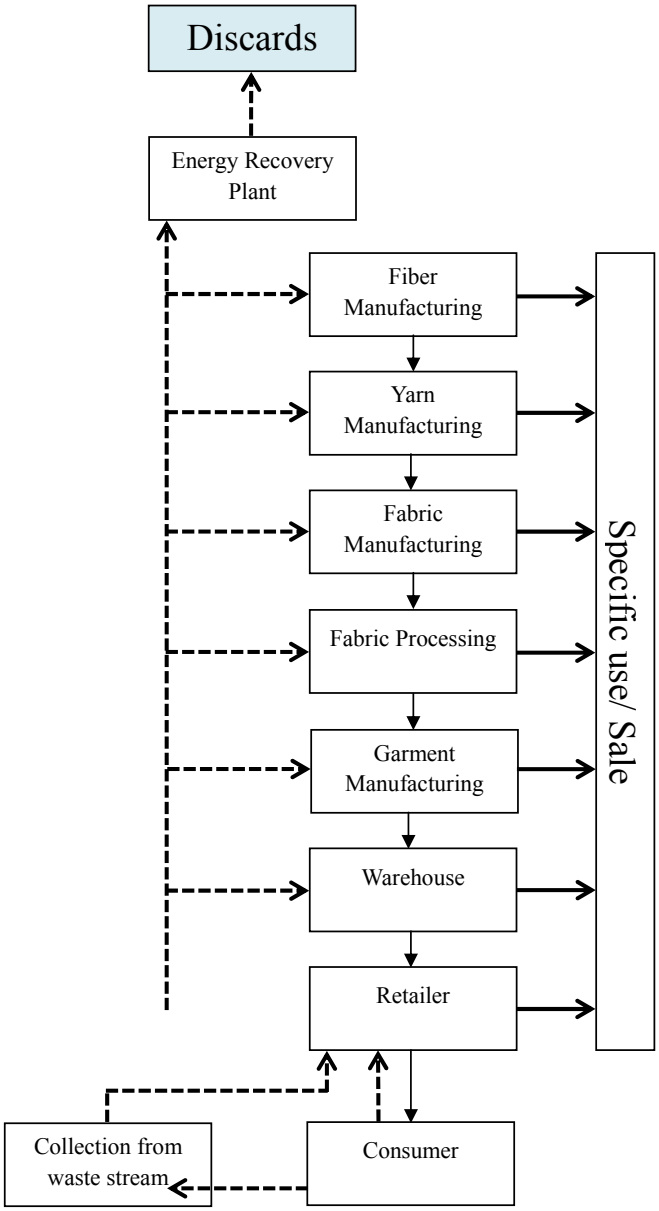

Figure 11 Textile Waste Recovery Supply Chain

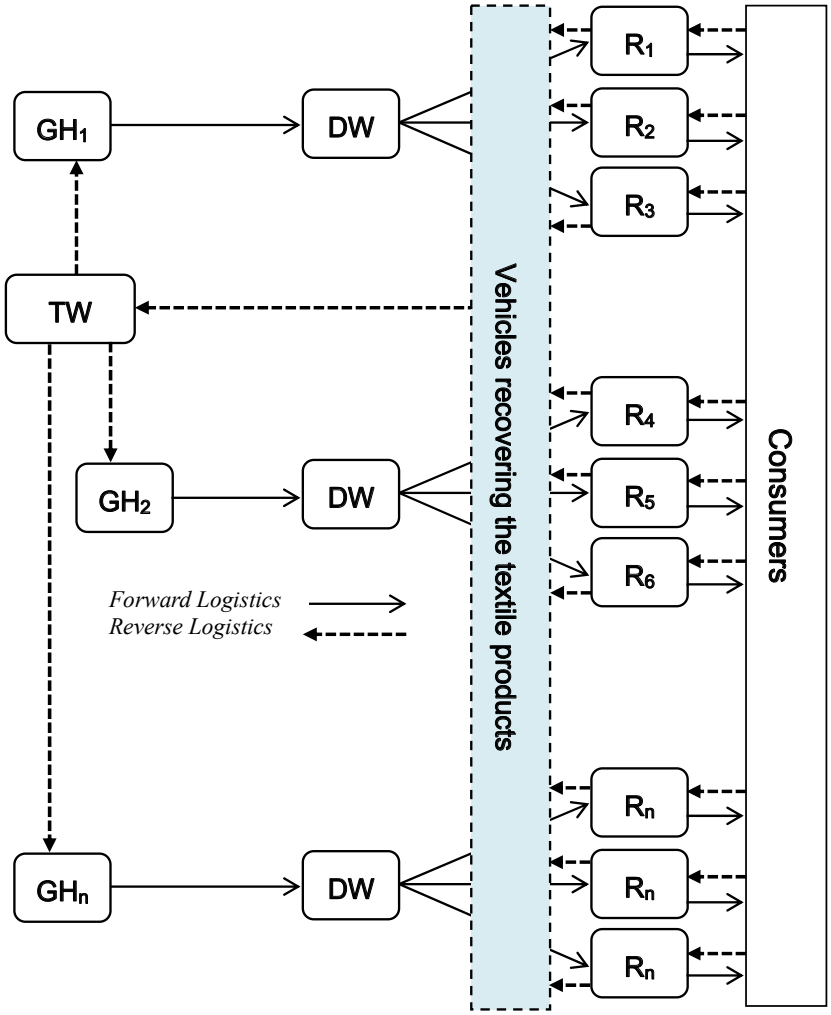

Figure 12 Textile Products Recovery Model

Thomassey et al. (2005) proposed two new forecasting models. The first model (AHFCCX) allows to automatically obtaining mean-term (1 year) forecasting by using fuzzy techniques to quantify influence of explanatory variables. The second one (SAMANFIS), based on a neuro-fuzzy method, performs short-term (1 week) forecasting by readjusting mean-term model forecasts from load real sales. Another study suggested a method including three models: first the "AHFCCX" realizes mean-term forecasting (one season) on aggregated sales, second the "SAMANN" works in short-term (one week) on aggregated sales and third the "IDA" allows performing forecast on items sales. Zhang et al. (2010) proposed an IT service platform based on cloud computing and SaaS (Software as a Service) is found in the literature to enhance the competitiveness of the textile industry. Cebeci (2009) proposed a fuzzy analytic hierarchy process (a fuzzy extension of the multi-criteria decision-making technique AHP) to compare different ERP system solutions proposed by ERP consultants. These studies on production

system management seem quit operational and need their generalization in SCM. Multi-echelon or Multi-stage production process management models are the need of future research. Relevant studies focusing on multi-echelon inventory management were found in general literature as shown in Table 11. These studies show that general literature on multi-echelon inventory management in supply chain focuses mainly on distribution efforts. Only one study by Daniel & Rajendran (2005) considered a single-product serial supply chain operating with base stock policies. Whole supply chain works with a pull strategy. But, this strategy alone cannot resolve various complications in the textile supply chain. Fiber supplier, Spinning, Weaving, Processing, and end product manufacturing have long processing times. Furthermore, the distribution centers and retail stores are often located offshore. Therefore, there are various disruptions in production systems and processes which need special solutions.

Table 11 Multi-Echelon Inventory Models in Supply Chain

Stages	Objectives	Solution Methodology	Supply Chain Structure	References
Diversified installations	Optimal Purchasing quantities.	Dynamic Programming	First study for multi-echelon inventory	(Clark & Scarf, 1960)
2-echelon	Dynamic lot-sizing.	Dynamic Programming	A manufacturer and a 3rd party Warehouse	(Jaruphongsa et al., 2004)
4-echelon	Minimize total cost.	A genetic algorithm + Simulation	Retailer, distributor, manufacturer, Supplier.	(Daniel & Rajendran, 2005)
2-echelon	Minimize total annual inventory investment	Heuristic optimization algorithm.	One warehouse and several retailers	(Al-Rifai & Rossetti, 2007)
3-echelon	Minimize total cost	Simulation + particle swarm optimization algorithm	Manufacturers, distribution centers, retailers	(Jiang & Junhu, 2008)
3-echelon	Minimize total cost	Genetic Algorithms	A factory, and distribution center 1 and 2	(Radhakrishnan et al., 2009a)
3-echelon	Minimize total cost	Genetic Algorithms	A factory, 2 distribution centers, and 4 agents	(Radhakrishnan et al., 2009b)
3-echelon	Minimize annual cost and service times	Bi-criterion mixed-integer nonlinear program	A plant, distribution centers, and markets	(You & Grossmann, 2010)
3-echelon	Optimal inventory decisions	Particle swarm, genetic algorithm	A manufacturer, A distributor, and a retailer	(Gupta et al., 2012)
2-echelon	Selecting warehouses	Non-linear mixed integer programming and Heuristic algorithm based on Lagrangian relaxation & subgradient optimization	A supplier (A central distribution center and multiple regional warehouses) and multiple retailers	(Kang & Kim, 2012)

Future Research Directions: An immense amount of literature exists in production and inventory management, still we need to formulate and implement highly relevant inventory management models which truly describe the behavior of the textile supply chain. Transportation decisions must be integrated explicitly to optimize the textile supply chain. There are various problematic areas in the supply chain which add costs as the product moves towards customers.

We described the behaviour of textile supply chain in the beginning sections. Now, we will briefly explain the process with the help of a possible configuration of textile supply chain for the purpose of future research. Symbols used in this picture can be seen in the Table 1 of the section 2. We captured main features of textile production management/ supply chain system as shown in Figure 13. Textile supply chain uses combination of push and pull strategies. There are two decoupling points of push and pull strategies. Retailer uses hybride strategy.

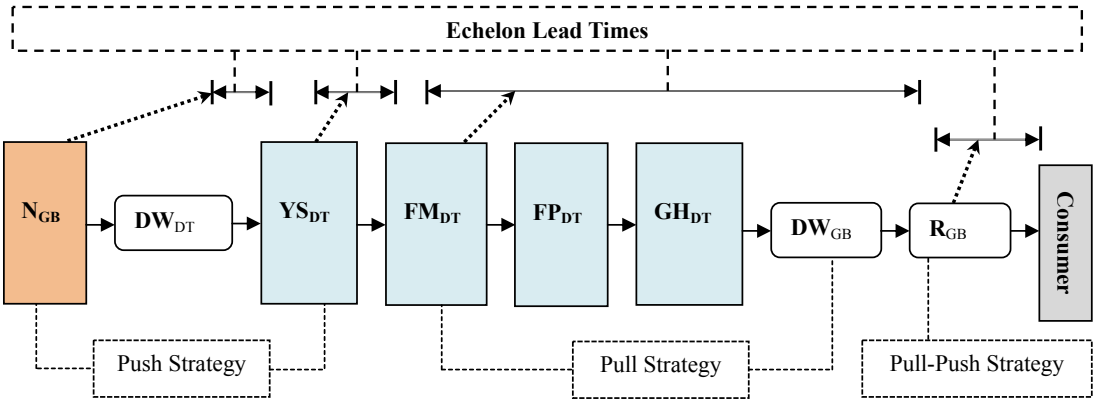

Figure 13 Production Process Management in Textile Supply Chain

Suppose that a yarn spinning company (**YS_{DT}**) is located in home country. **N_{GB}** is the manufacturer of natural fibers (e.g. cotton) in the foreign country. **N_{GB}** forecast the demand, demand is independent, and so its operations strategy is Make-to-Stock or push inventory system. **DW_{DT}** is the warehouse in the home country owned by fiber manufacturer which stores the cotton. If **YS_{DT}** demands the fibers, the demand can be fulfilled from the stock at **DW_{DT}**. Hence, the lead time of **N_{GB}** is from **DW_{DT}** to **YS_{DT}**. If the **DW_{DT}** faces the shortage, the demand will be backordered to **N_{GB}**, and lead time of **N_{GB}** will be from **N_{GB}** to **YS_{DT}**. **YS_{DT}** also stocks the yarn based on forecasting. Its lead time starts from receiving the demand from Fabric manufacturing (**FM_{DT}**) and ends till providing the yarn to **FM_{DT}**. The lead time of **N_{GB}** and **YS_{DT}** is short but uncertainty is low because these two textile production processes forecast the demand and may perform the manufacturing before the arrival of orders because of less value added products.

Beyond the **YS_{DT}**, the differentiation of textile products starts. Hence, this is the decoupling point of push-pull strategy. Customer requires various types of fabric designs and specification, which may vary from one order to another order, so fabric manufacturing (**FM_{DT}**) starts the production with the confirmation of demand from customer. Demand is derived from retailer's demand, so demand is dependent. **FM_{DT}** uses Make-to-Order strategy or Pull Inventory System from fabric manufacturing to retailer. Lead time of **FM_{DT}** is from Fabric **FM_{DT}** to the Distribution Center (**DW_{GB}**) or Retailer (**R_{GB}**).

$\mathbf{DW}_{GB}$ is the Distribution Center located in foreign country and owned by retailer **($\mathbf{R_{GB}}$)** in the foreign country. Similarly, Lead time of fabric processing ($\mathbf{FP_{DT}}$) is from $\mathbf{FP_{DT}}$ to $\mathbf{DW_{GB}}$ or $\mathbf{R_{GB}}$. Lead time of garment manufacturer ($\mathbf{GH_{DT}}$) is from $\mathbf{GH_{DT}}$ to $\mathbf{DW}_{GB}$ or $\mathbf{R_{GB}}$. Therefore, $\mathbf{GH_{DT}}$ has highest lead time uncertainty. It has to wait till the $\mathbf{FM_{DT}}$ sends the fabric to $\mathbf{FP_{DT}}$, and $\mathbf{FP_{DT}}$ sends the fabric to $\mathbf{GH_{DT}}$. If the Greige Fabric or Processed Fabric is received from the foreign country, it increases the uncertainty to a highest level.

Retail store ($\mathbf{R}_{GB}$) uses hybrid strategy to control the inventory. It forecasts the demand for garment/home textiles products based on latest trends or seasonal variations and stocks the products at distribution centers or the retail store. It reviews the inventory level at retail store continuously. If capacity of retail store is full, the garments remain in the distribution center. If stock level at retail store is below the capacity or requirements, it brings the products from distribution centers, and pushes the products towards end consumer. Therefore, it uses the pull strategy when pulling the order from the fabric manufacturing to the distribution center or retail store, and push strategy when managing the retail store.

This structure of production process is looking simple, but if we try to identify individual problems, we will find various prospective areas for further research. We summarized some of the problems in the section 2. We can analyze various situations in the production process and formulate various production policies based on various strategies (e.g. Pull strategy, Pull strategy, etc.). Then, we can conduct simulation studies to model and analyze various configurations. Simulation has the greater flexibility to model complex systems. There are various simulation softwares available in the market. Appropriate software can be selected for specific problem.

We need to establish production lot sizes and shipment lot sizes. For example, if the Yarn manufacturer or Fabric manufacturer is located in the foreign country, the shipment lot size may consist of one complete contract or several small customer orders. On the other hand if Yarn manufacturer or Fabric manufacturer is located in the home country, then one complete contract may be shipped in various small lots. Also, Yarn manufacturer and Fabric manufacturer require different replenishment policies. Further, the individual company/ stage in textile supply chain has a series of subprocesses within the single company which may cause disruptions in whole supply chain. Therefore, various managerial insights and practical decisions can be considered from our dicussion which can help to support the supply chain strategy of textile business.

3.6 Supply Chain Coordination

Hwang & Seruga (2011) claim that there is no comprehensive framework available on the application of IT for achieving an effective textile supply chain management. They proposed a collaboration network model (Figure 14) and designed an intelligent textile supply chain management system that requires various information technologies for planning and coordination. The purpose of this system is to improve customer services and delivery time, and to promote information sharing, and shorten product life cycle time. This important study proposes a comprehensive framework for supply chain management in the textile industry.

Following are the key problems highlighted in this article.

- United States and Europe are large markets for textile exports and their retailers seek low-cost supplier countries like China and South-east Asian countries.
- The Korean textile companies have concentrated on exporting fabric cloths based on mass production and it prevented the industry introducing high value-added products resulting in loss of competitive edge. Attempts to apply Quick Response system to some Korean textile companies has not resulted in satisfactory outcome. The importance was given to increase productivity and improve efficiency level of logistics without concentrating on the entire supply chain and the collaboration of business partners.
- Problems in IT-integrated SCM are lack of integration between IT and business model, lack of proper strategic planning, poor IT infrastructure, insufficient application of IT in virtual enterprise, and inadequate implementation knowledge of IT in SCM. There is no comprehensive framework available on the application of IT for achieving an effective SCM.
- Divisions of the textile supply chain are independently separated and the communication among the companies is carried out as needed without any particular methods.
- Due to the short life cycle of the textile products, it is very difficult to standardize the products except some categories such as raw materials, yarn, greige fabrics, and the level of innovation is also extremely low.

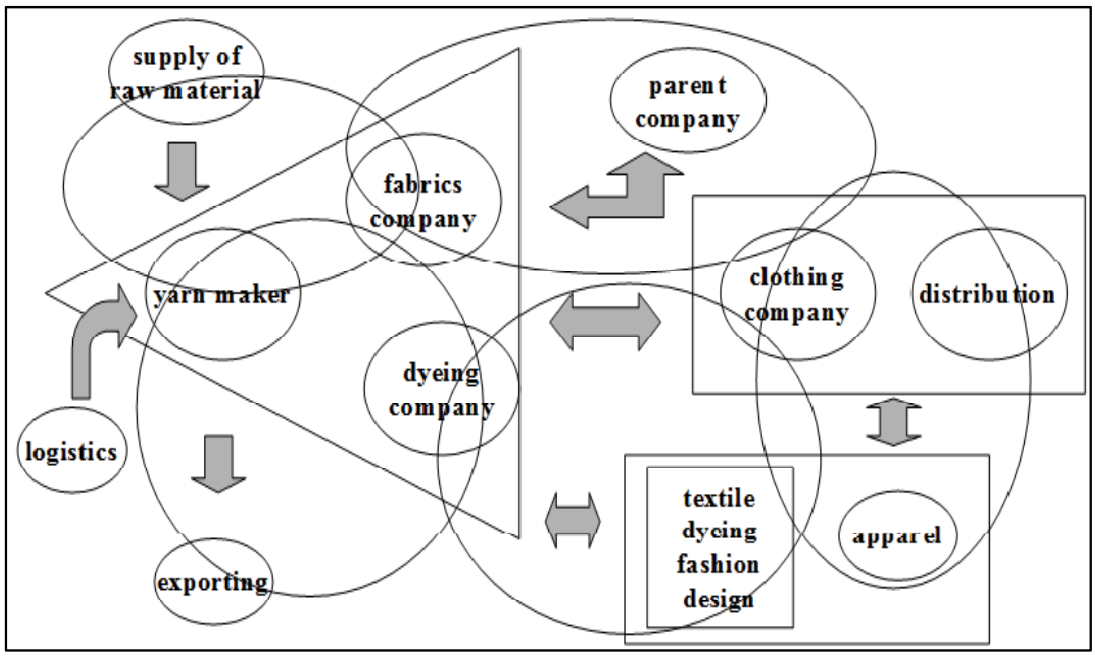

Figure 14 A Collaboration Network Model for Textile Industry
Source: Hwang & Seruga (2011)

Maboudi et al. (2011) investigated the effect of textile supply chain relations on customer satisfaction. Dimensions of the supply chain relations include communications, cooperation, commitment, adaption, interdependence, commitment, and trust (independent variables). Customer satisfaction is the (dependent variables). The measurement tool was a questionnaire. Results show that

all dimensions of supply relation management have direct relations to customer satisfaction. The most related dimension with customer satisfaction is communication and the least is interdependence. Kumar et al. (2011) collected data from a survey of 66 Indian textile-related organizations to discover issues related to distribution system of supply chain and customers. This article concluded following issues in textile supply chain.

- Important dimensions of business objectives are *"customer satisfaction and product quality"*.
- Most influential factor in reading and responding real customer demand is *"delivery speed"*.
- Best factor to respond quickly is *"wide spread or intensive distribution coverage network"*.
- *"Responding quickly to customers' demand"* results in "increased customer satisfaction and reduction in number of lost sales".
- Biggest barrier in distribution system is *"poor feedback system to take customer response"*.
- Main indicator for firm's ability to monitor and manage customer relationships *is "determination of factors to build customer reliability"*.
- Factor to improve customers' relationships is "*customers' orders delivered on time are tracked.*
- For placing order *"usage of internet is important"*.
- Improvement achieved by *"quick response"* to customers' demands in "reduction in number of lost sales" helps the most in achieving all the business objectives.

Choi (2012) concluded that textile supply chain needs combined efforts of all members. One approach is Vendor-managed inventory (VMI). Recently, the Vendor-managed inventory (VMI) is adopted by large organizations. Trust and responsibility share issues make this approach hard to implement in textile supply chain. The use of information systems is required for execution of key approaches like VMI. Most important uses of information systems are Radio frequency identification (RFID) technology, business intelligence in the form of decision support systems, Multi-level e-multi-agent early warning mechanism for preventing loss of customers in fashion, and machine intelligence such as artificial neural network (ANN) yields very positive results in fashion sales forecasting. Radio frequency identification (RFID) technology only fits the big companies. Machine intelligence schemes are relatively time consuming to run and require sufficiency of data.

Future Research Directions: Supply chain thinking and coordination among various participants is the first solution to eliminate various bottleneck processes in textile SCM. Just thinking about the present process and overlooking the benefits of other participants causes the problems at later stages and create difficulties for all contributors. Understanding the various processes in textile supply chain and translating them in the language of computer is the need of future research. How to implement various information systems in such a complicated supply chain is the major issue. Participation of relevant supply chain managers and their teams in the development of IT systems is a key approach for successful implementation. Timely data availability and processing in the information system is itself a time consuming issue. Therefore, clear and easy network models are required.

Information security is a key problem in such a complex supply chain. A separate department may be established by negotiation of supply chain members to forward only required information for information security. Multi-agent simulation models can help to achieve greater coordination among supply chain participants. Various decisions (e.g. information security, supplier coordination, outsourcing, environmental management, inventory management, and materials management) can be integrated into these simulation models.

Textile companies should evaluate the main causes of the failure of Quick response. Important research topic can be "Modeling and analysis of lead time in textile and apparel manufacturing supply chain management" This research can investigate the various components of lead time and eliminates various bottlenecks and non-value-added components of lead time in textile supply chain. This model can be used to achieve efficient, effective, flexible, smooth and balanced supply chain resulting in minimum inventory and shrinkage of overall cost of the textile products.

3.7 Textile Machinery Manufacturers Supply Chain

Textile Machinery Manufacturers provide the textile machinery to entire textile sector. Availability of latest machinery to textile industry within an economical cost and right time is vital to achieve competitive edge in textile supply chain. Only those textile products manufacturers will survive which will provide textile products to customers with lowest cost, high quality, and quick response strategy. Lack of technology adoption will make it hard to be competitive in the global market. Keeping in view the importance of textile machinery manufacturers supply chain and lack of literature, we are motivated to highlight this research area. We expect that this area will be considered by research scholars because all the textile industry depends on textile machinery and equipment.

There is a lack of literature in the field of textile machinery manufacturers supply chain. This industry provides the necessary machinery and spare parts to various participants of textile supply chain. There is a strict competition among textile machinery manufacturers. The key exporters of the textile machinery include Italy, Germany, Japan, Switzerland, and China. Main textile machinery market exists in Asia, Europe, and United States. Asia is the main market for textile machinery. Figure 15 represents the textile machinery market in the world.

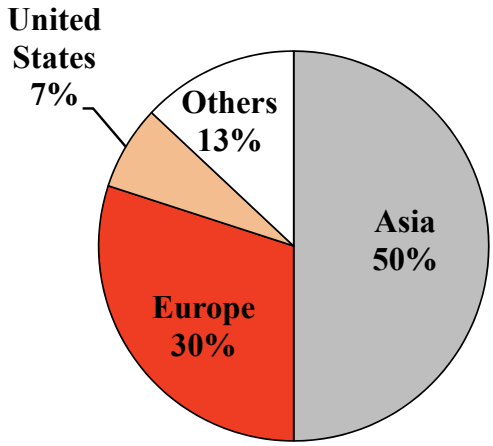

Figure 15 Textile Machinery Market

The economy of developing countries like China, India, Bangladesh, and Pakistan mostly depends upon the textile and garment manufacturing industry. Textile industry of these countries needs latest machinery to compete in the global market. Difficulty in the growth of the textile machinery

industry is the inefficient logistics and distribution system to circulate the textile machinery and equipment to clients. Main objective of the future research would be to construct analytical models, optimization models, and integrated information system for supply chain of textile machinery manufacturers, their customers, and various companies involved. Figure 16 represents the supply chain structure of textile machinery and equipment manufacturers. This model looks like a rigid system. There is almost a negligible coordination between customer and manufacturer. Existing model of textile machinery distribution has less flexibility, higher lead time, less information flow, lower inventory turnover, and unsteady cash flow.

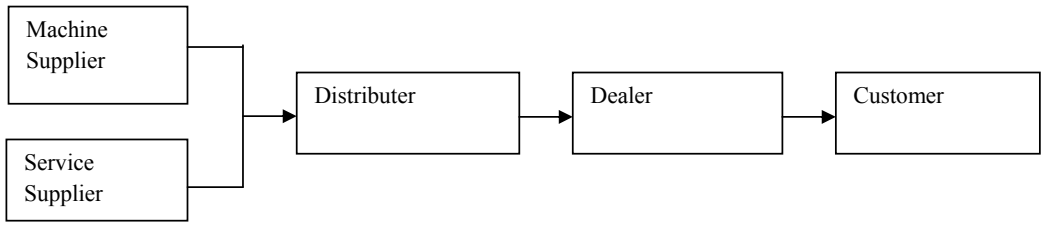

Figure 16 Existing Model of Textile Machinery Distribution

Future research directions: The objectives of the future research would be to provide the following benefits to all participants of the textile machinery manufacturers supply chain.

1. Higher inventory turnovers to reduce the overall cost.
2. Collaboration between customers & suppliers roles.
3. Improved flow of materials and information.
4. Logistics and distribution system improvement.

A more flexible, customer friendly, and highly benificial model for both manufacturers and customers is Proposed in the Figure 17.

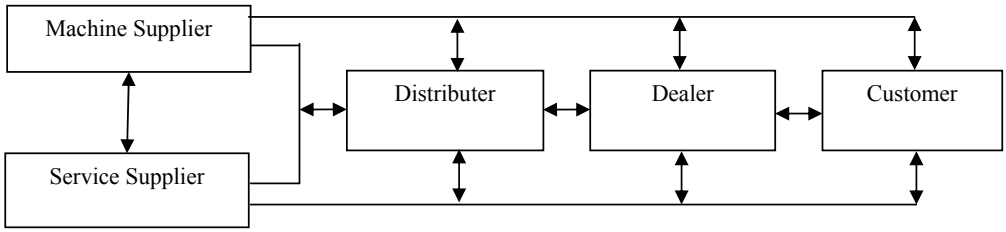

Figure 17 Proposed Model of Textile Machinery Distribution

The machinery breakdown and the equipment damage is the part of the regular working in textile supply chain. The increase in efficiency will help to eliminate the bottlenecks in textile supply chain. Sometimes a machinery or equipment becomes out of date, but manufacturers do not care about the machinery. Availability of proper lubricants and good quality spare parts will enhance the productivity. We need to quantify the loss due to inefficient machinery or spare parts. How much time a machine is idle due to breakdown? What is the latest machinery in global market? What are the effects of strategic partnership with suppliers of machinery and equipment? Improvement in all these areas will help to

achieve the quick response in the textile products (e.g. fashion garments, etc.) manufacturing supply chain.

3.8 Supply Chain Flexibility

Moon et al. (2012) claim that flexibility studies from the supply chain perspective are limited. No systematic and scientific research has been conducted to develop such an instrument. They proposed a study which adopted a comprehensive and rigorous procedure to develop an instrument for measuring supply chain flexibility (SCF) for the textile and clothing companies through an empirical investigation. Results show that SCF includes four dimensions, sourcing flexibility, operating system flexibility, distribution flexibility, and information system flexibility. Table 12 shows the measurement items in the instruments.

Table 12 Measurement Items in Instrument

Sourcing Flexibility (SF)	
Label	Measurement item
SF-1	Number of available suppliers.
SF-2	Range of products and services provided by major suppliers.
SF-3	Range of suppliers that provide major materials/components/products.
SF-4	Ability to add and remove suppliers.
SF-5	Ability to change suppliers to satisfy changing requirements.
Operating System Flexibility (OSF)	
Label	Measurement item
OSF-1	Output volumes the firm can produce.
OSF-2	Range of new products or services the firm can develop every year.
OSF-3	Ability to change output volumes.
OSF-4	Ability to change products and services mix.
OSF-5	Ability to adjust manufacturing facilities and processes.
Distribution Flexibility (DF)	
Label	Measurement item
DF-1	Number of warehouses, loading capacity, and other distribution facilities.
DF-2	Ability to add or remove carriers or other distributors.
DF-3	Ability to change warehouse space, loading capacity, and other distribution facilities.
DF-4	Ability to change delivery modes.
DF-5	Ability to transfer delivery schedules.
Information System Flexibility (ISF)	
Label	Measurement item
ISF-1	Support of information systems in transportation and distribution management.
ISF-2	Support of information systems in firm inventory management.
ISF-3	Support of information systems across multiple functions and departments.

Source: Moon et al. (2012)

Future Research Directions: Rajput & Bakar (2011) established that supply chain flexibility is in the phase of empirical exploration. Moon et al. (2012) found that it is difficult to understand how flexibility affects a supply chain's performance and/or other organizational attributes. Therefore, first we will explain that how flexibility can affect the textile supply chain. This is the eighth category of textile SCM. We put it in the last because it can be explained better at this stage because each category of textile supply chain described in the previous sections creates flexibility or needs flexibility. First category of textile SCM is strategic management in textile supply chain. Business strategy and supply chain strategy of the textile company should be flexible to adapt the constantly changing environment. At which stage of strategic management, we need the flexibility. We identified that 70% of strategies fail due to poor implementation (Charan & Colvin, 1999). Therefore, flexibility at strategy implementation stage is the route to the success of system. Future research in textile SCM can analyze and investigate the effects of modified business strategy and supply chain strategy at the implementation stage. "What-if analysis" and simulation studies are best solution to gain various insights into the flexibility in strategic planning and implementation. Second category of textile SCM is supplier selection and evaluation. Textile supply chain is involved in selection of suppliers at all stages as identified in the previous sections. The textile end products, intermediate products, and various materials which are required on urgent basis should be supplied by the closest suppliers to achieve the flexibility. The products/ items which have longer lead time may be supplied by the suppliers which are located in low cost region across the globe to create more flexibility and cost benefits. Third, category of textile SCM is outsourcing. Again, the fashion garments which have shortest lead time should be made at own facility of company or outsourced to suppliers in home country to achieve the flexibility and the basic products (e.g. Fiber manufacturing, Yarn manufacturing, Basic garments, etc.) which are required in the longer time can be outsource internationally to achieve greater flexibility along with low cost advantages. Fourth category of textile SCM is Environmental management in textile supply chain. Implementation of third party logistics, multi-retailers, and multi-supply chain concepts in recycling of textile products can achieve greater environmental management flexibility in textile supply chain. Fifth category of textile SCM is Production process management in textile supply. Implementation of various inventory management techniques and policies for each type of product can help in achieving flexibility and produce largest and new products in the textile companies. Sixth category of textile SCM is supply chain coordination. Implementation of user-friendly IT systems can achieve greater flexibility to track, identify, and resolve various issues in textile supply chain. Seventh category of textile SCM is Textile machinery manufacturers supply chain. Adaptation to latest machinery, techniques and technologies in textile supply chain can help in flexible production system to achieve quick response. We have already identified that outsourcing and flexibility are the least researched areas in supply chain (Rajput & Bakar, 2011) and fortunately the outsourcing is the key category of textile SCM which has a strongest relationship with capacity flexibility. Größler et al. (2013) concluded that companies that outsource internationally focus on achieving cost benefits, while companies that outsource domestically focus on achieving capacity flexibility. Therefore, we try to analyze the impact of capacity flexibility on the performance of textile supply chain for better understanding.

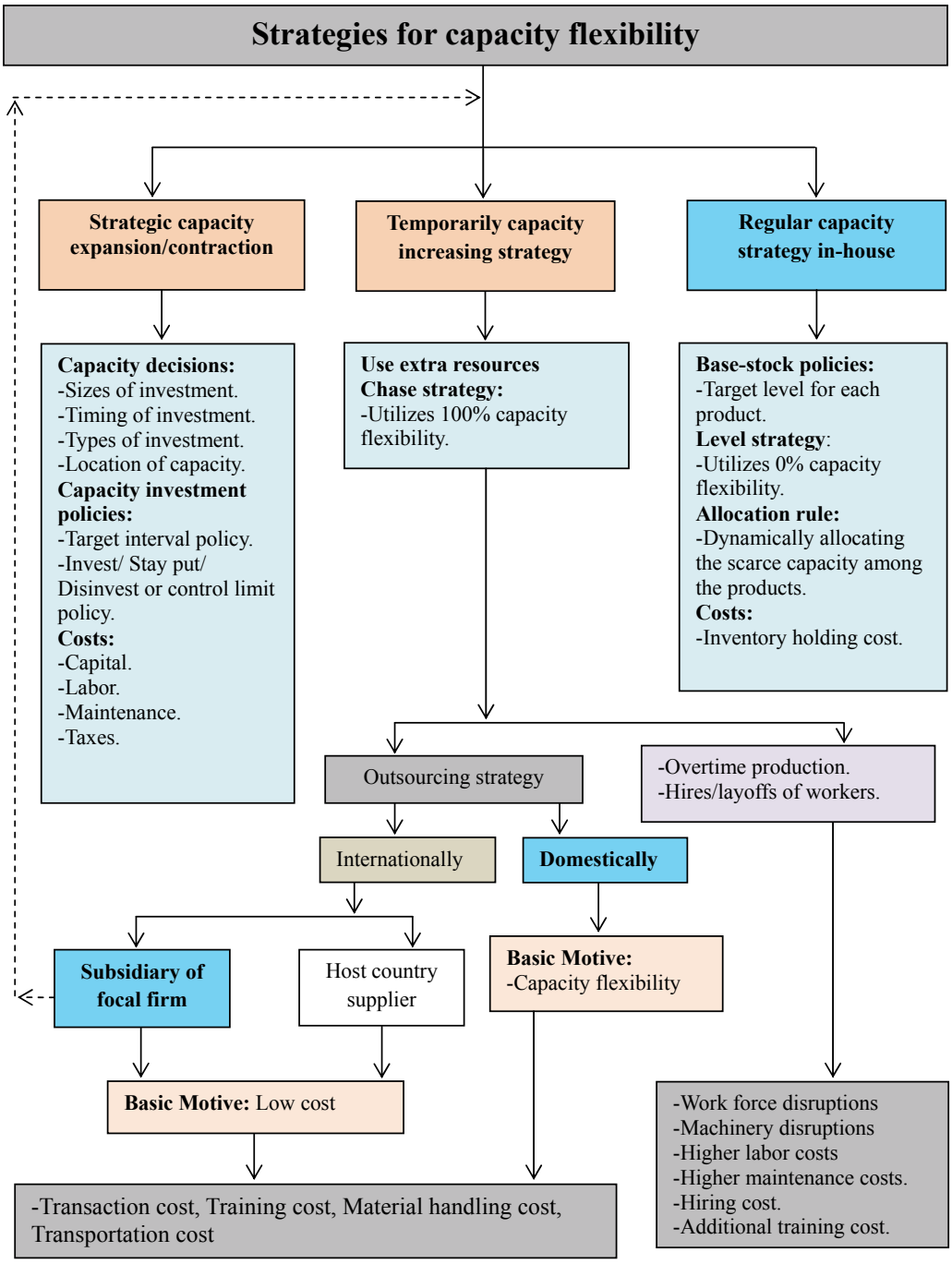

Figure 18 shows different strategies for capacity flexibility. We can see that capacity expansion/ contraction strategy is very costly.

Even if we establish subsidiaries in low cost regions across the globe, it will be challenging to exit easily from market due to heavy investment. If the demand of textile products is much high at one time and company constructs the new facility. After some time company realizes that demand is much less, then high fixed costs, unused machinery, and unused transportation capacity can become sunk costs. "Regular capacity strategy in-house" be used in some areas of textile SCM (e.g. fiber manufacturing, yarn manufacturing). But, high stocks of synthetic or natural fibers or yarns can become obsolete due to lack of demand or quality degradation problems. Temporarily capacity increasing strategy utilizes full capacity flexibility. Overtime, extra shifts, and hiring/ layoffs can be used within manufacturing, but higher costs and disruptions occur which may be transferred to whole supply chain. Outsourcing to domestic suppliers can achieve high capacity flexibility. Figure 19 shows the relationship between cost and capacity flexibility.

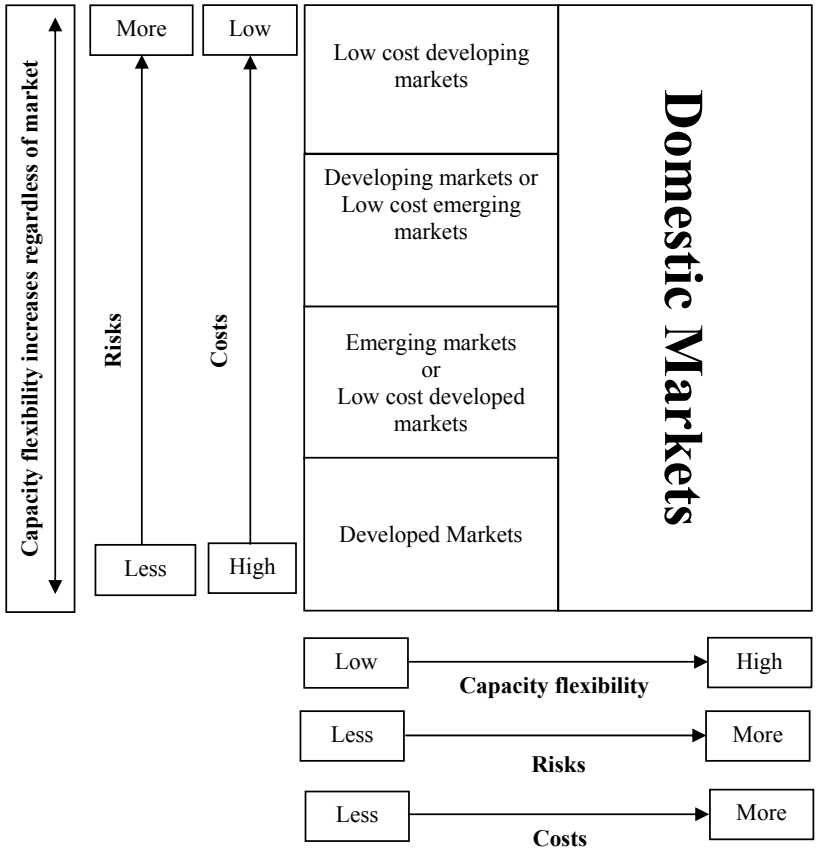

Figure 19 Cost, Capacity Flexibility, and Risks in Outsourcing

In the section 3, we identified various markets in textile supply chain. We can see that if a company at developed market (United States) outsources to an emerging market (e.g. China), the overall costs decrease. If this company outsources to domestic market within United States, the purpose will be to achieve the capacity flexibility. But, this company outsources to an emerging market (e.g. China), then what is the effect on capacity flexibility. Capacity flexibility may be achieved for some products

with extended deadlines. Therefore, outsourcing internationally affects the delivery flexibility. Future research can perform various "what-if analysis" experiments and conduct simulation analysis to observe the effect of flexibility on various types of textile products. For example, following four types of situations can be incorporated in the analytical studies.

- Basic textile products (e.g. basic jeans) required in bulky orders and relaxed response time.
- Critical textile products (e.g. fashion garments) required in any order quantities and relaxed response time, where high interaction between different production processes is required.
- Durable and sustainable textile products (e.g. slow fashion garments) required in any order quantities and relaxed response time.
- Fashion textile products required in small orders and quick response.

Each type of situation will require different configuration of textile supply chain. Therefore, these concepts will offer the future scholars to understand the effects of flexibility on supply chain. In future research, we expect the development of practical models for outsourcing and flexibility in SCM.

4. Conceptual Model of Textile Supply Chain Management

Figure 20 shows the conceptual model of textile SCM. This model represents the interaction between eight categories of textile SCM which are discussed in the previous sections. Model also shows the impact of various other factors which affect the performance of these categories of textile SCM. We have already explained all the eight categories of textile SCM. Here, we will only clarify the interactions between these eight categories to support our conceptual model. Strategic management in textile supply chain helps to formulate business strategy and supply chain strategy in textile supply chain. Supply chain strategy must support the business strategy. Implementation of Supply chain strategy is directly proportional to remaining seven categories of textile SCM. Consequently, all the eight categories of textile SCM have various interactions with each other. Operations management, Distribution, Sourcing, and Customer service are the traditional business functions. But each function has a direct impact on implementation of supply chain strategy.

Second (Supplier selection and evaluation) and third (outsourcing) categories of textile supply chain management belong to "sourcing" function of business. Therefore, these two categories have strongest interactions between each other. In "Supplier selection and evaluation" we are engaged in selection of suppliers for sourcing of any type of textile products and supporting materials. In "outsourcing" we are concerned specific to decisions about what parts of textile production process should be made in-house and what parts of textile production process should be outsourced (e.g. offshoring, reshoring, outsource to domestic supplier, and outsource to international suppliers, etc.). Outsourcing of warehousing and transportation to third party is also the part of this category. Fourth category of textile SCM "Environmental management" is influenced by Supplier selection and outsourcing. For example, recycling of textile products is difficult to manage across the globe and it is easy to manage at home country. Various environmental issues have various interactions with these two categories.

Fifth category of textile SCM "Production process management" originates from the "operations management". We are engaged in supplier selection and outsourcing practices to manage the production

process. Production process management in textile supply chain shows the interactions between different parts of production process across the globe. Production/Inventory management practices have the direct impact on the environment. If the production process is located offshore, the probability of obsolescence of inventory will be high due to demand fluctuations and longer lead time. Therefore, wastage of resources will cause the destructions in environment.

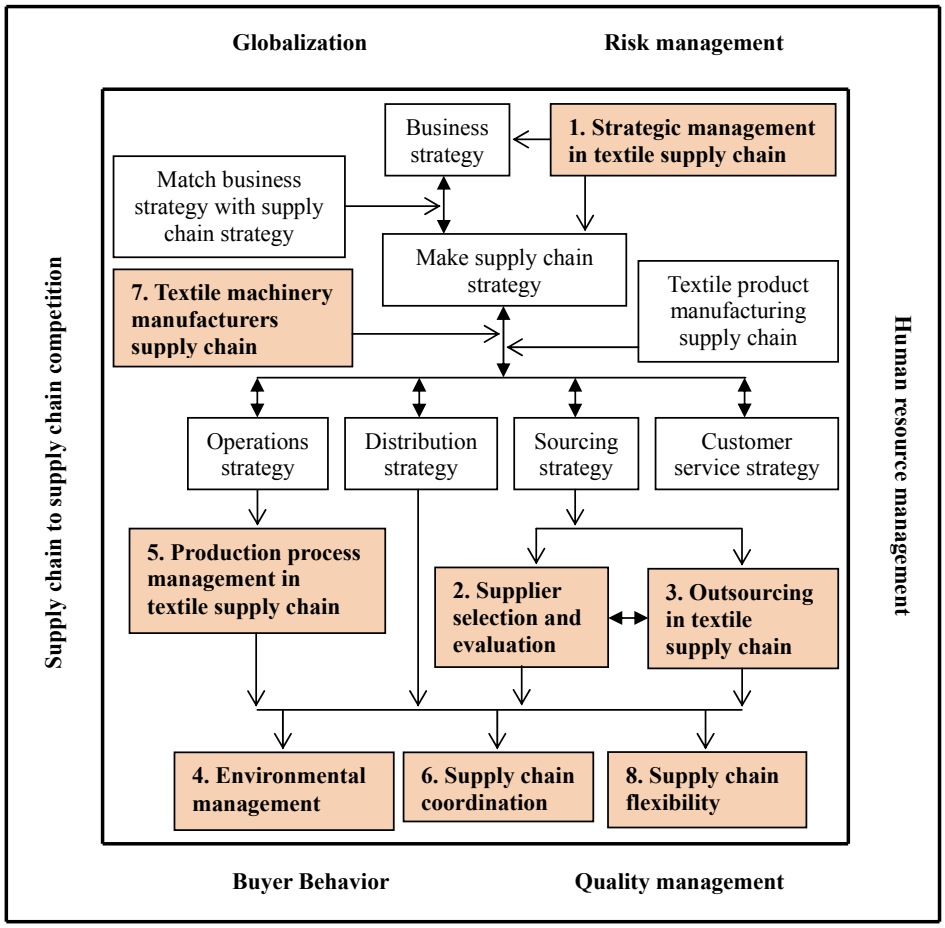

Figure 20 Conceptual Model of Textile SCM

Sixth category of textile SCM "Supply chain coordination" is required by all the remaining seven categories of textile SCM. Seventh category of textile SCM "Textile machinery manufacturers supply chain" has the direct impact on remaining seven categories of textile SCM. For example, technology upgradation & maintenance influences the business strategy and supply chain strategy of textile business. Ultimately, this influence is transmitted to other categories of textile SCM. Eight category of textile SCM "Supply chain flexibility" has greater interactions with all other categories of textile SCM. We have explained these interactions in section 8 in greater details. We clarified how flexibility affects the performance of supply chain. Business functions "Distribution" is the part of the category "Production

process management in textile supply chain". "Production process management in textile supply chain" covers whole range of companies from "Fiber manufacturing" to "Retailer". In distribution strategy, we decide that we will use distribution center or we will transport the textile products directly to retailer. Business functions "Customer service" can be achieved through implementation of all other categories of SCM. Globalization, Risk management, Buyer Behavior, Quality management, and Human resource management are some other factors which affect the performance of all the eight categories of textile SCM. We showed that all the eight categories of textile SCM and other factors which affect the performance of these categories have strong mutual associations between them. Therefore, they work jointly to support the supply chain strategy and ultimately support the business strategy. This process of interactions helps to win the supply-chain to supply-chain competition rather than organization-to-organization competition.

5. Conclusions

This research attempts to address the implementation of modern supply chain management (SCM) practices in textile supply chain. We proposed eight broad categories of textile SCM and identified various integrated areas of future research within each category. We put more efforts in two categories of textile SCM namely "outsourcing in textile supply chain" and "supply chain flexibility" due their little understanding in SCM viewpoint (Rajput & Bakar, 2011; Moon et al., 2012). We also clarified the interactions between proposed categories of textile SCM and various other factors. We established a strong framework for introducing SCM concepts in textile supply chain to help future researches to perform "what-if analysis" for specific problems. We suggested simulation analysis as a best tool to capture the real behavior of textile supply chain. Simulation analysis has a greater flexibility to model the complex systems. We can perform various experimentations to discover best policies for specific problem in textile supply chain. The conceptual models developed throughout the research are flexible enough to help readers to find new insights into the various issues. We emphasize the importance of supply chain thinking while solving any problem. This research is equally beneficial to textile managers, supply chain specialists, and research scholars which are new to textile SCM. Future research will be able to formulate and simulate different policies about various problems addressed in this article. Therefore, this research is the good start for developing the analytical and practical decision making tools to help implementation of supply chain strategy in textile supply chain. If we do not pay enough considerations towards improvement of the textile supply chain, the results will be highest costs of tremendous and invisible situations.

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Global Sourcing: Making the Transition

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Global Sourcing: Making the Transition

by

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Abstract

Today's business world is increasingly internationally oriented in performance and competition. Companies have subsidiaries all over the world to both be closer to their markets as well as to expand into new markets. This globalized business environment provides additional levels of complexity and the potential for new advantages. Existing research suggests that one method for taking advantage of the

opportunities resulting from globalization is through global sourcing. Global sourcing includes several layers of integration, of which procurement was of particular interest for the purposes of this study. Given the increased complexity in the business environment procurement is strategically more important than ever. Procurement enables companies to acquire goods and services from the right supplier, at the right time, location and price. The goal of this study was to test the validity of assertions made with regards to global sourcing and to evaluate the contributing factors to the success or failure of the implementation of global sourcing. Using a contemporary multinational company as a case, this study found that implementing a global sourcing model can be a time-consuming and problematic process. Major issues were discovered with regards to how the company should be structured according to the new model, differences in labor skills throughout the entire company, as well as the impact of cultural differences between the different global affiliates. Although implementing a global sourcing model may be in the best interests of the company, if carried out hastily or without thoroughly understanding the entire business environment, from culture to business structure, it can be wrought with problems.

Keywords: Supply chain, sourcing, global sourcing, international business

1. Introduction

Today's business world is becoming increasingly internationally oriented in performance and competition. This is evidenced by the growth of global business transactions through the 1990's, which was three times as high as within domestic economies (Bowersox & Calantone, 1998). According to data collected by the United Nations, this trend has continued since then with Transnational Corporations (TNCs) reporting approximately one quarter of global GDP in 2010 (United Nations, 2011). Companies have subsidiaries all over the world to both be closer to their markets as well as to expand into new markets. This also means that competition becomes more complex. Adding to the complexity of operations, other processes within companies have become more difficult as well (Blair, O'Connor & Kirchhoefer, 2011). For each international company, the question arises if it is better to have one central location for all processes or if a decentralized style would be better to take advantage of all subsidiaries or to outsource certain processes, offshore them or keep them in-house. Those decisions are important for all business processes, including the processes in the procurement department.

The procurement department plays a major role in every TNC. It is the procurement department's responsibility to find and communicate with suppliers and find those that are most suitable for each project. Companies also need to remain flexible in order to respond to different projects' requirements quickly (Wee, Peng & Wee, 2010). As a company's market expands, decisions for procurement managers become larger and more complex (Schoenherr & Mabert, 2011). Existing literature contains theories related to global sourcing but there is currently a lack of real world examples. This paper adds insight into the transition process one company took when implementing a global sourcing strategy.

2. Literature Review

2.1 Location Determination

In pursuing global sourcing a company must decide where to locate various parts of their operations. One existing model for approaching this decision is the hub and spoke method. This method centers on establishing only a few centers to perform centralized functions for a given region of the company. Under this method locations are chosen based on proximity to major markets and suppliers (Abele, Meyer, Naher, Strube & Sykes, 2008)

2.2 Global Sourcing

With increased globalization, businesses processes have become more complex and managers have had to make many decisions regarding global competitiveness (Hong & Holweg, 2005). Hong and Holweg (2005) also discuss the many issues facing managers today, such as how to achieve cost efficiency, where to locate operations, and a variety of questions related to sourcing. They describe many solutions to these issues, including the use of rationale and requirements for global procurement. Arnold et al. (1999) describe global procurement strategies as involving a company's approach and management of sourcing materials, services, products and capital located throughout the world (Arnold et al., 1999). Many other researchers have also pointed to global procurement strategies as a means to stay competitive. For the purpose of this paper, the focus will be on international purchasing and global sourcing. Global sourcing "involves integrating and coordinating common items, materials, processes, technologies, designs and suppliers across worldwide buying, design and operating locations" (Trent & Monczka, 2005).

Any company considering a transition to global sourcing would presumably want to know what advantages or improvements they should expect to see as a result of the transition. Existing research states that there are a variety of benefits that can be gained through global sourcing including improvements in total purchase price, cost of ownership, supplier quality, delivery cycle time and on-time delivery performance (Trent & Monczka, 2003). It is however important to note that when these benefits are quantified on a per-company level there is a wide range in realized benefit (Peterson, Frayer & Scannell, 2000). As an example of this, Peterson, Frayer & Scannell (2000) show in their study that in the area of cost reduction typical responses ranged from 5 to 15 percent but the overall range was 2 to 25 percent. The variety of company size, industry and countries of operations of the companies compared in these studies make it difficult to make specific predictions for a company making the change to global sourcing but there is consistency in that there is some improvement. Further it is noteworthy that improvements related to price are typically the first to be realized and require relatively basic sourcing constructs, however many of the non-price benefits are not realized by firms until they have more fully integrated their sourcing activities (Trent & Monczka, 2003). Reinforcing this last concept, it has been demonstrated that a significant factor for improvement was related to how long global sourcing strategies had been in place (Peterson, Frayer & Scannell, 2000). In addition to these commonly seen improvements advantages can be derived from global sourcing through areas such as supplier responsiveness, proximity to markets, accessibility of technology and higher quality supply chain management; these other areas highlight the complexity of global sourcing in that the advantages eventual realized by a company are dependent on how well the company manages the global sourcing process and seeks after these opportunities (Trent & Monczka, 2002).

Also of interest to companies should be the process that must be gone through to go from where they are relative to global sourcing to where they would like to be. Trent and Monczka (2002) assert that companies progress through a continuum from domestic purchasing through international purchasing to global sourcing, describing this evolution in five levels. A framework of the five levels can be found in figure 1.

Figure 1 Global Sourcing Model, Adopted from Trent & Monczka (2002)

Level one companies' purchasing activities are purely domestic in nature. These companies either do not have the need or the means to purchase outside their originating countries. Level two companies purchase outside their home countries on an as needed basis. This is usually the result of a local or domestic supplier not having the items the company needs. This makes international purchasing a reactive process. One reason companies step up from level one to level two is that some disruptive event might have occurred in the supply market, such as a supply disruption, declining domestic demand or increasing worldwide competitors. A level one company would have to reactively respond to this threat and move to level two. Level three companies are considering a worldwide market and are noticing that properly executed international purchasing strategies can have major positive performance effects. However, these companies' units typically work independently of one another and processes are not well coordinated or efficient. The primary reason why companies move from level two to level three is that they notice that they can achieve lower purchase prices and other performance gains. While progressing to the third stage purchasers develop an awareness that alternate resources exist and they develop a worldwide attitude. Purchasing frequently focuses on price reductions that can be achieved through focusing on emerging markets. Changes happen within the organization as well, for instance the company often times designates certain purchasers to manage international purchasing or ask for assistance from worldwide subsidiaries. Companies also have to achieve level three first before they can progress toward global sourcing, which takes place in levels four and five.

Level four companies have more sophisticated purchasing strategies, integrating and coordinating material and service requirements, usually through a central coordination system. Companies operating at this level generally have worldwide information systems, worldwide

communication and coordination mechanisms, advanced skilled labor, an organization structure with a feature of central coordination of global activities, and top management that supports global sourcing. The organizational design changes more towards a matrix approach, which means sourcing personnel directly report to their buying center and at the same time some communication exists between the buying center and the central coordinating group.

Level five companies have integrated cross-locational purchasing strategies, similar to level four, but proactively coordinate and integrate common items, designs, processes, technologies, and suppliers across global procurement centers and other functions. These companies are also horizontally linked with other business functions such as engineering, operations and marketing. Activities such as designing, sourcing, building responsibilities are assigned to the units that are the most capable units worldwide. Companies can only progress to level five if they have worldwide development, production, design, and global procurement skills and capabilities (Trent & Monczka, 2002). According to Trent and Monczka (2002) so far there are relatively few companies that operate at level five. One cause for this is that many companies lack an understanding of the complexities of global sourcing strategies. Nevertheless, pursuing global sourcing strategies has several advantages and it helps to gain competitive advantages as mentioned earlier.

Based on this understanding of the five levels of purchasing described by Trent and Monczka (2002; 2005) a conceptual model was developed to better explore the relationships between the three highest levels of purchasing, see figure 2. This model is an adaptation of Trent and Monczka's (2005) work and is used throughout the remainder of this paper to gain insight in to these three levels and will be applied to a specific company.

Figure 2 Conceptual Model: Success Factors to Progress through the Highest Levels of Global Sourcing, Adapted from Trent & Monczka, 2005

3. Research Questions

The model discussed in the literature review describes for each level what factors a company needs to have in place in order to be classified at that level. Related to these levels, the following

research questions were posed: How do companies transition from level three to level five? And, what factors influence a successful transition?

4. Methodology

As demonstrated in figure 2 there are several variables that need to be considered to evaluate a company's transition through the levels. In arriving at these specific factors Trent & Monczka (2005) used a survey of many different companies. The exact survey used to gather this data was not available and therefore it was necessary to develop a similar tool to collect the relevant data. In the existing literature the variables for each level are expressed as qualitative and are indicative of existence of a particular factor. To be consistent with this presentation of the variables the factors in the conceptual model are also considered qualitative in nature. The model primarily checks whether a variable exists or not. How the individual variables will be measured is detailed below for levels three through five. Affirmative answers to the questions associated with each factor will be considered to show the existence of that factor.

Level 3: International purchasing as part of a sourcing strategy

Worldwide Supply Market Perspective - Do purchasers willingly buy items from all over the world? Do they approach the supply market from a worldwide perspective?

No Overall Global Strategy - Is the company lacking a centralized global strategy?

Global Attitude – Do purchasers develop a global attitude and develop skills for worldwide buying activities?

International Purchasing Managers – Do purchasing managers solicit help from other international subsidiaries?

Level 4: Global sourcing strategies integrated across worldwide locations

Executive commitment – Is top management involved in the global procurement process? Do steering committees or other leadership teams include executive members? Is the CEO updated routinely on the progress of the global strategy?

Processes – Are global sourcing processes well defined and documented? Is there adequate training for individual employees to understand their roles in the processes? Are processes across departments connected within the organization?

Integrated IT Systems – Are there IT systems in place? Does the company use an intranet that is accessible throughout the company? Does the IT system provide readily accessible information to employees regarding the global sourcing strategy and processes?

Personnel and Communication – Do structured lines of communication exist throughout the organization? Can employees easily interact and work together across the organization? Are hiring and training processes in place to ensure that employees are technically competent and kept up to date on advancements in their fields? Are human resource policies documented and accessible to all employees? Are human resource practices consistent throughout the organization?

Cultural Knowledge – Do the employees know about differences between their home country and the country they are employed in? Do they know the laws, regulations and cultural values in their own country and countries they are doing business with regularly? Is any cultural training offered to create an awareness of cultural differences?

Market Knowledge – Do the companies' personnel have a good assessment of the market they are employed in? Do they know what resources are available given their geographical region?

Organizational Structure – Is there a well defined organizational structure in place? Is the organizational structure understood by employees throughout the organization? Is the organizational structure consistently applied throughout the organization?

Measurement – Does the company have a system in place for measuring the progress of the global sourcing strategy? Does the company measure cost savings or improvements from the global sourcing strategy?

Level 5: Global sourcing strategies integrated across worldwide locations and functional groups

Cross Functional Groups – Do cross functional teams exist in the organization (i.e. teams made up of members from different functional departments)? Are cross functional teams encouraged and supported by the company and top management? Are the assignments given to cross functional teams meaningful to the organization's global strategy?

Central Procurement Structure – Is the company's procurement structure centralized? Does the company have a consistent organization of its procurement processes on a global level that is orchestrated in a central location?

Strategic Supply Chain Alliances – Does the company develop strategic alliances with suppliers? Do these alliances occur at all levels of the supply chain?

To determine the existence of the above factors based on the associated measurements and to maintain consistency with prior research on this topic, interviews were conducted. These interviews were with high level employees from engineering and procurement, who have been with the company for more than ten years and who had a close interaction with the implementation of a particular company's global strategy. Although there are inherent weaknesses, such as subjectivity, in obtaining information in this manner it was deemed to be an effective approach for collecting data because the purpose of this study is to gain additional insight in to the upper levels of this model and not to obtain robust enough data to test the validity of the model. Additionally, through testing the existence of these factors in an interview setting further insights can be gained from the employees who have had direct contact with the transitions.

As the introduction of this paper already describes, it is important for companies to continually improve its processes to stay competitive in an increasingly international industry. The following case study for Linde will describe how the company kept up with this trend.

5. Linde Engineering Case

As indicated in the literature review, there are very few companies that have transitioned to the highest levels of the global sourcing models. Linde, an international engineering company, headquartered in Munich, Germany, was chosen as the case study company for this study because it has gone through this organizational restructuring.

5.1 General information on Linde

Linde has about 62,000 employees and is situated in more than 100 different countries. In 2011 it generated around Euro 13,787 million revenue. Linde's customers belong to different industries such as food and drinks, automobile and steel, construction, healthcare, solar and electronics industries (http://www.the-linde-group.com/en/index.html).

The Linde company consists of 3 divisions: gases, engineering and gist (logistics services). The gases division is the biggest division. The products Linde Gas offers range from liquefied gases to chemicals, which can be found in all kinds of industries, such as in the steel production, energy sector, environmental protection, chemical processing, food processing, electronics and glass production. It even offers services in the healthcare industry (medical gases) and is one of the leading companies in developing hydrogen technologies, which they are looking to make more and more environmentally friendly.

The engineering division operates in the following market segments: natural gas, olefin, hydrogen, air separation and synthesis gas plants. One advantage Linde has compared to its competitors, is that Linde has the know-how of engineering and construction of turnkey industrial plants. Those plants are used in different industries ranging from chemical and petrochemical, to fertilizer plants and refineries, to generate synthesis and hydrogen gases, recover air gases and can also be used in the pharmaceutical industry and to recover natural gas. The company has already established over 4,000 plants worldwide.

The case focuses on the engineering division. For this division, in early 2010, top management at Linde critically evaluated a downward trend in obtaining new contracts. The company was losing bids to other companies especially in the Asian countries. They found that Asian competitors offered lower bidding prices compared to Linde. This observation led to an internal review of company processes and external research of other companies. Linde's management determined that procurement played a vital role in the competitive arena and that their own procurement processes were not efficient compared to those of their competitors. Linde's top priority was to restructure their procurement center to become more globally competitive globally. The company termed its global procurement strategy "one-face-to-the-supplier", see figure 3. Figure 3 will be explained more in detail in sections 5.2 and 5.3. For the company it meant that suppliers were only approached by the procurement centers in their supply market.

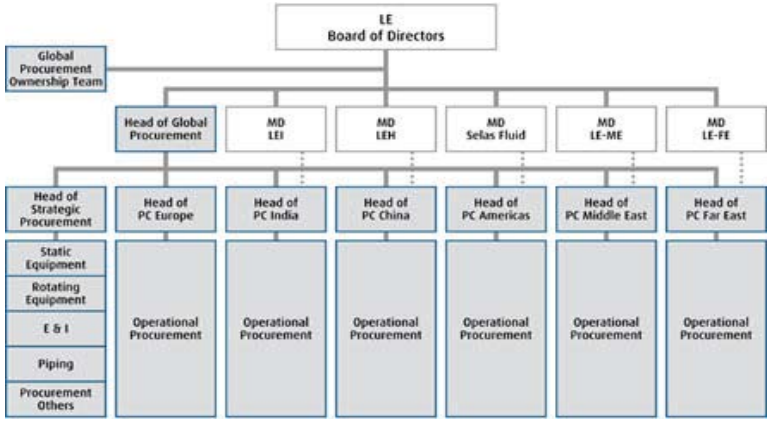

Figure 3 Linde's "One Face to the Supplier" (from the Linde Website, under Supplier Section)

5.2 Linde Engineering Prior to Implementation

Prior to the new strategy, Linde purchased items internationally. It already established so called procurement centers (PCs) in different regions worldwide, but purchasing managers would only involve these centers when necessary. The PC Centers were located in Germany (PC Europe), the United States of America, South Korea (PC Far East), China, India, United Arab Emirates (PC Middle East) and there was one planned for Russia. These locations were chosen based on market trends and developments as well as proximity to Linde's main vendors. Because it is not cost economical for Linde to have a PC in each country, this meant that often more than one country was assigned to a PC. For instance PC Europe is located in Germany, but also handles suppliers from all of the other European countries as well as Africa.

When Linde either works on a new contract or is bidding on a new project for a new plant, it has to go through an inquiry stage first. In this stage vendors from all over the world are asked to submit a bid for a certain part of the plant or a service that needs to be done. Once several bids are in, those are being reviewed by an engineer and purchaser and a choice is made based on technical and commercial points, such as quality and price.

However, prior to implementing the new procurement strategy, the procurement center that inhibited the project did all of the work themselves and asked bidders themselves, no matter in what country these were located. PC's closer to the respective vendors were only asked for help if it was necessary, such as when the vendor was in an overly inconvenient time zone or if the vendor was not responsive. Each of the other PC's acted as a support function rather than as an integral part of a worldwide solution.

Linde had some supportive processes, such as information technology, connected to all affiliates; however this too lacked a centralized strategy. For instance every PC used SAP as an information system which was primarily used to store vendor information. However, the way SAP was used and the frequency of usage differed from PC to PC and it was not used in the same way across each PC. For

instance it was used more frequently in PC Europe than in PC America. Also PC Europe stored more information about vendors in SAP than PC America.

The integration of processes and searching for vendors worldwide indicates, that the company was becoming aware of the benefits of global purchasing, but was not well coordinated across worldwide buying units and lacked a company-wide central strategy. These factors show that before implementing a new strategy Linde was operating at a level three according to the success factors provided by Trent & Monczka (2002).

5.3 Linde Engineering After Implementation

In 2010 and 2011, Linde implemented a change to its sourcing strategy which triggered a transformation of its organizational structure. As part of this transformation Linde followed the hub and spoke model described in the literature review and made the existing procurement centers more important point of contacts as well as interconnected them more strongly with each other.
The strategy team, consisting of the CEO, the Central Procurement Manager, and the Board of Directors, developed the new procurement strategy at the company's headquarters. The central procurement manager was primarily responsible for implementation and was required to report to the CEO on a regular basis. One of the goals of the new strategy was to set guidelines for projects. The strategy followed a centralized structure, meaning that every procurement center had to comply with the same guidelines for every project. One new addition to the strategy was to establish a project team for every project that the company accepted. For each project, regardless of which procurement center was involved, a project manager was appointed to supervise the project and to make the initial contact with the client. Another team member was the project procurement manager, who worked directly with the client as well to choose suppliers from a client approved list. Both of these managers were supported by several engineers and purchasers from several PCs. Engineers and purchasers from the headquarters were divided by technical groups. Technical groups were defined as: static equipment, rotating equipment, electrical and instrumentation and piping. Each group consisted of a head engineer/purchaser, several engineers/purchasers and the procurement group also included one strategic purchaser (see Figure 3).

This arrangement helped engineers and purchasers to develop a more thorough knowledge of the items they needed to engineer or purchase.

At the beginning stages of a new project, an overall plan was created based on when the client wanted the plant to be ready. Based on this time frame, dates for each involved department were created by working backwards from this deadline. Based on the requirements for each item to be on site, a time frame was estimated for when engineering needed to have their items engineered, which led to a time frame for when purchasers needed to have ordered the respective items and when vendors needed to have the items manufactured and delivered on site.

The engineering was mostly done by the engineers from the headquarters in Germany, especially for highly customized items. PC's were supposed to have engineers on staff as well to engineer less customized items and later on to help with evaluating the bids that came in for these less customized items.

Based on this overall plan the project management, engineering and procurement then came together to discuss the project strategy and based on this meeting the procurement manager had to develop a project specific procurement strategy. However, the overall procurement process was always the same. No matter what the project was, the procurement phase always consisted of an inquiry stage followed by an order stage. This is, unless the client persisted on using a specific vendor for a specific item. This way, Linde could make sure that it would choose good quality and competitive prices.

Once the project procurement strategy was developed, the project procurement manager then needed to create a specific text for the inquiries that were sent out to vendors. This text included some information about the produced plant, delivery dates and some important commercial terms. The text was created via SAP and was then sent out to the respective PC's. The next step for the project procurement manager was to contact the international PCs to find the right suppliers. Engineers often gave some recommendations regarding which vendors needed to be asked specifically but the PC purchasers were also asked to sent out the inquiry to other vendors to make sure that the inquired items were of good quality and commercially attractive. The task of finding suppliers followed a decentralized approach in order to take advantage of local knowledge.

The process of how quotes from vendors were being evaluated later on was defined as well. For instance each item was placed into three different categories based on the difficulty of engineering. The engineer decided in which category the item would fall. If an item was very specific, the engineer also needed to evaluate each bid that came in and the purchaser needed to follow the engineer's technical recommendation. This was established because it is not helpful to have a quote that is commercially attractive and cheap, but where the product does not fulfill its function and therefore could cause serious issues later on. All of the critical items, which are highly customized, were engineered at Linde's headquarters. However for less specific items, so called PC engineers were supposed to take the lead and they had to evaluate bids from vendors. If the item was highly standardized the purchaser could evaluate the bid him or herself.

During and also still after the implementation phase, the strategy team, which was located at Linde's headquarters met on a regular basis to discuss what was working well and what could be improved. All processes and changes were documented and added to the company's handbook, which was available to all employees. By documenting these procedures various departments could work together more efficiently.

The handbook was supported by an integrated IT system which was available to all employees. This infrastructure included an intranet, SAP and e-procure to share procurement information company-wide. Through e-procure, Linde communicated important procurement information to suppliers. In addition, the company is currently working on implementing a new platform, called "Lion", which will store all of the company's general knowledge and which will be accessible to every department such as engineering, procurement, accounting, finance and so on.

Some of the IT systems, such as SAP have already been in place, but they have not been used equally across PC centers and were lacking a central strategy. To implement the changes and improvements in the SAP system, Linde's headquarter employed several full-time SAP consultants whose function was to help with the implementation across all PC's and to offer trainings for all of the PC's. Sometimes training was conducted via video conference, sometimes the consultants traveled to each PC and conducted training on location. The systems were now used not only by procurement but

also by engineering. For instance when the engineer finalized his or her engineering part, he or she sent a "request for inquiry or material" via SAP to the procurement department. This depended on whether the part needed to be inquired by different vendors or ordered right away by a certain vendor. The purchaser then knew that he or she had to sent out a request for quote or sent out the purchase order to one vendor. The system stores all of the information, so everyone knew what was going on. The project management also had access to all of this information so project managers knew what was going on with their projects. For instance by using the system, everyone who was involved with a project knew what items had been inquired or ordered and when this had taken place. The system also helped to show where a possible problem could exist. For instance people that were involved could see if an item had not been ordered on time.

The Linde SAP system had also become accessible in part to vendors. Vendors had access to the system to download the technical data themselves via SAP. Before this improvement, the technical data files were sent to the vendors via Email, which was sometimes difficult as some files were too big to be sent and had to be sent via several Emails. Now vendors received a link via Email which included instructions on how to download the files on the platform. This eliminated the difficulties with file size and saved a lot of time and annoyance for both Linde as well as its vendors.

Linde used a variety of communication tools, email being the primary method. Buidlings of Linde and its affiliates were designed with several conference rooms to hold live video conferences. These conference rooms had various sizes and included a variety of technologies. They were vital for employee training.

A few times each year training was offered for each PC center at Linde's headquarters. Each PC center has to send employees who were trained in new procedures that needed to be implemented at each center. This way each PC center stayed up to date and was able to implement the same processes.

Linde offered many programs designed for recruiting the best and the brightest. This included a combined university degree which allowed the employee the opportunity to attend a university half-time while working. The company also offered young talent opportunities to work in a team, termed "talent circle". Recommendations from each department around the world were scrutinized to determine who was placed in the talent circle, which could lead to advancement opportunities. In the procurement centers, talent was also recruited from local suppliers as well as people working within the industry, because those individuals had experience with the procurement process. Those who were chosen had local knowledge of the markets in which they worked which gave the company an advantage in working with cultural differences.

In measuring the effectiveness of the procurement strategy, Linde had full-time staff located in the headquarters that evaluated every order in the SAP program and compared them to previous processes and current standards. The staff looked at what region the orders were being generated from and developed a SWOT analysis to discover changes and risks. The staff reported to top management regularly. Linde also used site-visits to suppliers as a means to measure and check on the vendor's processes and quality. Top management, procurements managers, and engineers fly all over the world to attend these visits and to give their input.

The teams attending the site-visits are an example of the cross-functional groups that the company incorporated. Another example of a cross functional group is each PC's team structure, which included procurement employees, strategic development staff, and engineers. The company also utilizes six sigma groups in its effort to continually improve.

After the strategy was developed Linde began its implementation process in its German PC. Department managers were first trained in the new processes and strategies. They in turn trained their employees in the same materials. After this training was complete in the German PC then these trained employees from were sent to the international PCs to pass along what they had learned to employees around the world. A small project was then chosen to begin the implementation process. Employees that were assigned to this project were given training sessions and a handbook as guidance. They then were instructed to follow the new guidelines.

Linde also has several strategic supplier alliances in their gases division. However, they are still working on incorporating strategic supplier relationships throughout the rest of their divisions. Their current alliances have helped increase the speed and efficiency of their procurement processes in the gas division. The engineering division has established some strategic alliances as well. For instance some projects are being conducted together with other companies such as Samsung. Also some vendor alliances exist as Linde has establish so called frame agreements with them, which establish standard terms and conditions between the two companies.

The cross functional groups, central procurement structure and strategic alliances indicates that after the implementation of the strategic plan, Linde's engineering division was operating at level five according to the success factors provided by Trent & Monczka (2002).

5.4 Difficulties Linde Encountered

During and after the implementation Linde experienced a number of problems with their move towards global sourcing. Some of the problems occurred because some of the PCs did not see a need to change their procedures to the new guidelines and therefore took a long time to implement some of the changes. For instance some of the PCs had a hard time using the information systems the way headquarters wanted them to use these systems One example is that some PCs up to this day still do not use SAP to transfer technical data files to vendors. They still send out the technical files via Email instead of making it available via SAP. Although top management makes a visit at least once per year to each PC to make sure processes are being implemented, changes take a long time to be fulfilled.

Cultural differences made communication difficult and were not easily overcome. For instance, as the project started from a German office, the German team sent out requests to each PC to find suitable suppliers for the project. PCs were instructed to use suppliers from both the client's preferred vendor list as well as suppliers who were not on this list. They were required to find four different suppliers and get bids from them within a certain time frame. During the process they were also instructed to send a weekly supplier progress report. Not all PCs complied with the weekly status report requirement. In addition, not all PCs asked enough suppliers so it was hard to know whether they found the right supplier.

In addition, not every country has the same working attitude. The German team often emailed or phoned PCs for updates. Although the new guidelines were given out to each PC and employees were instructed to follow them strictly, it was hard for some PCs to follow them and change their work attitude.

Furthermore, not every PC was structured as Linde's headquarter. Most PCs were not divided into technical groups and did not have the same thorough knowledge. Each purchaser in those centers had to purchase items from all groups and was not able to develop the same thorough knowledge. This led to miscommunications and purchasers were not able to evaluate the bids in the same manner in some instances as project management would have liked it from the headquarter perspective.

Another problem that occurred with the new strategy was that employees interpreted some guidelines differently than others. For instance items were organized into three difficulty levels. If an item was deemed a level three, it was highly specialized and only engineers could evaluate it. If procurement employees received a proposal from a supplier with this level, engineers had to evaluate the bid. Level one items were unspecialized and procurement employees could evaluate the bids. Trouble arose with level two items. This level was subject to interpretation, so there were misunderstandings about who was responsible for evaluating these level two bids. Usually engineers decided if they needed to evaluate the item or if it could be bumped to the procurement department. Each PC needed to have an engineer who was able to evaluate the bids and this evaluation needed to occur prior to being forwarded to the main project office. Not all PCs had capabilities to evaluate the bid in a technical manner. The result was that the German office had to evaluate most of the bids themselves and engineers more work than before.

Another effect was that the bidding process evolved into a competition among the PCs. Each PC wanted to know the details from the bids generated by the other PCs. There was one PC who vowed to underbid the other bids, though it was unclear if they would be able to satisfy these expectations.

Finally at the end of the bidding process not every PC was able to send their bids on time. Bids that were sent in late were disallowed from the evaluation process, this decision generated frustration within the PCs.

Problems also occurred due to the size of PCs. Not every PC had the same amount of employees as the headquarter, although the same amount of work was expected from each PC. This resulted in late deliveries and deadlines that could not be met and led to frustration among employees from project management as well as within the PCs.

Combined, these problems resulted in an overall delay of the project as well as price increases for several items. This should have been prevented.

5.5 Lag Time

Linde experienced a lag time of approximately nine months before it saw success with the new strategy. The lag was due to the issues with the implementation including training time. Initially, the company was unable to win contracts for projects while it solved the internal problems. However,

during the research for this paper, the company began winning contracts and has several projects taking place.

6. Conclusion

By the beginning of 2012 most of the new procurement processes were nearly fully implemented across the company. Some German employees still remained in the international PCs to provide continued support but their role had changed from actively training to behind the scenes support. About this same time Linde began seeing success from the transition in the form of an increase in contracts won. Prior to the implementation of a global sourcing strategy, Linde was operating as a level three company. With the implementation of their strategy they had all the success factors of level five. As the case shows many issues can arise when a company implements a new sourcing model. However, nine months after initial implementation, and at the time of this paper, Linde has overcome many issues and is showing signs of success. The company is bidding on and winning new contracts and projects.

Current literature lacks a discussion of companies who have successfully transitioned in the Trent and Monczka (2002) model of global sourcing through to level five. Linde was a good example of a multinational corporation who was able to implement a new strategy, which included all of the success factors that Trent and Monczka (2002) denote as important. This case adds insight into the existing literature, adding a real-company's experience as they transitioned.

7. Limitations

One of the limitations of this study was the use of a model that was designed based on US companies; Linde is a German based company. In addition, cultural influences on this model have not been studied. For future research it would be interesting to study cultural influences as well to see whether there are differences or not. This study included only one case; this can lead to skewed results. A one company sample cannot be used to generalize facts.

In addition the study included the use of only two personal interviews. Although the individuals interviewed had a deep understanding of processes, it makes results more subjective than objective.

8. Recommendations

8.1 Recommendations for research

For future studies it would be recommended to add further layers to the model. For instance, time has been considered an important factor in transitioning from one level to the next (Trent & Monczka, 2003; Trent & Monczka, 2005). However, the time factor has not been quantified in the current literature. It is recommended that future studies should include research on this. Also, based on time estimates it would be beneficial to determine how long it takes until companies see benefits of global sourcing. Existing studies state that there are benefits, but again, there is no time factor included in any of the models. In addition, as research is conducted on success factors, it should also include the

methods by which companies have implemented these methods successfully. A few examples are provided in the literature, but so far there is no general model that describes an implementation process.

8.2 Recommendations for companies

The case study of Linde shows that the process of becoming a level five company is not an easy task. It also demonstrated that implementation of a more globalized strategy can lead to initial problems since established processes and ways of employee thinking need to be changed. The case shows that companies should consider various factors before implementing a new strategy. These factors include items such as communication, training, cultural factors etc. Also an implementation of this size will always need time. Companies can for learn from the experiences of Linde and consider several more factors in its implementation strategy. In addition, the case provides an illustration to companies that there will be a time lag between the implementation of a new procurement strategy and when the benefits of global sourcing can be seen. For Linde, it took about nine months until benefits could be seen. This might be different for different companies.

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The Impact of Marketing Elements and Brand Equity on Private Label Brand Purchase Intention

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Abstract

The purpose of this research is to investigate how the effect of marketing elements on brand equity and how the effect of brand equity on private label brand purchase intention. This research result is beneficial for retailers in developing a good private label brand strategy management and taking available marketing activity to create competitive advantage for generating customers' purchase intention. The hypotheses were tested by questionnaires, which distributed into 10 Branches of Watson retailers and collected from 400 Thai female consumers who reside in Bangkok and ever perceived about private label brand products. The research results revealed, all of the results were consistent with objectives and hypotheses setting.

Keywords: Marketing Elements, Brand Equity, Private label brand, Purchase intention

1. Introduction

Nowadays, with rapid marketing advancement, more innovative types of retail channels are developed and introduced into the market, the retailers are facing increasingly fierce challenges. Otherwise, each retailer in the market is similar to others, they are lack of obvious differences and competitive strength, so that the profits spaces descend straightly. It is the key point for retailer to find out a new development path.

Private labels are products or services typically manufactured by one company, to be sold under the contracting company's brand name. Private label brand has become a very important source to create profits by its special advantage to the retailers, such as more profitable for retailers, impressing store image and helping to differentiate the retailers' offerings and building consumer loyalty towards the retailers (Ailawadi, Pauwels & Steenkamp, 2008; Alan Jain & Richardson, 1995).

Strategy used of private label brand by retailers is highly developed in USA and Europe. But private label brand development in Asia is, however, not without challenges. In order to create a high

profitable, retailers try to find out the factors effect on private label brand purchase intention. Watson served Thai consumers more than fourteen years, is currently the number one health and beauty retailer in Thailand. The successful of Watson lead to only focus on this retailer to find out the factors influence on purchase intention of private label brand in Thailand.

Many researchers indicated that consumers' purchase intentions are primarily influenced by marketing elements, such as price, sales promotion, advertising, store image and etc of a company. Another scholarship focused on the brand equity of firms which are decided in terms of brand awareness, brand associations, perceived quality and brand image and etc. Therefore, this study is to investigate and evaluate the impact of marketing elements, brand equity on private label brand purchase intention, to create the purchase intention on private label brand and develop a competitive position in the commercial marketplace.

2. Reviews of Literature

2.1 Brand Equity

Brand equity, the incremental utility or value added to a product from its brand name (Farquhar, Han, and Ijiri 1991; Kamakura and Russell 1993; Park and Srinivasan 1994; Rangaswamy, Burke, Oliva 1993). Feldwick (1996) has proposed three approaches to brand equity. The first one is financial approach, indicates the brand value as a intangible asset which the company owns; the second one is behavioristic approach, represents "the strength of consumer commitment to a particular brand"; and the last approach is cognitive approach, indicates the associations and beliefs consumers have about particular brand. From a behavioral viewpoint, brand equity is very important make points of differentiation to create the competitive advantage based on non-price competition (Aaker, 1991).

From researches, we found that brand equity creates value to the firm by "increasing marketing efficiency and effectiveness, building brand loyalty, improving profit margins, creating brand licensing opportunities," decreasing vulnerability to competitive marketing actions and elastic responses to price increase" (Barwise, 1993; Farquhar et al.1993; Keller, 1993; Simon and Sullivan,1993; Smith and Spark,1993), gaining leverage over retailers, and achieving distinctiveness over the competition", as well as for the customer by enhancing efficient information processing and shopping, increasing the probability of brand choice, reinforcing buying, and contributing to self-esteem.In summary, we can say that brand equity provides a source of sustainable competitive advantage (Bharadwaj, Varadarajan, and fahy 1993).

In this research, brand equity defined as a resource of a firm which consisted by (1) brand awareness, (2) brand association, (3) perceived quality and (4) brand image to create a competitive advantage to lead to consumer purchase intention.Many reachers indicated that brand equity can affect purchase intention in various contexts (Ashil and Sinha, 2004; Chang and Liu, 2009), According to Keller (2003), the relationship between brand equity elements and purchase intention is found that, brand awareness plays an important role in consumer decision making by bring three advantages, which included learning advantages, consideration advantages, and choice advantage. Brand associations represent basis for purchase decisions and also create value to the firm and its customers. Perceived quality provide a reason to buy and by differentiating the brand from competing brands, this is the value which perceived quality affect consumers purchase intention. A positive brand image,link powerful and unique associations to a consumer's memory of the brand, it will better to create purchase intension. Thus, the higher the brand equity, the higher the purchase

intention.

2.1.1 Brand Awareness

Brand awareness indicates to the strength of a brand's presence in consumers' minds and as a key determinant identified in almost all brand equity Models (Aaker, 1991; Keller, 1993). According to Keller, brand awareness refers to "the customers' ability to recall and recognize the brand as reflected by their ability to identify the brand under different conditions and to link the brand name, logo, symbol, and so forth to certain associations in memory".

Brand awareness is composed by brand recognition and brand recall. Brand recognition is the minimal level of brand awareness which requires that the brand is well known by buyers to come spontaneously in his mind. Brand recognition is the extent to which a brand is recognized for stated brand attributes, parts, offerings, or communications. Brand recognition is particularly important when a customer choose a brand at the point of purchase.Brand recall is another level of brand awareness which tests buyers' ability to retrieve the actual brand element from memory when given some related probe or cue. Keller defined "brand recall as the customers' ability to retrieve the brand from memory, for example, then the product category or the needs fulfilled by the category are mentioned".

Brand awareness plays an significance role in purchase decision making for three major. First, brand awareness can influence purchase decision about a brand in the consideration set. Second, brand awareness can affect purchase decision making by influencing the formation and strength of brand associations in the brand image (Keller 1993). The last one is that brand awareness can affect consumers how to think of the brand when they think about the product category. Raising brand awareness increase the likelihood that the brand will be a member of the consideration set.

2.1.2 Brand Association

A brand association is "anything linked in memory to a brand" (Aaker, 1991). Aaker (1991) asserted that brand associations are the category of a brand's assets and liabilities that include anything "linked" in memory to a brand.Brand association can help consumers' process and recall information, serve as the basis of dissimilarity and extensions and provide a reason to purchase and create positive feelings toward the brand (Aaker,1992). Brand associations are important to marketers and to consumers. Marketers use brand associations to differentiate, position, and extend brands. Consumers use brand associations to help process, organize, and retrieve information in memory and to aid them in making purchase decisions (Aaker,1991)

Keller (1993) asserted that brand association could be classified into three major types of increasing scope: 1) attributes, 2) benifits, and 3) attitudes. Brand attributes are those descriptive features that characterize a product or service, what a consumer thinks the product or service is or has and what is involved with its purchase or consumption. Brand benefits are the personal values consumers attach to product or service attributes, it means that what consumers think the product or service can do for them.Brand attitudes are defined as consumers' overall evaluations of a brand. Brand identity is made up of these different types of brand associations, which can vary according to their favorability, strength, and uniqueness.

Rio et al. (2001) asserted that brand association are a key element in brand equity formation and management. An association can provide and important basis for differentiation. Association of the brand name can then play a critical role in separating one brand from another. In this respect,

high brand equity implies that consumers have strong positive associations with respect to the brand. Strong association can help strengthen brand and equity.

2.1.3 Perceived Quality

Zeithaml (1988) emphasized that perceived quality is an intangible, overall feeling about a brand, can be defined as not the actual quality of a product or service but the consumer's judgeship and evaluation about a product and service's preference and advantage, consider to its usage as distinct from other products and services in existing markets. it is another dimension of brand value that can encourage customers to choose a product or service.

From the researches, researchers found that (1) perceived quality becomes a central in the customers' decisions. (2) perceived quality can be used as a positioning strategy of various products, whether the automobile, the computer, or the clothing, these products can be shown as a premium product for the high-end consumers. (3) perceived product quality advantage provides the option of charging a premium price.

In fact, product quality's judgment can be influenced by customers' product experiences, education, purchase cause, occasion force, pay for state or personal feeling as perceived quality. Hence, perceived quality can increase customer satisfaction, can create a purchase intention with a product or service as the perceived quality become a evidence consumer tended to give higher value toward the products. In other word, sometimes consumers use the perceived to "infer" quality of an unfamiliar product. it is important to understand the relevant quality attributes regard to brand equity. Therefore, perceived quality is generally associated with brand equity (Motameni and Shahrokhi, 1998), and the better the perceived quality, the greater the brand equity. (Yoo et al.,2000)

2.1.4 Brand Image

Keller (1993) defined brand image as the sum total of brand associations are created in consumer memory that lead to perceptions about the brand. These associations of brand image are multidimensional and consist of the affective dimension or the attitudes towards the brand and the perceived quality dimension. Brand image comprises the all interpretation that consumers have about a brand, and the meaning, or personal relevance, they ascribe to it. Brand image is how people think about a brand abstractly rather than what they think the brand actually does. Thus, image refers to more intangible aspects of the brand.

A brand image can be an association set and is usually organized in some meaningful way (Aaker, 1991). A positive brand image is created by marketing programs that link powerful and unique associations to a consumer's memory of the brand (Keller,1998). Thus, brand image can create associations that elicit positive feelings and attitudes towards the brand (Porter and Claycomb,1997). Thus, the better brand image, the better brand equity.

2.2 Marketing Elements

Marketing elements is defined as a set of controllable marketing tools that a company uses to create a desired response in the targeted market. (Kotler P., Armstrong, Wong, & Saunders,2008). Marketing elements as a marketing strategy, posited as a extrinsic resource to create a positive influence for the firm performance.In this study, only focus on two important marketing elements which include store image and sales promotion.

2.2.1 Store Image

The symbolic, experiential expression of the manner in which consumers "see" or "visualize" a store is store image. Store image as a concept in the development of retail personality, Martineau (1958) introduced that the store image is the way in which the consumer's perception of a store on different attributes, partly by its functional qualities and partly by its atmosphere of psychological attributes. Different authors have distinguished different store attributes or characteristics that are part of the overall image towards the store (the so-called retail mix). For example, Bearden (1977) suggested the following elements: price, quality of the merchandise, atmosphere, parking facilities, assortment, location and friendly personnel.

The consumers form impressions of a store, and that these impressions later exert a major influence on brand choice decisions and shopping behaviors. A retailer with a favourable image improves the image of the store brands it carries by sharing its brand name with them (Burt and Sparks, 2002). When a consumer do not possess complete information about a brand, they may inferences from available informational cues before forming perceptions of the brand. Consumers use cues such as the physical environment of the store (Richardson et al,1996), the composition and the display of the assortment or the level of service (Semeijn et al,2004) to build a general belief about the retailer that, in turn, determines the attitude towards store brands. In other words,store image often serves as an informational cue uses by buyers to form inferences about a brand. Once the customers experience and internalize the image, there is a clear reason to understand that once they are likely to feel comfortable, they will begin to accept the store which is in tune with their lifestyle, select this brand name products, patronize the items that reflect their taste and requirements of what they wish to eat, wear, give to others, and furnish their homes with. Therefore, store image provides value-added benefits to the brand image and shoppers. The images associated with the store's image carries influence a brand image, which in turn, influences consumer's decision- making processes and behaviors. Store image also create the ability of a consumer to recognize the brand name and to recall the brand name, which will activate associations in memory that form a consumer's brand image.Consequently, brand image and store image are inextricably linked to one another, store image also have a influence on brand awareness and brand association. A positive store image has been identifies as a key determinant of economic success (Jacoby and Mazursky, 1986; Hildebrandt, 1988), store choice (Doyle and Fenwick, 1974; Schiffman et al., 1997; Burns, 1992) and store loyalty (Mazursky and Jacoby, 1984; Osman, 1993).And finally,effect customer’s purchase intention.

A retail store has an image of its own that serves to influence the perceived quality of the products sold, as well as the buyer's selection of the store. Store image often influences brand image. A positive store image produces a positive brand image, even when the price and the product at which it is available are identical in most of the stores. (Walters and Bergiel, 1989). Most studies on the effect of extrinsic cues on perceived quality' have focused only on one variable-either store image or price or when a second extrinsic cue is available, say price and store image. Sometimes perceived quality is a function of the interaction of both two cues on the buyers.

2.2.2 Sale Promotion

Sale promotion are a marketing tool for manufacturers as well as for retailers. Both of manufacturers and retailers use them to increase sales to consumers. Sales promotion describes promotional methods using special short-term techniques to persuade members of a target market to respond or undertake certain activity. Sale promotion included temporary price reduction (TPR), coupon, buy one get one free and etc. Sales promotion increase the purchase intention as the promoted brand can increase during the promotion by attracting customers to swith brands selection

(brand switching), inducing customers from other stores (store switching), inducing customers to buy from the promoted category rather than another category (category switching), attracting customers who normally do not use the product category to purchase it (new users), or inducing customers to move their purchases behavior forward in time (purchase acceleration).

The researchers also distinguish between two different ways to invested the effect of sales promotion on brand equity. The first way, to analysis the influence of short-term effects, which occur during the promotion. The researchers are believed that sales promotion erode brand equity over time despite immediate short-term financial gain. Sales promotion may not be a desirable way to build brand equity because it is easily copied and counteracted (Aaker, 1991) and it is only enhances a short-term performance by encouraging sales and momentary brand switching (Gupta, 1988). During the sales promotion, a retailer is not only interested in sales of the promoted product, but also in sales of other products in the store. It would help to increase the sales of retailer. The second way, to analysis long-term effects, which involve behavior that takes place after the promotion. In the long run, sales promotion may convey a low-quality brand image. In addition, frequent price promotions may jeopardize brands in the long run because they cause consumer confusion based on unanticipated differences between expected and observed prices, which results in an image of unstable quality (Winer, 1986). Consumers cannot forecast correct point-of-purchase prices, and forecasting errors due to the gap between expected and observed prices negatively affect brand choice decisions as well as perceived quality, which leads to a decrease in brand equity. Also, sales promotion campaigns do not last long enough to establish long-term brand associations, which can be achieved by other efforts such as advertising and sales management (Shimp, 1997). Relying on sales promotion and sacrificing advertising would reduce brand associations, which leads to decreasing brand equity.

2.3 Purchase Intention

Purchase intention, as an important indicator for estimating consumer behavior. Purchase intention represents the possibility that consumers will intent or be willing to purchase a product or service. Wachiraya (2007) defined that purchase intention represent to what consumer think they are going to buy.Many previous studies have used purchase intention as the dependent variable (Goldsmith et al.,2000; Yi, 1990; Saliagas, & william, 1987; Machleit & Wilson, 1988).It has been well documented in the literature that purchase intention is an acceptable surrogate for an actual purchase (Dodds et al.,1991: Morwiz, Johnson, & Schmittlein,1993; Morwiz & Schmittlein, 1992;Sheppard, Hartwick, & Warshaw,1988).

2.4 Conceptual Framework and Hypothesis

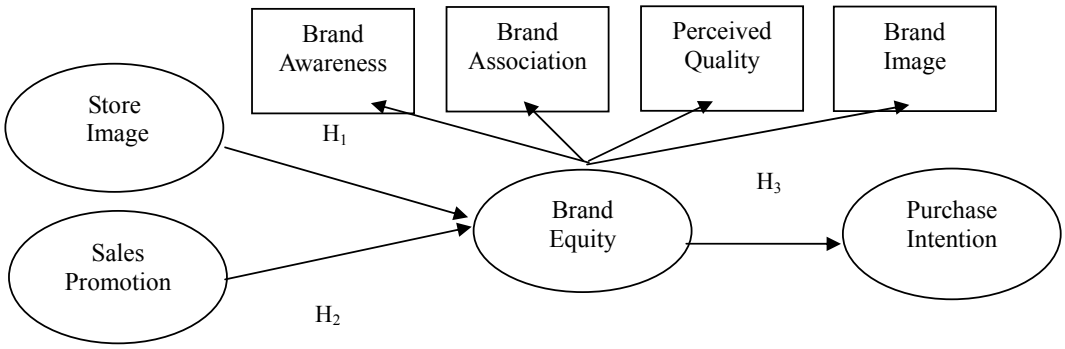

Figure 1 Conceptual Framework

This framework exhibits the relationship between marketing elements and brand equity, brand equity and purchase intention. The relationship among these components would be discussed and explained within the scope of our hypotheses as follow:
Hypothesis 1:Store image has a significant relationship with brand equity.
Hypothesis 2:Sales promotion has a significant relationship with brand equity.
Hypothesis 3:Brand equity has a significant relationship with private label brand purchase intention.

3. Methodology

A five-point Likert Scales (1-strongly disagree, 2-disagree, 3-Neutral, 4-agree, 5-strongly agree) were distributed to the Thai female consumer who reside in Bangkok and ever perceived about private label brands. The final sample size was 400.There were 500 questionnaires were distributed into 10 branches Watson in high people flow location and selected 400 in reality after eliminating unqualified samples.

Store image measure were adapted by Collins-Dodd and Lindley (2003). Sales promotion measure were adapted from Yoo and Donthu (2001). Brand awareness was measured by Rajh (2005), and Yoo and Donthu (2001). Brand association measures were designed from two researches which adopted by Pappu and Quester (2005), and Yoo and Donthu (2001). Perceived quality measure were adapted by Yoo,et al. (2000) and Aaker (1991). Brand image measure were adapted by Rajh (2005). Purchase intention was measured by using a multiple measure design from previous research. (Mattew Tingchi Liu & James L. Brock, 2011; Wachiraya, 2007).

The structural equation model (SEM) was performed to investigate the relationships between the factors. The analysis was using LISREL8.72 (student edition) to accomplish.

A pretest was conducted for assessing a quality, validity and reliability of instrument used in this study. It was tested by the pretest which comprises of 30 Thai female who had ever perceived about Watson private label brand product. The pretest was conducted on August 2012. The purpose of the pretest is to find out the survey questionnaires with simplicity and comprehensiveness in order to make a proper tool to collect required information. Furthermore, the collected data will be initially analyzed in the pretest. After the pretest were done, a modification of questionnaires was done by according to advice of experts and respondents.

The reliability of the questionnaires was measured by using the Cronbach's Alpha coefficient; it indicates the level of the items is correlated to each another. It establishes the internal reliability of questionnaire responses. The Cronbach's Alpha value with greater than 0.7 will be reliable enough used in the data collection. The score in the table 1 was ranked from;I t can imply that the data were acceptable.

Table 1 Reliability Test Using Cronbach's Alpha

No	Variables	Amount of items	Cronbach's Alpha (Pretest)	Cronbach's Alpha (Final)
1	Store image	3	0.753	0.732
2	Sale promotion	4	0.793	0.822
3	Brand Equity			
	Brand awareness	4	0.755	0.817
	Brand association	4	0.864	0.815
	Perceived quality	4	0.711	0.863
	Brand image	3	0.732	0.817
4	Purchase intention	5	0.714	0.887

4. Results

4.1 Summary of Demographic Information

The questionnaire was produced for 400 samples, which were distribute in front of 10 branches of Watson, the demographic detail of the 400 respondents was divided into two parts which are: frequency and percent were presented in the table 2

For the age category, was separated into 5 groups. There were 135 respondents which is the largest group age among 26 to 30 (as33.8%). For the education level items, was separated into 4 groups. In the group "Bachelor degree", there were 187 respondents, which distributed as 46.8% is the largest group. For the occupation items, there were 6 kinds of different occupations,The most distributed occupation was officer, there were approximately 39.5% which included 158 of respondents are officer.For the monthly income items, the question divided into 6 groups. For the respondents who were in the biggest group were the disposable income among, 10,001-20,000 Baht per month, there were 137 respondents which as 34.4%.

Table 2 Demographic Type in the Sample Of 400 Respondents:

Age		
Demographic	**Frequency**	**Percent**
21-25	93	23.3
26-30	135	33.8
31-35	98	24.5
Demographic	**Frequency**	**Percent**
36-40	58	14.5
41-45	16	4.0
Total	**400**	**100**
Education level		
Below bachelor	65	16.3
Bachelor degree	187	46.8
Master	108	27.0

Above master	40	10.0
Total	**400**	**100**
Occupation		
Student	98	24.5
Officer	158	39.5
Business owner	75	18.8
Government employee	44	11.0
House wife	16	4.0
Others	9	2.3
Total	**400**	**100**
Monthly income (Baht)		
Less than 10,000Baht	47	11.8
Demographic	**Frequency**	**Percent**
10,001-20,000Baht	137	34.3
20,001-30,000Baht	104	26.0
30,001-40,000Baht	66	16.5
40,001-50,000Baht	25	6.3
More than 50,000Baht	21	5.3
Total	**400**	**100**

4.2 Descriptive Analysis

The level of agreement of respondent on private label brand purchase intention with the independent variable store image, sales promotion, brand equity, and the dependent variable purchase intention were presented in the table 3.Sort from maximum to minimum of the respondent's level of agreement, all of the variables were described as agree.

Table 3 Level of Agreement

Item	Mean	Std. Deviation	Level of Agreement
Store image	**3.86**	**0.781**	**Agree**
Store image 1	4.12	0.722	Agree
Store image 2	3.71	0.786	Agree
Store image 3	3.76	0.836	Agree
Sales promotion	**3.69**	**0.865**	**Agree**
Sales promotion 1	3.74	0.838	Agree
Sales promotion 2	3.74	0.791	Agree
Sales promotion 3	3.69	0.913	Agree
Sales promotion 4	3.58	0.917	Agree
Brand equity	**3.56**	**0.999**	**Agree**
Brand awareness	**3.63**	**0.884**	**Agree**
Brand awareness 1	3.79	0.912	Agree
Brand awareness 2	3.62	0.856	Agree
Brand awareness 3	3.62	0.859	Agree
Brand awareness 4	3.49	0.907	Agree
Brand association	**3.61**	**0.876**	**Agree**
Brand association 1	3.67	0.845	Agree

Brand association 2	3.57	0.844	Agree
Brand association 3	3.54	0.892	Agree
Brand association 4	3.67	0.921	Agree
Perceived quality	**3.50**	**0.878**	**Agree**
Perceived quality 1	3.52	0.901	Agree
Perceived quality 2	3.49	0.861	Agree
Perceived quality 3	3.49	0.873	Agree
Perceived quality 4	3.49	0.858	Agree
Brand image	**3.50**	**1.358**	**Agree**
Item	**Mean**	**Std. Deviation**	**Level of Agreement**
Brand image 1	3.40	0.917	Agree
Brand image 2	3.49	0.915	Agree
Brand image 3	3.60	2.743	Agree
Purchase intention	**3.57**	**0.890**	**Agree**
Purchase intention 1	3.65	0.903	Agree
Purchase intention 2	3.58	0.846	Agree
Purchase intention 3	3.56	0.862	Agree
Purchase intention 4	3.51	0.909	Agree
Purchase intention 5	3.55	0.930	Agree

4.3 Data Analysis and Findings

4.3.1 Good Fitness Approach

The result of the SEM Standardize Solution was shown as the following figure 2 The meanings of titles in the table were described as formal instead as following:

1. Chi-Square,p=Normal Theory Weighted Least Squares Chi-Square
2. df=Degrees of Freedom
3. GFI=Goodness of Fit Index
4. AGFI=Adjusted Goodness of Fit Index
5. RMR=Root Mean Square Residual
6. RMSEA=Root Mean Square Error of Approximation

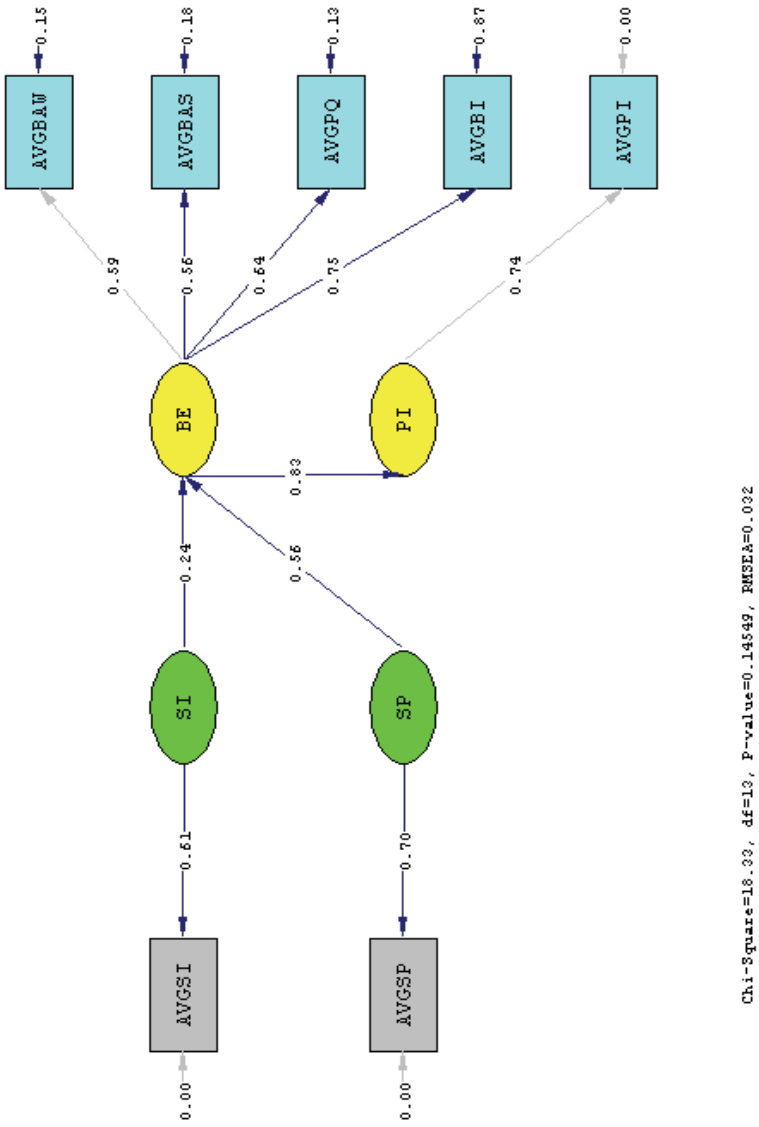

Figure 2 SEM Standardize Solution

4.3.2 Correlation Analysis

First, LAMBDA-X presented the weight of how the X side, in other words, the X side were the latent variables of store image and sales promotion, or SI and SP in the table 4.4, then as the observed variables could measure the related latent variables. For the store image, it composed by 3 dimensions, which were 3 questions of store image. The store image (AVGSI in the table 4.4) had weight 0.61 (st=1.00, SE=0.02 and t=28.25) of the measurement on store image, which could be described that the level of positive side of store image could presented the 61% of positive level of store image. For the sales promotion, it composed by 4 dimensions, which were 4 questions of sales promotion. The sales promotion (AVGSP in the table 4.4) had weight 0.70 (st=1.00, SE=0.02 and t=28.25) of the measurement on sales promotion, which could be described that the level of positive

side of sales promotion could presented the 70% of positive level of sales promotion.

Linkage between brand equity component and brand equity.

Secondly, for the parameters of statistic on LAMBDA-Y, there were 4 observed variables, which were distributed as 4 dimensions for brand equity (BE in the table 4.4) and 5 dimensions for purchase intention (PI in the table 4.4). For the brand equity, there were composed by 4 dimensions, the brand awareness (AVGBAW in table 4.4) had weight of 0.59 (st=0.83) of the measurement on brand equity, which could be described that the level of positive side of brand awareness could presented the 59% of positive level of brand equity. The brand association (AVGBAS in the table 4.4) had weight of 0.56 (st=0.79, SE=0.03 and t=18.41) of the measurement on brand equity, which could be described that the level of positive side of brand awareness could presented the 56% of positive level of brand equity. The perceived quality (AVGPQ in the table 4.4) had weight of 0.64 (st=0.87,SE=0.03 and t=21.14) of the measurement on brand equity, which could be described that the level of positive side of perceived quality could presented the 64% of positive level of brand equity. The brand image (AVGBI in the table 4.4) had weight of 0.75 (st=0.63,SE=0.06 and t=13.42) of the measurement on brand equity, which could be described that the level of positive side of brand image could presented the 75% of positive level of brand equity. The study also had another latent variable purchase intention, it composed by 5 dimensions, which were 5 questions of purchase intention. The purchase intention (AVGPI in the table 4.4) had weight of 0.74 (st= 1.00) of the measurement on purchase intention, which could be described that the level of positive side of purchase intention could presented the 74% of positive level of purchase intention.

Thirdly, the parameter of BETA was the level of weight that the endogenous variable as independent variable (which was brand equity) could measure the other endogenous variables as dependent variable (which was purchase intention in this study). In this study, there was only one endogenous variable as independent variable, which were brand equity and purchase intention. The brand equity (BE in the table 4.4) had significantly high weight of 0.83 (st=0.83,SE=0.04 and t=19.78) of the measurement on purchase intention, which could be described that the level of positive side of brand equity could presented the 83% of positive level of purchase intention.

At last, for GAMMA parameters, which was present the weight of exogenous variables, or the store image and sales promotion in this study, could measure the related endogenous variable, which were brand equity and purchase intention in this study. The store image (SI in the table 4.5) had significantly weight of 0.24 (st=0.24, SE=0.05 and t=5.16) of the measurement on brand equity, which could be described that the level of positive side of store image could be presented the 24% of positive level of brand equity. The sales promotion (SP in the table 4.5) had significantly high weight of 0.56 (st=0.56, SE=0.05 and t=10.64) of the measurement on brand equity, which could be described that the level of positive side of sales promotion could be presented the 56% of positive level of brand equity.

Table 4 Parameters of Statistic Table

Matrix LAMBAD-X	**b**	**St**	**SE**	**t**
AVGSI	0.61	1.00	0.02	28.25
AVGSP	0.70	1.00	0.02	28.25
Matrix LAMBDA-Y	**b**	**St**	**SE**	**t**
BAW	0.59	0.83	<-->	<-->
Matrix LAMBDA-Y	**b**	**St**	**SE**	**t**
BAS	0.56	0.79	0.03	18.41
Matrix LAMBDA-Y	**b**	**St**	**SE**	**t**
PQ	0.64	0.87	0.03	21.14
BI	0.75	0.63	0.06	13.42
AVGPI	0.74	1.00	<-->	<-->
Matrix BETA	**b**	**St**	**SE**	**t**
Brand equity	0.83	0.83	0.04	19.78
Purchase Intention	<-->	<-->	<-->	<-->
Matrix GAMMA	**b**	**St**	**SE**	**t**
Store Image	0.24	0.24	0.05	5.16
Sales Promotion	0.56	0.56	0.05	10.64

For the second step of correlation analysis, the Effects of KSI on ETA was analyzed.

From the data of table 5, it was very clear. At first, store image had the significant positive effect on brand equity, which was presented as total effect as 0.24 (with SE=0.05, st=5.16), moreover, there was direct effect from store image to brand equity. This study could consider that sales promotion had the positive effect on brand equity, which was presented as total effect as 0.56 (with SE=0.05, st=10.64), moreover, there was direct effect from sales promotion to brand equity. This study could consider that brand equity had the significantly positive effect on purchase intention, which was presented as total effect as 0.83 (with SE=0.04, st=19.78), moreover, there was direct effect from brand equity to purchase intention. Then it considered that store image had the significantly positive effect on purchase intention, which was presented as total effect as 0.20 (with SE=0.04, st=5.16), moreover, there was indirect effect from store image to purchase intention. At last, this study could consider that sales promotion had the significantly positive effect on purchase intention, which was presented as total effect as 0.47 (with SE=0.04, st=10.64), moreover, there was indirect effect from sales promotion to purchase Intention.

Table 5 Effects of KSI on ETA

DV		Brand Equity			Purchase Intention		
IV		TE	IE	DE	TE	IE	DE
SI	β	0.24	<-->	0.24	0.20	0.20	0.00
	SE	0.05	<-->	0.05	0.04	0.04	0.00
	st	0.24	<-->	0.24	0.20	0.20	0.00
SP	β	0.56	<-->	0.56	0.47	0.47	0.00
	SE	0.05	<-->	0.05	0.04	0.04	0.00
	st	0.56	<-->	0.56	0.47	0.47	0.00
BE	β	<-->	<-->	<-->	0.83	<-->	0.83
	SE	<-->	<-->	<-->	0.04	<-->	0.04
	st	<-->	<-->	<-->	0.83	<-->	0.83

For the third step of correlation analysis, Squared Multiple Correlations for observed variables was analyzed. The data was summarized in table 6, in which all the observed variables was in the Squared Multiple Correlations for observed variables, R^2 (R-Square in table 6) was used to measure the relation between observed variables to their corresponding latent variables. According to the table 6, AVGSI had the relationship with store image as R^2=1.00. AVGSP had the relationship with sales promotion as R^2=1.00. The Y side observed variable showed relationship with their corresponding latent variables. Brand awareness had the relationship with brand equity as R^2=0.69; brand association had the relationship with brand equity as R^2=0.63; perceived quality had the relationship with brand equity as R^2=0.76; brand image had the relationship with brand equity as R^2=0.39. AVGPI had the relationship with purchase intention as R^2=1.00.

Table 6 Squared Multiple Correlations for Observed Variables

Observed variables-X	AVGSI	AVGSP			
R-Square	1.00	1.00			
Observed variables-Y	**AVGBAW**	**AVGBAS**	**AVGPQ**	**AVGBI**	**AVGPI**
R-Square	0.69	0.63	0.76	0.39	1.00

Fourthly, this study analyzed Squared Multiple Correlations for Structural Equations for latent variables. In this part, this study analyzed the relationship of dependent variables to independent variables, which was summarized in table 7. According to the data, brand equity had R^2=0.52, which was presented the relationship between brand equity and its independent variable store image and sales promotion. Purchase intention had R^2=0.69, which was presented the relationship between purchase intention and its independent variable brand equity. Therefore, this study could consider that the correlations among latent variables were high.

Table 7 Squared Multiple Correlations for Structural Equations for Latent Variables

Latent Variables	Brand equity	Purchase intention
R-Square	0.52	0.69

At last this study did analysis of Correlation Matrix of ETA and KSI to summarize the correlation among latent variables, the data was summarized in table 8. Base on the information in

table 8, it was clearly to find out that purchase intention had positive relationship with brand equity as 0.83, store image had positive relationship with brand equity as 0.54, at last sales promotion had positive relationship with brand equity as 0.69. However, store image had positive relationship with purchase intention as 0.45, sales promotion had positive relationship with purchase intention as 0.57. The level from sales promotion to store image as 0.54.

Table 8 Table Correlation Matrix of ETA and KSI

Latent Variables	Brand Equity	Purchase Intention	Store Image	Sales promotion
Brand Equity	1.00			
Purchase Intention	0.83	1.00		
Store Image	0.54	0.45	1.00	
Sales promotion	0.69	0.57	0.54	1.00

4.3.3 Hypothesis Testing

Test of Hypothesis 1: Store image has effect on brand equity.

According to table 9, store image had the direct effect to private label brand equity as β=0.24, which was significantly positive relationship. Therefore, store image has no effect on brand equity was rejected. Thus, this supported Hypothesis 1, which proved that store image has positive effect on brand equity. As this results, It had testified that the Hypothesis which create in chapter 3 as Store image has a significant relationship with brand equity.

Test of Hypothesis 2: Sales promotion has effect on brand equity.

Base on the data in Table 9, sales promotion had the direct effect to private label brand equity as β=0.56, which was significantly strong positive relationship. Therefore, sales promotion has no effect on brand equity was rejected. Thus, this supported Hypothesis 2, which proved that sales promotion has positive effect on brand equity. As this results, It had testified that the Hypothesis which create in chapter 3 as sales promotion has a significant relationship with brand equity.

Test of Hypothesis 3: Brand equity has effect on purchase intention.

According to table 9, brand equity had the direct effect to private label brand equity as β=0.83, which was strong significantly positive relationship. Therefore, brandequity has no effect on purchase intention was rejected. Thus, this supported Hypothesis 3 which proved that brand equity has strong positive effect on purchase intention. As this results, It had testified that the Hypothesis which create in chapter 3 as brand equity has a significant relationship with private label brand purchase intention.

Table 9 Summary of Path Analysis for Hypothesis Testing

DV		Brand Equity			Purchase Intention		
IV		TE	IE	DE	TE	IE	DE
SI	β	0.24	<-->	0.24	0.20	0.20	0.00
	st	0.24	<-->	0.24	0.20	0.20	0.00
SP	β	0.56	<-->	0.56	0.47	0.47	0.00
	st	0.56	<-->	0.56	0.47	0.47	0.00
BE	β	<-->	<-->	<-->	0.83	<-->	0.83
	st	<-->	<-->	<-->	0.83	<-->	0.83

5. Implications

In summary, retailer can effectively use the results of this study to develop good private label strategy, in order to create and increase purchase intention of private label brand.

1. This study help the retailer to find out and testify the factors influence private label brand purchase intention.

The first important factor is store image,when the customers don't have enough information to judge a private label brand product whether have a good quality, good benefit or good for value, the store image as an informational cue uses by buyers to form inferences about a brand directly, such as a good store atmosphere, different kinds of products, good service or a good location of the store, it will provides value-added benefits to the brand image and shoppers. so the retailer can focus on improving this factor, in order to enhance brand equity and create purchase intention.

The second important factor is Sales promotion. According to the questionnaire, easy to find out that different and frequently sales promotion attract customers very well, and they also think that private label product can often be bought at sales promotion. Sales promotion also can attract customers who normally do not use the product category to purchase it or induce customers to move their purchases behavior forward in time. So the retailer should focus on sales promotion, to create more different sales promotion to attract customers.

According to the result, these two factors have a direct positive effect on brand equity, it helps to develop a high brand equity of private label brand product, such as a good store image of its own that serves to positive influence the perceived quality of the products sold; a good store image could create the ability of a consumer to recognize the brand name and to recall the brand name easily; store image and brand image also are inextricably, a good store image will have positive effect on brand image, sales promotion can create and increase the purchasing behavior. So the retailer should focus on both of these two factor, find out the way to improve both of them. For example, improve store atmosphere, service, increase facilities and variety of products,create different sales promotion and so on.

2. This study help the retailer to develop good private label strategy.

In this study, we help the retailer to develop a good private label brand strategy model for generating customers' purchase intention, which is defined by the mediator variable of brand equity.

About the constructs of private label brands to customers' purchase intention, we discover that store image and sales promotion are quite important in strategy execution.

By doing private label strategy in retail, this study develops a conceptual model to test the mediating role of brand equity on the relationship between marketing elements (store image and sales promotion) and private label brand purchase intention. The results display that the store image and sales promotion had a significant effect on brand equity, improving both of them can increase the brand equity and purchase intention.The retailer can utilize this results for selecting appropriate strategies for improve store image and sales promotion, in order to create a high level of brand equity. So the retailer should strengthen their marketing elements through brand equity from top to bottom in order to create the purchase intention. In this study, the results show that the marketing elements using a technically proficient brand equity construction affects customer's purchase intention

6. Conclusion

This research revealed that all of the hypotheses were supported, which were store image has positive effect on brand equity, sales promotion also has positive effect on brand equity. And the brand equity had a strong significant relationship with purchase intention.

7. Limitation

Since the result of the research can be considered statistically achieved to the objectives, but there are still many limitations besides time limits and the number of Researchers.First,the model tests only two marketing elements,actually there is another factors to effect private label brand purchase intention. Secondly, for the sample of this research, this study designed the sample of respondents as Thai female consumers only and this study only focus on bangkok area, so the group of respondents can not represent all the customers around the world. At last, for the questionnaire, the volume of question items were not too much, but some items still have significant relation with the variables, it also can effect the test result. And the questionnaire only distribute in front 10 branches Watson, that will lead to the limitation of the respondents.

8. Future Research Directions

Firstly, the research design suggested that store image, sales promotion, and brand equity are study as variables to private label brand purchase intention in this study. There are still a lot of variable were interesting to research. Secondly, for the sample, it also can add male to the sample.Additionally, it could be more clearly understand the customer’s purchase behavior of private label brand if separate the group of customers into the person who have ever perceived private label brand and haven’t perceived private label brand. At last, base on this research, this study could learn that brand equity was the mediator of the private label brand purchase intention. However, how to deliver and implement the method, or strategy to achieve the high level of purchase intention was not created very clearly.

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QUESTIONNAIRE

Watson having served Thai consumer more than fourteen years, is currently the number one health and beauty retailer in Thailand offering a wide variety of products from consumer goods to health and beauty items. Watson work with premium brands to design their private label brands which are available exclusively at Watson. Watson private Label product offers straightforward high quality products with no gimmicks to customers who want variety, novelty and reliability with no frills so they can grab and go.

Watson private Label products cater directly to these needs providing both good value and quality.The successful of Watson lead to only focus on this retailer to find out the factors to influence the purchase intention of private label brand.

***The products,in this study,include three categories such as health, skin care, and hair care.**
***Please mark "√" to your response.**
***The products,in this study,which means the Waston brand product only.**

PART I:Demographic and information

Part1: Personal Data

1.1.Age

21-25	26-30	31-35	36-40	41-45

1.2.Education Level

Below Bachelor	Bachelor	Master	Above Master

1.3.Occupation

Student	Officer	Business owner	Government employee	Housewife	Others

1.4.Monthly Income

Less than 10,000Baht	10,0001-20,000 Baht	20,001-30,000Baht	30,001-40,000Baht	40,001-50,000Baht	More than 50,000Baht

PART II:Research Variables

Please indicate the degree to which you afree or disagree with the statements in the following.Please mark"√" in the following scale:
5=strong agree; 4=agree; 3=neutral; 2=disagree; 1=strongly disagree;

Part 2: Marketing Elements

2.1 Store image	**5**	**4**	**3**	**2**	**1**
2.1.1 I think Watson provides variety of products					
2.1.2 I think the products of Watson are good value for money					
2.1.3 I think I can buy the brand as I require in Watson					
2.2 Sales Promotion	**5**	**4**	**3**	**2**	**1**
2.2.1 I think brand Watson 's sales promotion are, in general, very good					
2.2.2 I think sales promotion of Watson can attract customer very well					
2.2.3 I think brand Watson has frequently sales promotion					
2.2.4 I think brand Watson product can often be bought at sale promotion					

Part 3: Brand equity and brand equity elements

3.1.Brand Awareness	**5**	**4**	**3**	**2**	**1**
3.2.1 I know what brand Watson looks like					
3.1.2 I know brand Watson with a high quality					
3.1.3 Brand Watson will more easy to be aware					
3.1.4 I would feel proud to own the product of brand Watson					
3.2 Brand Association	**5**	**4**	**3**	**2**	**1**
3.1.1 Brand Watson is very well known to me					
3.2.2 I can recognize brand Watson among other competing brands.					
3.2.3 I feel that some characteristics of brand Watson come to my mind quickly.					
3.2.4 I can quickly recall the symbol or logo of brand Watson.					
3.3 Perceive quality	**5**	**4**	**3**	**2**	**1**
3.3.1 I feel that brand Watson is of high quality					
3.3.2 The likely quality of brand Watson is extremely high					
3.3.3 It is likely that the product of brand Watson offer excellent features					
3.3.4 It is likely that the product of brand Watson is very reliable					

3.4 Brand Image	**5**	**4**	**3**	**2**	**1**
3.4.1 I feel that brand Watson is best able to satisfy my requirements fully					
3.4.2 I feel that brand Watson have a strong personality.					
3.4.3 I feel that brand Watson have a strong image					

Part 4: Purchase intention

4.1 Purchase intention	**5**	**4**	**3**	**2**	**1**
4.1.1 I think that my willingness to buy brand Watson is high if these two brands are same					
4.1.2 I think that the likelihood of purchasing brand Watson is high					
4.1.3 I'm glad to buy brand Watson					
4.1.4 I'm glad to recommend others to buy brand Watson					
4.1.5 There is big chance that I would purchase brand Watson again					

Antecedents of Customer Aggression on Information Technology Professionals – The Perspective of Communication

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Abstract

Information technology (IT) professionals as the service providers often interact with users or customers. In the case of miscommunication between the two parties and/or where system performance leaves the customer unsatisfied, aggression is often displayed by the customers. Studies showed that customer aggression might affect service providers' emotions negatively which in turn affect their job satisfaction. Studies also showed that one of the main causes of customer aggression is the lack of communication effectiveness between customers and service providers. The communication theory identifies two communication capabilities, namely communication accuracy and communication empathy. This study examines their impact on communication effectiveness and customer aggression, using a sample of IT professionals in Taiwan. Results showed that both communication accuracy and communication empathy in IT professionals increased communication effectiveness towards customers. When communication effectiveness increases, it significantly decreases the amount of customer aggression. Further analysis was done to examine two different groups of IT professionals, namely technically oriented and managerially oriented IT professionals. Surprisingly, for managerial IT professionals, customer aggression is not significantly affected directly by either communication effectiveness or the communication capabilities, while all the communication capabilities and communication effectiveness of managerial IT professionals are significantly higher than the group of technical IT professionals. As a result of this study, organizations are encouraged to provide more training opportunities in communication especially to the technical IT professionals in order to increase their communication effectiveness and ultimately improve the quality of IT services rendered.

Keywords: Communication capabilities, communication effectiveness, customer aggression, IT professionals.

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1. Introduction

Communication is one of the main factors influencing the success of information technology (IT) projects. It is even more critical than the technical and economic factors involved (Sarker and Lee, 2003). According to a web poll by the Computing Technology Industry Association, poor communication is the number one cause for the failure of most IT projects (Rosencrance, 2007). Communication skills of IT professionals are therefore essential for providing good information system and technology services. Services such as identifying system needs of customers or system users, educating customers on the use of new or upgraded information systems, and dealing with customer complaints of problems encountered involve plentiful interaction with customers. Communication capabilities are of great importance for technology management (Hornik et al., 2003), and are especially crucial when service providers are dealing with customer complaints since they represent the company's position in the frontline, which affects the image and reputation of the company.

IT professionals are mostly trained to 'talk' to the computer as opposed to people. They are often more introverted than extroverted in nature which make them more comfortable with dealing with machines that are systemic rather than people who are prone to change [3](Rutner & Hardgrave, 2008; Coombs, 2009). When customers encounter difficulties and are dissatisfied become with the services provided, they might experience negative emotions such as anger or frustration. These emotions are often accompanied by aggressive words or behaviors towards service providers (Lovelock and Wirtz, 2005). Moreover, angry customers will spread the anger and disappointment to people around them, which may cause a great snow-ball effect if the situation is not handled appropriately (McGraw, 2011).

Furthermore studies show that customer aggression causes stress for service providers and lead to job dissatisfaction and decreased job performance if the stress is not dealt with correctly. The use of appropriate words can calm down angry customers and help them to respond rationally, whilst arguing with customers tend to infuriate unsatisfied customers even more. The IT professionals' approach to such a situation greatly affects the outcome of this unpleasant event. The aim of this paper is thus to examine the role communication effectiveness plays in customer aggression. In addition it will also aim to show that the communication capabilities of IT professionals increase communication effectiveness with customers during IT projects.

Two problem statements are identified: (i) what is the effect of IT professionals' communication capabilities on their interaction with customers (internal/external)? (ii) How do communication capabilities and communication effectiveness affect the level of customer aggression? Gaining understanding in the role that communication plays in customer aggression assists organizations to recognize the importance of good communication skills in IT professionals in order to provide high quality service to customers.

The objectives of this study are as follows: (1) to identify the factors affecting IT professionals' communication capabilities on their interaction with internal and external customers; and (2) to examine how communication capabilities and communication effectiveness affect the level of customer aggression. The result of this study is expected to provide insights to IT professionals and organizations on understanding the role of communication in system providers and system users' relationship.

2. Background

Information system development projects usually involve three groups of parties, namely IT professionals, management and end users. It requires a lot of coordination, communication and group oriented activities in order for the project to be ultimately successful (Ewusi-Mensa, 1997). When the end users of the IT projects are part of the same company as the IT professionals, they are referred to as internal customers of the IT project. In the case where the users are from other companies to whom the IT projects are being outsourced, they are called external customers – thus they are unknown to the IT professionals. In the case of the latter, effective communication is an even bigger challenge during the course of the project.

2.1 Communication Capabilities

In any IT project, communication between the IT professionals and customers directly or indirectly affect the success of the project. Miscommunication occurs when there is misunderstanding on the part of either party. When this miscommunication is not handled appropriately, the result will be customer complaints, or even aggression, in which case the IT service quality will consequently be affected.

Communication capabilities of IT professionals are one of the main factors affecting the success of communication in IT projects ((Debrabander & Thiers, 1984; McLendon & Weinbery, 1996; Igbaria & Greenhaus, 1992). Two communication capabilities were identified based on the theory of communication. Shannon and Weaver's (1949) communication theory considered the technical level (accuracy and efficiency of the message communicated) as well as the semantic level (success of the information conveyed to the message recipient) of the communication process and their effect/influence on the message recipient. Based on the theory, this paper interpreted the technical and semantic level of communication respectively referred to as communication accuracy and communication empathy. Communication accuracy entails the technical aspect of the information transmission, whereas communication empathy accounts for the semantic side of the information transmission (i.e. how the message is conveyed and received).

In this study, communication accuracy and communication empathy can be viewed as the two communication capabilities required by the IT professionals for effective communication.

2.2 Communication Accuracy

Communication accuracy refers to using words with correctness or accuracy, and the ability to accurately express without error. Often in communication, the communicated message is vague and general. Even though the message is received, the message may cover a broad meaning which causes the message recipient to face the challenge of presenting a specific image in his/her mind. The most fundamental condition to effective communication is the ability to perspicuously deliver a message; that is, to enable the recipient to receive a message which is similar to, or that even fully correlates with the message that is sent. If unclear words are spoken, it is difficult to achieve mutual recognition since the recipient may have many other associations or interpretation to the intended meaning of the message (Schneider, 2002). For example, when someone says "the computer is problematic", the word "problematic" can either mean that the computer is too old, or that a certain system in that computer is experiencing problems. The key to clear communication thus lies in expressing words with accuracy and specificity (Cheng, 2000). In this study, communication accuracy refers to the ability to express the transmitted information accurately when IT professionals communicate with customers/users.

2.3 Communication Empathy

Empathy refers to the ability to detect and identify the emotional state of others, and to make the appropriate communication response. Communication empathy plays a very important role in interpersonal communication. While empathy not only strengthens the emotional bond between the two parties involved in the interaction, it also satisfies one's inner psychological needs when one has the sense of being understood (Jones, 2004). Ultimately then, communication empathy is the basis for truly effective communication.

Cheng (2000) pointed out that empathy is the "other" orientation, as opposed to the "me" orientation. When we want to understand the feelings of others, we must change our point of view and be willing to see the matter from the perspective of the other party. Empathetic communication involves communicating whilst being cognizant of the other party's situation and emotions. The communicator will ask for feedback from the recipient to establish the level of understanding of each other and will use phrases that convey his/her empathy for the recipient (Wang, 2009). . For example, in service providers' training, the service providers are taught to know when to say empathetically "oh, that's too bad" to customers. Customers will feel that they are understood, even though the situation has not been solved yet. In this study, communication empathy refers to the capability of IT professionals to communicate with a sense of empathy and understanding to users.

2.4 Communication Effectiveness

The purpose of communication is to transmit information effectively from the sender to the receiver in order to reach a common understanding. According to the communication theory, the effect of the communicated message on the recipient is referred to as the communication effectiveness. Effective communication is essential for organizations to reach organizational goals (Canary & Spitzberg, 1987). However, communication is not a simple unilateral process. It includes the sender, the receiver, the communication media, the communicating message and the feedback – which are all closely interlinked. If any part in the communication process fails, the message cannot be communicated effectively.

Communication effectiveness refers to reaching a common understanding between the communicating parties (Canary & Spitzberg, 1987; Spitzberg & Canary, 1985). In the system development process, different perceptions from system analysts and end users are often found, which lead to ineffective communication if both parties do not communicate with the necessary understanding of the other's perceptions. In this study, communication effectiveness is defined as the IT professionals' ability to communicate with customers in such a way that a common understanding is reached as well as regard for each other is maintained.

2.5 Customer Aggression

When customers feel mistreated and unvalued, dissatisfaction occurs. If the dissatisfaction is not handled appropriately, it results in anger, which is often expressed with aggressive words or behaviors towards the service providers (Lovelock and Wirtz, 2005). Customer aggression is defined as customers using verbal or non-verbal communication filled with anger that violates social norms towards others. Many enterprises and scholars have begun to explore the phenomenon of customer aggression due to its negative effects on both the well being of the service provider as well as the organization (Glomb, 2002). Interaction with customers is part of the job description of IT professionals and, according to studies customer aggression during these interactions can cause

professionals abundant stress (Moore and Burke, 2002). This is in addition to an already high level of stress experienced in the work environment itself.

3. Research Model and Hypotheses

Figure 1 illustrates the proposed research model of this study. In this model, it is anticipated that communication effectiveness mediates the relationship between IT professionals' communication capabilities (communication accuracy and communication empathy) and customer aggression.

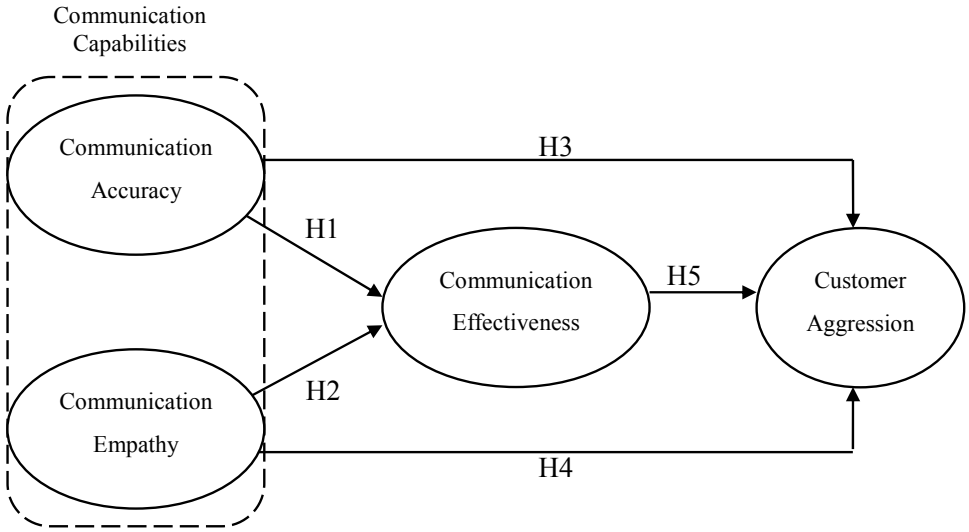

Figure 1 Proposed Research Model

3.1 Communication Capabilities and Communication Effectiveness

According to the communication theory, the technical level of transmitting the message refers to the accuracy and clarity with which the message is sent. Naturally, the language used has a direct impact on communication. If the message sender communicates clearly and accurately, the likelihood of the message receiver misunderstanding the message is reduced. Cheng (2000) indicated that when faulty or imprecise words are used in communication, the message sender would be unable to accurately express the message. Therefore, a clear and specific vocabulary should be used to avoid misunderstanding. For example, words like "some", "most", "almost," and "may," are more abstract to the message recipient and may lead to misunderstandings. Schneider (2002) also pointed out that for effective communication; precision in communication is an absolute ability to the communicator. If the recipient has a precise understanding of the message delivered, this communication can be called effective communication (Tubbs & Moss, 2003). For that reason, the following hypothesis is proposed.

H1: IT Professional's communication accuracy is positively associated with communication effectiveness.

Apart from the technical level (i.e. the 'what' question) of the message being sent, the semantic level of the message refers to 'how' the message is being delivered. Expressing the message with a proper How to express the communicating message in a proper attitude is another indispensable communication capability of IT professionals that will allow them to convey sincere service and assistance to their customers (Tubbs & Moss, 2003). As a general rule, people value being respected and prefer for others to agree with their opinions. Thus, high empathy in communication is very important and makes communication more effective. This leads to the following hypothesis.

H2: IT Professionals' communication empathy is positively associated with communication effectiveness.

3.2 Communication Capabilities and Customer Aggression

When IT professionals possess communication accuracy and communication empathy, the message conveyed should be more clear and understandable, which is expected to lower the occurrence of customer dissatisfaction (Schneider, 2002). Verderber & Verderber (1995) defined "content conflict" as one kind of interpersonal conflict. The main variable in this kind conflict is the correctness of the message communicated. If the correctness of the message is high, the likelihood of such conflicts should be reduced.

In addition to the accuracy and correctness of the message, the actual words or language used in communication also has an effect on the recipient. Some words may be sensitive to certain people, even though the words are originally neutral in meaning. Thus, when the message sender has communication empathy towards the message recipient, those sensitive words that may provoke negative emotions could be avoided. Additionally IT professionals, who have communication empathy towards customers, will tend to have an appropriate attitude and choose the appropriate words to communicate with the customers, instead of unintentionally offending them. This leads us to our next hypotheses.

H3: IT Professionals' communication accuracy is negatively associated with customer aggression.

H4: IT Professionals' communication empathy is negatively associated with customer aggression.

3.3 Communication Effectiveness and Customer Aggression

When the communication effectiveness is high, the communication between two parties is fluent and a higher degree of consensuses is reached. Thus, the possibility of misunderstanding, complaints and aggression is lower. According to Parasuraman et al. (1985), the Service Quality Model is used for measuring the gap between customer expectations and the perceived quality of service. When the customers' perceived service quality is lower than the expected service quality, customer dissatisfaction occurs. Lovelock (1994) proposed that poor communication is one of the main causes for the gap between expectation and perception. When the above mentioned is applied to an IT project environment, we come to the conclusion that misunderstanding and consequent dissatisfaction occurs on the part of the customer when there is a gap between IT professionals' explanation and the message the customer perceives. For example, IT professionals may explain the function of the system in such a manner that will create high expectations on the part of the customer as to the performance of the system. However, this expectation may not be congruent with what can be realistically expected from the system. Therefore, when the IT professional is able to communicate the operation of the system accurately, that is, to let the customers understand what the

system can in reality accomplish, it will eliminate customer dissatisfaction in as much as it eliminated the communication gap between the IT professional and the customers. When the level of dissatisfaction is high, it will likely lead to customers lodging verbal complaints, and might even trigger aggressive behavior. Consequently, we propose the following hypothesis:

H5: IT Professionals' communication effectiveness is negatively associated with customer aggression in an IT project environment.

4. Research Methodology

4.1 Sample

In order to assess IT professionals' communication capabilities and effectiveness, this study adopted survey methodology that aimed to evaluate IT professionals' perception of communication capabilities and effectiveness. The target sample in this study was IT professionals, who directly participate in information systems projects in organizations that design, develop, implement, and support IT for internal or external customers. The job titles of the participants included programmers, computer engineers, system analysts, and project managers. Our target sample is IT professionals residing in Taiwan, a country in which the IT service industry consists of more than 70% of its GDP (Sheehan, 2006). A questionnaire was sent to IT professionals in Taiwan. For this study, 172 questionnaires were returned. All participants were specifically informed in the survey that their answers would only be analyzed for academic research purposes and that individual privacy would be protected. Of the 172 returned questionnaires, 30 were incomplete or invalid. Hence, there were 142 valid respondents. To check for non-response bias, early versus late responder data was compared for each subgroup and no significant differences were found between the summated scales for the two groups. Demographic features of the final sample are shown in Table 1.

4.2 Constructs Measurement

All the items of each construct was developed based on the measurement in previous research and translated into Chinese. Back translation of the survey was conducted by two professionals in MIS to compare with the original English questionnaire. The wording of the Chinese items in this study was then purified. A pre-test was also conducted to refine the wording of the measurement items in the survey.

Table 1 Demographic Characteristics of Respondents

	Classification	Percentage (n=142)
Gender	Male	73.2%
	Female	25.4%
Age	Fewer than 20	0.7%
	21-30	30.3%
	31-40	53.5%
	More than 40	14.8%
Education Level	High (Vocational)School	1.4%
	University	65.5%
	Graduate school and above	32.4%
Work Experience (year)	Less than 1	3.5%
	1-5	24.6%
	5-10	37.3%
	10-15	22.5%
	More than 15	12.0%
Title	Programmer	28.9%
	Computer engineer	14.8%
	System analyst	12.0%
	Project manager	26.1%
	Both system analyst and project manager	0.70%
	Others	18.2%

Survey items are presented in Table 2. All variables in the survey were measured with a seven-point scale, ranging from strongly disagree (1) to strongly agree (7). Communication accuracy and communication empathy were measured with items drawn from Duran & Kelly (1988), Wang (1999) and Huang (2009). Communication effectiveness was measured with items drawn from Canary & Spitzberg (1987) and Huang (2009). Customer aggression was measured with four items drawn from Spector et al. 2007.

Table 2 Factor Loadings of Constructs

Construct	Average	Std. Dev.	Factor Loading
Communication Accuracy			
Acc1 accuracy of words transmit	4.90	1.41	0.86
Acc2 accuracy of the use of vocabulary	5.20	1.26	0.84
Acc3 can express opinions clearly	5.63	0.85	0.78
Communication Empathy			
Emp1 makes customers know they are important	5.89	0.92	0.79
Emp2 can consider what the customers feel	5.91	0.79	0.83
Emp3 use verbal and nonverbal cues to support customers	5.68	0.87	0.80
Emp4 can keep listening to the customers attentively	6.18	0.69	0.80
Communication Effectiveness			
CE1 can achieve the communication goal which I set	5.53	0.92	0.74
CE2 the communication is effective	5.63	0.88	0.78
CE3 can get the point from what the customers trying to express	5.31	1.36	0.71
CE4 the conversation is helpful to the customers	5.94	0.82	0.76
CE5 will not deviate from the main topic	5.44	1.09	0.68
Customer Aggression			
CA1 customer add verbal aggression on me	3.38	1.52	0.95
CA2 customer add writing aggression on me	3.10	1.48	0.96

4.3 Measurement Model

Structured Equation Modeling (SEM) with Partial Least Squares (PLS) analysis using PLS-Graph Version 3.01 was used in this study to empirically assess the measurement model (Hair 2011) and test the hypotheses in two steps.

Firstly, the factor loading of each individual item was checked for individual item reliability. A high loading of all indicators satisfies the requirement, which means that the shared variance between constructs and its measurement is higher than the error variance (Hair 2011). The internal consistency of the constructs in the model can be assessed by the Cronbach's alpha and the composite reliability measures. Table 3 shows that both the Cronbach's alpha and the composite reliability are above 0.7, which is above the accepted level (Hair 2011).

In order to assess the convergent validity, the average variance extracted by the constructs (AVE) should be 0.5 or greater than 0.5, which is illustrated in Table 3. All AVE in this model is

higher than 0.5 to demonstrate high convergent validity.

Table 3 Reliabilities and Variance Extracted

Constructs	**Composite Reliability**	**Cronbach's Alpha**	**AVE**
Communication Accuracy	0.87	0.77	0.68
Communication Empathy	0.88	0.82	0.65
Communication Effectiveness	0.85	0.77	0.54
Customer Aggression	0.95	0.90	0.91

For testing the discriminant validity, the square root of AVE should be larger than the correlation between constructs. Table 4 shows that the square root of all the AVE is greater than all of the inter-construct correlations. Our model thus has good discriminant validity (Fornell & Larcker, 1981). In addition, the indicators should load higher on the construct of its own than on any other latent variable. Table 5 shows that all item loadings of each indicator are higher on their assigned construct than on other constructs, which demonstrates sufficient discriminant validity of the measurement model.

Table 4 Correlation Matrix

	Communication Accuracy	Communication Empathy	Communication Effectiveness	Customer Aggression
Communication Accuracy	**0.82**			
Communication Empathy	0.20	**0.81**		
Communication Effectiveness	0.67	0.38	**0.73**	
Customer Aggression	-0.16	-0.05	-0.31	**0.95**

The bold value in diagonal is the square root of AVE.

Table 5 Cross Factor Loading

	Communication Accuracy (Acc)	Communication Empathy (Emp)	Communication Effectiveness (CE)	Customer Aggression (CA)
Acc1	**.906**	.071	.451	-.121
Acc2	**.883**	.076	.495	-.197
Acc3	**.685**	.276	.630	-.093
Emp1	.158	**.800**	.309	-.097
Emp2	.116	**.837**	.313	-.087
Emp3	.080	**.836**	.225	.042
Emp4	.151	**.761**	.379	-.013
CE1	.465	.345	**.766**	-.096
CE2	.374	.350	**.817**	-.284
CE3	.616	.157	**.650**	-.274
CE4	.366	.422	**.787**	-.187
CE5	.501	.056	**.645**	-.290
CA1	-.166	-.022	-.278	**.954**
CA2	-.155	-.069	-.297	**.954**

Structural Model The path analysis of the research model is shown in Figure 2.

According to Figure 2, communication accuracy (β=0.62, $p<0.01$) and communication empathy (β=0.26, $p<0.01$) have significant positive correlation with communication effectiveness. Hence hypotheses H1 and H2 are both supported. However, communication accuracy and communication empathy show positive but not significant direct effect on customer aggression. Consequently hypotheses H3 and H4 are not supported. Customer aggression is negatively affected by communication effectiveness (β= -0.40, $p<0.01$). As a result hypothesis H5 is supported.

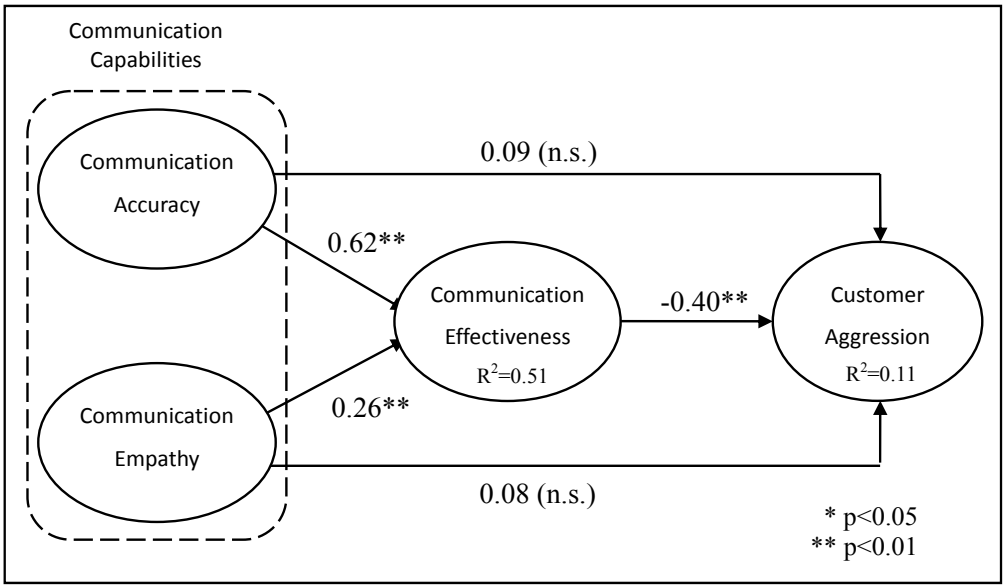

Figure 2 Structural Model

4.4 Comparison between Technical and Managerial IT Professionals

Further analysis was done to examine the relationship between constructs among two different groups of IT professionals, namely technically oriented and managerially oriented IT professionals. Technical IT professionals' (programmers and computer engineers in this study), job descriptions entail mainly technically oriented tasks such as system development and programming. Managerial IT professionals', on the other hand (system analysts and project managers in this study), main tasks are coordinating, managing, assigning tasks and communication.

Table 6 shows the mean and t-test for all constructs for the two groups of IT professionals described above. All constructs illustrate significant differences between the two groups. Communication accuracy, communication empathy and communication effectiveness are all significantly higher in managerial IT professionals than in technical IT professionals. Their level of customer aggression is also significantly lower than the technical IT professionals'.

Table 6 T-Test for Technical and Managerial IT Professionals

Constructs	Mean (Std)		p-value
	Technical IT Professionals (n=55)	Managerial IT Professionals (n=62)	
Communication Accuracy	5.01 (0.67)	5.53 (0.99)	.004**
Communication Empathy	5.70 (0.65)	6.06 (0.66)	.004**
Communication Effectiveness	5.25 (0.71)	5.87 (0.70)	.000**
Customer Aggression	3.70 (1.52)	2.90 (1.32)	.003**

** $p<0.01$

The structural models for both groups of IT professionals are shown in Figure 3 and Figure 4. For technical IT professionals, communication effectiveness (β=-0.42, $p<0.05$) and communication empathy (β=0.26, $p<0.05$) are significantly related to customer aggression. Communication accuracy also shows significant positive correlation with communication effectiveness (β=0.633, $p<0.01$). In contrast in the case of managerial IT professionals, customer aggression is not significantly affected directly by either communication effectiveness or the communication capabilities. Communication effectiveness is positively affected though by the two communication capabilities, communication accuracy (β=0.58, $p<0.01$) and communication empathy (β=0.40, $p<0.01$).

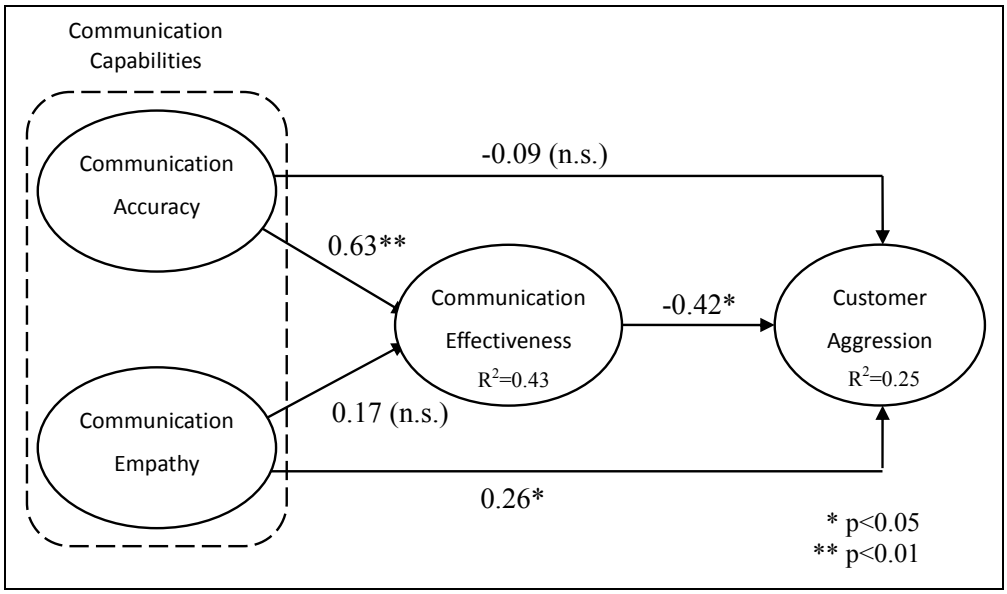

Figure 3 Structural Model for Technical IT Professionals

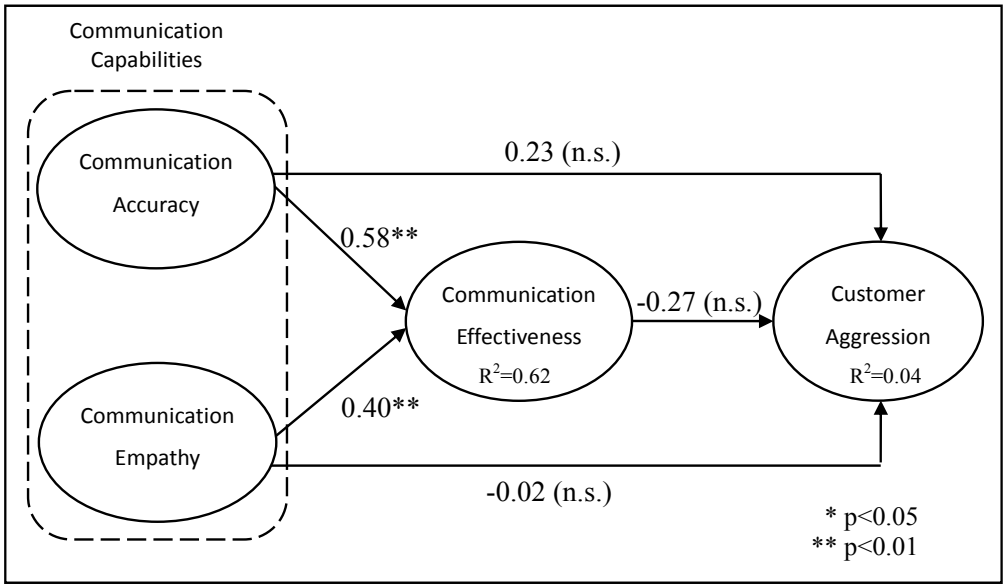

Figure 4 Structural Model for Managerial IT Professionals

5. Discussion

This paper contributes to the study of customer aggression in cross-field research. Customer aggression is well researched in service industries, but has not been studied extensively in the information technology field from the communication perspective. This study investigated the effect of IT professionals' communication capabilities on their communication effectiveness with their customers or users, as well as its impact on customer aggression. Results suggested the important mediating role that communication effectiveness plays in the communication process between IT professionals and customers in order to lower the levels of customer aggression. The mediating role of communication effectiveness on customer aggression is especially significant to the technical IT professionals, which are the programmers and the computer engineers in this study.

5.1 Key Contribution and Implications

This study gives explanation and insight into the cause of customer aggression for IT professionals from the communication perspective. From previous studies, customer aggression has been found to increase emotional stress on service providers as well as decreased job performance (Wang et al., 2011; Grandey et al., 2004). Results showed that communication effectiveness is an important factor in lowering customer aggression. Communication effectiveness is especially essential for technical oriented IT professionals. It is suggested that organizations to provide training in communication especially for technical oriented IT professionals in enhancing the communication effectiveness with system users or customers.

For enhancing communication effectiveness, two communication capabilities, communication accuracy and communication empathy, are found to be significant, especially among managerial IT professionals. For IT professionals, communication accuracy can be improved by using examples and stories in the communication process in order to help customers to understand in order to reduce misunderstandings (Schneider, 2002).

In communication empathy, attentive listening is a major key to increasing understanding of the other person's perception in order to improve communication effectiveness and ultimately also service quality (Zeithaml et al., 1990). Lovelock & Wirtz (2005), in his book "Services Marketing", mentioned that behaviors of effective "service recovery" can restore the customer's heart. A study from TARP (Consumer Complaint Handling) shows that when a serious customer complaint occurs, the customer's repurchase intentions will still rise from 9% to 19% if the enterprise handles them with empathy and listen to them, even if the problem is not ultimately resolved. Therefore, if service providers have the attitude of caring for their customers, even though the issue may not be resolved, empathic conversation could still ease the conflict.

Comparing the two groups of IT professionals, both communication capabilities and communication effectiveness perceived by the managerial IT professionals (i.e. project managers and system analysts) have significant higher scores than the technical IT professionals (i.e. programmers and computer engineers). On the contrary, the level of customer aggression of managerial IT professionals is significantly lower than the technical IT professionals. This suggests that technical IT professionals need to improve their communication capabilities in order to communicate more effectively with their customers and system users to prevent misunderstanding in the communication process. Conversely managerial IT professionals generally have better communication capabilities, which suggests that customer dissatisfaction or aggression is most likely not caused by communication problems. This is also confirmed in the path model of managerial IT professionals. We propose subsequently that future research investigate the cause of customer aggression where managerial IT professionals are concerned.

Information technology service providers not only need to continuously improve their skills in 'communicating' with the computer, but also need to enhance their communication skills with people, in this case, the system users or customers. Most of the academic training in undergraduate studies of IT professionals focuses on technical skills. Only some of the IT programs incorporate communication courses in their academic training. Since technical IT professionals' communication skills are in great need of improvement in order to provide better service to customers, we suggest that more attention is given to communication skills development as part of the IT professionals' training at tertiary level. Organizations are encouraged to provide communication training to technical IT professionals in particular, as the majority of their interaction is with computer systems rather than with people. More opportunity needs to be created for them at tertiary level to develop their interpersonal skills. These soft skills, as suggested in previous studies (Chang et al., 2011; Joshi et al., 2010; Hornik et al., 2003), are essential for the success of developing high value systems and high quality IT projects and ultimately for organizations to be competitive in this dynamic world.

5.2 Limitations and Suggestions for Future Research

The limitations of this study include the following. First, the sample of IT professionals in this study is not random and is only from Taiwan. Future research can look into different countries' IT professionals to examine whether there are cultural differences in the effect of communication capabilities and effectiveness on customer aggression. Further, while a mailing list of some kind of IT professional association can be obtained in other countries, the sample can be random in order to provide a more trustworthy statistical result from the survey. Second, this research only studied the communication aspects and customer aggression from the perspective of IT professionals. Future research can study from the perspective of system users and customers to evaluate IT professionals' communication capabilities and communication effectiveness. Third, this study applied survey methodology to collect cross-sectional data, which limited the ability to imply causality from the research model. Thus, extra cautions should be taken to interpret the research findings. For future

research, other quantitative and qualitative research that enables longitudinal analysis could be conducted to further examine the proposed research model.

6. Conclusion

While research has shown that recruiters desire for a balance of soft skills and technical skills of IT professionals (Havelka and Merhout, 2009, Fang et al., 2005), this study examined the two communication capabilities that enable effective communication when dealing with customer aggression. This study utilized the communication perspective to identify the possible causes of customer aggression in an attempt to decrease the unnecessary negative impact of customer aggression on IT professionals. Accomplishing this will in addition benefit the organization and the entire information technology system as a whole.

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The Influence of Organization Design's Component on labor Productivity: The Moderator Effect of Perceiving Business Uncertainty

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Abstract

The aim of this paper is twofold first, it analyzed the casual relationship between six dimensions of organizational - tasks, process, structure, reward system, people and technology; and employee productivity in tourism industry. The result expresses that most of these dimensions have the positive effect on employee productivity except task, that the influence of it on employee productivity is indirect effect by transforming through the other dimensions. Second, this paper studied the influence of perceiving business uncertainty on that casual relationship. It finds that the high level of perceiving ability can affect the promoting employee productivity by the proper characteristic of designed organizational. According to the result suggest that, companies must gain their perceiving ability by assigning specific section to response data accumulation, data analysis, forecast and communication, and then they design their organization to promote the employee productivity.

Keywords: Organizational design, Labor productivity, Perceiving Business uncertainty

1. Introduction

Tourism industry is the main sector of the Thailand economy in terms of both expenditure and employment. Presently, it has growth rate at 7% of GDP and the employees over 3 million persons (Department of Tourism, 2011). Moreover, a reputation of the most attractive countries in this region is the strength of tourism industry in Thailand. Otherwise, it promotes the high competition in this market due to the increasing of new tourism companies. Furthermore, they compete with price reduction that it impacts to the service quality and the company efficiency. Even though, companies can improve their service efficiency by investing in technology or increasing the compensation, but the large companies only can do this way. As 41.6% of tourism companies are the small business with 1-20 and owned by family, they do not prefer to invest for improve their capability (Department of Tourism, 2011). This situation directly affect to develop employees, hence these companies cannot retain experienced employees and also cannot hire the qualified person. Therefore, they need to adapt their organization to promote the current employees efficiency instead

of investment. According to the previous studies, some papers researched on the productivity in tourism industry (Mark, 2010; Yasamorn, 2008; Suta, 2007) but they did not emphasize on the impact of organization's components on the productivity. However, this subject was studied in other service business, such as call center, public transportation, hospital, etc.(Huang, 2012; Rowe, 2011; Oliver, 2010). By this reason, the main objective of this study is to understand the influence of the organization's components on the productivity. The main variables were adapted from "*star model*" by Galbraith (1977). Moreover, this paper emphasized on the impact of perceiving level of business uncertainty due to the tourists or travelers are quite sensitive with environment change, such as weather, economic etc. So, this study can provide the proper organization structure fit with their situation.

2. Theoretical Perspective

2.1 Productivity

Hameed (2009) summarized the definitions of productivity is a ratio to measure how well an organization converts input resources into goods and services. Moreover, productivity has been concerned with the efficient utilization of inputs in producing prescribed outputs of goods or services (Alan, 1997). The common characteristic is labor productivity which is simply comparing with output, the input being labor hours and the output being services provided (Carol et al., 1995). However, it has been measured in different methods due to the objective of measuring (OIE, 2011; Phelps, et al., 2010; Chen et al., 2003; OECD, 2001). In service sector, it is certainly more problems for service productivity measurement than the manufacturing sector because it is more difficult to define what output and input in the service sector compared to the manufacturing sector. Many researches gave the different meaning of service productivity that it contributed the conflicted definitions and perceptions of productivity (Li and Prescott, 2009). Therefore, service productivity measurement in service is also difficult because it is hard to clarify the inputs and outputs in the same thing, which are highly heterogeneous. As, service sector's productivity concept is broader than that in the manufacturing sector because it mainly involves the customer perspective (Parasuraman, 2002).

2.2 Organization Design

Organizational design was originated by Chandler, 1962 who studied the influence of organization strategy on organization's structure due to the number and type of product lines and this interaction was expanded to study on other factors, like technology, target, management process etc. (Benkovitch, 2010; Galbraith, 1982). Organizational design is defined in various explanations such as the mechanistic-organic (Burns and Stalker, 1961), organization architecture (Nadle and Tushman, 1989), the proposed structure of responsibility and accountability used to develop the strategy and human resource practice (Greenwood, 2010; Friesen, 1986; Miller, 1984), or the developing the organizational capability to compete in the global market and fit in the specific organizational environment (Greenwood, 2010, Teece, et al., 1997). As the proper organizational design needed to match with the complex environment, the elements of design have been studied and delineated by Galbraith (1977) named "*star model*" which show in figure 1. The model is one of the most influential organizational design frameworks available (Mobrman, 2007). The elements designed consist of structure, tasks, people, reward system and process, and they were used by the organizational design theorists to construct the organization structure for growth and agility of firm (Jasinski, 2010). Moreover, the other dimensions, which are influence the design of organization, are

discussed as *Technology*, which is confirmed to be main factor of the promotion of changing in organization (Child, 2001).

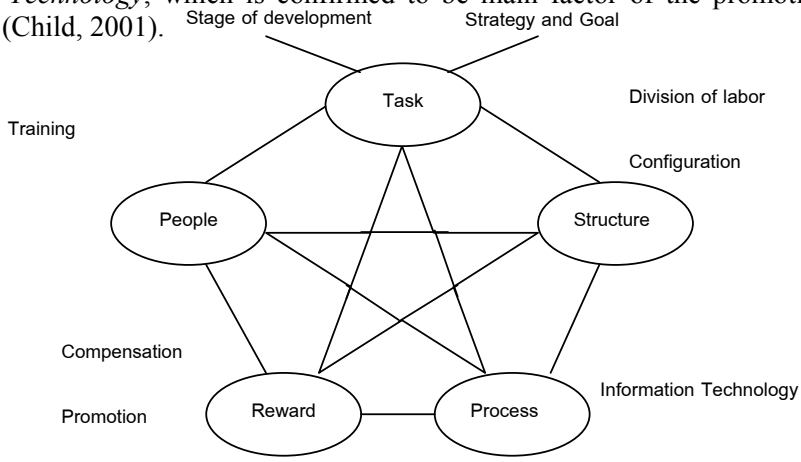


Figure 1 Galbraith's Star Model (Galbraith, 1977)

2.3 Environment Uncertainty

The environment uncertainty, which has been defined as the organizational situation influenced by the environment (Garlbraith, 1982), it is also defined as the perceiving of participants on condition of environment (Nobre et al., 2010). Other perspective on the environment uncertainty defined as the insufficient of cognitive ability and the situation of lacking information and communication of organization to predict the expected outcomes (Nobre et al., 2010). Moreover, environmental uncertainty is included in market failure that organization should manage tasks with decentralized, non formalized and specialized structure (Ruekert, 1985).

2.4 Research Design

For this study, this research is a deductive research designed by using a mixed methods approach (Tashakkori and Teddlie, 2003, Creswell J.W., 2003) to be a procedure to collect and analyze data. As the main objective of this study is to identify the influence of organizational design's components on labor productivity and the moderator effect of perceived uncertainty, then the quantitative approach is selected to be the main method. On the other hand, the minor objective is to understand the characteristic of labor productivity organization and the labor productivity improvement in tourism industry, thus the qualitative approach is justified to explore this phenomenon.

2.5 Population and Sampling Selection

The population of this study was selected from the tour operator companies, tour guide companies, travelling agencies, resorts and hotels, including the related tourism industry such as spa and beauty business (Tourism Authority of Thailand, 1992; Tourism Authority of Thailand, 1979).

This study determined the sample size by using the principal of Lindeman, Merenda, & Gold, 1980 that they recommended the ratio between sample size and number of the observed factors is 20:1 (Bollen, 1989). By this way, this research need sample size totally 340 samples due to the 17 observe variables.

2.6 Research Instrument

The content of interview protocol was grounded together with questionnaire of quantitative instrument from literature review (Yasamorn, 2011).

A questionnaire was designed from previous literatures base on the objectives of this study. It was subjectively rated on 7 points Likert scale, which are composed of 1=Least level, and 7=Most level. However, this questionnaire was distributed to respondents for pre-testing around 48 respondents to test their understanding in each question and assess the reliability of multiple measurements. Table 1 present the Cronbatch's Alpha of each component, which are measured from multi-measurement items that all the Cronbatch's Alpha are greater than 0.70 (Nunnally and Berstein, 1994). Therefore, the questions of each component are not ambiguous and they are quite consistent among the measurement.

Table 1 The Result of Reliability Test

Variables	Cronbach's Alpha
Task1 (T1)	0.865
Task2 (T2)	0.869
Structure1 (S1)	0.805
Structure2 (S2)	0.892
Structure3 (S3)	0.881
Reward system1 (R1)	0.899
Reward system2 (R2)	0.860
People1 (P1)	0.835
People2 (P2)	0.877
Process1 (PR1)	0.822
Process2 (PR2)	0.892
Technology1(TE1)	0.856
Technology2 (TE2)	0.994
Uncertainty1 (U1)	0.891
Uncertainty2 (U2)	0.902
Employee productivity1 (LP1)	0.938
Employee productivity2 (LP2)	0.874

2.7 Data Collection

Questionnaires were actually submitted about 650 respondents the completed questionnaires were returned totally 385 companies and 373 questionnaires were usable. The response rate was 57.34% that it was considered acceptable.

3. Data Analysis

3.1 Confirmatory Factor Analysis (CFA)

The correlation matrix analysis was used to identify the significant correlation among the measurement variables of each construct variables and confirm the data before being used in confirmatory factor analysis by statistic of Barlett's test of sphericity (p-value <0.05) and Kaiser-Meyer-Olkin measures of sampling adequacy: KMO (KMO value is closed to 1).

In this study, it was conducted the confirmation factor analysis to test the congruence among the empirical study and components of organizational design; which are the five elements of star model and one additional element. According to the criteria of good-of-fit test and the maximum likelihood (ML) (Kline, 2005), the ratio of Chi-square statistic and degree of freedom is less than 3 and its probability value (p-value) is more than 0.05 (χ^2=12.63, df = 13, p = 0.48, χ^2/df = 0.97) and the good of fit index and adjusted goodness of fit index are closed to 1 (GFI = 0.99, AGFI = 0.98), standardized root mean squared residual and root mean square error of approximation is nearly and equal zero (RMR = 0.025, RMSEA=0.00). In addition, statistic values of all measurement variables in the conceptual model are significant at p<0.05 and the factor loading of them are positive.

In summary, these fit indices statistic confirmed the modified measurement model of organizational design is congruence with empirical study or the "star model".

3.2 Structural Equation Model

Structural Equation Model is a statistical modeling technique used to construct the theoretical model. This analysis expresses the structural relationship as direct and indirect effect in order to estimate the fit of model. In this study, the LISREL 8.80 program will be used for analysis (Chidcham, 2004). In Structural Equation Model, path analysis has been to describe the influence among exogenous variable and endogenous variables in structural model and the congruence among observe variables, endogenous variables, exogenous variable (Jokipii, 2010, Bollen, 1989). The maximum likelihood (ML) model was used for the estimation of the structural equation model.

3.3 Moderator Effect

This study considered the Perceiving Uncertainty variable as a moderator and it was categorized into 2 groups; high and low degree of the ability of perceiving uncertainty, because this paper aimed to study the effect of these two groups on the relationship among organizational design's component and employee productivity. Furthermore, these 2 group were categorized by using the mean of weighting score at 4.4, which is considered as high level of consideration (Sanzo and Vázquez, 2011). Due to the data collection, Group 1 includes 136 firms that perceive a low degree of perceiving uncertainty (below 4.4), and Group 2 includes 237 firms that perceive a high degree of perceiving uncertainty (over 4.4).

Multigroup analysis was proposed to test the modified model fit of labor productivity in high and low degree of perceiving uncertainty. After the main structural model of labor productivity was tested the fit of model with SEM, it was used to test two sets of hypotheses in this analysis; first, the causal variables influence the labor productivity in the same way for both high and low perceiving level of uncertainty (H_0: $S_1 = S_2$) and second, the effect among the variables in both high and low perceiving level groups is not different (H_0: $\beta_1 = \beta_2$ and H_0: $\Gamma_1 = \Gamma_2$).

4. Result

4.1 Demography

Table 2 Demographic Characteristics of Survey Respondents, the major respondents were female and graduated bachelor degree. Furthermore, respondents' age is mainly below 39 years old. In case of respondents' companies, most of them have been operated more than 20 years and constructed their organization pattern in functional form.
The consideration levels of respondents in all items from questionnaire are *nearly more level* (average is between 4.44 to 5.29.). It revealed that their answers are strongly indicated the characteristics of their organization,

Table 2 Demographic Characteristics of Survey Respondents (*N=373*)

Category	Number of Respondents	% of Respondents
Gender		
Male	141	37.8
Female	232	62.2
Age		
<30	147	39.4
30-39	125	33.5
40-49	59	15.8
50-59	37	9.9
>=60	5	1.3
Education		
Below Bachelor	7	1.9
Bachelor	269	72.1
Master & Higher	97	26.0
Age of Company		
<3	25	6.7
3-8	67	18.0
9-14	59	15.8
15-20	65	17.4
>20	157	42.1
Organizational Form		
CENTERIZATION	50	13.4
FUNCTIONAL	206	55.2
MATRIX	46	12.3
NETWORK	71	19.0

4.2 Structural Equation Model

The objective of the structural equation model analysis was to study the causal relationship among the influential variables that they were reviewed from the previous studies and confirmed their relationship with correlation analysis.

The modified causal relationship model of labor productivity in tourism industry was very good fit with the data and the empirical studies. The reason was considered from Chi-square (χ^2 =

23.20, df = 39, χ^2/df = 0.59, p = 0.98). In addition, the overall model fit indexes are good and acceptable; goodness of fit index (GFI = 0.99) and adjusted goodness of fit index (AGFI = 0.97) are close to 1, root mean square residual (RMR = 0.02) and root mean square error of approximation (RMSEA = 0.00) are close to 0, largest standardized residual (1.76) is less than 2. The structural model is showed in figure 2.

4.3 Validity and Reliability Testing

Table 3 show the reliability of latent variable It was found that the factor loading of the matrix GA in structural equation model, the exogenous variable (T) positively indicated the mediating variables (S, R, P, PR, TE) significantly base on the positive factor loading and t-value is more than 1.96, otherwise it negatively indicated exogenous variable (LP) significantly base on the negative factor loading and t-value is more than 1.96. In addition, the mediating variables (S, R, P, PR, TE) positive indicated the endogenous significantly base on the factor loading and t-value is more than 1.96.

Table 4 show the validity testing of dependent and mediating variables in this structural model. The result concluded that TASK (T), which is independent variable, can explained variance of mediating variables, which are STRUCTURE, REWARD, PEOPLE, PROCESS and TECHNOLOGY about 67%, 60%, 45%, 76% and 38% of their variance respectively. Moreover, TASKS and mediating variable (STRUCTURE, REWARD, PEOPLE, PROCESS and TECHNOLOGY) can explain dependent variable, which is LABOR PRODUCTIVITY about 26% of its variance. However, the independent variable and mediating variable have significant positive correlation and with labor productivity from 0.51 to 0.90 at 0.05 significant level.

Table 3 Estimated Parameter and Statistic Testing for Reliability Testing of Causal Relationship Model of Employee Productivity

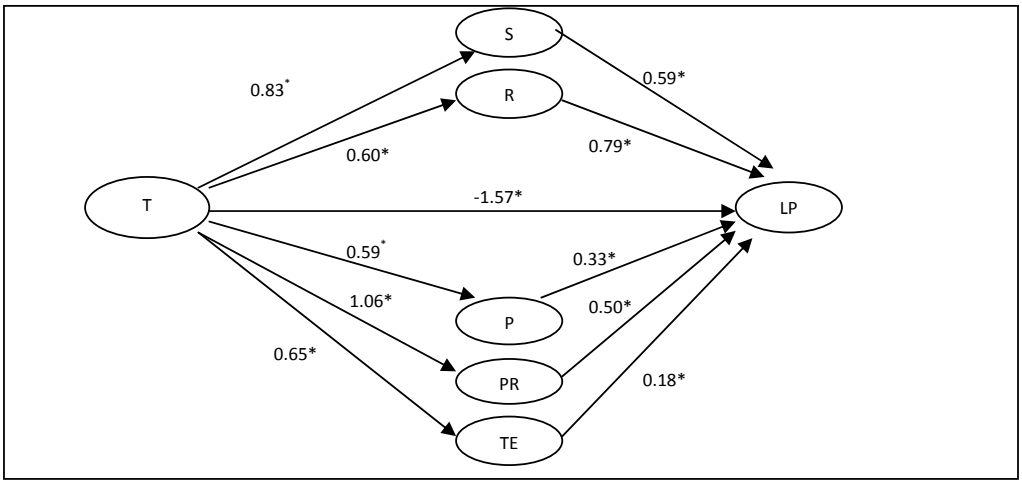
Variables	Factor Loading		SE	t
	b	Std. Solution		
Structural Equation Model				
Matrix GA				
T -→ S	0.83	0.82	0.06	11.02
T -→ R	0.60	0.78	0.06	10.66
T -→ P	0.59	0.67	0.05	11.41
T -→ PR	1.06	0.87	0.09	11.90
T -→ TE	0.65	0.55	0.06	11.49
T -→ LP	-1.57	-3.29	0.38	-4.16
Matrix BE				
S -→ LP	1.19	1.27	0.15	4.05
R -→ LP	0.79	1.28	0.21	3.78
P -→ LP	0.33	0.61	0.09	3.53
PR -→ LP	0.50	1.28	0.16	3.14
TE -→ LP	0.18	0.44	0.04	4.36

Table 4 The Validity of the Latent Variables

SEM of Variables	LP	S	R	P	PR	TE
(R^2)	0.26	0.67	0.60	0.45	0.76	0.38

4.4 Influence Testing

Table 5 presents summary of direct and indirect effect of exogenous on endogenous and Table 6 presents summary of direct and indirect effect of endogenous on exogenous, it concluded that Reward, Process, Structure, People and Technology are the cause of labor productivity increment in organization because these variables have the positive effect on labor productivity. On the other hand, Task variable has significant negative direct effect on labor productivity but it has positive indirect by their passing its' influence through the mediating variables. For the standard effect testing of Tasks variable on mediating variables consisted of Reward, Process, Structure, People and Technology. It concluded that Tasks variable have positive effect on these mediating variables at significant level t-value> 1.96 (p>0.05).



* significant level at 0.05 (p<0.05)

Figure 2 The Causal Structural Model of Labor Productivity

Table 5 Summary of Direct and Indirect Effect of Exogenous Variable on Endogenous Variable (Gamma)

Effect	Structure			Rewards			People		
Cause	TE	IE	DE	TE	IE	DE	TE	IE	DE
Tasks	0.83	-	0.83	0.60	-	0.60	0.59	-	0.59
	(0.06)	-	(0.06)	(0.06)	-	(0.06	(0.05)	-	(0.05
	0.82	-	0.82	0.78	-	0.78	0.67	-	0.67
Effect	Process			Technology			Employee productivity		
Cause	TE	IE	DE	TE	IE	DE	TE	IE	DE
Tasks	1.06	-	1.06	0.65	-	0.65	0.24	1.81	-1.57
	(0.09)	-	(0.09)	(0.06)	-	(0.06)	(0.05)	(0.41)	(0.38
	0.87	-	0.87	0.55	-	0.55	0.51	3.80	-3.29

Table 6 Summary of Direct and Indirect Effect of Exogenous Variable on Endogenous Variable (Gamma)

Effect	Employee productivity		
Cause	TE	IE	DE
Structure	0.59	-	0.59
	(0.15)	-	(0.15)
	1.27	-	1.27
Rewards	0.79	-	0.79
	(0.21)	-	(0.21)
	1.28	-	1.28
People	0.33	-	0.33
	(0.09)	-	(0.09)
	0.61	-	0.61
Process	0.50	-	0.50
	(0.16)	-	(0.16)
	1.28	-	1.28
Technolo	0.18	-	0.18
	(0.04)	-	(0.04)
	0.44	-	0.44

4.5 Moderator effect

The Perceiving Uncertainty variable consider as a moderator to test the effect of perceiving uncertainty at the high and low degree. As the perceiving level was defined as the ability of gathering the information from the right source, analyzing the data and managing the information to predict the uncertainty situation, so this variable can indicate the ability of company to managing the information. According to the result, the main modified structure model did not fit in both groups but it fit with the high perceiving level of uncertainty due to the goodness of fit index (χ^2/df=0.7475, p=0.71, GFI=0.99, AGFI=0.95, RMR=O.017, RMSEA=0.00 and Largest Standard Residual=1.95). It was interpreted that the proper designed components influence on labor productivity when employees highly able to gather and analyze the information from the right source and communicate the information for dealing the uncertainty situation.

5. Discussion

According to the conclusion of structural equation model analysis, it shown that the modified causal relationship model of labor productivity in tourism business was very good fit with the data and the empirical studies. The result confirmed that labor productivity is directly affected by the proper design of Structure, Reward system, Process, People and Technology, which are influenced by Task. These results are congruence with the previous studies (Benkovitch, 2010; Greenwood, 2010; Galbraith, 1982; Galbraith, 1977). However, the suitable design of each component has been described as below;

***Task*s** of the organization should be clear, specific and applicable missions for directing the strategic planning and operation management of every function in organization. However, the designed tasks have the indirect effect on labor productivity by transforming through working process, organizational structure, reward system, people and technology, which are designed to support tasks. Therefore, the obvious tasks will specify the characteristics of these components that

they can increase the labor efficiency to gain the revenue and customer's satisfaction (Oliver, 2010, Haung, 2007, Yasamorn (2011)

Structure of organization must be designed for the clear responsibility assignment in servicing tourist and the operating business with empowerment delegation. In addition, the assignment should be communicated officially to everyone in organization. These designed characteristics will motivate employees to produced more value added service in term of service quality and service experience (Child, 2001, Haung, 2007 and Strikwerda, 2009). Moreover, tourism companies always deal with customers who have various requirements, so their employees must be delegated the authority to make some decisions and response customer immediately. Therefore, the structure with decentralization form can increase the labor productivity. In addition, the tourism companies should have a few levels in each department to improve the effective communication and relationship among employees (Rowe, 2011). Moreover, the organizational structure should be designed in the cross-functional and network form to contribute the collaboration among employees including cooperating with external organization. This form will increase the employees' efficiency by sharing the knowledge and information (Nobre, 2010, Ji Hoon Song, 2009). According to qualitative data, interviewees described the characteristics of productive organizational structure in the same dimensions that it should have a few departments, flat organization, networking among external and internal organization.

Rewards system should be designed the clear approach of determined the assessment criteria and the standard form of rewarding. The result expressed that employees who know exactly the fair performance evaluation criteria and proper rewarding form, they will work full their capacity to achieve the expected rewards. (Huang, 2012, Inthajak, 2011). Furthermore, the obvious procedure and communication would motivate employee to work more efficiency (Rowe, 2011, Montoya-Weiss *et al.,* 2001, Child, 2001). According to qualitative result, interviewees said that tourism companies consider the type of rewards or salary increment from the company's performance such as revenue, reduction cost, etc. and employees' capabilities, such as knowledge and experience.

Process of working and coordinating should be designed with the national and international standard procedure and their steps are flexible for implementing. These characteristics can support the employees' confident in providing service without reluctant including cooperating with external organization. (Daugherty, 2011, Rowe, 2011). Refer to qualitative result, interviewees emphasized on constructing the working procedure or cooperating procedure as a standard procedure. In addition, the working instruction must be documented and communicated in formal papers.

People has been scoped on the qualification of person, who prefer to join tourism industry, and the qualification of employee, who has worked for a period of time. These qualifications have been designed for recruiting the right person and developing professional employees. As employees are the key success factor of tourism business because the quality of services depended on how they serve customers, tourism business quite needs experienced and knowledgeable person that they can contribute more value for business and customer. (Rowe, 2011, Suta, 2007,) For the expected qualification, Tourism business needs their employees to be professional and specialist because these kinds of employees can contribute the customer more satisfaction (Mark, 2010).

Technology has been designed to support employees in contacting customer or external companies and it help organization to gather more information. Therefore, the proper technology can service more customers at the same time or it also can gain the employees' capability. However, the required technology should be standardized with the related companies in tourism industry and respond the need of companies. (Rowe, 2011, Chang-Tseh, 2011, Majumdar, 2009,) Moreover,

Interviewees highlighted that the online technology, such as E-mail, Facebook, Instagram, Weblogs Discussion boards, can increase the communication efficiency.

6. Perceiving Level of Uncertainty

The result revealed that the proper designed organization could not increase the employee efficiency to gain more output, if they do not able to gather the right information from right source and do not able to analyze the data to forecast the trend of customers' demands. Also, they do not able to communicate the information to encourage employees preparing the right strategy in further. Otherwise, companies should able to perceive business uncertainty at the high level before designing the organization (Yasamorn, 2011, Inthajak, 2011, By, 2008) The interviewees emphasized the importance of gathering and analyzing information of tourism companies providing the service to meet customer expectation.

7. Implication

The organizational design process of improving employee productivity starts from indicating the target or direction of company. Then, tasks are designed to support the indicated target that it must be clear and realistic. Next, Structure are designed in three parts; Decentralization, Collaboration and Responsibility delegation. After that Process, which are focused on standard procedure, are designed in flexible, easy and convenience to practice. Later, People is designed, it identifies the basic qualification for hiring plan and the expected qualification for training plan. Rewards will be designed after companies have designed the responsibilities and the confirmed process on descriptions and workloads, so reward system can construct the proper criteria and identify what company would like to compensate employees. Lastly, Technology is designed when they exactly confirm the need because technology usually is the cost of company. This design process can be applied in tourism industry or other business, which it needs to promote their productivity.

However, company should be diagnosed their ability on information management, such as data analysis, data collection, etc. If employees lack of this skill, company should provide the training and develop them before reorganization. Moreover, company should construct one section to response the information management that it is usually called "strategic planning". It will provide the further analysis to forecast the marketing trend including other politic, weather, global situation. The information must be updated more frequency and continuously.

8. Limitation

According to the scope of this study, it was determined to study the employee productivity by value added outputs. Therefore, it emphasized on the additional values perceived by customer after consuming such as customer satisfaction and customer experience. Hence, any tourism companies contribute the same value added to meet customer expectation. As most of samples in this study are tour operator, which usually categorized into inbound and outbound, they did not need to be studied separately. Moreover, the number of each type is not enough to be studied individually. Eventually, this study combined these two categories into tourism industry. However, they may be different in their management and revenue due to the target customers and destination that they can affect their employee productivity measured directly by gross output.

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The Relationship between E-Marketing Adoption Benefits and SME Performance in South Africa

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Abstract

The letter *"e"* has radically changed everything everywhere. Terms such as e-commerce and e-business have evolved over the past few decades, triggering a revolutionary impact on almost all facets of life. In line with this development, the Internet has emerged as a dominant channel for the marketing of information-based goods and services. The exponential adoption of e-marketing goes a long way in enabling various organisations to improve their market penetration, which ultimately augment business turnover. This paper discusses the benefits of e-marketing adoption among Small to Medium Enterprises (SMEs) in South Africa. Using a quantitative approach, a questionnaire was administered to a sample of 250 SME owners and managers. The reliability of the measuring instrument was tested using Cronbach's coefficient alpha, yielding a value of 0.738 which was indicative of high internal consistency among the scale items. Data were initially analysed using descriptive statistics before the Principal Component factor analysis with Varimax rotation was applied. Four underlying dimensions were extracted; namely *Relationship building, Intelligence gathering, Promotion and Cost-reduction*. Non- parametric correlations were used to test the existence of any causal relationship among the e-marketing benefit dimensions and business performance. A significant positive relationship between the four e-marketing benefit dimensions and SME performance was observed. Among these relationship building offered the most realisable e-marketing adoption paybacks to SMEs performance. These findings suggest that there is a need for SMEs to develop and effectively implement deliberate strategies to improve and sustain the benefits of e-marketing along the aforementioned dimensions and beyond. The significance of the findings lies in that it provides SMEs and associated stakeholders with current information on the the realisable benefits of e-marketing strategies which meaningfully enhance the performance of SMEs.

Keywords: E-marketing, small and medium enterprises, adoption, benefits, performance, South Africa

1. Introduction

There is no doubt that the operational landscape under which business is conducted has undergone a fundamental metamorphosis over the past few decades. One instrument which has stimulated this phenomenal transition is the Internet. Through this trailblazing marketing podium,

small to medium enterprises (SMEs) have been provided with an exceptional opportunity to catapult their enterprises beyond the restrictions of conventional distribution channels. Increased levels of interactivity, community and personalisation potential have shifted market power from suppliers to consumers, thereby enabling marketers to deliver customer-centric marketing programs. As such, a global virtual community that has levelled the competitive playing field between SMEs and larger enterprises has been effectively created (Kiang & Chi, 2001).

By definition, the Internet may be perceived as a global information system which interlinks computers or networks and offers support to diverse forms of communication media, such as e-mail, e-commerce, the World Wide Web (WWW), online video conference and voice conference (FNC, 1995). Use of the Internet is associated with an avalanche of attractive benefits. For instance, the emergence of the Internet has presented businesses with an opportunity to improve performance and enhance revenue generation (Tseng & Johnsen, 2011). In addition, adoption of the Internet accelerates the availability, speed and frequency of communication (Scharl, Dickinger & Murphy, 2005). Since the Internet is applicable to a wide spectrum of groups, situations and contexts; its use enables organisations to spread their marketing tentacles and increase their customer base, which leads to dominance in today's dynamic markets (Lee & Cheung, 2004). These aspects are critical for the development of small and medium enterprises (SMEs).

E-marketing pertains to the use of electronic data and applications for planning and executing the conception, distribution, promotion and pricing of ideas, goods and services in order to create mutually beneficial exchanges that satisfy individual and organisational objectives (Gohary, 2007). It is instrumental in enabling SMEs to diversify geographically as well as to exploit the opportunities presented by information exchanges that occur across the entire globe (Bevan-Dye, 2005). The relatively flexible pricing coupled with low entry and establishment costs associated with the Internet present marketers with a solid impetus to consider adopting e-marketing (Drew, 2003). Since the sites are accessible around the clock, convenience may be offered regardless of geographic location (Simpson & Docherty, 2004). Melewar and Smith (2003) also underscore that e-marketing enables SMEs to identify and evaluate international competitors as well as to network with other organisations in foreign markets. This has highly viable communication and cost implications to the organisation. Other possible areas of benefit to SMEs include promotion of products through advertisements (Chaffey & Smith, 2005), monitoring of the performance of promotional campaigns (Dart, 2002), product and services differentiation (Standing & Stockdale, 2003), tracking of orders (Chong, Shafaghi & Tan, 2011) and increasing supply chain efficiency (Chang & Cheung, 2001). SMEs could therefore tap into these areas and revel in unprecedented business performance and growth.

2. Significance of the SME Sector

SMEs have for so long been considered the "lifeblood of contemporary economies" owing to their in-grown entrepreneurial capacity (Rao, Metts & Monge, 2003). SMEs are also renowned for their exceptional job creation propensities (Soontiens, 2002) which enable them to contribute significantly to the global GDP (Jutla, Bodorick & Dhaliwal, 2002). The dichotomy between the SME sector and large enterprises lies in that SMEs have a more robust competitive spirit, produce a diversified brand of products and services, have by their nature, a high systemic flexibility and employ practicable leadership as well as managerial styles which facilitate timely decision making (Kendall *et al.,* 2001). Therefore, e-marketing adoption has the latent potential to propel SMEs into strategic positions in the mainstream economies of any country.

3. Purpose of the Study

The relationship between e-marketing adoption benefits and organisational performance has not escaped empirical scrutiny in past studies. For instance, Morikawo (2006) found that e-marketing adoption benefits are positively associated with overall organisational performance. Varadarajan and Yadav (2009) also found that there is a positive correlation between e-marketing adoption benefits and business performance and that these two factors are positively related to profitability. Other research findings (e.g. Tseng & Johnsen, 2011; Klerk & Kroon, 2005; Kiang & Chi, 2001) also reveal that e-marketing adoption is a strong predictor of both organisational productivity and SME success.

This paper discusses the relationship between the benefits of e-marketing adoption and SME performance among organisations in South Africa. The study was conducted within the contextual domain of the Southern Gauteng area in South Africa. Despite the fact that the benefits of Internet adoption at a general level are well established in research (Loane, 2005), there is an apparent dearth of research on the association between the benefits of e-marketing adoption by SMEs in developing countries and organisational performance (Chong *et al.,* 2011). To this extent, most of the available research on this subject has been conducted under the auspices of western contexts. This paper is intended to eliminate this void. Furthermore, the paper will complement previous research on analogous issues in South Africa and elsewhere.

Originality/Value: Clearly envisioned e-marketing benefits may translate as a good predictor of South African SMEs level of acceptance and adoption of e-marketing as justified by the positive and statistically significant results of this study.

4. Methodology

An all-inclusive literature review was conducted on the benefits of e-marketing to SMEs, followed by the use of a quantitative approach to collect primary data.

A questionnaire was developed and administered to a sample of 250 Managers and SME proprietors in the Southern Gauteng, South Africa**.** The questionnaire was divided into three sections. Section A of the questionnaire sought respondents' demographic information. Section B elicited information on the profile of the businesses under survey and Section C requested information on respondents' views on the benefits of E-Marketing to SMEs. The questionnaire was based on the validated and adapted Internet Marketing Benefits' instruments used in studies conducted by Beheshti and Sangari (2007); Gohary (2007); Chaston and Mangles (2003) and Kiang and Chi (2001). A 7-point Likert scale which ranged from 1 (strongly disagree) to 7 (strongly agree) was used in Section C. An accompanying letter was attached to the questionnaire to highlight the purpose of the study. In order to ascertain content validity, the questionnaire was reviewed by two experienced researchers in Marketing and Information Technology. Pretesting was conducted with a conveniently selected sample of ten academics in order to identify and eliminate problems with regard to sequencing and wording of the questions.

Based on feedback from the pre-test sample, minor revisions were made to the questionnaire. During the administration of the questionnaire, ethical considerations such as the participants' right to anonymity, confidentiality, privacy or non-participation, informed consent and protection from discomfort, harm and victimisation were adhered to.

5. Reliability

An item analysis consisting of two parts was initially undertaken with a view to establishing the internal consistency among the various items. Firstly, cronbach's alpha coefficients were calculated to assess the reliability of the various scales and the secondly a factor analysis procedure was conducted. According to Nunally (1978), cronbach's alpha coefficients of less than 0.50 are deemed unacceptable; those between 0.50 and 0.69 are considered as being adequate whereas those above 0.70 are regarded as being acceptable. The scale reliability values ranged between 0.685 (intelligence gathering); 0.726 (relationship building); 0.736 (promotion) and 0.795 (cost-reduction). The researcher was compelled to include the intelligence gathering sub-scale owing to high cohesiveness among the scale items under that particular dimension. Furthermore, Kiang and Chi (2001) suggest that coefficient alpha values of 0.5 to 0.6 are sufficient to conclude that the extracted dimension is reliable. Moreover, the standardized cronbach's alpha value for the entire scale was established at 0.789 indicating that the scale performed adequately in capturing the elements included under e-marketing adoption benefits. These alpha values therefore suggest that the internal reliability of the scores derived from the measuring instrument can be regarded as ranging between adequate and good.

6. Validity

Construct validity was assessed through the factor analysis procedure in which the cross loading of variables was examined and only factors with loadings greater than 0.70 were retained in accordance with the recommendations of Malhotra (2007). Four factors reflecting distinct dimensions of e-marketing adoption benefits with a high level of communalities showing cohesiveness of each factor were subsequently extracted. Convergent validity was assessed through the computation of correlations among the four e-marketing adoption benefits' sub-scales and business performance. The results (reported in Table 3) indicate positive relationships between the four e-marketing adoption sub-scales and business performance, thus providing evidence of convergence. In order to ascertain content validity, the questionnaire was pretested with a convenient sample of 10 academics. The pretesting exercise acted as an indispensable aid towards enhancing the fitness of the research instrument for the current study (Sudman & Blair 1998). This enabled the researchers to identify and eliminate problems with regard to the sequencing and wording of various questions. Feedback from the convenient sample and the experts enabled the researchers to make minor changes to the final questionnaire.

7. Results

7.1 Profile of SME Businesses

An analysis of the profile of SMEs used in the study (Table 1) reveals that approximately 69% (n=172) of the businesses were classified as small enterprises and 31 % (n=78) were classified as medium enterprises. This classification was based on the number of employees and the annual turnover of each business respectively; with small businesses having a staff complement of less than 50 full-time employees and operating on less than R8 Million annual turnover. Medium businesses constitute between 51 and 200 employees and record a turnover of above R8 Million annually.

Table 1 Profile of Participating SMEs

Number of Managers	Turnover per annum (ZAR)	Number of Employees	n	%
Small	□8million	0-50	172	69
Medium	>8milion	51 - 200	78	31
TOTAL			250	100

7.2 Exploratory Factor Analysis: E-Marketing Adoption Benefits

A Bartlett's test of Sphericity and the Keiser-Meyer-Olkin (KMO) measure of sampling adequacy were conducted to determine whether the data were suitable for a factor analysis. The approximate chi-square for the data set was 796.752 with 91 degrees of freedom: Sig= 0.000 and a KMO value of 0.679, which indicated that the sample data was adequate enough to conduct factor analysis.

All 28 items on the questionnaire were subjected to Principal Component Analysis (CPA) which facilitated the extraction of factors that had eigen values greater than one (Malhotra, 2004). Varimax rotation was applied in order to minimize the number of variables that had high loadings on any factor. The purpose of this procedure was to improve the extent to which the factors could be interpreted since the figures produced were very complex (Malhotra & Birks, 2003).

As recommended by Aldlaigan and Buttle (2002), item reductions as well as scale reduction were conducted. This involved subjecting all items that that had low factor loadings, communalities and low item-to total correlations to successive examinations until an acceptable factor structure was attained. The results of this process are illustrated in Table 2.

Table 2 Factor Descriptors and Psychometric Properties

Psychometric property	FACTOR 1 Relationship building	FACTOR 2 Intelligence gathering	FACTOR 3 Promotion	FACTOR 4 Cost-reduction
Cronbach Alpha	0.726	0.685	0.736	0.795
Eigen values	3.198	2.214	1.645	1.165
Percentage of variance	16.9	15.6	15.4	13.8
Cumulative percentage of variance	16.9	32.5	47.9	61.7
Mean factor scores ($\bar{x}$)	**5.979**	**5.924**	**5.051**	**5.650**

8. Discussion

Relationship building consisted four items and accounted for 16.9% of the variance. This factor incorporates the extent to which sustainable interactions are established between a business and its stakeholders. *Relationship building* ranked highest on the mean score rankings ($\bar{x}$ = 5.979) which demonstrates that it is the most realisable benefit among Southern African SMEs. This result is congruent with the findings of previous studies (Kalaignanam, Kushwaha & Varadarajan, 2008; Ching and Ellis, 2006) who found that e-marketing endows businesses with an unremitting free-flow of information. This naturally enables businesses to effectively communicate with its publics in real-time. Consistently, Sharma (2002) opines that self-service and elimination of intermediary costs will serve to build business-customer relationships. Moreover, repeated online engagement between

exchange partners will improve customer loyalty (Sophonthummapharn, 2008); customers repurchase intentions (Chang and Cheung, 2001) and customer satisfaction (Varadarajan and Yadav, 2009). This inevitably leads to synergistic relationships that are based on commitment and trust (Tseng and Johnsen, 2011; Patten, 2002).

Intelligence gathering comprised five items and accounted for 15.6% of the variance. This factor ranked second on the mean scores ($\bar{x}$ = 5.924). This implies that e-marketing can be widely applied to collect information as well as to scan the SME operational environment (Palmer, Ellinger, Allaway and D'Souza, 2012); Dholakia and Kshetri, 2004). SMEs are able to deliver vital information through e-mail, mailing lists, newsgroups and chat rooms to their internal stakeholders (employees) as well as external parties (suppliers, distributors and customers (Simpson and Docherty, 2004). Loane (2005) further emphasises that small businesses that use Internet podia are adequately fortified to evaluate product innovations, industry trends, evolving customer tastes and varying preferences.

Promotion consisted of three items and accounted for 15.4% of the variance. This factor describes e-marketing as a promotional vehicle for enhancing the awareness of various SME brands at both local and international frontiers (Dholakia and Kshetri, 2004); differentiation of competing products (Standing and Stockdale 2003) coupled with the delivery of customer convenience that is neither confined by time nor space (Palmer *et al.,* 2012; Klerk and Kroon, 2005). The promotion sub-scale was ranked fourth among the mean scores ($\bar{x}$ = 5.051). This finding intimates the condensed extent to which SMEs are passive adopters of the Internet as a promotional platform. This suggests that the systematic adoption of online promotion, used in combination with offline promotional tools within the firm's overall marketing strategy could help to build a reliable brand image (Hongyu and Dongmei, 2011). Internet-based promotion is the principal promotional medium given its interactivity features which are absent in offline platforms (Varadarajan and Yadav, 2009). Interactivity avails ample opportunities for colourful product displays, discussion forums, product reviews, feedback or comments. Additionally, Palmer *et al.* (2012) emphasise that pressure from consumers has compelled SMEs to pay considerable attention to social networking sites such as Facebook, Twitter and YouTube may be systematically adopted by various SMEs for use in promoting their businesses as well as their product/service offerings.

Cost-reduction was composed of three items which accounted for 13.3% of the variance. With a mean of ($\bar{x}$ = 5.650), the factor ranked third on the mean scores. This finding is in line with a previous study conducted by Riquelme (2002) who found that e-marketing usage leads to time efficiency. According to Patrick and Miller (2004) a majority of SMEs conceded that e-marketing naturally led to cost savings through paper reduction, elimination of intermediaries and lower advertising expenditure. Klerk and Kroon (2005) further suggest that the adoption of E-Marketing strategies leads to spatial effectiveness and savings in terms of distribution costs through the development of a global market place. This ultimately leads to cutbacks in operational costs (Mutula, 2002; Riquelme, 2002).

9. Correlation Analysis: E-marketing Adoption Benefits and SME Performance

In order to examine the convergent validity and level of association that exists between the four factors and SME performance; Pearson correlation coefficients were computed. The strength of the association among the four dimensions was measured against Malhotra (2007) 's rule of thumb; who prescribes that correlation values ranging between 0.10 to 0.29 indicate weak relationship

strength; 0.30 to 0.49 indicates moderate relationship strength and values of 0.50 and above signify strong and very important relationships. The results are reported in Table 3.

Table 3 Correlations - e-marketing Adoption Benefits and SME Performance

e-marketing adoption benefits	Dimension	Relationship building	Intelligence gathering	Promotion	Cost reduction	Performance
	Relationship building	1.000				.511**
	Intelligence gathering	.451**	1.000			.276*
	Promotion	.620**	.144*	1.000		.462*
	Cost-reduction	.206*	.612**	.064	1.000	.371*
	Performance	.511**	.276*	.462*	.371*	1.000
	Standard deviation	.792	.724	.738	.922	.705

**** Correlation is significant at the 0.01 level (2-tailed). *Correlation is significant at the 0.05 level (2-tailed).**

The relationship between the four e-marketing adoption dimensions and SME performance showed positive correlations at both the $p<0.01$ level and the $p<0.05$ level. On observing the ***correlations***, weak relationship strength was ascertained upon correlating the intelligence gathering sub-scale with SME performance ($r=0.276$; $p<0.05$). However, moderate relationship strength was established upon correlating SME performance with the cost-reduction sub-scale ($r=0.371$; $p<0.05$) and the promotion sub-scale ($r=0.462$; $p<0.05$). The relationship building sub-scale revealed very strong and important correlations against the SME performance variable ($r=0.511$; $p<0.01$). Moreover, the inter-dimensional correlations indicated that there were positive cohesive among the four sub-scales; ranging between .144 ($p<0.05$) and .620 ($p<0.01$)**.**

The findings from the correlation analysis depict that by acting as vehicles for promotional activities, cost reduction, fostering mutually reciprocal relationships with stakeholders and gathering business intelligence, e-marketing ultimately enhances the overall performance of SMEs. E-marketing adoption is a precursor to enhanced productivity of SME managers in knowledge economies (Chaston and Mangles, 2003). Market share and earnings growth rate may also increase with the adoption of related Internet based systems (Varadarajan and Yadav, 2009). Furthermore, e-marketing acts as a useful tool for the evaluation of the effectiveness of advertising campaigns and ultimate increases in sales turnover (Dart, 2002; Kalaignanam *et al.,* 2008). Overall, the adoption of E-marketing by SMEs has a stimulus effect on business performance, leading to sustained competitive advantage and overall profitability.

10. Implications for Future Research

A major highlight of this study is the fact that the product and marketing mixes of any organisation are significantly altered through the adoption of e-marketing strategies; it would be interesting to explore the truth of this matter further. There would be value in also investigating the impact of the Internet on a company's marketing strategy as well as on consumer behaviour in different sized organisational settings.

Other issues to be investigated could include how the role of marketing personnel differs in online versus offline environments, the risks and threats associated with e-marketing adoption and

how these may be alleviated. How national culture affects differences in e-marketing adoption patterns may also provide another avenue for future research. Post e-marketing adoption challenges and related issues may be another potential focus area for future research.

11. Managerial Implications

By making positive strategic alterations in line with the four e-marketing adoption benefits highlighted in this study, marketers and business practitioners are presented with practical insights into dimensions that enhance the adoption and uptake of e-marketing technologies by SMEs in South Africa. Furthermore, an increased level of acceptance of electronic and Internet based marketing tools is projected to have a stimulus effect on profitability, sustainability and performance of this important industry segment.

12. Conclusion

The findings of the study further extend evidence about the perceived benefits of e-marketing to SMEs. E-marketing enables SMEs to accomplish their business objectives, leading to pleasing performance outcomes in various areas of the business. Four factors namely: relationship building, intelligence gathering, productivity and cost reduction were established in the study, in that order of importance. Among these four areas, relationship building, i.e., the establishment of a positive rapport between the business and its stakeholders, appears to be the source of the strongest benefits. SMEs therefore need to implement strategies that expedite the benefits of e-marketing in the four dimensions identified in this research.

Internet marketing assists the marketer with more readily accessible fresh approaches and research resources, offered in a more timely and convenient manner thus facilitating customer satisfaction. With this view in mind, employee creativity, confidence and initiative should be nurtured in the future growth of SMEs. Hence, SME owners should only be interested in making long-term investments in e-marketing technologies, where substantial returns are guaranteed as identified by the current study.

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Thailand Management Association (TMA) is a highly professional body of managers and executives, from all branches of business in Thailand who are dedicated to seeking and transferring knowledge through the exchange of the latest information on advanced managerial principles and practices in various fields. This exchange is considered as a contribution from the business sector to the efficient and productive utilization of human and material resources, which contributes ultimately to the well-being of the nation. In 1962, two top management development conferences, inspired by Mr. W.T.Utting, then Chief of the United Nations International Labor Organization (ILO), were organized, by the Thailand Management Development and Productivity Center. These two conferences concluded that the proper and well organized management training center was urgently needed, to improve the overall management skills of both local and foreign enterprises in Thailand. This led to the establishment of the Thailand Management Association, with the late Khun Snoh Nilkamhaeng, then Director of Lever Brothers (Thailand) Ltd., as its first president. The objectives are: 1) to improve the general abilities, education, technical knowledge and effectiveness of person engaged in management, by providing a forum for members for discussion of management subject, 2) to provide mutual assistance in applying management practices to increase the efficiency of the members' enterprises, 3) to propagate the concept that management is a worthwhile and honorable profession, and 4) to promote and maintain high ethical standards of management practices.

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