

# Loyalty as a Key Marketing Component for Successful Armament Sales in Thailand

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ต่อความสำเร็จของการขายอาวุธในประเทศไทย

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## บทคัดย่อ

ผู้ประกอบการอาวุธไบเบิร์กในประเทศไทยส่วนมากจะเป็นกลุ่มของวิสาหกิจขนาดกลางและขนาดย่อม ซึ่งประสบปัญหาในด้านแข่งขันสูง การนำเสนออาวุธและความภักดีทางการตลาดมาใช้จะสามารถช่วยเพิ่มความสำนึกราด หดหู่ผู้ประกอบการอาวุธไบเบิร์ก ในด้านแข่งขัน ด้วยการใช้การศึกษาในทรัพยากรัฐธรรมนາญก្នុងแบบ SERVQUAL Model และรูปแบบ ECSI (European Customer Satisfaction Index) ศูนย์ได้นำรูปแบบ ทั้งสองคือ SERVQUAL และ ECSI มารวมกัน ขั้นตอนเดียวกันที่ได้นำล้วนไปแล้ว การสื่อสาร การให้เกียรติ ภาระเบรรจูเตอร์อย่าง เป็นส่วนหนึ่งของความภักดี ที่เพิ่มมากขึ้น ด้วยการนำเสนออาวุธในด้านความภักดีด้านการบริการ ของการสนับสนุนความต้องการ ที่ดูแล ด้วยความจริงใจ ความซื่อสัตย์ การให้คำแนะนำ การเจรจาต่อรอง และการมีประสิทธิภาพในการดำเนินการ ที่มีผล

## Abstract

Most of arms trading brokers in Thailand are in SME industry and facing a strong competitive situation. The Loyalty Marketing Strategies can help arms trading brokers gain a competitive advantage over their rivals. The factors of this study have basis from SERVQUAL Model and European Customer Satisfaction Index (ECSI) Model. The author consolidates the SERVQUAL Model and ECSI model together, while also considering the factors of communications, customization, negotiation and delivery time into service loyalty. The literature reviews revealed that these factors are related to the service loyalty model. The research results identified that loyalty component are satisfaction, empathy, communication, negotiation and expertise.

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## I. Introduction

The budget allocation for armament purchasing for all organizations in Thailand is over 10,000 million baht (or approximately \$310 million) (Nation, 2009) and the future trend is expected to be increasing.

There are many arms trading brokers in Thailand. Therefore, the arms trading brokers in Thailand face a strong competitive situation. Including consumer arms corporations are becoming more sophisticated in their requirements and they are increasingly demanding higher standards of service. As competition increases, customers tend to be more mobile and increasingly likely to switch to competitors as more choices are available than before; therefore in order to gain a competitive advantage over their rivals, arms trading brokers should adopt effective strategies to retain their customers.

Customer loyalty is a profound consequence of relationship marketing (Reichheld & Kenny, 1990) and it has replaced market share as the primary focus of marketing practitioners. The author has more than thirty years experience in this industry and his search for ways to build customer loyalty is the basis to research this topic. The factors of this study have basis from SERVQUAL Model (Parasuraman et al, 1988) and European Customer Satisfaction Index (ECSI) Model (Kristensen, Martensen, and Gronholdt, 2000). The author consolidates the SERVQUAL Model and ECSI model together, while also considering the factors of communications, customization, negotiation and delivery time into service loyalty. The literature reviews revealed that these factors are related to the service loyalty model. The new service loyalty model is a means of identifying the key attributes that determine service loyalty and determine the strength and degree to which all of the factors influence customers' satisfaction, and ultimately their loyalty to an armament trading firm.

## Research Objectives

1. To investigate empirically the factors which affect the armament trading industry's customer loyalty.
2. To develop a new model for armament traders' development of customer loyalty.

## II. Review of Related Literature

The factors considered in this study are based on the SERVQUAL Model (Parasuraman et al, 1988) and European Customer Satisfaction Index (ECSI) Model (Kristensen, Martensen, and Gronholdt, 2000). There are details of 2 models as follows:

### A SERVQUAL Model

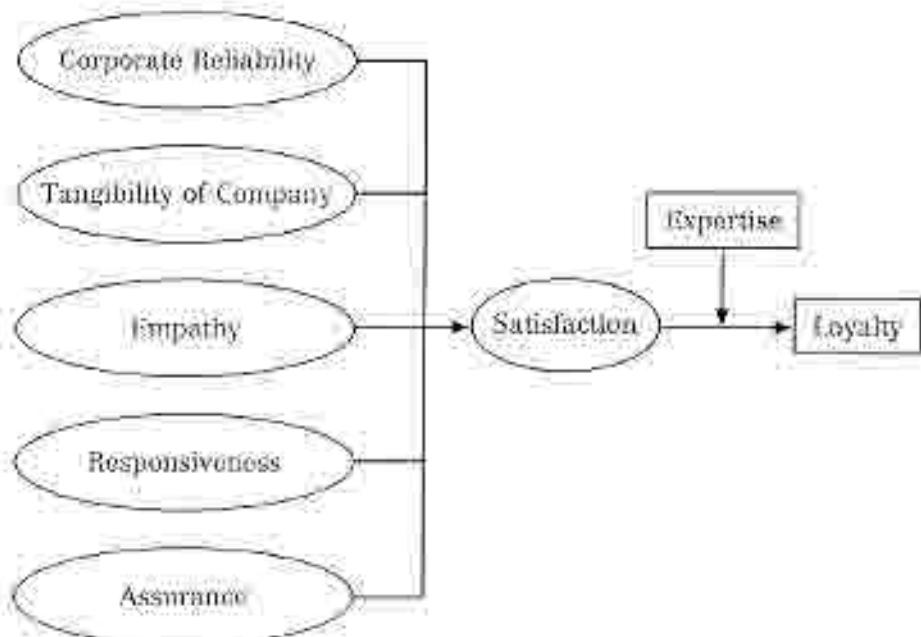
Perceived service quality was viewed as "the degree and direction of discrepancy between consumers' perceptions and expectations". Collecting data from five service categories, Parasuraman et al. (1988) identified five dimensions of service quality:

- *Corporate reliability*; the ability of service firms to perform the promised service dependably and accurately
- *Responsiveness*; willingness to help customers and provide quick service
- *Assurance*; the knowledge and courtesy of a firm's employees and their ability to inspire trust and confidence
- *Empathy*; caring and customized attention provided by the service firm
- *Tangibility of company*; the physical facilities, equipment and appearance of a firm's employees
- *Satisfaction*; Among service researchers, the concept of customer satisfaction is usually discussed from two different perspectives. According to a cognitive perspective, this term is understood to be the assessment resulting from comparing customers' expectations and their perception of the value of the services received (Oliver and DeSarbo, 1988; Bitner, 1990; Churchill and Suprenant, 1982; de Bruyter and Bloemer, 1999). From an emotional perspective, satisfaction is considered a positive emotional state resulting from the consumption experience (Hoest and Pieters, 1997; Liljander and Strandvik, 1997; Rust and Oliver, 1994; Mano and Oliver, 1993; Westbrook, 1987). On the other hand, customer satisfaction also depends on perceived value (Bellon and Drew, 1991; Ravall and Groeneweg, 1996; Woodruff, 1997), which can be defined as "the consumer's overall assessment of the utility of a product, based on perceptions of what is received (benefits received) and what is given (price paid and other costs associated with the purchase)" (Zeithaml, 1988). Within the scope of this study, satisfaction is conceptualized as an overall, post consumption affective response by the residential energy customer.
- *Expertise*. Different customer segments are likely to exhibit different levels of expertise, and as such might not always exhibit the same levels of loyalty towards the service brand. This is particularly significant in the context of complex services (such as banking, insurance, pension, mortgages, etc.), where anecdotal evidence suggests a general trend towards an increasing number of customers who are making their financial decisions on their own (Jamal and Naser, 2002). Intensive competition has grown in the financial services market over the last ten years, resulting in greater variety and choice for customers within each product market (Azcuenaga et al., 2004; Saunders and Watters, 1993). Expert customers, in

comparison with novices, possess superior knowledge of existing alternatives, are better able to encode new information and can better discriminate between relevant and irrelevant information (Alba and Hutchinson, 1987, 2000; Johnson and Russo, 1984). Therefore, one could argue that as a person becomes more expert and knowledgeable, he or she is more likely to switch service brands in comparison to a person who has lower levels of knowledge and expertise.

- *Loyalty:* Loyalty has been defined by Oliver (1997) as: A deeply held commitment to re-buy or re-patronize a preferred product/service consistently in the future, thereby causing repetitive same-brand or same brand-set purchasing, despite situational influences and marketing efforts having the potential to cause switching behaviour. There are two possible ways to conceptualize customer loyalty: behavioural, which is based on repeat-purchase behaviour, and attitudinal, which reflects the inherent affective and cognitive components of loyalty. There is a significant difference between satisfaction, the result of past service encounters, and loyalty, an ongoing relationship with a specific service provider. The concept of backpacker loyalty to one "brand" of hostels implies a rejection of other service providers on the grounds that theirs are inferior to the preferred brand. In order to identify the links between satisfaction and loyalty in this study, satisfaction is defined as a customer's post-consumption evaluation of a service, which includes cognitive and affective components, while loyalty is treated as a customer's commitment to a service provider, which develops from satisfaction and includes the cognitive, affective and conative (intention) components that lead to repeat purchases.

DIAGRAM I



### *B. The European Customer Satisfaction Index (ECSI)*

The ECSI model of customer loyalty was introduced in 1999 (Martensen, Gronholdt, and Kristensen 2000). The ECSI model has been shown to be a good fit for the data from business-to-consumer (B2C) markets in several industries in Europe, including financial services (Martensen, Gronholdt, and Kristensen 2000). There are seven variables in the basic ECSI model as follows:

- *Perceived Corporate Image:* An armament trading company's image includes items measuring customer perceptions of the firm's stability, social contributions to society, concern with customers, reliability of what the firm says and does, and innovativeness. According to Martensen, Gronholdt, and Kristensen (2000), image is the main driver of customer satisfaction and loyalty when there are many suppliers; presumably because image is used as a screening variable to reduce the consideration set down to a more manageable size. Previous studies have found that corporate credibility (image) has a significant influence on customer loyalty, as measured by purchase intentions (Lafferty and Goldsmith 1999), especially for services (Gronroos 2000). Laroche, Kim, and Zhou (1996) also found that product purchase decisions were in part influenced by the consumers' positive view of the company's citizenship. However, Kristensen, Martensen, and Gronholdt (2000) found that in the business market, compared with the consumer market, image had less impact on customer loyalty and customer satisfaction, although image was still the most important driver of loyalty. This factor has meaning equal reliability in SERVQUAL mode).
- *Customer Expectations:* Deighton (1992) argues that the critical performance issue for a service is not what kind of performance the service provider is attempting, but rather what kind of performance the customers expect or think they are viewing. According to the confirmation-disconfirmation paradigm, performance is compared with a pre-consumption expectation to form an overall judgment of satisfaction or dissatisfaction. Churchill and Suprenant (1982). Kristensen, Martensen, and Gronholdt (1999) reviewed the literature and found that there is no conclusive evidence for whether expectations have a positive or negative influence on perceived quality and customer satisfaction. Some studies have shown that expectations affect both perceived quality and customer satisfaction directly (Oliver and Hosarpia 1988; Spreng and Olshansky 1993). Other studies have shown that expectations have no influence on perceived quality but do have a direct influence on customer satisfaction (Westbrook and Reilly 1983). However, using the ECSI methodology, Kristensen, Martensen, and Gronholdt (1999) confirmed its assumption that expectations have a significant direct effect only on perceived value, not customer satisfaction. Fornell and colleagues (1996) showed that the total effects of expectations were lowest in both the durable manufacturing and the finance sectors because current quality experiences may be more salient and thus take precedence over previous quality experiences.

- *Hardware quality:* Several studies have found that perceived quality has a direct effect on customer satisfaction (Bruun and Grønd 2000; Kristensen, Martensen, and Gronholdt 1999). Fornell and colleagues (1996) found that the impact of quality on customer satisfaction is greater than the impact of value. While value may be central to the formation of the customer's initial preference and choice, quality is more important to the consumption experience itself. Higher quality hardware generally has greater product reliability (Adams and Browning 1989) and higher perceived value (Homburg et al. 2002; Zeithaml 1988). Besides the indirect effect of hardware quality on loyalty via value and satisfaction, Kristensen, Martensen, and Gronholdt (1999) also found that perceived quality of hardware had a direct effect on customer loyalty. Hardware quality has value equal to technical quality. It has more dimensions of a service encounter are the tangible objects that remain after the completion of the service production process when interactions between arms traders and their customers have ceased (Dobholkar et al. 1996; Groenroos, 2000; Morgan and Piercy, 1992). In the case of arms traders, the technical dimensions are what customers receive or experience after contact with arms trader. They include such physical facilities as availability of comfortable communications, building(s), parking spaces, and the manufacturing process itself, as well as other factors such as reducing global warming. However, it is more difficult to achieve an appreciably high and consistent standard of quality with services compared to products. Consequently, researchers have found that products generally outperform services in the area of perceived quality and satisfaction (Fornell et al. 1996).

- *Human ware quality:* Martensen, Gronholdt, and Kristensen (2000) found that for Swedish banks the second largest driver of customer loyalty in the B2C market was service quality. This was because in that market new products could be easily copied and implemented by competitors, whereas service quality and corporate image were harder to imitate and therefore the main differentiating factors. Grewal and Sharma (1991) have suggested that in business-to-business (B2B) exchanges the effectiveness of a seller at providing consultative services will be a prominent attribute in the formation of customer satisfaction. The services literature related to B2B markets has also highlighted the importance of the salesperson. Kristensen, Martensen, and Gronholdt (2000) found that, for the business market they examined, good customer interaction was important for customer satisfaction, and in fact, customer interaction was more important in the business market than it was in the consumer market. Garbarino and Johnson (1999) also found that for customers with a weak relationship with the company as a whole, satisfaction with the salesperson was the main driver of future intentions to buy. "Human ware" quality represents the associated customer interactive elements in service, which are derived from the personal behavior of the service personnel and the atmosphere of the service environment. Groenroos (2000) makes a similar distinction

between technical quality, the outcomes delivered by a product or service, and functional quality, the manner in which those outcomes are delivered. In addition, humanware quality has meaning in the functional dimension of the service process (also described as "process quality") because it illustrates how the service and its concurrent production and consumption process are received and experienced by customers (Dhabolkar et al., 1996; Grothues, 2000; Morgan and Piercy, 1992). The functional dimension is intangible and subjectively determined by customers (Grothues, 2000). Both dimensions of the service product influence customers' perception of value. In earlier studies, Parasuraman et al. (1985) and Suprenant and Solomon (1987) suggest that friendliness, courtesy and personalized service are components of the functional dimension that contribute to customer satisfaction. Some specific functional dimensions in the context of arms traders are the behavior of the staff such as: giving accurate information, problems guidance, and solution guidance.

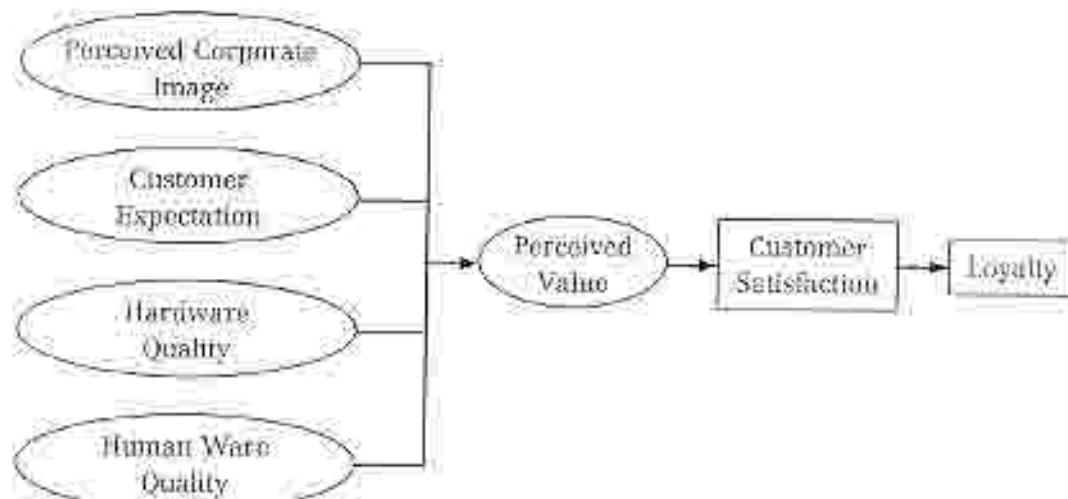
- *Perceived Value:* Perceived value is an important concept because it drives satisfaction (Patterson, Johnson, and Spreng 1997) and, in turn, loyalty. Customers compare quality received with investment put in (Storbacka and Lehtinen 2001) and choose the product or service that offers the best relative value compared to others in their consideration set (Neal 1999). Although many studies have shown that price is perhaps the most important determinant of customer loyalty (Wathne, Blong, and Heldt 2001), the perceived value construct is more dynamic than price because the nature and determinants of value assessments may change during various stages of a customer's association with the seller (Slater and Narver 1994, Woodruff 1997). Also, using value judgments rather than price, as the ECSI model does, allows for comparability across firms and industries, even though absolute price levels would vary widely, and controls for differences in income and budget constraints across respondents (Lancaster 1971). Empirical studies using the ECSI support its assumption that perceived value has a direct influence on customer satisfaction but only an indirect effect on customer loyalty. This factor is equally reliable in the SERVQUAL model.
- *Customer Satisfaction:* Customer satisfaction is defined by Oliver (1997) as a pleasurable level of consumption-related fulfillment. Customer satisfaction is generally conceptualized as an attitude-like judgment following a series of purchases or consumer-product interactions (Yi, 1990). It is understood as the customer's emotional reaction to the perceived difference between performance appraisal and expectation (Oliver, 1980). According to the disconfirmation paradigm, expectancy disconfirmation is divided into two processes: the first being the formulation of expectations towards the product or service, the second being the comparison of the experienced performance of the product or service with prior expectations. Disconfirmation may be positive when performance is better than expected, or negative when experienced performance is worse than expected (Van Beurden et al., 2000). Customer

satisfaction has traditionally been regarded as a fundamental determinant of long-term customer behavior (Oliver, 1980). It is the result of a customer's perception of the value received in a transaction or relationship (Blanchard & Galloway, 1994; Heskett et al., 1990) and can be interpreted as the customer's overall evaluation of performance (Johnson & Fornell 1991). There is also a "positive affective state resulting from the appraisal of all aspects of a firm's working relationship with another firm" (Anderson and Narus, 1984, p. 66). Consistent with this view, satisfaction encompasses economic and non-economic components. Economic satisfaction is defined as a "positive affective response to the economic rewards that flow from the relationship with its partner, such as sales volume and margins", while non-economic satisfaction is a "positive affective response to the non-economic, psychosocial aspects of its relationship, in that interactions with the exchange partner are fulfilling, gratifying, and easy" (Geyskens et al., 1999). The relationship between economic and non-economic components of scales for measuring satisfaction differs considerably among studies (Geyskens et al., 1999). According to previous research, there are two ways to conceptualize satisfaction: firstly, transaction-specific satisfaction and secondly, overall or cumulative satisfaction (Johnson, 2001; Shankar et al., 2003; Lam et al., 2004). This study focuses on overall satisfaction defined as a customer's overall appraisal of a product or service provider to date (Johnson and Fornell 1991; Johnson et al., 1995). Cumulative satisfaction recognizes that customers rely on their entire experience when forming intentions or making repurchase decisions. It therefore should be a better predictor of customers' intentions and behavior (Bitter and Hubert, 1994; Lam et al., 2004). Overall customer satisfaction is a cumulative evaluation based on total purchase and consumption experience with a good or service over time (Anderson, Fornell, and Lehmann 1994). While the customer's overall satisfaction is influenced by the seller's performance on various criteria (for example product and service quality), the customer's repurchase intention is also affected by the relative level of his or her satisfaction with the seller, compared to the seller's competitors (Kumar 2002). According to the logic of the satisfaction-performance relationship, satisfaction affects future buying intentions (Liu and Leach 2001) and, generally, satisfied customers are more loyal, which increases revenue and lowers operating costs and therefore higher satisfaction lifts return on investments, stock price, and market-value added (Anderson, Fornell, and Mazvancheryl 2004; Fornell et al. 2000). The more competitive a market, the more sensitive changes in customer loyalty are to changes in customer satisfaction (Gronlund, Marlissell, and Kristensen 2000). Added to this, due to the intangibility of services, satisfaction has a greater effect on loyalty for services than it does for products; additionally revenue growth for services is more dependent on the effects of loyalty, that is, customer referrals and word-of-mouth, and therefore the overall effect of satisfaction on profit and growth is greater for services than it is for products (Edvardsson et al. 2000). Some researchers have challenged this satisfaction-loyalty-performance argument. Studies have

showed that up to 20 percent of customers who have switched banks did so even though they were satisfied (Keayney 1995). Another study found that up to 70 percent of customers who switched said they were satisfied with their previous provider (Stolarska and Lehtinen 2001). Neal argued that while the relationship between customer dissatisfaction and customer defection is strong, the converse is very weak (Neal 1999). Once a supplier's performance level has reached a certain minimum acceptable standard, customer satisfaction alone cannot reliably predict repeat purchases (loyalty). This nonlinearity of the satisfaction-loyalty link (Anderson and Mittal 2000) means that customer satisfaction can be a poor predictor of future behavior, especially if brand choice does not matter - in other words, all options are acceptable (Hofmeyr and Rice 2000). For this reason, the ECSI model incorporates other drivers of customer loyalty mentioned by the critics of pure customer satisfaction models—perceived image, product and service quality, and perceived value — although in the ECSI model perceived value affects loyalty only indirectly, via customer satisfaction.

- *Loyalty:* The loyalty referred to here is not behavioral loyalty (repurchase or re-patronization), but rather, emotional loyalty: the desire on the part of the customer to continue the relationship even if competitors offer lower prices; willingness to recommend to friends; and intention to continue to patronize (Dick and Basu, 1994; Zeithaml, 2000; Chaudhuri and Holbrook, 2001). Customer loyalty is a behavioral intention rather than actual buying behavior, which might be constrained artificially by, for example, long-term contracts. The ECSI model measures four characteristics of customer loyalty (Gronholdt, Mørkeisen, and Kristensen 2000): intention to repurchase, intention to cross-purchase from the same supplier, intention to stay with that supplier rather than switch to a competitor, and intention to recommend the supplier to other customers.

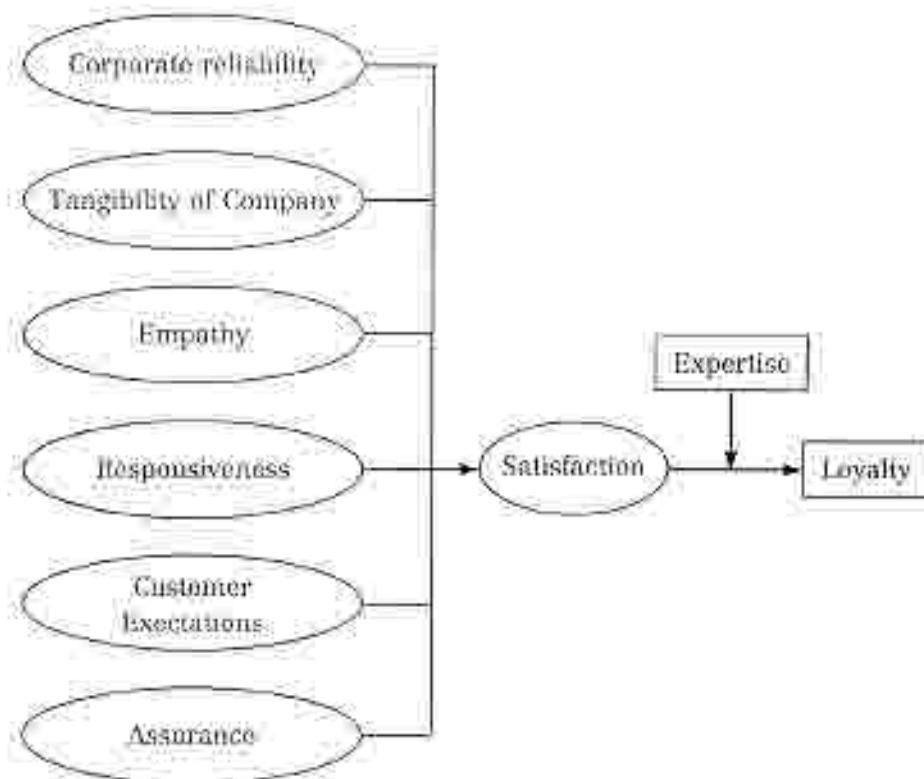
DIAGRAM II



### C. Consolidation 2 Models together.

The author constructs a loyalty model for armament traders by consolidating the SERVQUAL Model and the ECSI model.

DIAGRAM III.



### D. Other Factors Added to Consolidated Model

The author adds other factors such as: communication, customization, negotiations and delivery time into service loyalty. The literature reviews revealed that these factors are related to the service loyalty model as follows:

- **Communication.** Communication, properly-done, creates trust, as might be obvious from observation of human relationships, and as proposed by Morgan and Hunt (1994), in business relationships. Communications can be in the form of customized letters, direct mail, web site interactions, other machine-mediated interactions, and e-mail, or in-person communication with service personnel before, during, and after service transactions. Positive communications from the service provider is helpful, positive, timely, useful, easy, and pleasant; it leaves the customer feeling not only satisfied with the service, but also with a positive affect towards the provider. The effect of good communications in a B2C relationship is to increase overall service satisfaction, the customer's trust of the service provider, and loyalty (Ball et al., 2004).

- *Customization*: The growth of interest in made-to-order marketing over the past ten years (Peppers and Rogers, 1993) has brought the topic of customization of products, services and communications to an increasingly prominent position in marketing theory and practice. However, measurement and estimation of the effects of customization on other critical theory constructs has been lacking (Day and Montgomery, 1999, p. 8). Customization has always been a feature of products and services when marketers have had the resources to use customization for competitive advantage. Today, automobile manufacturers offer the customer a wide variety of options for many features on each model, making autos "mass customized." Some formerly mass-produced products are now mass customized, and more such customized products can be expected in the future (Ridings and Pino, 2000). Many product categories such as furniture, tools, firearms, books, kitchen implements, toys, and so forth that were once highly individualized craft articles are now almost entirely mass-produced, but may be largely customized once again in the future (except made unique by machine rather than by hand). In fact, any part of the marketing mix can be customized - not only can the product or service be customized, but also it can take the form of distribution, the pricing, or the promotion. Amazon.com, for example, like a number of web sites (Ansari et al., 2000; Ansari and Mela, 2003), more effectively promotes its merchandise through customized recommendations for products based on collaborative filtering technology. So, customize is clearly a phenomenon worthy of attention.
- *Delivery time*: In this study, the author uses delivery time satisfaction as being the main variable measuring customer evaluation of the wait. According to Maisier (1985), the gap between the perception and expectation for delivery time experience determines the customer satisfaction with delivering products and services. Davis and Homke (1994) modify Maisier's definition, replacing "perception" by "performance interpretation", noting that perception depends on both the customer's interpretation of the service encounter and the actual service performance. During the last decade, many definitions of overall satisfaction have been proposed, underlining the cognitive and/or affective constituents of the concept (Oliver, 1993). Regarding delivery time, both aspects seem to be appropriate (Durrando-Moreau, 1999). Consequently, we consider delivery time satisfaction as a post-experience, judgmental evaluation including both cognitive and affective aspects of delivering and measuring the extent to which the perceived delivery period matches the customer's expectations for a specific transaction.

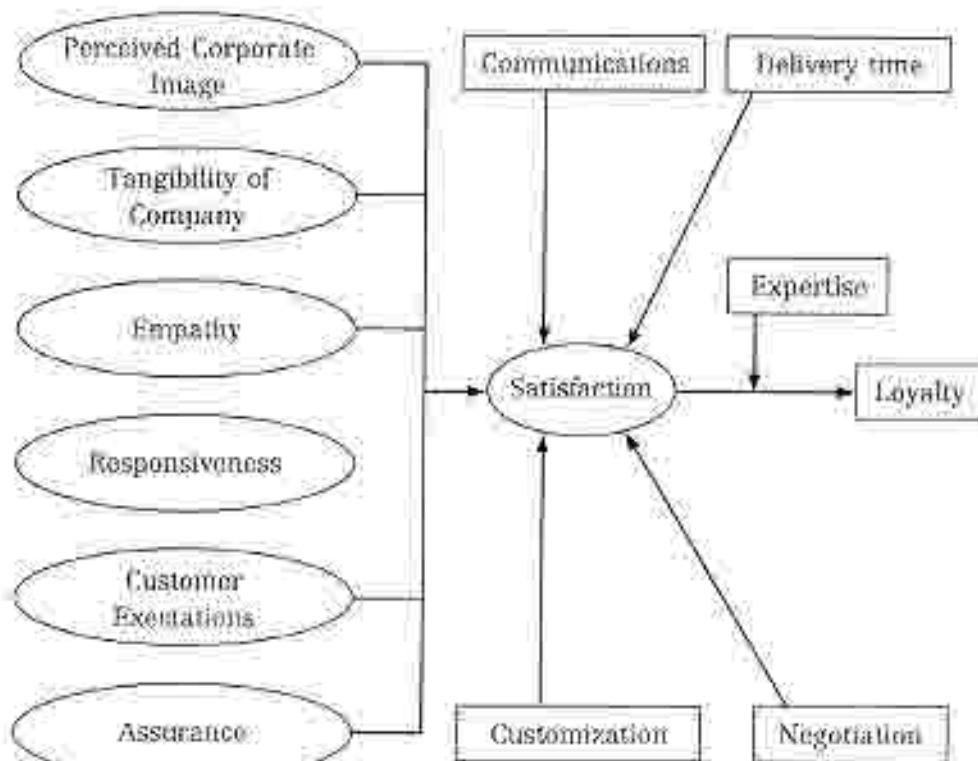
- *Negotiation*: Negotiation is one factor which has an effect on the attitudinal loyalty of the customer. If the armament vendor undertakes business with the customer focusing on mutually beneficial negotiations, the customer will feel a sense of loyalty. Negotiation

techniques impact on the emotions experienced by customers with a resultant effect on their loyalty. Coping theory suggests that following a service recovery, individuals try to both reduce the possibility of experiencing negative emotions in the future while increasing the likelihood of experiencing future positive emotions (Lazarus, 1991). In the event of a poor recovery, a customer's avoidance coping strategy may very well be to take his or her patronage elsewhere. In addition, negotiation always occurs in business because a customer would like to minimize a price or receive a fair price. When consumers perceive that the price of a service or product is reasonable, it is possible for them to repeat their purchase behavior. On the other hand, if consumers do not feel that their sacrifices are worthwhile, they may not make the purchase again, even when they are satisfied with the product or service (Bei and Chiao, 2001). Sometimes, the customer experiences price acceptance defined as the maximum price that a customer is prepared to pay for the product or service (Monroe, 1990). If the outcome from a negotiation is a positive one for the customer, it will enhance the probability of repurchasing from the supplier (Anderson and Sullivan, 1993).

#### *E. The Service Loyalty Model for an Arms Trader*

The author will develop a new service loyalty model by combining the SERVQUAL Model and ECSI Model. In addition, the new model will add three independent variables. The new model for service loyalty will be as follows:

DIAGRAM IV



### *E. Research Hypothesis*

To support testing of the model and to answer the research questions, several hypotheses have been developed, which are further described below:

- H1: Customer perceptions of corporate image are positively related to satisfaction.
- H2: Customer perceptions of tangibility of company are positively related to satisfaction.
- H3: Customer perceptions of empathy are positively related to satisfaction.
- H4: Customer perceptions of responsiveness are positively related to satisfaction.
- H5: Customer perceptions of expectations are positively related to satisfaction.
- H6: Customer perceptions of assurance are positively related to satisfaction.
- H7: Customer perceptions of communications are positively related to satisfaction.
- H8: Customer perceptions of delivery are positively related to satisfaction.
- H9: Customer perceptions of customization are positively related to satisfaction.
- H10: Customer perceptions of negotiations are positively related to satisfaction.
- H11: Customer perceptions of satisfaction are positively related to loyalty.
- H12: Customer perceptions of customer expertise are positively related to loyalty.

### **III. Methods and Procedures**

The population and sample used in this study are members of the customer base of the arms trading broker industry in Thailand such as army officers (500 persons), navy officers (500 persons), air force officers (500 persons), police officers (300 persons), officials of the Office of the Permanent Secretary for Defense (100 persons) and the Royal Thai Armed Forces headquarters (100 persons).

#### *A. Data collection from questionnaires*

Two thousand questionnaires will be distributed. The author has strong relationships with the head of each department in the military. Before launching the questionnaires, the questionnaires will be pre-tested with representative samples. The results of the pre-test will be checked for reliability by Cronbach's alpha value.

Conceptualization and items for measuring the relationship between all dependent variables and independent variable will be operationalized as a five-dimensional construct. The loyalty constructs will be measured using multi-item scales adapted from previous studies. All items are to be measured using a 5-point Likert type scale anchored by 1 (very satisfied, like very much, or totally agree) and 5 (very dissatisfied, dislike very much, or totally disagree).

### B. Reliability

Measurement reliability is to be examined through confirmatory factor analysis and the calculation of Cronbach's alpha coefficient. It should be noted that the coefficient alpha should be over than .6, because composite reliabilities for all constructs are larger than .6 (Bagozzi and Yi 1988). The Cronbach's alpha value of this study is 0.9613.

### C. Data analysis

The statistics used for data analysis are multivariate statistics - such as multi regression. These statistics will be embedded in structural equation modeling (SEM) analytical procedures using LISREL software. The statistical significance for the regression models in this study will use a significant level of  $p < 0.05$ .

### D. Results and Discussion

#### Hypothesis of relationship between all variables and samples testing

Before testing the hypothesized conceptual model, the collinearity or multicollinearity problem should be addressed. Symptoms of multicollinearity may be observed in situations: 1) small changes in the data produce wide swings in the parameter estimates, 2) coefficients may have very high standard errors and low significance levels even though they are jointly significant and the  $R^2$  for the regression is quite high, 3) coefficients may have the "wrong" sign or implausible magnitude, and 4) when multicollinearity is extreme, Type II error rates are generally unacceptably high.

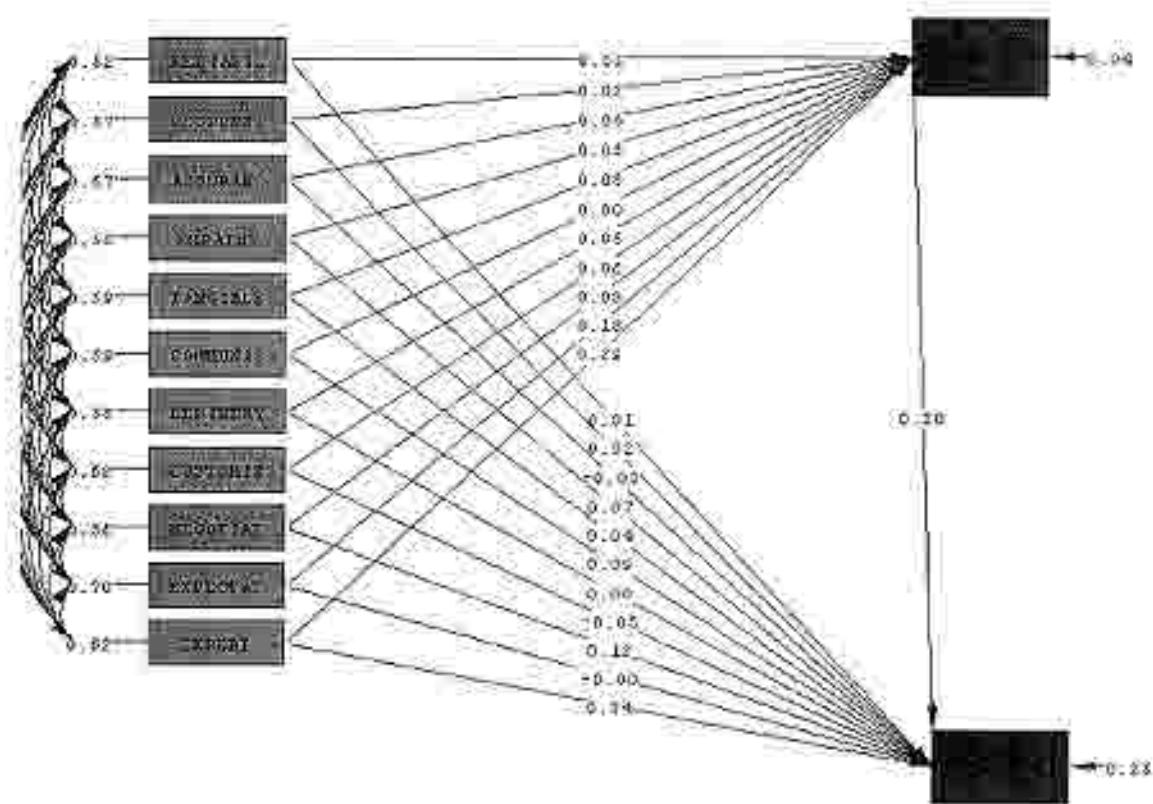
One way to assess the possibility of multicollinearity among unobserved Variables group. For avoid from high value of inter-correlation between variables so that impact to Multicollinearity, the author analyzed correlation matrix between couple of unobserved Variables. By consider Tolerance value (should be over 0.1) and VIF: variance inflation factors value (not over 10) of each unobserved Variables. The results was showed in table 1.

TABLE I Correlation Testing

	loyalty	reliability	responsiveness	assurance	empathy	Tangible	communication	delivery	customize	negotiation	expectation	expertise	satisfaction
reliability	0.55	1.00											
responsiveness	0.57	0.77	1.00										
assurance	0.58	0.74	0.77	1.00									
empathy	0.58	0.69	0.73	0.74	1.00								
tangible	0.57	0.67	0.70	0.73	0.76	1.00							
Communication	0.61	0.70	0.75	0.76	0.76	0.77	1.00						
delivery	0.57	0.68	0.71	0.72	0.71	0.72	0.77	1.00					
customize	0.59	0.73	0.75	0.78	0.70	0.71	0.77	0.75	1.00				
Negotiation	0.59	0.67	0.68	0.72	0.71	0.73	0.76	0.77	0.78	1.00			
expectation	0.60	0.68	0.70	0.73	0.64	0.62	0.72	0.71	0.73	0.70	1.00		
expertise	0.62	0.63	0.65	0.67	0.61	0.60	0.65	0.63	0.70	0.62	0.73	1.00	
Satisfaction	0.63	0.58	0.60	0.63	0.58	0.58	0.61	0.60	0.64	0.61	0.66	0.66	1.00
Tolerance		0.32	0.25	0.25	0.30	0.28	0.23	0.29	0.23	0.28	0.28	0.37	0.46
VIF		3.08	3.94	4.06	3.37	3.52	4.35	3.45	4.32	3.63	3.60	2.67	2.17
Mean	3.47	3.46	3.50	3.60	3.44	3.43	3.50	3.46	3.56	3.46	3.63	3.58	3.50
SD	0.75	0.72	0.75	0.82	0.76	0.77	0.77	0.76	0.79	0.75	0.84	0.79	0.86

The results showed that unobserved variables group do not have Multicollinearity problems. So, the author can analyze all of variables by LISREL.

DIAGRAM V. Model of loyalty relationship between samples (agency of government) and armament trailers from LISREL calculation.



Chi-Square=0.00, df=0, P-value=1.00000, RMSEA=0.000

Source: Own data

From Table II., it shows about Direct Effect factors impact to satisfaction variable and loyalty variable. The author can summarize table 18 into table 19 which show about Structural equation modeling with scoring of direct effect, indirect effect and significant value.

TABLE II. Results of Hypothesis Testing

To support testing of the model and to answer the research questions, several hypotheses have been developed, all structural paths shown in the model were statistically significant at  $p<0.05$ . Structural paths and their standardized estimates were summarized in Table 6 along with results of hypotheses tests.

Two-tailed test of significance were employed to analyze the significance of each path coefficient. Several hypotheses have been developed, which are further described below:

- H1: Customer perceptions of outcome corporate image are positively related to satisfaction.
- H2: Customer perceptions of outcome tangible are positively related to satisfaction.
- H3: Customer perceptions of outcome empathy are positively related to satisfaction.
- H4: Customer perceptions of outcome responsiveness are positively related to satisfaction.
- H5: Customer perceptions of outcome expectations are positively related to satisfaction.
- H6: Customer perceptions of outcome assurance are positively related to satisfaction.
- H7: Customer perceptions of outcome communication are positively related to satisfaction.
- H8: Customer perceptions of outcome delivering are positively related to satisfaction.
- H9: Customer perceptions of outcome customize are positively related to satisfaction.
- H10: Customer perceptions of outcome negotiation are positively related to satisfaction.
- H11: Customer perceptions of outcome satisfaction are positively related to loyalty.
- H12: Customer perceptions of outcome expertise of customer are positively related to loyalty.

Summary of structural path and Hypothesis testing results: Standardized estimate

	From	To	Model		Hypotheses Support
			S.D.	t-value	
H1	Reliability	Satisfaction	0.01	0.27	Rejected
H2	Tangible	Satisfaction	0.08	2.03	Accepted
H3	Empathy	Satisfaction	0.05	1.24	Rejected
H4	Responsibility	Satisfaction	0.02	0.50	Rejected
H5	Expectation	Satisfaction	0.18**	4.84	Accepted
H6	Assurance	Satisfaction	0.08*	2.05	Accepted
H7	Communication	Satisfaction	0.00	0.10	Rejected
H8	Delivery	Satisfaction	0.05	1.10	Rejected
H9	Customize	Satisfaction	0.06	1.41	Rejected
H10	Negotiation	Satisfaction	0.08	1.89	Rejected

	From	To	Model		Hypotheses Support
			S.D.	t-value	
H11	satisfaction	Loyalty	0.20**	8.00	Accepted
H12	Expertise	Loyalty	0.34**	11.44	Accepted
	Expertise	Satisfaction	0.29**	8.73	Accepted
	Reliability	Loyalty	0.01	0.36	Rejected
	Responsibility	Loyalty	0.02	0.49	Rejected
	Assurance	Loyalty	>0.03	-0.75	Rejected
	Empathy	Loyalty	0.07*	1.96	Accepted
	Tangible	Loyalty	0.04	1.16	Rejected
	Communication	Loyalty	0.09*	2.34	Accepted
	Delivery	Loyalty	0.00	0.08	Rejected
	Customize	Loyalty	-0.05	-1.32	Rejected
	Negotiation	Loyalty	0.12**	3.28	Accepted
	Expectation	Loyalty	0.00	-0.10	Rejected

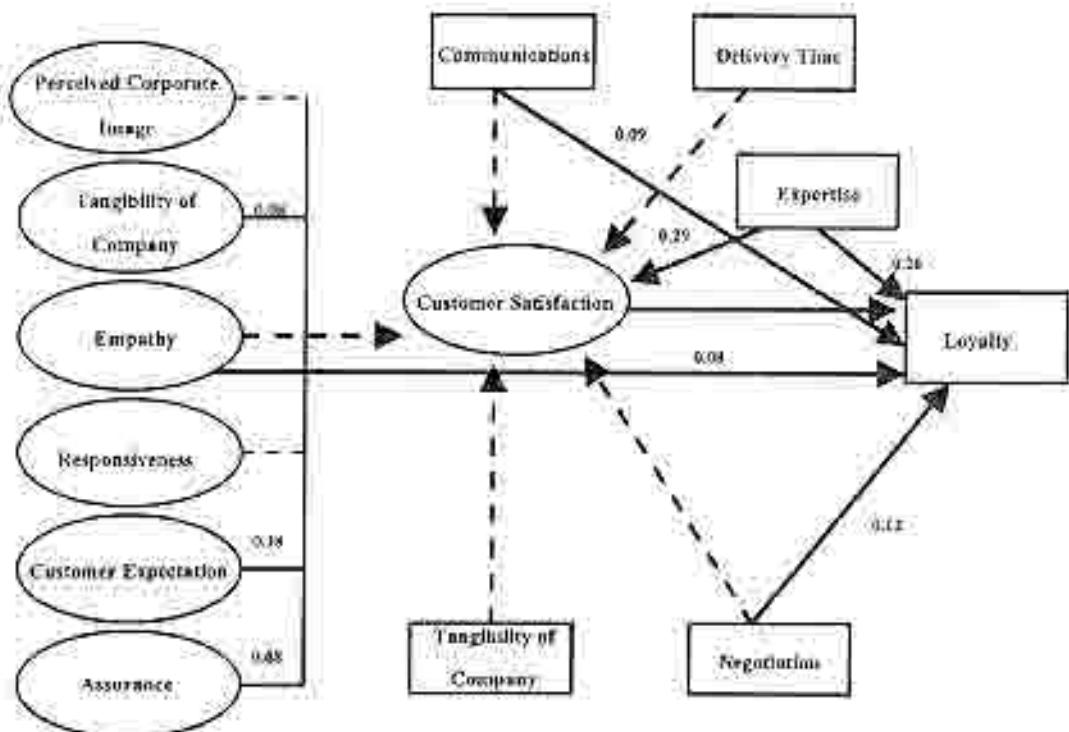
\*\* p < 0.001, \* p < 0.05

The minority of the hypotheses (2, 5, 6, 11 and 12) were statistically significant in the hypothesized direction as expected.

Seven paths were not significant and associated hypotheses were rejected. These were the path are 1, 3, 4, 7, 8, 9, 10 hypothesis.

#### DIAGRAM VI: The results from hypothesis testing compare with conceptual framework

The dashed line is not statistically significant in the hypothesis testing. The author consider only dark line which has standardized estimate value (from table 3) and has significant in the hypothesis testing.



#### Total, direct, and indirect effects

After finishing analyze from hypothesis testing process. The author bring only variables which have statistically significant into equation model testing. To support testing of the model these variables have been tested, all testing shown in the model were statistically significant at  $p < 0.05$ . The author consider in direct effect to satisfaction and loyalty. Model testing were summarized in Table 5.

TABLE III. Direct Effect, Indirect Effect and Total Effect of Loyalty Model

Exogenous Variables	Endogenous Variables					
	Loyalty			Satisfaction		
	DE	IE	TE	DE	IE	TE
Satisfaction	0.20**	0.00	0.20**	0.00	0.00	0.00
Reliability	0.01	0.00	0.01	0.01	0.00	0.01
Responsibility	0.02	0.00	0.02	0.02	0.00	0.02
Assurance	-0.03	0.02*	-0.01	0.08*	0.00	0.08*
Empathy	0.07*	0.01	0.08	0.05	0.00	0.05
Tangible	0.04	0.02*	0.06	0.08*	0.00	0.08*
Communication	0.09*	0.00	0.09*	0.00	0.00	0.00
Delivery	0.00	0.01	0.01	0.05	0.00	0.05
Customize	0.05	0.01	-0.04	0.06	0.00	0.06
Negotiation	0.12**	0.02	0.14**	0.08	0.00	0.08
Expectation	0.00	0.04**	0.03	0.18**	0.00	0.18**
Expertise	0.34**	0.06**	0.40	0.29**	0.00	0.29**

DE = Direct Effect, IE = Indirect Effect, TE = Total Effect

\*\* p < 0.001, \* p < 0.05

Satisfaction had positive direct effect on loyalty was 0.20. Empathy had positive direct effect on loyalty was 0.07. Communication had positive direct effect on loyalty was 0.09. Negotiation had positive direct effect on loyalty was 0.12. Expertise had positive direct effect on loyalty was 0.34.

In Armstrong loyalty model, it was estimated a value for customer patronage intention to loyalty equation:

$$\text{loyalty intention} = 0.20 \text{ (Satisfaction)} + 0.07 \text{ (Empathy)} + 0.09 \text{ (Communication)} + 0.12 \text{ (Negotiation)} - 0.34 \text{ (Expertise)}$$

This equation has potential to precise prediction 55% ( $R^2 = 0.55$  (55%))

## **IV. Conclusions**

Loyalty model of armament in Thailand of this study is different from SERVQUAL model from Parasuraman et al. (1988) and ECSI model from Martensen, Gronholdt and Kristensen (2000). Loyalty model of armament in Thailand consists of satisfaction, empathy, communication, negotiation and expertise. Expertise of customer variable has the most influence to loyalty. Therefore, arms trading brokers should concern about expertise of customer variable very much by providing expert person who has more driven information about armament and has more insight need of customer contact with customers.

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