THE ANALYSIS OF THE INFLUENCE OF CUSTOMER-BASED BRAND EQUITY ON CUSTOMER PURCHASE DECISION MAKING REGARDING CELLULAR PHONES

(A CASE OF NOKIA AND SONY ERICSSON IN YOGYAKARTA)

A THESIS

Presented as Partial Fulfilment of the Requirements

to Obtain the Bachelor Degree in Management Department

By

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DEPARTMENT OF MANAGEMENT
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FACULTY OF ECONOMICS
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YOGYAKARTA

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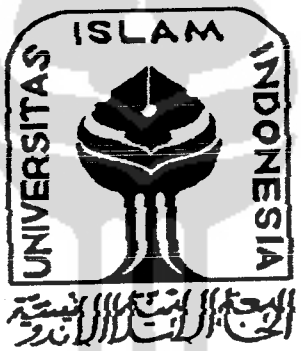

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UNIVERSITAS ISLAM INDONESIA ★ YOGYAKARTA ★ FAKULTAS EKONOMI

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Yogyakarta, February 26, 2007

Aulia Himawan Baiquni

STATEMENT OF FREE PLAGIARISM

Herein I declare the originality of this thesis; there is no other work which has ever presented to obtain any university degree, and in my concern there is neither one else's opinion nor published written work, except acknowledged quotation relevant to the topic of this thesis which have been stated or listed on the thesis bibliography.

If in the future this statement is not proven as it supposed to be, I am willing to accept any sanction complying to the determinates regulation for its consequence.

Yogyakarta, January, 2007

Aulia Himawan Baiquni

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ABSTRACT

Aulia Himawan Baiquni (2006), **"The Analysis of The Influence of Consumer Based Brand Equity on Customer Purchase Decision Making Regarding Cellular Phones".** Yogyakarta: Faculty of Economics, Department of Management, International Program, Universitas Islam Indonesia.

This research is conducted to analyze the influence of brand equity on purchase decision making regarding cellular phones. Variables tested in this research are the assets of brand equity suggested by Aaker (1991) which are brand association, brand awareness, brand loyalty, and perceived quality as the independent variables and purchase decision making as the independent variable.

Subjects of this research are customer surveys taken outside Nokia and Sony Ericsson Company Branches in Yogyakarta.These cellular phones brands were selected because the brands of the cellular phone are already well known cellular phone brands in Yogyakarta. A hundred samples respondents were taken randomly for those who are ever used both Nokia and Sony Ericsson cellular phone products by distributing questionnaire.

The results of statistical tests indicate that consumer-based brand equity has a significant positive influence on purchase decision making regarding cellular phone brand. Another finding indicates that brand loyalty and brand awareness variables are the most significant source of influence on purchase decision making regarding cellular phones. Meanwhile, brand association has the lowest effect of influence on purchase decision making regarding cellular phones.

ABSTRAK

Aulia Himawan Baiquni (2006), **"The Analysis of The Influence of Consumer Based Brand Equity on Customer Purchase Decision Making Regarding Cellular Phones".** Yogyakarta: Faculty of Economics, Department of Management, International Program, Universitas Islam Indonesia.

Penelitian ini dilakukan untuk menganalisa hubungan yang signifikan positif antara kekuatan merek konsumen terhadap keputusan konsumen untuk membeli produk telepon selular. Variabel yang diuji di dalam penelitian ini adalah aset brand equity yang diperkenalkan oleh Aaker (1991), terdiri dari *brand association, brand awareness, brand loyalty,* dan *perceived quality.* Aset kekuatan merek tersebut digunakan sebagai variabel bebas, sedangkan keputusan pembelian konsumen sebagai variabel tak bebas.

Subjek dari penelitian ini diambil diluar kantor cabang Nokia dan Sony Ericsson. Kedua merek ini dari telepon selular tersebut dipilih karena kedua merek tersebut adalah merek telepon selular yang terkenal di Yogyakarta. Seratus sampel responden diambil secara acak kepada konsumen yang pernah menggunakan kedua produk telepon seluler merek Nokia and Sony Ericsson dengan menyebar kuesioner.

Hasil dari tes statistik menunjukkan bahwa terdapat pengaruh yang signifikan positif antara kekuatan merek konsumen terhadap keputusan pembelian konsumen pada merek telepon selular. Kesimpulan lain yang didapat adalah variabel *brand loyalty* menjadi variabel uang berpengaruh pada merek Nokia, sedangkan variabel *brand awareness* menjadi variabel paling berpengaruh pada merek Sony Ericsson. Sementara variabel *brand association* adalah variabel paling sedikit berpengaruh pada kedua merek tersebut.

CHAPTER I

INTRODUCTION

1.1. Background of the Study

Brand is becoming a popular keyword as it frequently used by business magazines, marketing textbooks, and business publications. Of a brand society has become aware of the implications, benefits, and power of a brand if it is well managed. Brand is not an only word that correlates with product anymore, but also with process and business strategy.

Once, brand was only considered a sign for customers to differentiate one product from another. Renounced brands are considered to represent the product, this influence the customer in making a decision to buy that particular brand.

When people use a brand name, they will associate it with the product and services under the name of the brand. Brand can be defined as a variation from things that signed by specific attribute. However, most of the brands on the market are only to be brand names, because they do not have any specific characteristics and are not considered to be unique. Brand can be said to be specific if customers really feel sure that the brand is unique or specific (Duane E. Knap, 2000). If a brand itself cannot give a specific impression to customers, it will give competitors the opportunity to replace its brand position in customers' minds.

A brand is a tool used by companies to guide and develop customer loyalty. Loyal customers are those who commit to a certain brand as such those they repeat

purchase as well as recommend the brand to other people. A brand that conveys a message that is believable, rational, attractive, and consistent in quality, will achieve a specific position in the customers' perception, because of the strong association formed between the brand name and the characteristics perceived by the customers.

Strong brand is an intangible-value asset for the company and can be utilized as a strategic marketing tool. Strong brand equity will influence and support the customer loyalty, and loyalty will impact on customer repeat buying. It can also help the company to do market expansion (Duane E. Knap, 2000). In competition, brand can act as clear distinction between value and quality of the product, so it may help the company to have a sound marketing strategy.

Many companies have not yet maximized their brand equity, whereas brand equity itself will directly impact on customer perception about the product quality, whether customer will purchase or not (Duane E. Knap, 2000). However it would not be the guarantee that the customer will buy the product but buy the brand. Because customers tend to see the brand first, then the quality of the product, even though there are many product choices available in the market that offer relatively similar quality or functions, the customers still need to reconsider their decision to buy new brand. Rust, Zeithaml & Lemon (2000) stated that companies can increase the value of equity by giving expanded offerings to customers or by decreasing price. To increase brand equity, they suggested that companies set appropriate strategic marketing especially in loyalty programs.

The phenomenon of market competition can be seen in how companies try to position their product and develop market share. One of the assets to achieve that condition is product brand, which is becoming one of the greatest assets for companies nowadays. In a competitive market, customer preference and loyalty is the key success factor for a company. Therefore, in a marketing world, there is no product perception other than customer perception (Al Ries *et. al.* 1999).

Al Ries *et. al.* (1999) said that marketing paradigm has changed from "Nothing happens until somebody sells something" to become "Nothing happens until somebody brands something". Even brands have become the atomic core of consumer driven, capitalistic economy. Brands are the nucleus product and services categories toward which consumers have been attracted in search of benefits that will make their lives more pleasant (Lynn B. Upshaw, 1995).

Building perception can be done through brand equity and understanding brand behavior. The major reason for building brand equity or strong brands as the basis for business success is that it helps counteract competition by differentiating the product, allowing brand owners to charge a price premium, and develop customer loyalty (Aaker, 1991). Aaker (1991) suggested that the key sources of customer-based brand equity integrate both perceptual and behavior dimensions. There are four dimensions of consumer-based brand equity:

(1) Brand Association;

(2) Brand Awareness;

(3) Brand loyalty; and

(4) Perceived Quality

The value of brand equity composes the core problem of this research. Cellular phone brand Nokia and Sony Ericsson were chosen as the research object because they are convenience products, and purchase decision regarding these products is influenced by their product brands themselves. So, these brands become the main reference in customer purchasing decision making. From rough observation, Nokia and Sony Ericsson are perceived as modern and up to date cellular phone brands both of these brands have strong brand association.

Based on the considerations above, it would be interesting to know how high the brand equity of Nokia and Sony Ericsson is. In order to, the researcher would like to conduct a research entitled,

"THE ANALYSIS OF THE INFLUENCE OF CUSTOMER-BASED BRAND EQUITY ON CUSTOMER PURCHASE DECISION MAKING REGARDING CELLULAR PHONES" (A CASE OF NOKIA AND SONY ERICSSON IN YOGYAKARTA)

1.2. Problem Identification

Based on the study background above, the research focuses on the matter of how cellular phone customer-based brand equity influences customer purchase decision making.

1.3. Problem Formulation

The research problem then can be stated as follows:

1. Do the four individual attributes of customer-based brand equity (Brand Association, Brand Awareness, Brand Loyalty, and Perceived Quality) have a significant positive influence on the purchase decision making regarding cellular phones?
2. Which customer-based brand equity attribute dominantly influences purchase decision making regarding cellular phones?

1.4. Limitation of Research Area

There are so many cellular phone brands in Indonesia, for example: Nokia, Samsung, Sony Ericsson, LG, BENQ-Siemens, etc. Each brand has its own characteristic and value added for customers to choose from.

To make the research more focused the customer-based brand equity of only two cellular brands (Nokia and Sony Ericsson) that influence customer purchase decision making will be compared. The limitations of this research include:

1. The research will be conducted outside Nokia and Sony Ericsson Company Branches in Yogyakarta.
2. The population and sample of the research are customers of Nokia and Sony Ericsson in Yogyakarta.
3. The brands used as the object of study are Nokia and Sony Ericsson.

1.5. Research Objective

The objective of this research is to explore the effect of customer-based brand equity attributes on customer purchase decision making regarding Nokia and Sony Ericsson cellular phones. The core objectives of the research are:

1. To identify whether customer-based brand equity has a significant positive influence on purchase decision making regarding cellular phones.
2. To identify the most dominant attributes of customer-based brand equity that significantly influences cellular phone purchase decision making regarding cellular phones.

1.6. Research Contributions

1. Writer

   This research provides opportunities to develop a deeper understanding of the relationship between brand equity and customer purchase decision making.

2. Company

   This research may contribute supporting data to the Nokia and Sony Ericsson companies about their brand equity. They could use this data to increase and develop their brand equity, as well as an opportunity to reorganize and differentiate them. This research will help companies to compare the strength of brands in a competitive environment, and to guide marketing strategy development.

1.7. Definition of Terms

1. Brand

   Brand is a distinguishing name and/or symbol (such as a logo, trademark, or package design) intended to identify the goods or services of either one seller or a group of sellers, and to differentiate those goods of services from those of competitors (Aaker, 1991)

2. Customer

   A person making the purchase decision. The person for whom the brand works to represent.

3. Consumer-Based Brand Equity

   The power of a brand lies in the minds of consumers and what they have experienced and learned about the brand over time (Keller, 1993).

4. Brand Association

   Can be described as to what the brand can be linked, mental connection to and recall of brand.

5. Brand Awareness

   Can defined as the measure of how many people know a brand exists

6. Brand Loyalty

   Extended brand preference and deliberate decision to repeat purchase of the brand.

7. Perceived Quality

   Customer perception toward overall product quality and product advantage according to customer expectations.

8. Purchase Decision Making

   The stages a buyer passes through in making choices about which products and services to buy.

CHAPTER II

REVIEW OF RELATED ARTICLE

2.1. Theoretical Review

2.1.1. Brand Equity

According to Temporal, brand value is more than financial value from that brand; meanwhile brand equity can often strike a threatening pose with descriptive aspects, like symbol, logo, and image or customer association. Brand equity is also terminology that is used to describe subjective brand's point of view.

The basis of brand equity lies in the relationship that develops between a consumer and the company selling the products or services under the brand name (Duane E. Knapp, 1999). A consumer who prefers a particular brand basically agrees to select that brand over others based primarily on his or her perception of the brand and its value. The buyer may even pay a higher price for the company's goods or services because of his commitment, or passive agreement, to buy the brand. In return for the buyer's brand loyalty, the company essentially assures the buyer that the product will confer the benefits associated with, and expected from, the brand.

Barwise (1999) cites Keller's definition of brand equity, namely the *differential* effect of brand knowledge on consumer response to the marketing of a brand as another example. In fact Keller's work on customer-based brand equity appears to hold to this additive interpretation in a particularly forceful way.

According to him, if perceptions reflect the objective reality of the product, then no underlying customer- based brand equity may be present. In other words, if for a particular brand there is no difference between perceptions and reality, then brand equity may not exist at all. More recent work on brand equity appears to be continuing the trend identified by Barwise, defining brand equity, for example, as the *difference* in consumer choice between the focal branded product and an unbranded product given the same level of product features.

Brand equity refers to the intangible value that accrues to a company as a result of its successful efforts to establish a strong brand. A brand is a name, symbol, or other feature that distinguishes the company's goods or services in the marketplace. Consumers often rely upon brands to guide their purchase decisions. The positive feelings consumers accumulate about a particular brand are what makes the brand a valuable asset for the company that owns it. Alan Mitchell (2000) described brand equity as the storehouse of future profits which result from past marketing activities.

Many companies structure their marketing programs around building and preserving their brand equity. Duane E. Knapp (1999) explained in an article for *Risk Management*, to be a strong brand, a company must instill a clear, unwavering consumer perception of the distinctive emotional or functional benefits of its products and services. And he explained that at the end of the day, the brand is the sum total of the consumer's impressions about the product and service. The less

distinctive these impressions, the greater the risk that a competitor's products or services may gain a stronger perception and competitive advantage.

Aaker (1991) defines brand equity as a group of brand's assets and liabilities that are correlated with the brand itself, the brand's name, and its symbol, which can add or decrease the brand's value. He defines brand equity become 4 categories brand association, brand awareness, brand loyalty, and perceived quality.

2.1.1.1. Brand Association

Aaker (1991) defines a brand association is anything linked in memory to a brand. A brand image is a set of organized associations. Brand positioning is like an association or image, but it includes a reference, which is normally the competition, and does not reflect consumers' perceptions of the brand. The brand position does reflect how a company is trying to be perceived. A strong brand has a competitively attractive and distinct position that is supported by strong associations (Aaker 1991).

Keller (1993) defines brand associations are divided into three major categories of increasing scope: attributes, benefits, and attitudes. And 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. Benefits are the personal value consumers attach to the product or service attributes - what consumers think the product or service can do for them.

Brand attitudes are consumers' overall evaluations of a brand. They are important because they often form the basis for brand choice.

Although brands have long had a role to play in commerce, it was not until the twentieth century that branding and brand association became so central to competitors. In fact, a distinguishing characteristic of modern marketing has-been its focus upon the creation of differentiated brand associations to accentuate the bases of differentiation. The idea has been to move beyond commodities to branded products -to reduce the primary of price upon the purchase decision. Consumers associate the value of the product with the brand. The brand can convey either a positive or a negative message about the product to the consumer (Kim and Chung, 1997).

The underlying value of a brand is often based upon specific association of "use context" such as heart attack prevention can provide a reason-to-buy which can attract customers. Such an association represents the product's meaning to customers. Brand associations represent bases for purchase decision and for brand loyalty. There are host of possible associations that a firm can build in a brand. Not all associations need to be built but rather those that directly or indirectly affect consumers' buying behavior. Product attributes (customer benefits) are an important class of associations, but there are others that can be important in some contexts (Aaker, 1991). The following section deals with the brand associations that a firm can build and how they create value to both the firm and consumer. Moreover the evaluations of brand association may be situational or context-dependent and vary

according to consumers' particular goals in their purchase or consumption decisions (Day, Shocker, and Srivastava, 1979). And Association may be valued in one situation but not another (Miller and Ginter, 1979).

Brand Association may or may not be shared with other competition brands. The essence of positioning is that the brand has a sustainable competitive advantage or "unique selling proposition" that gives consumers a compelling reason for buying that particular brand (Aaker, 1991). These differences may be communicated explicitly by making direct comparisons with competitors or may be highlighted implicitly without stating a competitive point of reference.

2.1.1.2. Brand Awareness

Brand awareness is the ability of a potential buyer to recognize or recall that a brand is a member of a certain product category (Aaker, 1991). It is a continuum that ranges from a consumer being totally unaware of a particular brand to the belief that it is the only brand that exists for a product.

Brand awareness can affect decisions about brands in the consideration set, even if a consumer does not have any other thoughts about a brand. Some consumers have adopted a decision rule to only buy familiar, well-established brands (Jacoby, Syzabillo, and Busanto-Schach 1977; Roselius 1971). For low involvement decisions, a minimum level of brand awareness can be enough to choose a brand without any other brand information (Bettman and Park 1980; Hoyer and Brown 1990; Park and Lessig 1981). (Petty and Cacioppo 1986) suggests that

consumers may base choices on brand awareness considerations when they have low involvement, which could result from either a lack of consumer motivation (i.e. consumers do not care about the product or service) or a lack of consumer ability (i.e. consumers do not know anything else about the brands).

Figure 2.1.

The Awareness Pyramid

(Source: Aaker, David, *"Managing Brand Equity"*, New York: The Free Press, 1991)

2.1.1.3. Brand Loyalty

Brand loyalty is a deeply held commitment to repurchase or repatriate a preferred brand consistently in the future, despite situational influences and marketing efforts having the potential to cause switching behavior (Oliver 1997). One important aspect of this definition is that brand loyalty is emotionally rooted.

According to Oliver's theory, brand loyalty develops over several phases. The first is cognitive. In this phase, favorable beliefs are formed to support the preferred brand. The brand is preferred to others on informational grounds, and brand switching may occur if other brands come up with better selling points.

The next phase of loyalty is based on affect. In addition to informational support, the preference for the brand is supported by repeated experiences of satisfaction with the brand. Thus, consumers develop a sense of commitment. The important change in this phase is that beliefs and evaluations become integrated and emotionally colored (Eagly & Chaiken, 1993). Brand loyalty is a key element in sustaining stable demand and sales flow overtime (Aaker, 1991). Moreover, brand loyalty not only assures steady receipts and revenues but also facilities reduced advertising and marketing budget without forgoing effectiveness. The overall result of these advantages is increased marketing efficiency (Parazuraman, A., Zeithaml, V., et Berry, L., 1985).

Brand loyalty refers to a biased behavioral response expressed overtime by some decision-making unit with respect to one or more alternative brands out of a set of such brands (Jacoby and Chestnut, 1978). However, nuances regarding the basic concept of loyalty have not been explicitly articulated (Fournier and Yao, 1997). Though Jacoby and Chestnut (1978) clear identify brand loyalty as a function of physiological (decision-making), evaluative process exhibited over time.

Different dimensions of brand loyalty have been presented and discussed in the literature. Most recently, Liebermann (1999) distinguished among three types of

loyalty: (1) image oriented loyalty representing the fact that a consumer prefers the brand over alternative offers made by competitors; (2) marketing oriented loyalty defining the customers' tendency to recommend the brand to relatives and friends; and; (3) sales oriented loyalty representing the larger sums spent by consumers.

The concept of brand loyalty has had a long and inconsequent history. The very first mention of the idea was attributed to Copeland (1923) and, since then, over 200 definitions have appeared in the literature (Jacoby and Chestnut, 1978). This plethora of definitions provides a clue as to how important this concept is in marketing theory. The generation of 'loyal 'customers has been a primary objective of marketers for decades. The level of brand loyalty has also been used as a measure of the success of marketing strategy and also as a partial measure of brand equity. In fact, Aaker (1991) stated that the brand loyalty of the customer base is often the core of the brand's equity.

Brand loyalty, long a central construct in marketing, is a measure of the attachment that a customer has to a brand. It reflects how likely a customer will be to switch to another brand, especially when that brand makes a change, either in price or in product features. As brand loyalty increases, the vulnerability of the customer base to competitive action is reduced. It is one indicator of brand equity that is demonstrably linked to future profits, since brand loyalty directly translates into future sales (Aaker, 1991).

2.1.1.4. Perceived Quality

Perceived quality is the customer's perception of the overall quality or superiority of a product or service with respect to its intended purpose, relative to alternatives (Aaker 1991). Consumers have a perception of the overall quality of a brand that is not necessarily based on knowledge of its detailed specifications. Perceived quality directly influences purchase decisions and brand loyalty, especially when a buyer is not motivated or able to conduct a detailed analysis. It can also support a premium price, which, in turn, can create profits that can be reinvested in brand equity. Further, brand quality can be the basis for a brand extension. If a brand is well regarded in one context, the assumption will be that it will have high quality in a related context (Aaker 1991).

Perceived quality is a total judgment of evaluation with respect to a product or a service bearing on the relative superiority of this product/service (Rust and Oliver, 1994; Taylor and Bakker, 1994; Bitner and Hubert, 1994). It is a confrontation of the quality returned by an offer, of a product/service, with the earlier expectations of the consumer. If the returned quality exceeds expectations, perceived quality is high, if the returned quality is lower than expectations, perceived quality is low. This definition of perceived quality is almost equivalent to that of satisfaction, and explains why these two concepts are very often confused (Ngobo, 1997). Quality is distinguished from satisfaction in that the latter is assumed to involve specific transaction. But opinions are divided. In Nordic

literature perceived quality is an antecedent of satisfaction, whereas in American literature perceived quality is a consequence of satisfaction.

There is well developed literature on quality of service. Several conceptualizations of quality of service coexist, but one can notice the absence of a consensus on the number of dimensions and the interrelationship among these dimensions. Parazuraman, Zeithaml and Berry (1985, 1988) proposed five dimensions of service which are: reliability, responsiveness, empathy, assurance and tangibility. They defined perceived service quality as the degree and direction of discrepancy between a consumer's perceptions and expectations. These dimensions were criticized in a lot of literature because of the difficulty in their generalization with various contexts (Cronin and Taylor, 1992), and they also pose problems when defining and measuring expectations (Teas, 1993). Grönroos (2000) proposed two dimensions: technical quality which measures the result of the service, and functional quality which measures the manner the service is delivered. Rust (2000) added a third dimension which is the environment in which the service is rendered. However the dimensions proposed by Parazuraman, Zeithaml, and Berry are the most used.

While products create choices, brands make choices easier (Bender, Farquahr, and Schulert, 1996). A consumer can choose from many brands for a product, but most consumers do not examine all of the choices. Consumers first simplify the decision by reducing the choices to a small number (consideration set), and then they only evaluate those brands in order to make their decision. Therefore,

it is crucial for a brand to be part of the consideration set (Bender, Farquahr, and Schulert, 1996). Corporate brands are at the top of the brand hierarchy, and these well known corporate brands provide consumers with the reassurance of product quality and a promise of trusted service. Brand awareness is the most influential factor in determining which brands will be included in the consideration set (Bender, Farquahr, and Schulert, 1996).

Although measuring brand equity can be difficult, it can also provide managers with a good indication of their company's future profitability (Alan Mitchell, 2000). Unfortunately, measuring brand equity is not as simple as counting the number of people who recognize a brand name or symbol (Alan Mitchel, 2000). It is also dangerous to assume that simply because its brand is well-known, a company enjoys strong or growing brand equity. In fact, the most powerful brands can easily be diluted by company missteps or inconsistent marketing messages. Mitchell explained that the best way to measure brand equity depends on the particular company and its industry. For example, in some cases assessing consumer perceptions of product quality may provide the best indication of brand equity (Alan Mitchel, 2000).

Finding an appropriate measure of brand equity is vital in order for companies to ensure that they protect this valuable asset (Duane E. Knap, 2000). In his *Risk Management* article, Knapp claims that managers must remain constantly vigilant to protect their brand equity, since a declining brand image poses a significant risk to company earnings. If a brand loses its distinctive image in the

minds of consumers, then the branded product becomes more like a commodity and must compete on the basis of price rather than value. Customer loyalty decreases, which has a corresponding negative effect on market share and profit margins. In order to prevent this decline, Knapp recommends that companies consider the impact of major decisions on consumer perceptions and brand equity. Every action taken by management—including the introduction of new products or advertising strategies, or the decision to lay off employees or relocate a factory—should be assessed for its effect on brand equity.

2.1.2. Customer-Based Brand Equity

Customer-based brand equity has been defined as the differential effect of brand knowledge on consumer response to the marketing of the brand (Kamakura and Russell, 1991). Thus brand equity is conceptualized from the perspective of the individual consumer and customer-based brand equity occurs when the consumer is familiar with the brand and holds some favorable, strong, and unique brand associations in the memory (Kamakura and Russell, 1991).

According to Aaker (1991), customer-based brand equity is multidimensional concept that consist of brand loyalty, name awareness, perceived quality, brand associations, and other proprietary brand assets (patents, trademarks and channel relationship). Aaker (1991, 1996) described brand loyalty, name (or brand) awareness, perceived quality, and brand associations as representing *customer perceptions* and *reactions to the brand*, dimensions that can readily be

understood by consumers. Aaker further described the fifth brand asset, other proprietary brand assets, as consisting of patents, trademarks, and channel relationships. This dimension is not relevant to the customer-based brand equity measure. It is viewed from firm perspective not customer, because of that this dimension is eliminated in defining the consumer-based brand equity.

As such, one way to examine brand equity is from the perspective of the customer and is based in the customer's knowledge, familiarity, and associations with respect to the brand. Another perspective on brand equity emanates from the viewpoint of the marketing organization and focuses on the asset value of the brand in the marketplace. Yoo and Donthu (1997) designed a scale to measure customer-based brand equity as opposed to the monetary value of the brand. According to Keller (1993), a thorough understanding of customer-based brand equity is essential for successful brand management since the content and structure of memory for the brand will influence the effectiveness of future brand strategies.

2.1.3. Purchase Decision Making

Customer purchase decision making can be related to the customer perception about particular products and services, because perception may influence the customer purchase decision making. If a customer is sure that the product is good, they will consider that product first before purchasing.

Wilkie (1994) describes consumer perception as a process consisting of three stages: sensing, selecting, and interpreting. This study focuses on the

interpretive stage which in turn entails activities such as perceptual organization (figure/ground, closing, grouping etc.), categorization (grouping similar stimuli), and inferences about stimuli. Interpretation refers to the activity where a consumer gives meaning to a perceived object.

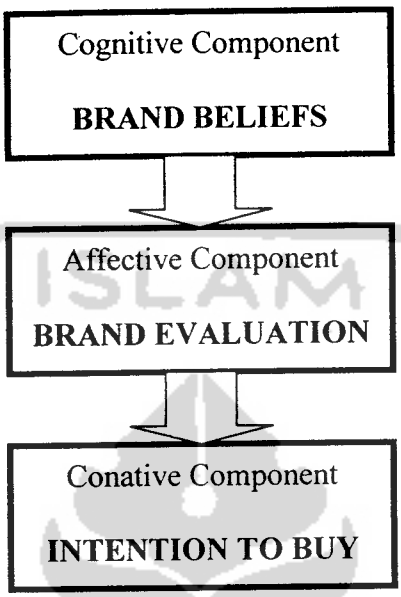
To manage brands successfully, managers have to understand customer needs and desires. Customer perceptions have to be studied because perception is basic to other activities. Improved understanding of customer perceptions is also important because it has been shown that managers view their own retail image differently from that of their customers (Birtwistle, *et al.*, 1999)

The categorization model of consumer perception states that a consumer's knowledge about products and brands forms a categorical structure in a consumer's memory. The information of customer evaluation about their perception toward product and service offered by company may help marketer to know and evaluate it.

By knowing what consumers' attitudes are, a marketer should be able to (1) understand why current sales are strong or not; (2) improve the marketing mix to improve consumer's attitudes; (3) better understand how the use of brand can effect consumer purchase decision making. For these reasons, marketers are continuously monitor consumer attitudes. In fact, consumer attitudes regarding a brand often directly influence whether consumers will purchase it or not.

Figure 2.2.

Three Components of Attitude



(Source: Henry Assael, Consumer Behavior & Marketing Action, PWS –KENT Publishing Co, 1992: 196)

2.2. Conceptual Framework

This research paper aims to investigate the relationship between customer-based brand equity and customer purchase decision making. The fact is that most success selling products occurs when a company succeeds in selling their brand. Customers tend to buy products with well-known and well-recognized brand names that represent good products also. They prefer to choose a good product based on its brand rather than a good product with a less renowned brand. It may seem irrational

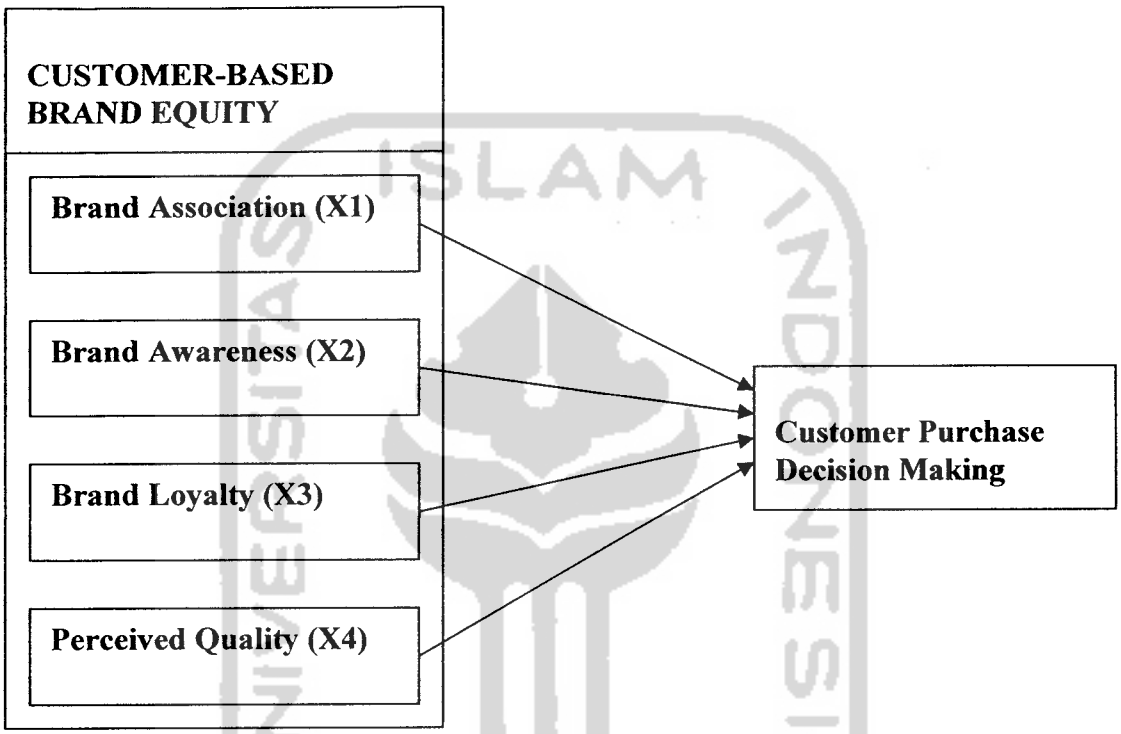
for a brand name to be everything, but it is a fact that brand equity is more valuable than the product itself.

Customer perception about such products has been determined by customer response toward product brand equity. Customer-based brand equity is happens when a customer is familiar with a well recognized brand, and will remember the brand based on their perspective. Srivastava and Shocker (1991) stated that customer-based perspective must subsume based on perception and behavior of the customer. Therefore, the researcher built the conceptual framework adopting the framework from Aaker (1991) which consists of: (1) Brand Association, (2) Brand Awareness, (3) Brand Loyalty, (4) Perceived Quality. The brand equity framework is according to customer's perspective and its influence to customer's purchase decision. Then, determine the most dominant variable of customer-based brand equity that influences customer purchase decision making.

The following is the conceptual framework of customer-based brand equity on purchase decision making:

Figure 2.3.

The Conceptual Framework of Customer-Based Brand Equity on Customer Purchase Decision Making



2.3. Hypotheses Formulation

2.3.1. Brand Association

Associations can be categorized also by the strength of connection to the brand node. The strength of associations depends on how the information enters consumer memory (encoding) and how it is maintained as part of the brand image (storage). Strength is a function of both the amount and quantity of processing the information receives at encoding. Cognitive psychologists believe memory is

extremely durable, so that once information becomes stored in memory its strength of association decays very slowly (Loftus and Loftus 1980).

Some basic memory principles can be used to understand knowledge about the brand and how it relates to brand equity. The importance of knowledge in memory to consumer decision has been well documented (Alba Hutchinson, and Lynch, 1991). Memory is one of the main sources of customer purchase decision, and also customer association between something to another such, brand, quality, and satisfaction (Henry Assael, 1992).

Hypotheses1:

Hi: Brand Association has a significant positive influence on customer purchase decision making.

2.3.2. Brand Awareness

Brand Awareness plays an important role in consumer decision making for three major reasons. First, it is important that consumers think of the brand when they think about the product category. Raising brand awareness increases the likelihood that brand will be a member of the consideration set (Baker et al. 1986; Nedungadi 1990), the handful of brands that receive serious consideration for purchase. Second, brand awareness can affect decisions about brands in the consideration set, even if there are essentially no other brands associations. For example, consumers have been shown to adopt a decision rule to buy only familiar, well established brands (Jacoby, Syzabillo, and Busanto-Schach 1997; Roselius

1971). In low involvement decision settings, a minimum level of brand awareness may be sufficient for product choice, even in the absence of a well-formed attitude (Bettman and Park 1980; Hoyer and Brown 1990; Park and Lessig 1981). Brand awareness is the most influential factor in determining which brands will be included in the consideration set (Bender, Farquahr, and Schulert 1996).

Hypotheses2:

Hi: Brand Awareness has a significant positive influence on customer purchase decision making.

2.3.3. Brand Loyalty

Brand loyalty refers to a "biased behavioral response expressed overtime by some decision-making unit with respect to one or more alternative brands out of a set of such brands" (Jacoby and Chestnut, 1978: 80). However, nuances regarding the basic concept of loyalty have not been explicitly articulated (Fournier and Yao, 1997). Though Jacoby and Chestnut (1978: 209-216) clear identify brand loyalty as a function of physiological (decision-making), evaluative process exhibited over time.

Hypotheses3:

Hi: Brand Loyalty has a significant positive influence on customer purchase decision making

2.3.4. Perceived Quality

Perceived quality directly influences purchase decisions and brand loyalty, especially when a buyer is not motivated or able to conduct a detailed analysis. It can also support a premium price, which, in turn, can create profits that can be reinvested in brand equity. Further, brand quality can be the basis for a brand extension. If a brand is well regarded in one context, the assumption will be that it will have high quality in a related context (Aaker 1991). Parazuraman, Zeithaml and Berry (1985, 1988) proposed five dimensions of service which are: reliability, responsiveness, empathy, assurance and tangibility. They defined perceived service quality as the degree and direction of discrepancy between a consumer's decision making and expectations.

Hypotheses4:

Hi: Perceived quality has a significant positive influence on customer purchase decision making.

CHAPTER III

RESEARCH METHOD

3.1. Research Method

3.1.1. Type of the study

This study uses applied empirical research with a study case and is in the form of quantitative and qualitative research. The methodology used in this research is survey method by distributing questionnaires to research subjects.

3.2. Research Subject

3.2.1. Population

Population is the whole individual unit or object from where the sample is taken. In this research, the populations are the customers who have experience of using the Nokia and Sony Ericsson cellular phones.

3.2.2. Sampling Method

A sample is a subset measurement selected from the population of interest (Kotler, 1991). The samples of this research are few customers who have experience of using Nokia and Sony Ericsson cellular phone products. According to Sekaran (2003), the minimum sample for correlation research is 30 samples. In order to make the results more generalized 100 respondents were used.. Sampling is the process of selecting items from the population so that the sample characteristics can be generalized to the population.

According to Hair, *et. al.*, (1998) meaurement sample suggested in using estimation of *Maximum Likelihood* in SEM *(Structural Equation Modeling)* are 100-200 respondents. The weaknesses of *Maximum Likelihood* occur when using large amount of respondents (400-500), will sensitively result the bad *goodness of fit index.* That is why 100 respondents were used.

The way to get 100 respondents, researcher distribute questionnaires to each person conveniently, outside of Nokia and Sony Ericsson Company Branches. Before distributing the questionnaires, researcher asked to the respondent, whether they ever used both Nokia and Sony Ericsson cellular phone products or not.

3.3. Research Setting

3.3.1. Place & Time

The research was conducted outside of Nokia and Sony Ericsson Company Branches in Yogyakarta. Because there is no permission from the management of both Nokia and Sony Ericsson Company Branches to conduct research inside of the company branches.

This research was conducted from December 2006 until January 2007.

3.4. Research Variables

This study uses variables which are purchase decision making and brand equity (brand association, brand awareness. brand loyalty, and perceived quality).

This questionnaire is derived from Kim Woo and Kim Hong (2003: 335) research in which English language is used. However, the questionnaire used in this study is converted into Indonesian language to make sure the understanding of the respondents to the questions. Furthermore, a pre-test is conducted prior the distribution of the questionnaire. The pre-test is aimed to identify the respondents difficulty to understand the statements and the question listed in the questionnaire.

3.4.1. Dependent Variable (Y)

A dependent variable is a variable that measures the effect of the independent variables or treatment being studied (Malhotra, 1999: 217). The dependent variable in this study is **Purchase Decision Making.**

3.4.2. Independent Variable (X)

An independent variable is a variable that is manipulated by the researcher and whose effects are measured and compared (Malhotra, 1999: 217). The independent variable in this study is customer-based brand equity that consists of:

3.4.2.1. Brand Association (X1)

The underlying value of a brand name often is its set of associations; it's meaning to people. Associations represent bases for purchase decisions and for brand loyalty. Among the ways in which associations create value for the firm and its customers are: helping to process/ retrieve information, differentiating the brand, generating a reason to buy, creating positive attitudes/ feelings, and providing a basis for extensions (Aaker, 1991). Some associations influence purchase decisions by providing credibility and confidence in the brand so that customers feel

comfortable using the product or service. The total five (5) question items are measured on a five-point Likert scale with 1 for "strongly disagree" and 5 for "strongly agree". Below is the list of scale items used to measure the dimensions of brand associations:

- The price is relatively cheap
- The features are very nice and complete
- The Cellular phone is flexible and easy to operate
- It is a durable cellular phone
- It has a different image from that of other cellular phone brands

3.4.2.2. Brand Awareness (X2)

Brand Awareness involves a continuum ranging from an uncertain feeling that the brand is recognized, to a belief that it is the only one in the product class. According to Aaker (1991), brand recognition is the basic first step in the communication task. It is usually pointless to attempt to communicate brand attributes which name is like a special file folder in the mind that can be filled with name-related facts and feelings. The total five (5) question items are measured on a five-point Likert scale with 1 for "strongly disagree" and 5 for "strongly agree". Below is the list of scale items used to measure the dimensions of brand awareness:

- This cellular phone brand is the first one recalled in my mind when think of cellular phone products.
- I recognized this cellular phone brand more easily than other cellular phone brands.

- I can easily recall some of the cellular phone features.
- I can easily recall the cellular phones brand.
- I consider that this product is the best brand of cellular phones.

3.4.2.3. Brand Loyalty (X3)

Measurement of brand loyalty tends to be dependent on the customer. If customers are indifferent to the brand and, in fact, buy with respect to features, price, and convenience with little concern to the brand name, there is likely little equity. On the other hand, if they continue to purchase the brand even in the face of competitors with superior features, price, and convenience, substantial value exists in the brand and perhaps in its symbol and slogans (Aaker, 1991).

The total five (5) question items are measured on a six-point Likert scale with 1 for "strongly disagree" and 5 for "strongly agree". Below is the list of scale items used to measure the dimensions of brand loyalty:

- I am satisfied with the features and models available from this cellular phone brand.
- I have regularly used this cellular phone brand.
- I always consider this cellular phone brand first before buying.
- I intend to buy my next new cellular phone from the same brand that I used before.
- I will recommend this cellular phone brand to others.

3.4.2.4. Perceived Quality (X4)

Perceived quality cannot necessarily be objectively determined, in part because it is a perception and also a judgments about what is important to customers are involved. The total five (5) questions items are measured on a five-point Likert scale with 1 for "strongly disagree" and 5 for "strongly agree". Below is the list of scale items used to measure the dimensions of perceived Quality:

- This cellular phone provides easy and fast operating feature systems
- This cellular phone has a lot of service centers to assist their customers everywhere.
- The company handles customer complaints effectively.
- The company has a good response to customer problems.
- Every new series of cellular phones from this brand has up to date features.

3.5. Research Instrument and Data Collection

3.5.1. Measurement Scale

This research uses the Likert scale. Respondents are asked to rate the statements in five categories. According to Jogiyanto (2004), this research can be measured based on the rating of statements given by respondents by giving a score of 1 for "strongly disagree", 5 for "strongly agree" and 3 for neutral (see table 3.1).

Tabel 3.1
Variable Meaurement Scale

Score	Summary	Notation
1	**Strongly disagree (Sangat Tidak Setuju)**	**STS**
2	**Disagree (Tidak Setuju)**	**TS**
4	**Neutral (Netral)**	**N**
3	**Agree (Setuju)**	**S**
5	**Strongly agree (Sangat Setuju)**	**SS**

Source: Jogiyanto (2004)

3.5.2. Techniques of Data Analysis

3.5.2.1. Qualitative Analysis

The information collected from the respondent questionnaires comprises the main characteristics of analysis. It is useful to know the proposition, composition, and ratio of the respondents based on age, gender, education, income, job/occupation, and purchase experience.

3.5.2.2. Quantitative Analysis

The statistical tool used in this research is Structural Equation Modeling (SEM) to analyze data collected. It was used to determine to what extent brand equity (Brand association, brand awareness, brand loyalty, and perceived quality) influences customer purchase decision making. In order to determine the influence of independent variables on dependent variables, this was calculated by using AMOS program.

3.5.2.2.1. Structural Equation Modeling (SEM)

Quantitative Analysis is an analysis method that uses statistical methodology to solve the problems. This research uses analysis of *Structural Equation Modeling* (SEM), which is a *multivariate* analysis technique that tests the correlation among variables *recursively* and *non-recursively,* to get whole analysis about the whole model. This model was chosen to determine the extent of the influence of customer-based brand equity on customer purchase decision making regarding Nokia and Sony Ericsson cellular phones. According to Hair, *et. al.*, (1998) the process of *Structural Equation Modeling* (SEM) consists of following step:

1. **Model Development Based on Theory**

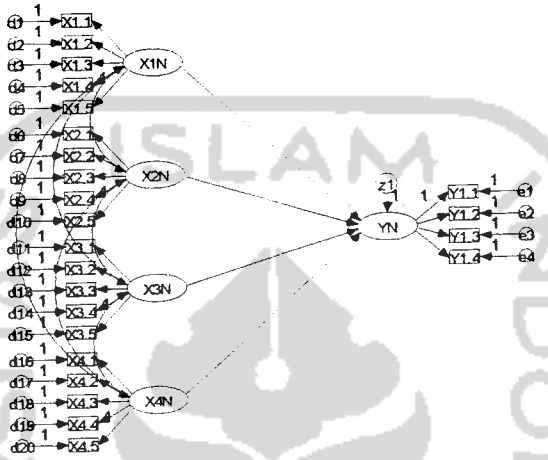
   Structural Equation Modeling (SEM) based causality relationship where the changing of one variable is assumed to be caused by the changing of other variables. The strong causality relationship between two variables is assumed not to be caused by the analysis chosen, but is caused by the theoretical justification to support the analysis (Ghozali, 2004:8).

2. **Path Diagram and Structural Equation.**

   According to Ghozali (2004), there are two steps that must be taken to make a path diagram and structural equation, they are, arranging the structural model by correlating latent construct (endogenous and exogenous) with indicator variable *(manifest variable).* Based on theoretical model above, path diagram can be developed as follows:

Figure 3.1

***Path Diagram* of the Influence of Customer-Based Brand Equity on Customer Purchase Decision Making regarding Nokia and Sony Ericsson Cellular Phones**



3. Choosing Input Matrix and Estimation Model

Model in structural equation is different from other multivariate analysis techniques, SEM only uses data input, and that is variance/covariance matrix or correlation matrix. Rough data from the questionnaires is changed into variance/covariance matrix or correlation matrix, so that the equation is also stated as a *covariance structural analysis.* Covariance matrix has advantage over correlation matrix in giving a comparison of validity between different populations and different samples. The use of correlation is best suited if the research objectives are simply to

understand the pattern of construct relationship, but do not describe the total variance of the construct (Ghozali, 2004).

4. Structural Model Identification

Problem identification is to ascertain any incapability of a proposed model to produce an estimation model. In order to identify problems, the estimation results are examined, those are: high value of *standard error* for one or more coefficients, incapability of the program to invert *information matrix*, impossible estimation value (negative *error variance*), and high correlation (>0.90). If there are any problems identified, three things may be occurred, the coefficient amount that relatively estimated toward covariance or identified correlation with low value of *degree of freedom (df)*, using reciprocal correlation among constructs, failures in determining fix value on construct scale (Ghozali, 2004).

5. Goodness of Fit Criteria

If *offending estimates* occur, those are: negative variance *error* or *non-significant error variance* of construct, *standardized coefficient* close to value of 1.0, and high standard error, the cause of the offending *estimate* must be eliminated first. In SEM analysis, there is no single statistical test tool to measure or test the model (Hair, *et. Al.*, 1995; Joreskog & Sorbom, 1989; Long, 1983; Tabachnic & Fidell, 1996, in Ferdinand, 2002). *Fit Index* and *cut of value* that is used to test whether the model can be accepted or not, as follows:

a) Absolute Fit Measures

1) Likelihood Ratio Chi Square Statistic

An analysis tool to measure overall fit is *likelihood ratio chi-square statistic*, with a sample of 100 respondents. The model which is tested is considered good or satisfactory if the *chi-square* (χ^2) value is small. Small value of χ^2 means that the model is good ($\chi^2 = 0$, means that there are no differences, Ho is accepted) and accepted based on probability with *cut of value* $p>0.05$ or $p>0.10$ (Hulland, *et. Al.*, 1996, in Ghozali, 2004).

Because this analysis objective is to develop and test a model which is suited and *fit* based on the data, so it required insignificant value of χ^2 that test null hypotheses (*estimated population covariance* is not equal than *sample covariance*). Value of χ^2 can be compared with *degree of freedom (df)* to get relative value of χ^2 and it is used to make conclusion that high relative value of χ^2 means that significant difference between covariance matrix observed and covariance matrix estimated.

Small value of χ^2 resulting the significant level more than 0.05 that indicates that there is no significant difference between covariance matrix data and covariance matrix estimated (Hair, *et. Al.*, 1995, in Ghozali, 2004).

2) **CMIN/DF (*The minimum Sample Discrepancy Function)***

The minimum Sample Discrepancy Function (CMIN) divided by its *degree of freedom (df)* will resulting CMIN/DF (generally, it is used for researcher as indicator to measure fit level of model. CMIN/DF is also as *chi-square* statistic; χ^2 divided by its *degree of freedom (df)* is relative χ^2. Value of χ^2 relatively less than 2.0 or even less than 3.0 as indication of *acceptable fit* between model and data (Arbuckle, 1997 in Ghozali, 2004).

3) **GFI (*Goodness of Fit Index*)**

Fit Index can measure proportion of variance in covariance matrix sample that stated by estimated matrix covariance population (Bentler, 1983; Tanaka & Huba, 1989 in Ghozali, 2004). GFI is *non-statistical* measurement tool that has value range from 0 (*poor fit*) until 1.0 *(perfect fit)*. High value in this index shows *"better fit"*

4) **RMSEA (*The Root Mean Square Error of Approximation*)**

RMSEA is index that can be used to compensate *chi-square* statistic in big sample (Baumgartner & Homburg, 1996, in Ghozali, 2004). RMSEA value shows expected *Goodness of Fit Index* if estimated model in population (Hair, *et. al.*, 1995). Small value of RMSEA (=0.08) means that model that shows *close fit* of model based on *degree of freedom (df)* can be accepted (Browne & Cudeck, 1993, in Ghozali, 2004).

b) Incremental Fit Measures

1) AGFI (*Adjusted Goodness of Fit Index*)

Tanaka & Huba (1989) in Ghozali (2004) stated that GFI is analog of R^2 in multiple regressions. This *Fit Index* can be adjusted toward available *degree of freedom (df)* to test whether the model can be accepted or not (Arbuckel, 1999, in Ghozali 2004: 20). Index got from the equation below:

$$AGFI = 1 - (1 - GFI)\frac{d_b}{d}$$

Where

$$d_b = \sum_{g=1}^{G} p^{\bullet(g)} = \text{Sample } moments$$

$$d = degrees\ of\ freedom$$

Acceptance level that recommended is if AGFI has equal value with more than 0.90 (Hair, *et.al.*, 1996, in Ghozali, 2004). GFI and AGFI are the criteria that measure proportion of variance in a covariance matrix sample. Value of 0.95 can be interpreted as *good overall fit* level and range value 0.090-0.95 shows *adequate fit level* (Hulland, *et. al.*, Ghozali, 2004).

2) TLI (*Tucker Lewis Index*)

TLI is *incremental fit index* alternative that compared tested mdel toward baseline model. Recommended value as the base of model is ≥0,90 (Hair, *et. al.*, 1995), and the value that close to 1 (one) shows a

very good fit (Arbuckle, 1997, in Ghozali, 2004:32). Index are as follows:

$$TLI = \frac{\left(\chi^2_{null}/df_{null}\right) - \left(\chi^2_{proposed}/df_{proposed}\right)}{\left(\chi^2_{null}/df_{null}\right) - 1}$$

Or:

$$TLI = \frac{\frac{C_b}{d_b} - \frac{C}{d}}{\frac{C_b}{d_b} - 1}$$

Where C is discrepancy of model that is evaluated and d is degree of freedom, meanwhile C_b and d_b is discrepancy and *degrees of freedom* from the *baseline model* that has comparison.

3) NFI (Normed Fit Index)

It is the comparison measurement between *the proposed model* and *the null model*. Value of NFI will be varied from 0 *(no fit at all)* until 1.0 *(perfect fit)*. Like TLI, there is no *absolute value* that used as the standard, but generally recommended as equal or > 0.90.

6. Model Interpretation

According to Ghozali (2004), when a model is stated as acceptable, it can consider to make a modification index to recover theoretical justicification or goodness of fit. This modification must have a consideration. If the modification model must be cross validated (estimated with separated data) before it can be accepted as to whether the value absolutely fits the model from the default model, with chi-square that

relatively big value, that is showed by significant probability level ($p < 0.5$) so it requires modification. Model can be stated as good fit model if probability level of chi-square relatively is smaller than in significant probability level ($p > 0.05$).

CHAPTER IV

DATA ANALYSIS, HYPOTHESIS TESTING AND DISCUSSION

4.1. Overview of the Strategy Analysis

The cellular phone brands used as the objects of study are Nokia and Sony Ericsson. This research aims to answer the questions as mentioned in the previous chapter. The first section of this chapter describes the respondent demographic characteristics, which includes the respondent's gender, education, occupation, initiative and recommendation in buying and income. The second section of this chapter is about the Measurement Model used to determine whether the data is valid, reliable and meets the requirements for further analysis.

Quantitative analysis used in this research is *Structural Equation Model* (SEM) with AMOS program version 5.0, the *Structural Equation Model* was chosen to determine how significant equity model of the influence of brand equity is. Brand equity consists of: Brand Association, Brand Awarreness, Brand Loyality, and Perceived Quality of Consumers' Purchase Decision Making of Cellular Phones branded Nokia and Sony Ericson. One hundred respondents were used for the purpose of this research.

4.2. The Respondent Demographic Characteristics

This research was conducted outside Nokia and Sony Ericsson Company Branches in Jogjakarta, where sample were taken from a hundred respondents. The distribution of the respondent characteristics is described in diagrams and tables as follows:

4.2.1. Respondent Gender

Table 4.1

The Distribution Frequency of the Respondents' Gender

Gender	Frequency	Percentage
Male	57	57.0
Female	43	43.0
Total	100	100.0

Source: Primary Data (computed), 2007.

Table 4.1 describes 57 respondents (57.0%) as male and 43 respondents (43.0%) as female. This means that most of the respondents of this study are male.

4.2.2. Respondent Educational Background

Table 4.2

The Distribution Frequency of the Respondent's Education Background

Last Education	Frequency	Percentage
Junior High School	7	7.0
High School	27	27.0
Diploma/Under Graduate Degree	40	40.0
Post Graduate	23	23.0
Other	3	3.0
Total	100	100.0

Source: Primary Data (computed), 2007.

Table 4.2 describes the educational background of the respondents to be 7 respondents (7.0%) at junior high school level; 27 respondents (27.0%) at high school level; 40 respondents (40.0%) at diploma/undergraduate degree level; 23 respondents (23.0%) at post-graduate level and 3 respondents (3.0%) are defined as other. From the table above, it can be seen that most of the respondents have an educational background at diploma/undergraduate degree level.

4.2.3. Respondent Occupation

Table 4.3

The Distribution Frequency of the Respondent's Occupation

Occupation	Frequency	Percentage
Student	22	22.0
Unemployed	-	-
Public Servant	23	23.0
Private Employee	27	27.0
Entrepreneur	19	19.0
Retired	4	4.0
Other	5	5.0
Total	100	100.0

Source: Primary Data (computed)

Table 4.3 describes that 22 respondents (22.0%) are students; 23 respondents (23.0%) are public servant; 27 respondents (27.0%) are employees; 19 respondents (19.0%) are entrepreneurs; 4 respondents (4.0%) are retired; and 5 respondents (5.0%) are defined as others. Viewing this table, it can be concluded that most of the respondents are private employees.

4.2.4. Respondents' Initiative in Buying the Product

Table 4.4

The Distribution Frequency of Respondent Initiative in Buying the Product

Initiative Caused	Frequency	Percentage
Recommendation from Friend/colleague	15	15.0
Recommendation from Family/relatives	23	23.0
Recommendation from Office/organization	20	20.0
Self Initiative	37	37.0
Other	5	5.0
Total	100	100.0

Source: Primary Data (computed) , 2007.

Table 4.4 describes the source of initiative that caused the respondent to choose to buy the product. The results show 15 respondents (15.0%) gave the reason of a recommendation from their friend or colleague; 23 respondents (23.0%) gave the reason of a recommendation from a family member or relative; 20 respondents (20.0%) received a recommendation from their office or organization;

37 respondents (37.0%) gave the reason of their own personal initiative or intention; and 5 respondents (5.0%) chose to buy the product because of other reasons. This table shows that most of the respondent decided to buy the product based on their own initiative or intention.

4.2.5. Respondents' Income

Table 4.5

The Distribution Frequencies of Respondents' Income

Income (in rupiah)	Frequency	Percentage
< 1.000.000	22	22.0
1.000.000 - 2.000.000	24	24.0
2.000.000 - 3.000.000	29	29.0
3.000.000 - 4.000.000	12	12.0
4.000.000 - 5.000.000	7	7.0
> 5000.000	6	6.0
Total	100	100.0

Source: Primary Data (computed) , 2007.

Table 4.5 shows that 22 respondents (22.0%) in this study have an income of less than Rp 1.000.000; 24 of the respondents (24.0%) have an income ranging from Rp 1.000.000 up to Rp 2.000.000; 29 of the respondents (29.0%) have an income ranging from Rp 2.000.000 up to Rp 3.000.000; 12 of the respondents (12%) have

an income ranging from Rp 3.000.000 up to Rp 4.000.000; 7 respondents (7.0%) have an income ranging from Rp 4.000.000 up to Rp 5.000.000; and 6 respondents (6.0%) have an income of more than Rp 5.000.000. The respondents of this research are mostly have a moderate income earners, ranging from Rp 2.000.000 to Rp 3.000.000.

4.3.Measurement Model

The measurement model used in this research to determine *unobserved variables* can be measured by each *observed variable* construct, by using *Confirmatory Factor Analysis* (CFA), also well known as factor analysis. If the value of *factor loading* from each construct more than 0,5 (λ>0,5) can be stated as reliabel and significance rate 5% (p<0,05) can be stated as valid, or *unobserved variable* can be measured by using each *observed variable* construct (Hair, *et al.*, 1998).

4.3.1. Confirmatory Factor Analysis (CFA) of Nokia

4.3.1.1. Brand Association Construct

Brand Association construct *(unobserved/latent variable)* is measured by using indicators *(observed/manifest variable)*, they are: The price is relatively cheap (X1.1), The features are very nice and complete (X1.2), The cellular phone is flexible and easy to operate (X1.3), It is a durable cellular phone (X1.4), and It has a different image from that of other cellular phone brands (X1.5). The result of *confirmatory factor analysis* (CFA) are:

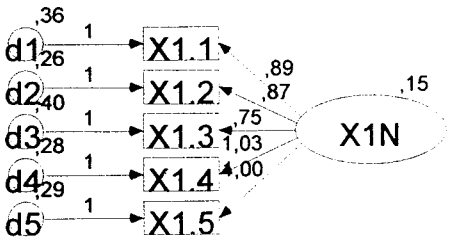


Table 4.6

Measurement of Brand Association Construct

Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P
X1.5 <--- X1N	1,000			
X1.4 <--- X1N	1,030	0,283	3,645	0,000
X1.3 <--- X1N	0,754	0,254	2,965	0,003
X1.2 <--- X1N	0,870	0,247	3,514	0,000
X1.1 <--- X1N	0,891	0,267	3,330	0,000

Source: Appendices D.

From *confirmatory factor analysis* (CFA), the result of value for each equity construct *(loading factor atau λ)* is as follows:

$$X1 = \lambda_1 X1.1 + \lambda_2 X1.2 + \lambda_3 X1.3 + \lambda_4 X1.4 + \lambda_5 X1.5$$

$$X1 = 0{,}891X1.1 + 0{,}870X1.2 + 0{,}754X1.3 + 1{,}030X1.4 + 1{,}000X1.5$$

From the equity above, we can see that brand association is influenced dominantly by X1.4 (Durable Cellular Phone) = 1,030

4.3.1.2.Brand Awareness Construct

Brand Awarreness Construct, *(unobserved/latent variable)* is measured by using indicators *(observed/manifest variable)*, they are: This cellular phone brand is the first one recalled in my mind when heard about cellular phone products (X2.1), I recognized this cellular phone brand more easily than other cellular phone brands (X2.2), I can easily recall some of the cellular phone features (X2.3), I can easily recall the cellular phone brands (X2.4), and I consider that this product is the best brand of cellular phone (X2.5). The result of *confirmatory factor analysis* (CFA) are:

Table 4.7

Measurement of Brand Awareness Construct

Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P
X2.5 <--- X2N	1,000			
X2.4 <--- X2N	0,613	0,189	3,248	0,001
X2.3 <--- X2N	0,742	0,232	3,203	0,001
X2.2 <--- X2N	0,806	0,241	3,341	0,000
X2.1 <--- X2N	0,686	0,179	3,271	0,001

Source: Appendices D.

From *confirmatory factor analysis* (CFA), the result of value for each equity construct *(loading factor atau λ)* is as follows:

$$X2 = \lambda_1 X2.1 + \lambda_2 X2.2 + \lambda_3 X2.3 + \lambda_4 X2.4 + \lambda_5 X2.5$$

$$X2 = 0,686X2.1 + 0,806X2.2 + 0,742X2.3 + 0,613X2.4 + 1,000X2.5$$

From the equity above, we can see that brand awareness is influenced dominantly by X2.5 (I consider that this product is the best brand of cellular phone = 1,000.

4.3.1.3.Brand Loyalty Construct

Brand Loyality construct, (*unobserved/latent variable)* is measured by using indicators *(observed/manifest variable)*, they are: I am satisfied with the feature and model available (X3.1), I have regularly used this cellular phone brand (X3.2), I always consider this cellular phone brand first before buying (X3.3), I intend to buy my next new cellular phone from the brand that I used before (X3.4), and I will recommend this cellular phone brand to others (X3.5). The result of *confirmatory factor analysis* (CFA) are:

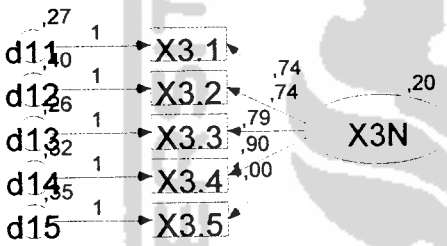


Table 4.8

Measurement of Brand Loyalty Construct

Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P
X3.5 <--- X3N	1,000			
X3.4 <--- X3N	0,896	0,249	3,602	0,000
X3.3 <--- X3N	0,785	0,207	3,795	0,000
X3.2 <--- X3N	0,737	0,219	3,374	0,000
X3.1 <--- X3N	0,740	0,213	3,472	0,000

Source: Appendices D.

From *confirmatory factor analysis* (CFA), the result of value for each equity construct *(loading factor atau λ)* is as follows:

$$X3 = \lambda_1 X3.1 + \lambda_2 X3.2 + \lambda_3 X3.3 + \lambda_4 X3.4 + \lambda_5 X3.5$$

$$X3 = 0,740\ X3.1 + 0,737X3.2 + 0,785X3.3 + 0,896X3.4 + 1,000X3.5$$

From the equity above, we can see that brand loyalty is influenced dominantly by X3.5 (I will recommend this cellular phone's brand to others) = 1,000.

4.3.1.4.Perceived Quality Construct

Perceived Quality Construct (*unobserved/latent variable)* is measured by using indicators *(observed/manifest variable)*, they are: This cellular phone provides easy and fast operating feature systems (X4.1), This cellular phone has a lot of service centers assist their customers everywhere (X4.2), The company handles customer complaints effectively (X4.3), The company has a good response to customer problems (X4.4), and Every new series of cellular phones from this brand has up to date features (X4.5). The result of *confirmatory factor analysis* (CFA) are:

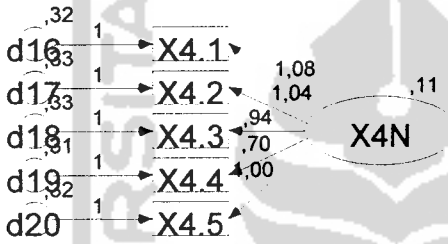


Table 4.9

Measurement of Perceived Quality Construct

Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P
X4.5 <--- X4N	1,000			
X4.4 <--- X4N	0,705	0,294	2,395	0,017
X4.3 <--- X4N	0,943	0,340	2,771	0,006
X4.2 <--- X4N	1,043	0,340	3,069	0,002
X4.1 <--- X4N	1,078	0,370	2,910	0,004

Source: Appendices D.

From *confirmatory factor analysis* (CFA), the result of value for each equity construct *(loading factor atau λ)* is as follows:

$$X4 = \lambda_1 X4.1 + \lambda_2 X4.2 + \lambda_3 X4.3 + \lambda_4 X4.5 + \lambda_5 X4.5$$

$$X4 = 1,078X4.1 + 1,043X4.2 + 0,943X4.3 + 0,705X4.5 + 1,000X4.5$$

From the equity above, we can see that perceived quality is influenced dominantly by X4.1 (This cellular phone provides easy and fast operating feature systems) = 1,078.

4.3.1.5.Purchase Decision Making Construct

Purchase Decision Making Construct *(unobserved/latent variable)* is measured by using indicators *(observed/manifest variable)*, they are: Consideration of Brand Loyalty (Y1.1), Consideration of Brand Association (Y1.2), Consideration of Brand Awareness (Y1.3), and Consideration of Perceived Quality (Y1.4). The result of *confirmatory factor analysis* (CFA) are:

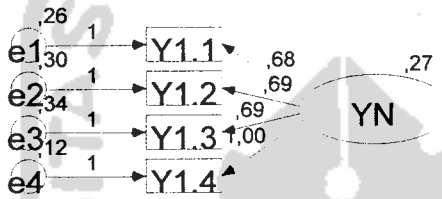


Table 4.10

Measurement of Purchase Decision Making Construct

Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P
Y1.4 <--- YN	1,000			
Y1.3 <--- YN	0,689	0,180	2,717	0,007
Y1.2 <--- YN	0,694	0,197	3,516	0,000
Y1.1 <--- YN	0,684	0,149	3,244	0,001

Source: Appendices D.

From *confirmatory factor analysis* (CFA), the result of value for each equity construct *(loading factor atau λ)* is as follows:

$$Y = \lambda_1 Y1.1 + \lambda_2 Y1.2 + \lambda_3 Y1.3 + Y_4 X1.4$$

$$Y = 0{,}648Y1.1 + 0{,}694Y1.2 + 0{,}689Y1.3 + 1{,}000X1.4$$

From the equity above, we can see that purchase decision making is influenced dominantly by Y1.4 (Consideration of Perceived Quality) = 1,000.

4.3.2. Confirmatory Factor Analysis (CFA) of Sony Ericsson

4.3.2.1.Brand Association Construct

Brand Association's Construct, *(unobserved/latent variable)* is measured by using indicators *(observed/manifest variable)*, they are: The price is relatively cheap (X1.1), The features are very nice and complete (X1.2), The cellular phone is flexible and easy to operate (X1.3), It is a durable cellular phone (X1.4), and It has different image from other cellular phone brands (X1.5). The result of *confirmatory factor analysis* (CFA) are:

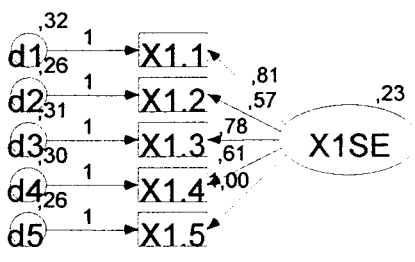


Table 4.11

Measurement of Brand Association Construct

Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P
X1.5 <--- X1SE	1,000			
X1.4 <--- X1SE	0,611	0,174	3,516	0,000
X1.3 <--- X1SE	0,776	0,197	3,935	0,000
X1.2 <--- X1SE	0,673	0,163	3,528	0,000
X1.1 <--- X1SE	0,815	0,204	3,987	0,000

Source: Appendices E.

From *confirmatory factor analysis* (CFA), the result of value for each equity construct *(loading factor atau λ)* is as follows:

$$X1 = \lambda_1 X1.1 + \lambda_2 X1.2 + \lambda_3 X1.3 + \lambda_4 X1.4 + \lambda_5 X1.5$$

$$X1 = 0{,}815X1.1 + 0{,}673X1.2 + 0{,}776X1.3 + 0{,}611X1.4 + 1{,}000X1.5$$

From the equity above, we can see that brand association is influenced dominantly by X1.5 (It has different image from other cellular phone brands) = 1,000.

4.3.2.2.Brand Awarreness Construct

Brand Awarreness Construct, *(unobserved/latent variable)* is measured by using indicators *(observed/manifest variable)*, they are: This cellular phone brand is the first one recalled in my mind when heard about cellular phone products (X2.1), I recognized this cellular phone brand more easily than other cellular phone brands (X2.2), I can easily recall some of the cellular phone features (X2.3), I can easily recall the cellular phone brands (X2.4), and I consider that this product is the best brand of cellular phone (X2.5). The result of *confirmatory factor analysis* (CFA) are:

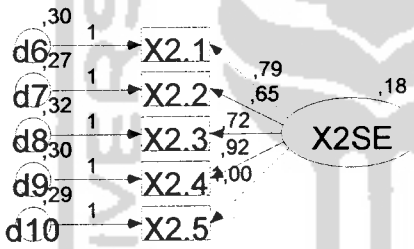


Table 4.12

Measurement of Brand Awareness Construct

Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P
X2.5 <--- X2SE	1,000			
X2.4 <--- X2SE	0,917	0,257	3,573	0,000
X2.3 <--- X2SE	0,721	0,224	3,215	0,001
X2.2 <--- X2SE	0,645	0,204	3,158	0,002
X2.1 <--- X2SE	0,792	0,233	3,404	0,000

Source: Appendices E.

From *confirmatory factor analysis* (CFA), the result of value for each equity construct *(loading factor atau λ)* is as follows:

$$X2 = \lambda_1 X2.1 + \lambda_2 X2.2 + \lambda_3 X2.3 + \lambda_4 X2.4 + \lambda_5 X2.5$$

$$X2 = 0,792X2.1 + 0,645X2.2 + 0,721X2.3 + 917X2.4 + 1,000X2.5$$

From the equity above, we can see that brand awareness is influenced dominantly by X2.5 (I consider that this product is the best brand of cellular phone) = 1,000.

4.3.2.3.Brand Loyalty Construct

Brand Loyalty construct, (*unobserved/latent variable)* is measured by using indicators *(observed/manifest variable)*, they are: I am satisfied with the feature and model available (X3.1), I have regularly used this cellular phone brand (X3.2), I always consider this cellular phone brand first before buying (X3.3), I intend to buy my next new cellular phone from the brand that I used before (X3.4), and I will recommend this cellular phone brand to others (X3.5). The result of *confirmatory factor analysis* (CFA) are:

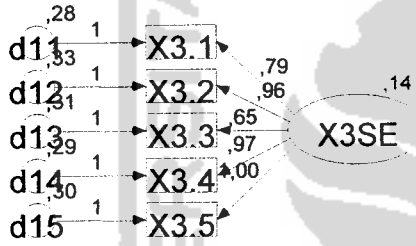


Table 4.13

Measurement of Brand Loyalty Construct

Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P
X3.5 <--- X3SE	1,000			
X3.4 <--- X3SE	0,973	0,295	3,300	0,000
X3.3 <--- X3SE	0,649	0,221	2,484	0,013
X3.2 <--- X3SE	0,960	0,297	3,235	0,001
X3.1 <--- X3SE	0,786	0,253	3,102	0,002

Source: Appendices E.

From *confirmatory factor analysis* (CFA), the result of value for each equity construct *(loading factor atau λ)* is as follows:

$$X3 = \lambda_1 X3.1 + \lambda_2 X3.2 + \lambda_3 X3.3 + \lambda_4 X3.4 + \lambda_5 X3.5$$

$$X3 = 0,786X3.1 + 0,960X3.2 + 0,649X3.3 + 0,973X3.4 + 1,000X3.5$$

From the equity above, we can see that brand loyalty is influenced dominantly by X3.5 (I will recommend this cellular phone's brand to others) = 1,000.

4.3.2.4.Perceived Quality Construct

Perceived Quality Construct (*unobserved/latent variable)* is measured by using indicator *(observed/manifest variable)*, they are: This cellular phone provides easy and fast operating feature systems (X4.1), This cellular phone has a lot of service centers assist their customers everywhere (X4.2), The company handles customer complaints effectively (X4.3), The company has a good response to customer problems (X4.4), and Every new series of cellular phones from this brand has up to date features (X4.5). The result of *confirmatory factor analysis* (CFA) are:

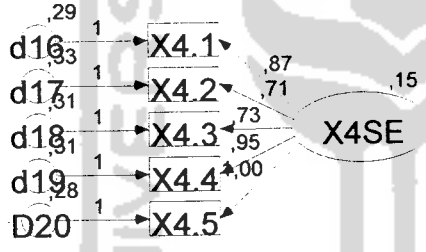


Table 4.14

Measurement of Perceived Quality Construct

Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P
X4.5 <--- X4SE	1,000			
X4.4 <--- X4SE	0,948	0,278	3,414	0,000
X4.3 <--- X4SE	0,734	0,238	3,089	0,002
X4.2 <--- X4SE	0,710	0,239	2,973	0,003
X4.1 <--- X4SE	0,871	0,259	3,356	0,000

Source: Appendices E.

From *confirmatory factor analysis* (CFA), the result of value for each equity construct *(loading factor atau λ)* is as follows:

$$X4 = \lambda_1 X4.1 + \lambda_2 X4.2 + \lambda_3 X4.3 + \lambda_4 X4.5 + \lambda_5 X4.5$$

$$X4 = 0,871X4.1 + 0,710X4.2 + 0,374X4.3 + 0,948X4.5 + 1,000X4.5$$

From the equity above, we can see that perceived quality is influenced dominantly by X4.5 (In every new series of cellular phone has up to date feature) = 1,000.

4.3.2.5.Purchase Decision Making Construct

Purchase Decision Making Construct *(unobserved/latent variable)* is measured by using indicators *(observed/manifest variable)*, they are: Consideration of Brand Loyalty (Y1.1), Consideration of Brand Association (Y1.2), Consideration of Brand Awareness (Y1.3), and Consideration of Perceived Quality (Y1.4). The result of *confirmatory factor analysis* (CFA) are:

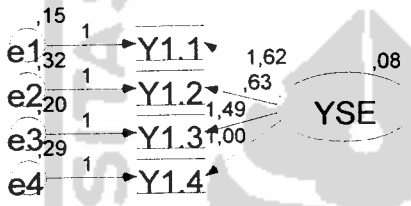


Table 4.15

Measurement of Purchase Decision Making Construct

Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P
Y1.4 <--- YSE	1,000			
Y1.3 <--- YSE	1,489	0,409	3,638	0,000
Y1.2 <--- YSE	0,630	0,250	5,721	0,005
Y1.1 <--- YSE	1,623	0,467	3,475	0,000

Source: Appendices E.

From *confirmatory factor analysis* (CFA), the result of value for each equity construct *(loading factor atau λ)* is as follows:

$$Y = \lambda_1 Y1.1 + \lambda_2 Y1.2 + \lambda_3 Y1.3 + Y_4 X1.4$$

$$Y = 1{,}623Y1.1 + 0{,}630Y1.2 + 1{,}489Y1.3 + 1{,}000X1.4$$

From the equity above, we can see that purchase decision making is influenced dominantly by Y1.1 (Consideration of Brand Loyalty) = 1,623.

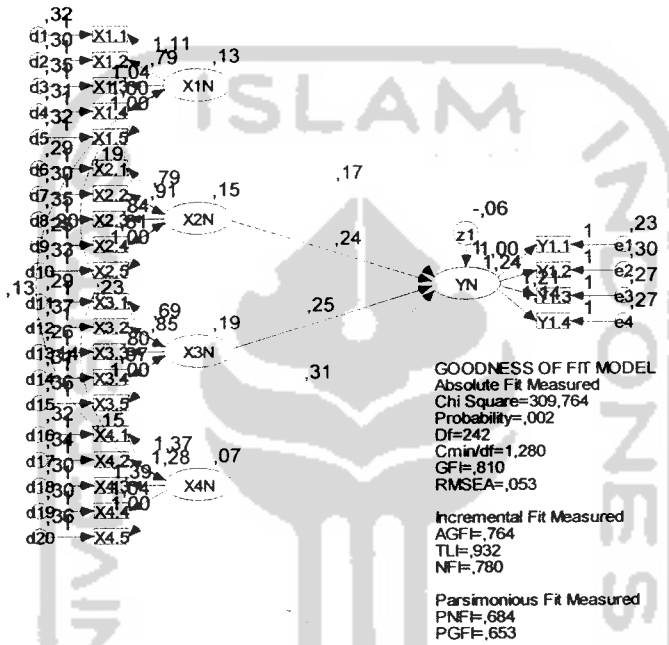
4.4. Goodness of Fit Model

4.4.1 *Goodness of Fit Model* Nokia

In order to detrmine whether the model criteria is good *(Goodness of Fit)* the following tools are used: *Absolute Fit Measured*, *Incremental Fit Measured* and *Parsimonious Fit Measured* from the measurement result based on *Absolute Fit Measured*, *Incremental Fit Measured* and *Parsimonious Fit Measured*, got result as following:

Figure 4.1

Measurement of *Absolute Fit Measured*, *Incremental Fit Measured* and *Parsimony Fit Measured* before Modification Indices on Nokia



Source: Appendices F.

Results of analysis *index* are as follows:

Table 4.16

***Goodness of Fit Index* Nokia before Modification Indices**

Goodness of Fit Index	**Result**	***Cut Off Value***	**Model Evaluation**
Absolute Fit Measured			
Likelihood Chi Square	309,764	< 279,2876	Marginal
CMIN/DF	1,280	≤ 2,00	Good
GFI	0,810	≥ 0,90	Marginal
RMSEA	0,053	≤ 0,08	Good
Incremental Fit Measured			
AGFI	0,764	≥ 0,90	Marginal
TLI	0,932	≥ 0,90	Good
NFI	0,780	≥ 0,90	Marginal
Parsimonious Fit Measured			
PNFI	0,684	0,60 – 0,90	Good
PGFI	0,653	0,50 – 1,00	Good

Source: Appendices F.

From the results of *Goodness Fit Index* in Table 4.16 above, it can be seen that the amount of *Absolute Fit Measured,* which is measured by using *Likelihood*

Chi Square, Cmin/df, GFI, and RMSEA, has *Cut Off Value* that does not fulfills the expected criteria, that is *Likelihood Chi Square*, and GFI. And the amount of value of *Incremental Fit Measured*, which is measured by using AGFI, TLI and NFI, has *Cut Off Value* that does not fulfills the expected criteria, that is AGFI and NFI. For the value of *Parsimonious Fit Measured* which is measured by using PNFI and PGFI got *Cut Off Value*, which fullfills expected criteria. Table 4.17 shows the whole estimation model as follows:

Table 4.17

***Result (Default Model)* before Modification**

Summary	Value
Chi-square	309,764
Degrees of freedom	242
Probability level	0,002

Source: Appendices F.

Tabel 4.17 shows the probability level to have a significance value = 0,002 ($p<0,05$), it shows that there is a deviation between *sample covariance matrix* and *model (fitted) covariance matrix*. In order to be a good model, the value of *chi square* should have unsignificant probability level of (>0.05) to get expected value of *Goodness Fit Index* (better). Therefore model revision is required, by making *modification index* to revise the model by increasing parameter amount so that value

of *Chi Squares Statistic* will decrease rapidly compared with decreasing of the *degree of freedom* (df), by doing *modification indices* according to value showed in Tabel 4.18 as follows:

Table 4.18

Modification Indices* by using *Covariance

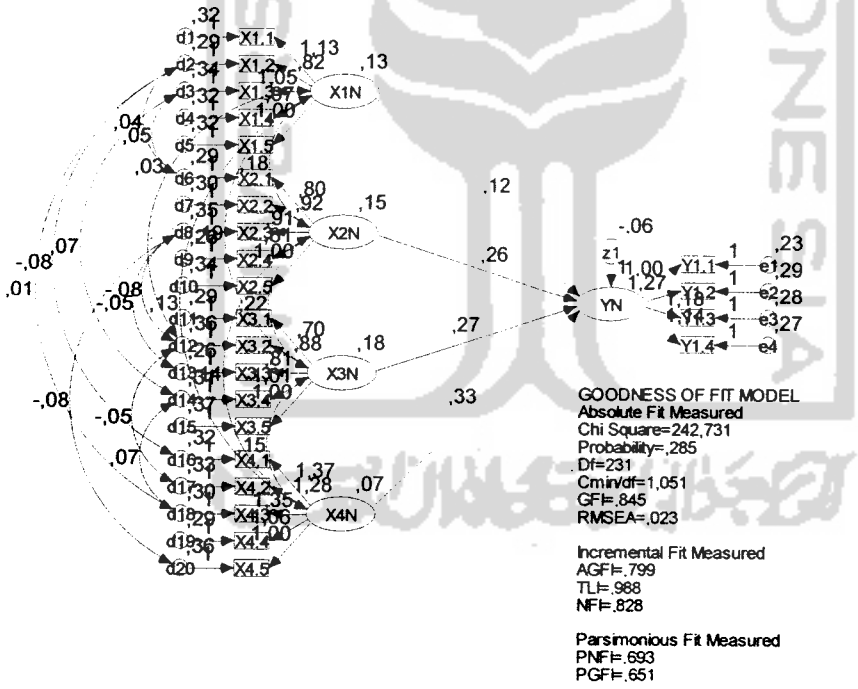
	M.I.	Par Change
d18 <--> e2	4,452	-,027
d12 <--> X1N	5,409	,022
d12 <--> d17	5,916	-,065
d14 <--> d18	5,418	,048
d8 <--> d12	4,987	-,062
d8 <--> d13	4,673	-,050
d2 <--> d16	7,471	-,062
d2 <--> d6	4,983	,049
d3 <--> d14	4,182	,048
d3 <--> d6	5,539	,053
	M.I.	Par Change
d8 <--> d20	5,696	-,063

Source: Appendices F.

Modification Indices only can be done based on *measurement error covariance* value that assumed by 0 (zero), because modifying with *measurement error covariance* no need to do thoretical justification. But Modification Indices based on *measurement regression weight* must be supported by theory (Ghozali, 2004). The result got from *modification index* can be seen in figure 4.2 and table 4.19 as follows:

Figure 4.2.

Measurement of *Absolute Fit Measured*, *Incremental Fit Measured* and *Parsimony Fit Measured* after Modification Indices on Nokia



Source: Appendices G.

Results of analysis are as follows:

Table 4.19

***Goodness of Fit Index* Nokia after Modification Indices**

Goodness of Fit Index	Result	*Cut Off Value*	Model Evaluation
Absolute Fit Measured			
Likelihood Chi Square	242,731	< 267,4548	Good
CMIN/DF	1,051	≤ 2,00	Good
GFI	0,845	≥ 0,90	Marginal
RMSEA	0,023	≤ 0,08	Good
Incremental Fit Measures			
AGFI	0,799	≥ 0,90	Marginal
TLI	0,988	≥ 0,90	Good
NFI	0,828	≥ 0,90	Marginal
Parsimonious Fit Measured			
PNFI	0,693	0,60 – 0,90	Good
PGFI	0,651	0,50 – 1,00	Good

Source: Appendices G.

From the results of *Goodness Fit Index* in Table 4.19 above, it can be seen that the amount of *Absolute Fit Measured*, which is measured by using *Likelihood*

Chi Square, Cmin/df, GFI, and RMSEA, has a *Cut Off Value* that does not fulfills the expected criteria, that is GFI. And the amount of value of *Incremental Fit Measured*, which is measured by using AGFI, TLI and NFI, has a *Cut Off Value* that does not fulfills the expected criteria, that is AGFI and NFI. For the value of *Parsimonious Fit Measured*, which is measured by using PNFI and PGFI has a *Cut Off Value* that fullfills the expected criteria. Table 4.20 shows the whole estimation model as follows:

Table 4.20

***Result (Default Model)* after Modification Indices**

Summary	Value
Chi-square	242,731
Degrees of freedom	231
Probability level	0,285

Source: Appendices G.

Tabel 4.20 shows the probability level to not be significant =0,285 (p>0,05), therefore this model is already a good model *(goodness fit model)*, as a good model has an unsignificant probability level of more than α=5% (Ghozali, 2004:45), thus it shows conformity between *sample covariance matrix* and *model (fitted) covariance matrix* (Joreskog & Sorbom, 1993; Joreskog & Sorbom, 1996; Hair, *et. al.*, 1998;

Joreskog, 2002:76). Therefore whole model used has fulfills the expected criterias *(Goodness of Fit Model)*..

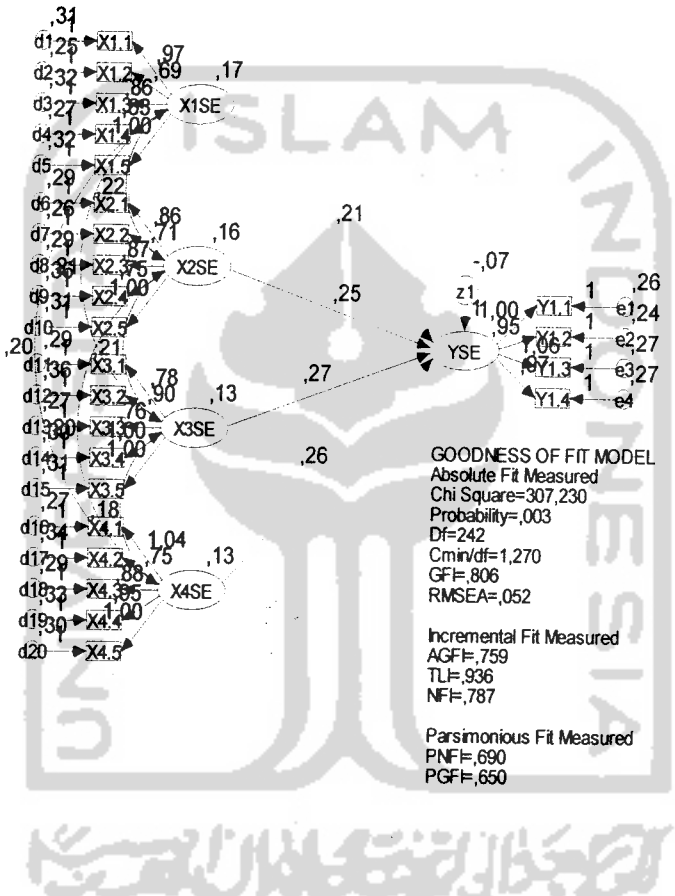
4.4.2. *Goodness of Fit Model* Sony Ericsson

To determine good criteria of model *(Goodness of Fit)* use: *Absolute Fit Measured*, *Incremental Fit Measured* and *Parsimonious Fit Measured* from the measurement result based on *Absolute Fit Measured*, *Incremental Fit Measured* and *Parsimonious Fit Measured*, results of analysis are as follows:

:

Figure 4.3.

Measurement of *Absolute Fit Measured*, *Incremental Fit Measured* and *Parsimony Fit Measured* before Modification Indices on Sony Ericsson



Source: Appendices H

Results of analysis are as follows:

:

Table 4.21

***Goodness of Fit Index* Sony Ericsson before Modification Indices**

Goodness of Fit Index	Result	*Cut Off Value*	Model Evaluation
Absolute Fit Measured			
Likelihood Chi Square	307,230	< 279,2876	Marginal
CMIN/DF	1,270	≤ 2,00	Good
GFI	0,806	≥ 0,90	Marginal
RMSEA	0,052	≤ 0,08	Good
Incremental Fit Measured			
AGFI	0,759	≥ 0,90	Marginal
TLI	0,936	≥ 0,90	Good
NFI	0,787	≥ 0,90	Marginal
Parsimonious Fit Measured			
PNFI	0,690	0,60 – 0,90	Good
PGFI	0,650	0,50 – 1,00	Good

Source: Appendices H.

From the results of *Goodness Fit Index* in Table 4.21 above, it can be seen that the amount of *Absolute Fit Measured,* which is measured by using *Likelihood*

Chi Square, Cmin/df, GFI, and RMSEA, has a *Cut Off Value* that does not fulfills the expected criteria, that is *Likelihood Chi Square,* and GFI. And the amount of value of *Incremental Fit Measured*, which is meaured by using AGFI, TLI and NFI, has *Cut Off Value* that does not fulfills the expected criteria, that is AGFI and NFI. For the value of *Parsimonious Fit Measured* which is measured by using PNFI and PGFI has a *Cut Off Value*, which fullfills expected criteria. Table 4.22 shows the whole estimation model as follows:

Table 4.22

***Result (Default Model)* before Modification Indices**

Summary	Value
Chi-square	307,230
Degrees of freedom	242
Probability level	0,003

Source: Appendices H.

Tabel 4.22 shows the probability level to have a significance value = 0,003 ($p<0,05$), it shows that there is a deviation between *sample covariance matrix* and *model (fitted) covariance matrix*. In order to be a good model, the value of *chi square* should have an unsignificant probability level of (>0.05) to get expected value of *Goodness Fit Index* (better). Therefore model revision is required, by making *modification index* to revise the model by increasing parameter amount so

that value of *Chi Squares Statistic* will decrease rapidly compared with decreasing of the *degree of freedom* (df), by doing *modification indices* according to value showed in Tabel 4.23 as follows:

Table 4.23

Modification Indices* by using *Covariance

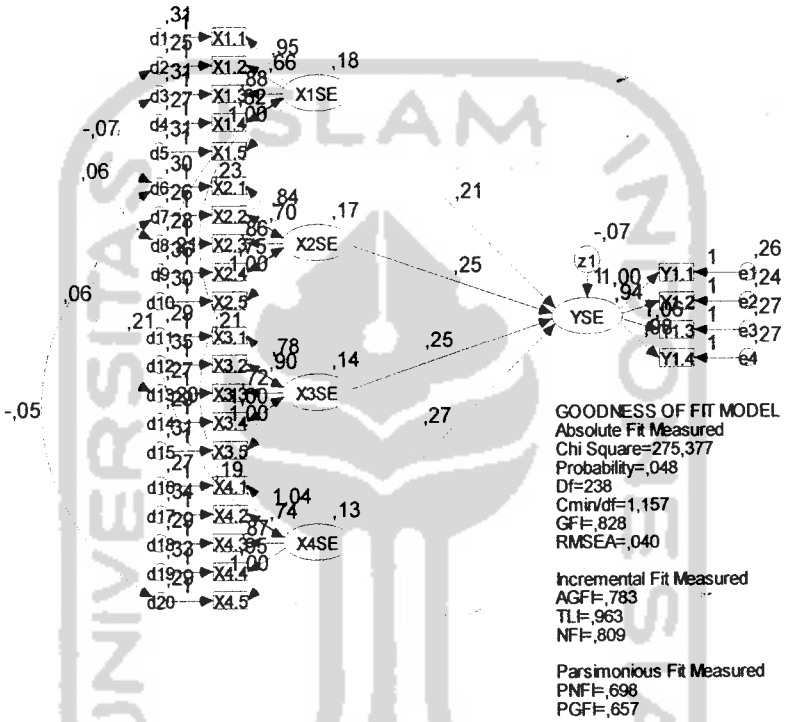
	M.I.	Par Change
d6 <--> d13	6,060	,051
d7 <--> d20	4,268	-,042
d2 <--> d6	9,574	-,060
d3 <--> d8	6,427	,053

Source: Appendices H.

Modification Indices only can be done based on *measurement error covariance* value that assumed by 0 (zero), because modifying with *measurement error covariance* no need to do thoretical justification. But Modification Indices based on *measurement regression weight* must be supported by theory (Ghozali, 2004). Results of *modification index* can be seen in figure 4.4 and table 4.24 are as follows:

Figure 4.4.

Measurement of *Absolute Fit Measured, Incremental Fit Measured* and *Parsimony Fit Measured* after Modification Indices on Sony Ericsson



Source: Appendices I.

Results of analysis are as follows:

Table 4.24

***Goodness of Fit Index* Sony Ericsson after Modification Indices**

Goodness of Fit Index	Result	*Cut Off Value*	Model Evaluation
Absolute Fit Measured			
Likelihood Chi Square	275,377	< 274,987	Marginal
CMIN/DF	1,157	≤ 2,00	Good
GFI	0,828	≥ 0,90	Marginal
RMSEA	0,040	≤ 0,08	Good
Incremental Fit Measures			
AGFI	0,783	≥ 0,90	Marginal
TLI	0,963	≥ 0,90	Good
NFI	0,809	≥ 0,90	Marginal
Parsimonious Fit Measured			
PNFI	0,698	0,60 – 0,90	Good
PGFI	0,657	0,50 – 1,00	Good

Source: Appendices I.

From the results of *Goodness Fit Index* in Table 4.24 above, it can be seen that the amount of *Absolute Fit Measured,* which is measured by using *Likelihood*

Chi Square, Cmin/df, GFI, and RMSEA, has a *Cut Off Value* that does not fulfill the expected criteria, that is *Likelihood Chi Square*, and GFI. And the amount of value of *Incremental Fit Measured*, which is measured by using AGFI, TLI and NFI, has *Cut Off Value* that does not fulfill the expected criteria, that is AGFI and NFI. For the value of *Parsimonious Fit Measured*, which is measured by using PNFI and PGFI has a *Cut Off Value* that fullfills expected criteria. Table 4.25 shows the whole estimation model as follows:

Table 4.25

***Result (Default Model)* after Modification Indices**

Summary	Value
Chi-square	108,598
Degrees of freedom	238
Probability level	0,048

Source: Appendices I.

Tabel 4.25 shows the probability level to have a significance value of= 0,048 (p>0,05), so this model has not yet to be a good model *(goodness fit model)*, good model has unsignificant probability level more than α=5% (Ghozali, 2004:45), so it shows uncorformity between *sample covariance matrix* and *model (fitted) covariance matrix* (Joreskog & Sorbom, 1993; Joreskog & Sorbom, 1996; Hair, *et.*

al., 1998; Joreskog, 2002:76). So that whole model that is used has not yet fulfulling the expected criterias *(Goodness of Fit Model)*, except for *incremental fit measure*. It is because measurement of model is very sensitive toward amount of *observed variable construct*. Suggestion for the next research, researcher must add *observed variable construct* on variable of Brand Association, Brand Awarreness, Brand Loyality, dan Perceived Quality, and Purchase Decision Making.

4.5. Causative Correlation and Hypotheses Test

4.5.1 Causative Correlation and Hypotheses Test of Nokia

To determine how significant the level of regression between indicator variable and latent variableis, *regression weight* is used by comparing probability level. If the probability level is less than α=5%, it can be said that it has significant regression. Results of *regression weight* are as follows:

Figure 4.5

Regression Coeficient Brand Association, Brand Awarreness, Brand Loyality, Perceived Quality toward Customer Purchase Decision Making

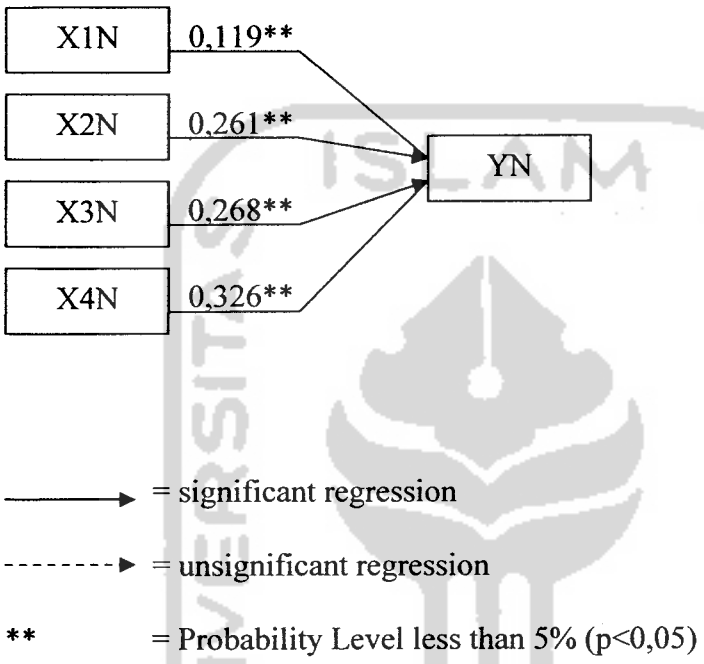


Table 4.26

Regression Weight

	Estimate	S.E.	C.R.	P	Label
YN <--- X1N	0,119	0,050	2,386	0,017	par_17
YN <--- X2N	0,261	0,050	5,268	0,000	par_18
YN <--- X3N	0,268	0,057	4,730	0,000	par_19
YN <--- X4N	0,326	0,069	4,708	0,000	par_20

Source: Appendices G.

From the *regression weight* on Table 4.26 it can be concluded that Brand Association (X_1), Brand Awarreness (X_2), Brand Loyality (X_3), and Perceived Quality (X_4) have significant positive influence on Purchase Decision Making (Y); with a significant level of less than 5%, the equal can be stated as follows:

Equation I:

$$YN = \beta_1 X_1 N + \beta_2 X_2 N + \beta_3 X_3 N + \beta_4 X_4 N + \zeta_1$$

$$YN = 0{,}119 X_1 N + 0{,}261 X_2 N + 0{,}268 X_3 N + 0{,}326 X_4 N + \zeta_1$$

1) **The influence of Brand Association (X_1) on Customer Purchase Decision Making (Y) of Nokia**

Variable of Brand Association (X_1), has a significant positive influence on Purchase Decision Making (Y) = 0,119 with significant level 0,017

($p<0,05$). It means that if variable of Brand Association (X_1) increased, Customers' Purchase Decision Making (Y) will increase also. On the other hand, if variable of Brand Association (X_1) dcreased, Customers' Purchase Decision Making (Y) will decrease also. So it can support the hypotheses 1 that stated that Brand Association has a significant positive influence on Customer Purchase Decision Making.

2) **The influence of Brand Awareness (X_2) on Customer Purchase Decision Making (Y) of Nokia**

Variable of Brand Awareness (X_2), has significant positive influence on Purchase Decision Making (Y) = 0,261 with significant level 0,000 ($p<0,05$). It means that if variable of Brand Awareness (X_2) increased, Customers' Purchase Decision Making (Y) will increase also. On the other hand, if variable of Brand Awareness (X_2) dcreased, Customers' Purchase Decision Making (Y) will decrease also. So it can support the hypotheses 2 that stated that Brand Awareness has a significant positive influence on Customer Purchase Decision Making.

3) **The influence of Brand Loyalty (X_3) on Customer Purchase Decision Making (Y) of Nokia**

Variable of Brand Loyalty (X_3), has a significant positive influence on Purchase Decision Making (Y) = 0,268 with significant level 0,000

($p<0,05$). It means that if variable of Brand Loyalty (X_3) increased, Customers' Purchase Decision Making (Y) will increase also. On the other hand, if variable of Brand Loyalty (X_3) dcreased, Customers' Purchase Decision Making (Y) will decrease also. So it can support the hypotheses 3 that stated that Brand Loyalty has a significant positive influence on Customer Purchase Decision Making.

4) **The influence of Perceived Quality (X_4) on Customer Purchase Decision Making (Y) of Nokia**

Variable of Perceived Quality (X_4), has a significant positive influence on Purchase Decision Making (Y) = 0,326 with significant level 0,000 ($p<0,05$). It means that if variable of Perceived Quality (X_4) increased, Customers' Purchase Decision Making (Y) will increase also. On the other hand, if variable of Perceived Quality (X_4) dcreased, Customers' Purchase Decision Making (Y) will decrease also. So it can support the hypotheses 4 that stated that Perceived Quality has a significant positive influence on Customer Purchase Decision Making.

4.5.2. Causative Correlation and Hypotheses Test of Sony Ericsson

To determine how significant the level of regression between indicator variable and latent variable is, *regression weight* is used by comparing probability

level. If the probability level is less than α=5%, it can be said that it has significant regression. Results of *regression weight* are as follows:

Figure 4.6

Regression Coeficient Brand Association, Brand Awarreness, Brand Loyality, Perceived Quality toward Customer Purchase Decision Making

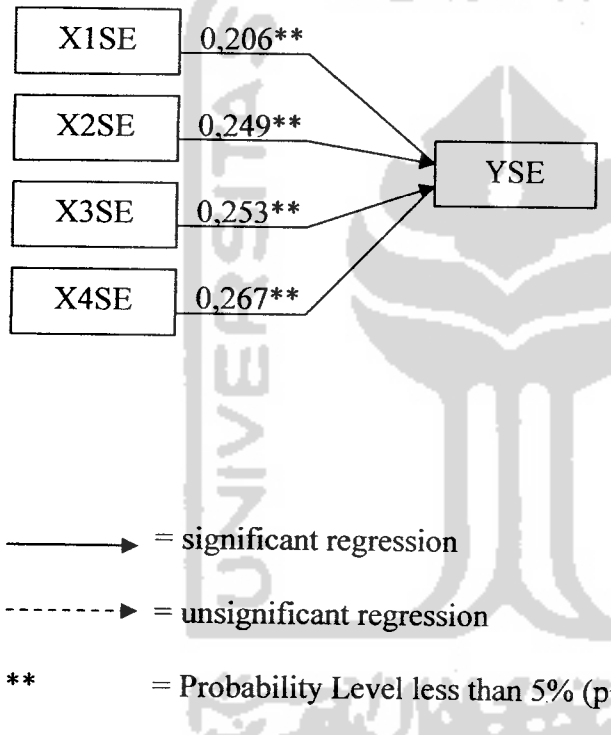


Table 4.27

Regression Weight

	Estimate	S.E.	C.R.	P	Label
YSE <--- X1SE	0,206	0,046	4,492	0,000	par_17
YSE <--- X2SE	0,249	0,048	5,177	0,000	par_18
YSE <--- X3SE	0,253	0,050	5,105	0,000	par_19
YSE <--- X4SE	0,267	0,051	5,265	0,000	par_20

Source: Appendices I.

From the *regression weight* on Table 4.27 it can be concluded that Brand Association (X_1), Brand Awarreness (X_2), Brand Loyality (X_3), and Perceived Quality (X_4) have significant positive influence on Purchase Decision Making (Y); with a significant level of less than 5%, the equal can be stated as follows:

Equation II:

$$YSE = \beta_1 X_1 SE + \beta_2 X_2 SE + \beta_3 X_3 SE + \beta_4 X_4 SE + \zeta_1$$

$$YSE = 0{,}206 X_1 SE + 0{,}249 X_2 SE + 0{,}253 X_3 SE + 0{,}267 X_4 SE + \zeta_1$$

1) **The influence of Brand Association (X_1) on Customer Purchase Decision Making (Y) of Sony Ericsson**

Variable of Brand Association (X_1), has significant positive influence on Purchase Decision Making (Y) = 0,206 with significant level 0,017 ($p<0{,}05$). It means that if variable of Brand Association (X_1) increased,

Customers' Purchase Decision Making (Y) will increase also. On the other hand, if variable of Brand Association (X_1) dcreased, Customers' Purchase Decision Making (Y) will decrease also. So it can support the hypotheses 1 that stated that Brand Association has a significant positive influence on Customer Purchase Decision Making.

2) **The influence of Brand Awareness (X_2) on Customer Purchase Decision Making (Y) of Sony Ericsson**

Variable of Brand Awareness (X_2), has a significant positive influence on Purchase Decision Making (Y) = 0,249 with significant level 0,000 ($p<0,05$). It means that if variable of Brand Awareness (X_2) increased, Customers' Purchase Decision Making (Y) will increase also. On the other hand, if variable of Brand Awareness (X_2) dcreased, Customers' Purchase Decision Making (Y) will decrease also. So it can support the hypotheses 2 that stated that Brand Awareness has a significant positive influence on Customer Purchase Decision Making.

3) **The influence of Brand Loyalty (X_3) on Customer Purchase Decision Making (Y) of Sony Ericsson**

Variable of Brand Loyalty (X_3), has significant positive influence on Purchase Decision Making (Y) = 0,253 with significant level 0,000 ($p<0,05$). It means that if variable of Brand Loyalty (X_3) increased,

Customers' Purchase Decision Making (Y) will increase also. On the other hand, if variable of Brand Loyalty (X_3) dcreased, Customers' Purchase Decision Making (Y) will decrease also. So it can support the hypotheses 3 that stated that Brand Loyalty has a significant positive influence on Customer Purchase Decision Making.

4) **The influence of Perceived Quality (X_4) on Customer Purchase Decision Making (Y) of Sony Ericsson**

Variable of Perceived Quality (X_4), has significant positive influence on Purchase Decision Making (Y) = 0,267 with significant level 0,000 ($p<0,05$). It means that if variable of Perceived Quality (X_4) increased, Customers' Purchase Decision Making (Y) will increase also. On the other hand, if variable of Perceived Quality (X_4) dcreased, Customers' Purchase Decision Making (Y) will decrease also. So it can support the hypotheses 4 that stated that Perceived Quality has a significant positive influence on Customer Purchase Decision Making.

4.5. Discussion

The influences of Brand Association, Brand Awarreness, Brand Loyality, and Perceived Quality on Customer Purchase Decision Making were determined by measuring the *Structural Equation Modeling* (SEM). The *regression weight* showed that cellular phone customer-based brand equity has a significant positive

relationship with purchase decision making. These results support the prior hypothesis that customer-based brand equity can be an important factor in influencing consumer purchasing decision making regarding cellular phones.

The statistical test results are relevant to Srivastava and Shocker (1991) findings; their research shows that customer-based brand equity occurs when a customer is familiar with a well recognized brand, and remembers the brand based on their perspectives. Srivastava and Shocker (1991) stated that customer-based perspective must subsume based on perception and behavior of the customer purchasing decision making. It means that if Brand Association, Brand Awarreness, Brand Loyality, and Perceived Quality increases, so does Customer Purchase Decision Making toward the product (Nokia and Sony Ericsson). To determine the dominant variable that may influence Purchase Decision Making regarding Nokia and Sony Ericsson cellular phones, *standardized regression weight* was used. The results of the analysis are as follows:

Table 4.28

Strandardized Regression Weight

	Estimate	
	Nokia	Sony Ericson
Y <--- X1	0,142	0,265
Y <--- X2	0,336	0,308
Y <--- X3	0,380	0,284
Y <--- X4	0,288	0,293

Source: Appendices G&I.

Among the four underlying dimensions of customer-based brand equity, Brand Loyalty is the most significant independent variable that influences consumer purchasing decision making regarding Nokia (see table 4.28). This means that customers of Nokia consider brand loyalty: (1) I'm satisfied with the feature and model available; (2) I have regularly used this cellular phone brand; (3) I always consider that this cellular phone brand first before buying; (4) I intend to buy next new cellular phone from the same brand that I used before; (5) I will recommend this cellular phone brand to others; as the most influencial factor in choosing cellular phone. It also means that Nokia customers are highly concerned with the brand loyalty of the cellular phone based on the customers beliefs or perception from advertising and promotion which is done by cellular phone marketers. Thus the Nokia company should maintain their loyal customers rather than trying to find

new customers but still the company must focus on the aspects that will build or trigger the customer mind regarding brand awareness In addition, to support the communication the company must at least keep the performance of brand loyalty without forgetting the effort of improving the product's performance.

While for Sony Ericsson, the dominant variable that influences purchase decison making is Brand Awareness which was measured by: (1) this cellular phone brand is the first recalled in my mind when think of cellular phone products; (2) I recognized this cellular phone brand more easily than other cellular phone brands; (3) I can easily recalled about some of the cellular phone features; (4) I can easily recalled the cellular phones brand; (5) I consider that this products is the best brand of cellular phones. It also means that the Sony Ericsson customers are highly concerned with the brand awareness of the cellular phone based on the customers beliefs or perception. The success of the company to develop brand awareness is dependent on how the customers know and understand about the brand to fulfill their needs, this is because the key ingredients in gaining and retaining the loyalty of today's consumers is by understanding customers and keeping the brand awareness consistent. Based on that, the researcher suggests that to achieve higher brand loyalty, Sony Ericsson must be consistent in maintaining the Brand Awareness.

In order to increase the brand awareness and brand loyalty, it's important for the company launch an aggressive marketing communication program. The Success of the company to develop brand awareness, depends on how the customer knows

and understands the brand to fulfill their needs. Brand awareness is high when the customer feels that they understand the brands before they purchase, while purchasing, and when customer consumes the competitors products (Agus W. Soehadi, 2005).

Creating strategic marketing effort, will guide the company to make the brand meaningful and survive in today's environment of tight competition. Customers are given a number of psychological impulses by companies, like motivation and decision to purchase the products. Building customer motivation and perception (*brand association*) are important things for company to make *superior customer value creation* regarding the products. *Superior customer value creation* is defined as companies capability to offer a product which has high perceived quality (Agus W. Soehadi, 2005). High customer perceived quality toward the products offered may affect the customer behavior in choosing what brands should be chose by customer. Perceived quality can't be determined by customer objectively, means that perceived quality is quite similar with customer perception which is influenced by attitude, needs, and preference.

Furthermore, both Nokia and Sony Ericsson should construct the best possible brand "mix" strategy, not only in terms of brand awareness or brand loyalty but also combined with other factors of brand association and perceived quality which have greater significant influence on customer purchase decision making.

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

5.1. Conclusions

From the estimated result, the influence of Brand Association, Brand Awarreness, Brand Loyality, and Perceived Quality on Customer Purchase Decision of Nokia and Sony Ericsson Cellular Phones by using 100 respondents as a sample can be concluded as follows:

1. The Brand Association variable has a significant positive influence on Customer Purchase Decision Making. This means that if the Brand Association variable (X_1) increases, Customer Purchase Decision Making (Y) will increase as well. On the other hand, if Brand Association variable (X_1) decreases, Customer Purchase Decision Making (Y) will decrease as well. Thus, hypothesis 1 is proved. This means that customers tend to have strong association with Nokia and Sony Ericsson. This finding is relevant to Aaker (1991), that brand association represents as the bases for purchase decision and for loyalty. However not all associations directly or indirectly affect consumer buying behavior. According to Day *et. al.*, (1979) because the evaluations of brand association may be situational or context-dependent and vary according to customers' particular goals in their purchase or consumption decisions.

2. The Brand Awareness variable has a significant positive influence on Customer Purchase Decision Making. This means that the Brand Awareness variable (X_2) increases, Customer Purchase Decision Making (Y) will increase also. On the other hand, if the Brand Awareness variable (X_2) decreases, Customer Purchase Decision Making (Y) will decrease also. Thus, hypothesis 2 is proved. This means that customers tend to have high awareness with Nokia and Sony Ericsson This finding is relevant to Jacoby, *et. al.*, (1977) and Roselius (1971), that brand awareness can affect purchase decisions about brands in the consideration set.
3. The Brand Loyalty variable has a significant positive influence on Customer Purchase Decision Making. This means that if Brand Loyalty variable (X_3) increased, Customer Purchase Decision Making (Y) will increase also. On the other hand, if variable of Brand Loyalty (X_3) decreases, Customer Purchase Decision Making (Y) will decrease also. Thus, hypothesis 3 is proved. This means that customers tend to be loyal to the Nokia and Sony Ericsson. According to Jacoby and Chestnut (1978) brand loyalty refers to a biased behavioral response expressed overtime by some decision-making unit with respect to one or more alternative brands out of a set of such brands. Though Jacoby and Chesnut (1978) clearly identify brand loyalty as a function of physiological (decision making), evaluate process exhibited over time. According to Aaker (1991), brand loyalty, long a central construct in marketing, is a measure of the attachment that a customer has to a brand.

It reflects how likely a customer will be to switch to another brand, especially when that brand makes a change, either in price or in product features. Based on the previous research regarding brand loyalty (Jacoby and Chesnut, (1978), indicates that brand loyalty has significant influence on purchase decision making.

4. The Perceived Quality variable has a significant positive influence on Customer Purchase Decision Making. This means that of Perceived Quality variable (X_4) increases, Customer Purchase Decision Making (Y) will increase also. On the other hand, if Perceived Quality variable (X_4) decreases, Customer Purchase Decision Making (Y) will decreased also. Thus, a hypothesis 4 is proved. This means that Nokia and Sony Ericsson are assumed to have high quality as the basis of customer purchase decision to buy. This finding is relevant to theory from Aaker (1991), that perceived quality directly influences purchase decisions and brand loyalty, especially when a buyer is not motivated or able to conduct a detailed analysis.

5.2. Recommendations

1. Based on the *standardized regression weight,* for both Nokia and Sony Ericsson, brand Association is placed at the lowest rank. Not all associations need to be built upon but rather those that directly or indirectly affect consumers' buying behavior.

2. Association can be formed through *brand performance* approach or emotional consideration (*brand imagery*). This association can also be formed through customer perceived experience or through marketing communication (promotion) or other information (*word of mouth*).
3. The highest ranking factor that influence customer purchase decision making of Nokia is brand loyalty. Nokia can maintain loyal customers through *brand relationship*, *brand community*, and make customers become *brand ambassadors*. If the company can achieve customers at the brand ambassador level, the company can convince other potential customers that they chose the best brand (*conviction*).
4. While, Sony Ericsson company, in order to achieve brand loyalty, must be able to create positive experience. To increase the close relationship between brand and customer, the company (brand owner) needs to understand the changing nature of customer needs. This can increase the customer trust toward the brand.
5. As the final step in the Customer-Based Brand Equity (CBBE) model, Sony Ericsson should focus on positive interaction creation between the brand and its customers (*brand resonance*). This interaction can prompt customer impulse to make repeating purchases and finally may increase brand loyalty. The marketers usually use *community* as interaction media between brand and its customers or among customers.

5.3. Limitations of the Study and Guidelines for Future Research

Based on the results of the research, there are some limitations were encountered:

1. The results of this research have temporary implications, because customer expectation varies over time.
2. The subject of the research was only conducted outside of Nokia and Sony Ericsson Company strores, by taking samples from 100 respondents only.
3. The research does not investigate every possible relevant effect that could potentially influence customer purchase decision making besides brand equity.

Based on the limitations, the researcher suggests the following guidelines for future research:

1. The evaluation of consumer-based brand equity and purchase decision making should be conducted continually through research based on customer expectations, critiques, and suggestion.
2. Using larger number of respondents is suggested for the next / future research, to have more reliable data. Further, the number of research subjects should be developed in order to gain results which are broadly accepted.
3. Future research should incorporate with other possible relevant factors that influence may customer purchase decision making. These may include sales promotions, management strategies, or innovative activities. In addition, future research may develop valid measures or enough evidence to

determine whether customer purchase intention is highly correlated with company financial performance. This could improve company ability to apply brand equity strategy to gain and retain sales from customers.

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APPENDICES A:

Questionnaire

Evaluasi Ekuitas Merek

YTH. Bapak/Ibu/Saudara
Di Tempat
Assalamu'alaikum Wr. Wb.

Saya, **Aulia Himawan Baiquni**, mahasiswa Program International FE UII sedang melakukan penelitian skripsi dengan judul:

"Analisis Ekuitas Merek (Kekuatan Merek) terhadap Keputusan Pembelian pada Handphone"
(Studi Kasus pada merek Nokia dan Sony Ericsson di Jogjakarta).

Pada kesempatan ini, saya mengharap kesediaan Bapak/Ibu/Saudara untuk berpartisipasi dalam penelitian ini dengan cara menjawab kuesioner berikut sesuai pendapat Bapak/Ibu/Saudara. Hasil dari kuesioner ini hanya digunakan untuk keperluan ilmiah, dan tidak dikaitkan dengan keperluan komersial merk produk tertentu.

Terima kasih atas partisipasi Bapak/Ibu/Saudara

Wassalamu'alaikum Wr. Wb.

Petunjuk : Berilah penilaian Bapak/Ibu/Saudara/Saudari terhadap pertanyaan dibawah ini dengan MENYILANG (X) atau MENYENTANG (√) angka yang sesuai :

STS = SANGAT TIDAK SETUJU	**S** = SETUJU
TS = TIDAK SETUJU	**SS** = SANGAT SETUJU
N = NETRAL	

I. PERNYATAAN TENTANG ATRIBUT EKUITAS MEREK

No	Pernyataan tentang Asosiasi Merek (Brand Association)	Nokia					Sony Ericsson				
		STS	TS	N	S	SS	STS	TS	N	S	SS
1	Harga relatif murah										
2	Fitumya bagus dan lengkap										
3	Produk ini fleksibel dan mudah mengoperasikannya										
4	Produk ini tahan lama										
5	Memiliki imej yang berbeda dengan merek lain.										

No	Pernyataan tentang Pengetahuan Merek (Brand Awareness)	Nokia					Sony Ericsson				
		STS	TS	N	S	SS	STS	TS	N	S	SS
1	Ketika mendengar kata handphone maka yang pertama kali muncul di benak saya adalah merek ini										
2	Saya dapat mengenali merek ini diantara merek lainnya										
3	Beberapa fitur dari merek produk ini dapat dengan cepat saya ingat										
4	Saya dapat dengan cepat mengingat logo merek ini										
5	Saya menganggap merek handphone ini adalah terbaik										

No	Pernyataan tentang Kesetiaan Merek (Brand Loyalty)	Nokia					Sony Ericsson				
		STS	TS	N	S	SS	STS	TS	N	S	SS
1	Saya merasa puas dengan fitur dan model yang tersedia										
2	Saya bisa menggunakan merek handphone ini										
3	Merek handphone ini menjadi pertimbangan pertama sebelum membeli handphone										
4	Saya selalu membeli seri terbaru dengan merek yang sama dari sebelumnya										
5	Saya akan merekomendasikan merek ini kepada orang lain										

No	Pernyataan tentang Persepsi Kualitas (Perceived Quality)	Nokia					Sony Ericsson				
		STS	TS	N	S	SS	STS	TS	N	S	SS
1	Handphone ini menyediakan sistem operasi yang cepat dan mudah										
2	Memiliki service centre yang banyak untuk menjangkau pelanggan										
3	Perusahaan Handphone ini menangani keluhan pelanggan dengan baik										
4	Perusahaan Handphone ini memiliki respon yang baik terhadap masalah pelanggan										
5	Pada setiap serinya, handphone ini memiliki fitur yang selalu up to date										

II. PERNYATAAN TENTANG KEPUTUSAN PEMBELIAN (PURCHASE DECISION)

No	Saya Selalu	Nokia					Sony Ericsson				
		STS	TS	N	S	SS	STS	TS	N	S	SS
1	Mempertimbangkan kesetiaan merek (brand loyality) dalam minat beli.										
2	Mempertimbangkan asosiasi merek (brand association) dalam minat beli.										
3	Mempertimbangkan pengetahuan merek (brand awarennes) dalam minat beli.										
4	Mempertimbangkan penampakan kualitas (perceived quality) dalam minat beli.										

JATI DIRI SAUDARA

Petunjuk : Jawablah pertanyaan – pertanyaan berikut dengan memberi tanda (X) pada pilihan yang sesuai:

Apa jenis kelamin saudara ?
- ☐ Lelaki
- ☐ Perempuan

Apa pendidikan terakhir saudara ?
- ☐ SMP
- ☐ SMA
- ☐ Sarjana / Diploma
- ☐ Pasca Sarjana
- ☐ Lain, yaitu _____

Apakah pekerjaan saudara ?
- ☐ Pelajar /Mahasiswa
- ☐ Tidak bekerja
- ☐ Pegawai swasta
- ☐ PNS/TNI/POLRI/BUMN
- ☐ Wiraswasta
- ☐ Pensiunan
- ☐ Lain, yaitu _____

Waktu pertama kali menggunakan merek handphone ini, apakah atas inisiatif / rekomendasi :
- ☐ Teman/Kolega
- ☐ Kantor/Organisasi
- ☐ Lain, yaitu _____
- ☐ Keluarga/Saudara
- ☐ Diri sendiri

Berapa penghasilan saudara tiap bulan ?
- ☐ < Rp 1 Juta
- ☐ Rp. 1 Juta – Rp. 2 Juta
- ☐ Rp. 2 Juta – Rp. 3 Juta
- ☐ Rp. 3 Juta- Rp 4 Juta
- ☐ Rp. 4 Juta – Rp. 5 Juta
- ☐ > Rp. 5 Juta

TERIMAKASIH ATAS KESEDIAAN DAN WAKTU ANDA!

APPENDICES B:

Nokia Respondents Data

NOKIA RESPONDENTS DATA

No	X1.1	X1.2	X1.3	X1.4	X1.5	Jml	Rata2	X2.1	X2.2	X2.3	X2.4	X2.5	Jml	Rata2
1	4	3	3	4	4	18	3,60	3	4	5	3	4	19	3,80
2	4	3	3	4	4	18	3,60	3	4	4	4	4	19	3,80
3	3	4	4	4	4	19	3,80	3	3	4	4	4	18	3,60
4	3	4	4	3	3	17	3,40	4	4	3	4	4	19	3,80
5	4	4	4	3	4	19	3,80	4	4	3	3	4	18	3,60
6	4	5	3	4	4	20	4,00	4	3	4	4	4	19	3,80
7	4	3	3	4	4	18	3,60	3	4	4	4	3	18	3,60
8	3	4	4	5	4	20	4,00	3	4	5	3	4	19	3,80
9	3	4	5	4	4	20	4,00	4	3	4	4	4	19	3,80
10	4	4	4	3	3	18	3,60	4	4	3	4	3	18	3,60
11	3	2	3	2	2	12	2,40	3	2	3	2	2	12	2,40
12	3	3	4	4	4	18	3,60	4	4	3	3	4	18	3,60
13	3	4	3	4	4	18	3,60	4	4	4	3	4	19	3,80
14	4	4	3	3	4	18	3,60	3	3	4	4	4	18	3,60
15	4	3	4	4	3	18	3,60	3	4	3	4	4	18	3,60
16	4	4	3	3	4	18	3,60	4	4	3	4	3	18	3,60
17	2	3	2	2	3	12	2,40	2	3	2	3	2	12	2,40
18	3	4	4	3	4	18	3,60	4	3	4	3	4	18	3,60
19	3	4	4	4	4	19	3,80	4	3	4	3	4	18	3,60
20	4	3	3	4	3	17	3,40	3	4	3	4	3	17	3,40
21	4	4	3	4	4	19	3,80	3	4	4	4	3	18	3,60
22	3	3	4	3	3	16	3,20	4	3	3	3	3	16	3,20
23	4	4	3	4	3	18	3,60	4	3	4	4	3	18	3,60
24	4	3	4	4	3	18	3,60	4	4	3	3	4	18	3,60
25	3	4	4	3	4	18	3,60	3	4	4	4	3	18	3,60
26	1	2	1	2	2	8	1,60	2	1	2	1	2	8	1,60
27	3	4	3	4	3	17	3,40	3	4	3	4	3	17	3,40
28	4	3	4	4	4	19	3,80	4	3	4	4	4	19	3,80
29	4	3	4	4	3	18	3,60	4	4	4	3	4	19	3,80
30	3	4	3	3	3	16	3,20	3	4	3	4	3	17	3,40
31	4	5	4	4	4	21	4,20	4	4	5	4	5	22	4,40
32	3	4	3	4	4	18	3,60	4	3	3	4	4	18	3,60
33	4	4	4	3	4	19	3,80	4	4	4	3	3	18	3,60
34	4	3	4	3	4	18	3,60	3	4	4	4	3	18	3,60
35	3	4	5	4	3	19	3,80	4	3	3	4	4	18	3,60
36	4	4	4	4	4	20	4,00	4	4	4	4	3	19	3,80
37	3	3	4	4	4	18	3,60	3	4	4	3	4	18	3,60
38	4	4	3	3	4	18	3,60	4	3	3	4	4	18	3,60
39	5	3	4	4	3	19	3,80	3	4	5	4	4	20	4,00
40	5	4	3	4	4	20	4,00	4	4	4	3	4	19	3,80
41	5	4	3	3	4	19	3,80	4	4	4	4	3	19	3,80
42	4	4	3	4	3	18	3,60	3	5	4	4	4	20	4,00
43	4	3	4	4	5	20	4,00	3	4	4	4	3	18	3,60
44	4	3	4	3	4	18	3,60	5	4	4	4	3	20	4,00
45	3	4	3	5	4	19	3,80	4	3	3	4	4	18	3,60
46	3	4	4	4	3	18	3,60	4	4	4	3	4	19	3,80
47	4	4	4	4	4	20	4,00	5	4	3	4	4	20	4,00
48	4	3	3	3	4	17	3,40	3	3	4	4	3	17	3,40
49	4	4	4	4	3	19	3,80	4	4	4	3	3	18	3,60
50	3	4	4	3	4	18	3,60	4	4	3	4	3	18	3,60

No	X1.1	X1.2	X1.3	X1.4	X1.5	Jml	Rata2	X2.1	X2.2	X2.3	X2.4	X2.5	Jml	Rata2
51	4	4	4	3	3	18	3,60	3	4	3	4	5	19	3,80
52	4	4	4	3	3	18	3,60	3	4	4	4	4	19	3,80
53	4	4	3	4	4	19	3,80	4	4	3	3	4	18	3,60
54	4	4	3	4	3	18	3,60	4	4	3	4	3	18	3,60
55	3	4	4	4	3	18	3,60	4	3	4	4	3	18	3,60
56	4	3	4	3	4	18	3,60	4	4	4	3	4	19	3,80
57	3	4	4	4	3	18	3,60	3	3	4	4	4	18	3,60
58	5	4	3	4	4	20	4,00	4	3	3	4	4	18	3,60
59	4	4	3	4	5	20	4,00	4	4	4	3	3	18	3,60
60	3	3	4	4	4	18	3,60	4	3	4	4	4	19	3,80
61	2	3	3	2	2	12	2,40	2	3	2	3	2	12	2,40
62	4	4	3	3	4	18	3,60	3	4	4	4	3	18	3,60
63	4	3	3	4	3	17	3,40	3	4	4	3	4	18	3,60
64	4	4	4	3	4	19	3,80	3	4	4	3	4	18	3,60
65	4	3	4	3	4	18	3,60	4	3	3	4	3	17	3,40
66	3	3	3	4	3	16	3,20	4	3	3	4	4	18	3,60
67	3	2	3	2	2	12	2,40	2	3	2	3	2	12	2,40
68	3	4	3	4	4	18	3,60	4	3	3	4	4	18	3,60
69	4	4	3	4	4	19	3,80	3	4	3	4	5	19	3,80
70	4	3	4	3	3	17	3,40	4	4	4	3	4	19	3,80
71	4	4	4	4	3	19	3,80	4	3	4	4	3	18	3,60
72	3	3	3	3	4	16	3,20	3	4	3	3	3	16	3,20
73	4	3	4	4	3	18	3,60	4	3	4	3	4	18	3,60
74	4	3	4	3	4	18	3,60	3	4	4	4	3	18	3,60
75	3	4	3	4	4	18	3,60	4	3	3	4	4	18	3,60
76	2	2	1	2	1	8	1,60	2	1	2	2	1	8	1,60
77	4	4	5	4	3	20	4,00	4	3	3	4	3	17	3,40
78	3	4	5	4	3	19	3,80	4	4	4	3	4	19	3,80
79	4	3	4	4	3	18	3,60	3	4	4	4	4	19	3,80
80	4	5	4	3	4	20	4,00	4	3	3	4	3	17	3,40
81	5	4	4	5	4	22	4,40	4	5	4	4	4	21	4,20
82	4	4	3	4	3	18	3,60	4	4	4	3	3	18	3,60
83	3	4	4	4	4	19	3,80	4	3	4	4	4	19	3,80
84	3	4	4	3	4	18	3,60	4	4	3	5	4	20	4,00
85	4	3	3	4	5	19	3,80	4	3	3	4	4	18	3,60
86	4	4	4	4	4	20	4,00	4	3	5	4	4	20	4,00
87	4	4	3	3	4	18	3,60	3	4	3	4	4	18	3,60
88	3	4	4	4	3	18	3,60	4	4	4	3	3	18	3,60
89	4	3	5	3	4	19	3,80	4	4	3	4	5	20	4,00
90	4	3	3	4	4	18	3,60	3	4	4	4	4	19	3,80
91	4	4	4	4	4	20	4,00	3	4	4	4	4	19	3,80
92	3	4	4	3	3	17	3,40	4	4	5	4	3	20	4,00
93	4	3	4	4	4	19	3,80	4	3	3	3	4	17	3,40
94	3	4	4	3	4	18	3,60	3	3	4	4	4	18	3,60
95	5	4	3	4	3	19	3,80	4	4	4	3	3	18	3,60
96	3	3	3	4	4	17	3,40	4	4	3	4	4	19	3,80
97	3	4	4	4	4	19	3,80	4	4	3	3	4	18	3,60
98	4	4	4	5	3	20	4,00	4	4	4	4	3	19	3,80
99	4	4	4	3	3	18	3,60	3	4	4	4	3	18	3,60
100	3	4	3	4	4	18	3,60	4	3	4	4	3	18	3,60

No	X3.1	X3.2	X3.3	X3.4	X3.5	Jml	Rata2	X4.1	X4.2	X4.3	X4.4	X4.5	Jml	Rata2
1	4	3	4	5	4	20	4,00	3	5	4	4	3	19	3,80
2	4	3	4	3	4	18	3,60	3	4	4	4	3	18	3,60
3	3	4	3	4	4	18	3,60	4	4	3	3	4	18	3,60
4	3	4	3	4	4	18	3,60	4	3	3	4	4	18	3,60
5	4	4	5	4	3	20	4,00	3	3	4	4	4	18	3,60
6	4	3	4	3	4	18	3,60	3	5	4	3	4	19	3,80
7	4	4	4	3	4	19	3,80	4	4	3	3	4	18	3,60
8	3	3	3	4	4	17	3,40	4	4	3	4	3	18	3,60
9	3	4	3	4	3	17	3,40	3	3	4	4	4	18	3,60
10	4	4	4	3	4	19	3,80	3	4	3	3	4	17	3,40
11	2	2	3	2	2	11	2,20	2	3	2	3	4	14	2,80
12	4	3	4	4	3	18	3,60	4	3	3	4	4	18	3,60
13	4	3	3	4	4	18	3,60	4	3	4	4	3	18	3,60
14	3	4	3	4	4	18	3,60	4	4	4	3	3	18	3,60
15	3	5	4	3	4	19	3,80	3	4	3	4	3	17	3,40
16	4	4	4	4	3	19	3,80	3	4	4	4	4	19	3,80
17	3	2	2	3	2	12	2,40	2	2	3	2	3	12	2,40
18	4	3	3	4	4	18	3,60	3	3	4	4	3	17	3,40
19	3	3	4	4	4	18	3,60	3	4	4	3	3	17	3,40
20	3	4	4	3	3	17	3,40	5	4	4	3	3	19	3,80
21	4	3	3	4	4	18	3,60	4	3	4	4	4	19	3,80
22	3	4	3	3	3	16	3,20	3	4	3	3	3	16	3,20
23	4	4	4	3	3	18	3,60	4	4	3	3	4	18	3,60
24	4	5	4	3	4	20	4,00	4	3	4	4	3	18	3,60
25	3	4	3	4	4	18	3,60	3	3	4	4	3	17	3,40
26	2	1	2	1	1	7	1,40	2	1	1	2	2	8	1,60
27	4	3	4	3	4	18	3,60	3	4	3	3	4	17	3,40
28	4	3	4	4	3	18	3,60	5	4	3	4	4	20	4,00
29	3	4	3	4	4	18	3,60	4	3	4	4	3	18	3,60
30	4	3	4	3	4	18	3,60	4	3	4	3	4	18	3,60
31	4	5	4	5	4	22	4,40	4	5	4	4	5	22	4,40
32	4	4	3	4	3	18	3,60	3	4	4	3	3	17	3,40
33	3	3	4	4	4	18	3,60	3	4	3	4	3	17	3,40
34	5	3	4	3	4	19	3,80	4	4	3	4	4	19	3,80
35	4	4	4	4	3	19	3,80	3	3	4	4	4	18	3,60
36	4	4	3	4	4	19	3,80	4	3	4	3	4	18	3,60
37	3	3	4	4	4	18	3,60	4	4	3	4	3	18	3,60
38	4	3	4	4	3	18	3,60	3	4	4	3	3	17	3,40
39	5	3	4	4	4	20	4,00	4	3	4	4	4	19	3,80
40	4	4	3	3	4	18	3,60	3	4	4	4	4	19	3,80
41	3	5	4	4	4	20	4,00	4	3	4	3	3	17	3,40
42	4	4	3	3	4	18	3,60	3	4	3	4	4	18	3,60
43	4	5	4	4	3	20	4,00	4	3	4	4	3	18	3,60
44	4	3	3	4	4	18	3,60	3	3	4	3	4	17	3,40
45	3	4	4	3	4	18	3,60	4	3	3	4	4	18	3,60
46	4	4	3	4	3	18	3,60	4	4	3	3	5	19	3,80
47	4	3	4	4	4	19	3,80	4	4	4	3	4	19	3,80
48	3	4	3	3	4	17	3,40	3	3	4	4	3	17	3,40
49	4	3	4	3	3	17	3,40	4	4	3	4	4	19	3,80
50	3	4	4	4	4	19	3,80	3	3	4	3	4	17	3,40

No	X3.1	X3.2	X3.3	X3.4	X3.5	Jml	Rata2	X4.1	X4.2	X4.3	X4.4	X4.5	Jml	Rata2
51	4	5	4	4	3	20	4,00	3	3	4	4	4	18	3,60
52	4	3	4	4	3	18	3,60	3	4	3	4	4	18	3,60
53	3	4	4	4	3	18	3,60	4	4	4	3	3	18	3,60
54	3	4	4	3	4	18	3,60	3	3	4	4	3	17	3,40
55	4	3	4	3	5	19	3,80	4	4	4	3	3	18	3,60
56	4	4	3	4	4	19	3,80	4	3	4	5	3	19	3,80
57	4	3	4	4	4	19	3,80	4	4	3	3	4	18	3,60
58	3	4	4	3	3	17	3,40	4	3	3	4	4	18	3,60
59	3	4	3	3	4	17	3,40	3	4	3	4	3	17	3,40
60	4	3	4	4	4	19	3,80	4	4	4	4	3	19	3,80
61	3	2	2	3	2	12	2,40	2	2	3	2	2	11	2,20
62	4	4	3	4	3	18	3,60	3	4	4	3	4	18	3,60
63	4	3	4	4	3	18	3,60	4	4	3	3	3	17	3,40
64	4	4	3	4	3	18	3,60	4	3	3	4	3	17	3,40
65	3	4	4	3	4	18	3,60	4	3	3	4	5	19	3,80
66	4	3	4	4	3	18	3,60	4	4	4	3	4	19	3,80
67	2	3	2	2	2	11	2,20	2	3	2	3	2	12	2,40
68	3	4	3	4	3	17	3,40	3	3	4	4	3	17	3,40
69	4	4	4	3	3	18	3,60	3	4	4	4	5	20	4,00
70	4	3	3	3	4	17	3,40	4	4	3	3	4	18	3,60
71	3	4	4	4	3	18	3,60	4	3	4	3	4	18	3,60
72	4	3	3	3	3	16	3,20	3	3	3	4	3	16	3,20
73	4	3	3	4	4	18	3,60	4	4	4	3	3	18	3,60
74	4	3	4	4	5	20	4,00	4	3	4	3	4	18	3,60
75	3	4	4	3	4	18	3,60	3	4	3	4	4	18	3,60
76	2	2	2	1	1	8	1,60	1	2	1	2	2	8	1,60
77	4	4	3	4	4	19	3,80	3	3	4	4	4	18	3,60
78	3	4	4	4	4	19	3,80	4	4	3	3	4	18	3,60
79	4	4	4	3	3	18	3,60	4	4	3	3	3	17	3,40
80	4	4	3	4	3	18	3,60	3	4	4	4	4	19	3,80
81	4	4	5	4	5	22	4,40	4	5	4	4	5	22	4,40
82	3	4	3	4	4	18	3,60	4	3	3	4	3	17	3,40
83	4	4	4	3	3	18	3,60	3	4	3	4	3	17	3,40
84	4	3	4	5	3	19	3,80	4	4	4	4	3	19	3,80
85	4	4	3	4	5	20	4,00	4	3	3	3	4	17	3,40
86	3	4	4	4	3	18	3,60	3	4	4	4	3	18	3,60
87	4	3	4	3	4	18	3,60	4	4	3	3	4	18	3,60
88	3	4	3	4	4	18	3,60	4	3	3	4	3	17	3,40
89	4	4	4	5	3	20	4,00	4	4	4	3	4	19	3,80
90	3	3	4	4	4	18	3,60	3	3	5	4	4	19	3,80
91	4	4	4	3	5	20	4,00	4	3	4	4	4	19	3,80
92	3	3	4	4	4	18	3,60	4	4	3	3	3	17	3,40
93	3	4	4	3	4	18	3,60	3	4	4	4	4	19	3,80
94	3	4	4	3	4	18	3,60	4	3	4	3	3	17	3,40
95	5	4	3	4	4	20	4,00	3	4	4	3	4	18	3,60
96	4	3	4	4	3	18	3,60	4	4	3	5	3	19	3,80
97	4	4	4	4	3	19	3,80	4	4	3	4	3	18	3,60
98	3	3	4	3	4	17	3,40	3	3	4	4	4	18	3,60
99	4	3	3	4	3	17	3,40	3	4	4	3	4	18	3,60
100	4	4	4	3	4	19	3,80	4	3	4	3	3	17	3,40

No	Y1.1	Y1.2	Y1.3	Y1.4	Jml	Rata2
1	4	3	4	4	15	3,75
2	4	4	3	4	15	3,75
3	4	4	4	3	15	3,75
4	4	3	4	4	15	3,75
5	3	4	5	4	16	4,00
6	4	5	4	3	16	4,00
7	4	4	3	4	15	3,75
8	4	4	4	4	16	4,00
9	3	4	4	4	15	3,75
10	4	4	3	4	15	3,75
11	2	3	2	2	9	2,25
12	4	3	4	4	15	3,75
13	4	4	3	4	15	3,75
14	4	3	4	4	15	3,75
15	3	4	4	4	15	3,75
16	4	4	4	3	15	3,75
17	3	2	3	2	10	2,50
18	4	3	4	3	14	3,50
19	3	4	4	4	15	3,75
20	4	3	3	4	14	3,50
21	3	4	4	4	15	3,75
22	4	3	3	3	13	3,25
23	4	4	3	4	15	3,75
24	4	3	4	4	15	3,75
25	3	4	4	3	14	3,50
26	2	1	2	1	6	1,50
27	4	3	4	3	14	3,50
28	3	4	5	4	16	4,00
29	4	3	4	4	15	3,75
30	4	3	4	3	14	3,50
31	4	5	5	4	18	4,50
32	4	3	4	3	14	3,50
33	3	4	4	4	15	3,75
34	4	4	3	4	15	3,75
35	4	4	4	3	15	3,75
36	4	3	4	4	15	3,75
37	3	4	4	4	15	3,75
38	3	4	3	4	14	3,50
39	4	5	4	3	16	4,00
40	4	4	4	4	16	4,00
41	4	4	4	4	16	4,00
42	3	4	4	4	15	3,75
43	4	4	4	4	16	4,00
44	4	4	4	3	15	3,75
45	4	3	4	4	15	3,75
46	4	4	3	4	15	3,75
47	3	4	5	4	16	4,00
48	4	3	4	3	14	3,50
49	4	4	3	4	15	3,75
50	4	4	4	3	15	3,75

No	Y1.1	Y1.2	Y1.3	Y1.4	Jml	Rata2
51	3	4	4	4	15	3,75
52	4	3	4	4	15	3,75
53	4	4	3	4	15	3,75
54	3	4	4	3	14	3,50
55	4	4	3	4	15	3,75
56	4	3	4	4	15	3,75
57	3	4	4	4	15	3,75
58	4	4	3	4	15	3,75
59	4	4	4	3	15	3,75
60	4	4	4	4	16	4,00
61	2	3	2	3	10	2,50
62	4	4	3	4	15	3,75
63	4	3	4	3	14	3,50
64	3	4	4	4	15	3,75
65	4	4	3	4	15	3,75
66	4	3	4	3	14	3,50
67	3	3	2	2	10	2,50
68	4	3	4	3	14	3,50
69	4	4	4	4	16	4,00
70	3	4	3	4	14	3,50
71	4	3	4	4	15	3,75
72	3	4	3	3	13	3,25
73	4	3	4	4	15	3,75
74	4	4	3	4	15	3,75
75	3	4	4	4	15	3,75
76	2	1	2	2	7	1,75
77	4	3	4	4	15	3,75
78	4	4	3	4	15	3,75
79	3	4	4	4	15	3,75
80	4	4	3	4	15	3,75
81	5	4	4	5	18	4,50
82	4	3	4	4	15	3,75
83	4	4	3	4	15	3,75
84	4	3	4	4	15	3,75
85	3	4	4	4	15	3,75
86	4	4	4	3	15	3,75
87	4	4	3	4	15	3,75
88	4	3	4	3	14	3,50
89	4	4	4	4	16	4,00
90	3	4	4	4	15	3,75
91	4	4	4	4	16	4,00
92	4	4	3	4	15	3,75
93	4	3	4	4	15	3,75
94	3	4	4	3	14	3,50
95	4	3	4	4	15	3,75
96	4	4	3	4	15	3,75
97	3	4	4	4	15	3,75
98	4	4	3	4	15	3,75
99	4	4	4	3	15	3,75
100	4	3	4	4	15	3,75

No	X1	X2	X3	X4	Y	No	X1	X2	X3	X4	Y
1	3,60	3,80	4,00	3,80	3,75	1	4-T	4-T	4-T	4-T	4-T
2	3,60	3,80	3,60	3,60	3,75	2	4-T	4-T	4-T	4-T	4-T
3	3,80	3,60	3,60	3,60	3,75	3	4-T	4-T	4-T	4-T	4-T
4	3,40	3,80	3,60	3,60	3,75	4	4-T	4-T	4-T	4-T	4-T
5	3,80	3,60	4,00	3,60	4,00	5	4-T	4-T	4-T	4-T	4-T
6	4,00	3,80	3,60	3,80	4,00	6	4-T	4-T	4-T	4-T	4-T
7	3,60	3,60	3,80	3,60	3,75	7	4-T	4-T	4-T	4-T	4-T
8	4,00	3,80	3,40	3,60	4,00	8	4-T	4-T	4-T	4-T	4-T
9	4,00	3,80	3,40	3,60	3,75	9	4-T	4-T	4-T	4-T	4-T
10	3,60	3,60	3,80	3,40	3,75	10	4-T	4-T	4-T	4-T	4-T
11	2,40	2,40	2,20	2,80	2,25	11	2-R	2-R	2-R	3-S	2-R
12	3,60	3,60	3,60	3,60	3,75	12	4-T	4-T	4-T	4-T	4-T
13	3,60	3,80	3,60	3,60	3,75	13	4-T	4-T	4-T	4-T	4-T
14	3,60	3,60	3,60	3,60	3,75	14	4-T	4-T	4-T	4-T	4-T
15	3,60	3,60	3,80	3,40	3,75	15	4-T	4-T	4-T	4-T	4-T
16	3,60	3,60	3,80	3,80	3,75	16	4-T	4-T	4-T	4-T	4-T
17	2,40	2,40	2,40	2,40	2,50	17	2-R	2-R	2-R	2-R	2-R
18	3,60	3,60	3,60	3,40	3,50	18	4-T	4-T	4-T	4-T	4-T
19	3,80	3,60	3,60	3,40	3,75	19	4-T	4-T	4-T	4-T	4-T
20	3,40	3,40	3,40	3,80	3,50	20	4-T	4-T	4-T	4-T	4-T
21	3,80	3,60	3,60	3,80	3,75	21	4-T	4-T	4-T	4-T	4-T
22	3,20	3,20	3,20	3,20	3,25	22	3-S	3-S	3-S	3-S	3-S
23	3,60	3,60	3,60	3,60	3,75	23	4-T	4-T	4-T	4-T	4-T
24	3,60	3,60	4,00	3,60	3,75	24	4-T	4-T	4-T	4-T	4-T
25	3,60	3,60	3,60	3,40	3,50	25	4-T	4-T	4-T	4-T	4-T
26	1,60	1,60	1,40	1,60	1,50	26	1-SR	1-SR	1-SR	1-SR	1-SR
27	3,40	3,40	3,60	3,40	3,50	27	4-T	4-T	4-T	4-T	4-T
28	3,80	3,80	3,60	4,00	4,00	28	4-T	4-T	4-T	4-T	4-T
29	3,60	3,80	3,60	3,60	3,75	29	4-T	4-T	4-T	4-T	4-T
30	3,20	3,40	3,60	3,60	3,50	30	3-S	4-T	4-T	4-T	4-T
31	4,20	4,40	4,40	4,40	4,50	31	5-ST	5-ST	5-ST	5-ST	5-ST
32	3,60	3,60	3,60	3,40	3,50	32	4-T	4-T	4-T	4-T	4-T
33	3,80	3,60	3,60	3,40	3,75	33	4-T	4-T	4-T	4-T	4-T
34	3,60	3,60	3,80	3,80	3,75	34	4-T	4-T	4-T	4-T	4-T
35	3,80	3,60	3,80	3,60	3,75	35	4-T	4-T	4-T	4-T	4-T
36	4,00	3,80	3,80	3,60	3,75	36	4-T	4-T	4-T	4-T	4-T
37	3,60	3,60	3,60	3,60	3,75	37	4-T	4-T	4-T	4-T	4-T
38	3,60	3,60	3,60	3,40	3,50	38	4-T	4-T	4-T	4-T	4-T
39	3,80	4,00	4,00	3,80	4,00	39	4-T	4-T	4-T	4-T	4-T
40	4,00	3,80	3,60	3,80	4,00	40	4-T	4-T	4-T	4-T	4-T
41	3,80	3,80	4,00	3,40	4,00	41	4-T	4-T	4-T	4-T	4-T
42	3,60	4,00	3,60	3,60	3,75	42	4-T	4-T	4-T	4-T	4-T
43	4,00	3,60	4,00	3,60	4,00	43	4-T	4-T	4-T	4-T	4-T
44	3,60	4,00	3,60	3,40	3,75	44	4-T	4-T	4-T	4-T	4-T
45	3,80	3,60	3,60	3,60	3,75	45	4-T	4-T	4-T	4-T	4-T
46	3,60	3,80	3,60	3,80	3,75	46	4-T	4-T	4-T	4-T	4-T
47	4,00	4,00	3,80	3,80	4,00	47	4-T	4-T	4-T	4-T	4-T
48	3,40	3,40	3,40	3,40	3,50	48	4-T	4-T	4-T	4-T	4-T
49	3,80	3,60	3,40	3,80	3,75	49	4-T	4-T	4-T	4-T	4-T
50	3,60	3,60	3,80	3,40	3,75	50	4-T	4-T	4-T	4-T	4-T

No	X1	X2	X3	X4	Y	No	X1	X2	X3	X4	Y
51	3,60	3,80	4,00	3,60	3,75	51	4-T	4-T	4-T	4-T	4-T
52	3,60	3,80	3,60	3,60	3,75	52	4-T	4-T	4-T	4-T	4-T
53	3,80	3,60	3,60	3,60	3,75	53	4-T	4-T	4-T	4-T	4-T
54	3,60	3,60	3,60	3,40	3,50	54	4-T	4-T	4-T	4-T	4-T
55	3,60	3,60	3,80	3,60	3,75	55	4-T	4-T	4-T	4-T	4-T
56	3,60	3,80	3,80	3,80	3,75	56	4-T	4-T	4-T	4-T	4-T
57	3,60	3,60	3,80	3,60	3,75	57	4-T	4-T	4-T	4-T	4-T
58	4,00	3,60	3,40	3,60	3,75	58	4-T	4-T	4-T	4-T	4-T
59	4,00	3,60	3,40	3,40	3,75	59	4-T	4-T	4-T	4-T	4-T
60	3,60	3,80	3,80	3,80	4,00	60	4-T	4-T	4-T	4-T	4-T
61	2,40	2,40	2,40	2,20	2,50	61	2-R	2-R	2-R	2-R	2-R
62	3,60	3,60	3,60	3,60	3,75	62	4-T	4-T	4-T	4-T	4-T
63	3,40	3,60	3,60	3,40	3,50	63	4-T	4-T	4-T	4-T	4-T
64	3,80	3,60	3,60	3,40	3,75	64	4-T	4-T	4-T	4-T	4-T
65	3,60	3,40	3,60	3,80	3,75	65	4-T	4-T	4-T	4-T	4-T
66	3,20	3,60	3,60	3,80	3,50	66	3-S	4-T	4-T	4-T	4-T
67	2,40	2,40	2,20	2,40	2,50	67	2-R	2-R	2-R	2-R	2-R
68	3,60	3,60	3,40	3,40	3,50	68	4-T	4-T	4-T	4-T	4-T
69	3,80	3,80	3,60	4,00	4,00	69	4-T	4-T	4-T	4-T	4-T
70	3,40	3,80	3,40	3,60	3,50	70	4-T	4-T	4-T	4-T	4-T
71	3,80	3,60	3,60	3,60	3,75	71	4-T	4-T	4-T	4-T	4-T
72	3,20	3,20	3,20	3,20	3,25	72	3-S	3-S	3-S	3-S	3-S
73	3,60	3,60	3,60	3,60	3,75	73	4-T	4-T	4-T	4-T	4-T
74	3,60	3,60	4,00	3,60	3,75	74	4-T	4-T	4-T	4-T	4-T
75	3,60	3,60	3,60	3,60	3,75	75	4-T	4-T	4-T	4-T	4-T
76	1,60	1,60	1,60	1,60	1,75	76	1-SR	1-SR	1-SR	1-SR	1-SR
77	4,00	3,40	3,80	3,60	3,75	77	4-T	4-T	4-T	4-T	4-T
78	3,80	3,80	3,80	3,60	3,75	78	4-T	4-T	4-T	4-T	4-T
79	3,60	3,80	3,60	3,40	3,75	79	4-T	4-T	4-T	4-T	4-T
80	4,00	3,40	3,60	3,80	3,75	80	4-T	4-T	4-T	4-T	4-T
81	4,40	4,20	4,40	4,40	4,50	81	5-ST	5-ST	5-ST	5-ST	5-ST
82	3,60	3,60	3,60	3,40	3,75	82	4-T	4-T	4-T	4-T	4-T
83	3,80	3,80	3,60	3,40	3,75	83	4-T	4-T	4-T	4-T	4-T
84	3,60	4,00	3,80	3,80	3,75	84	4-T	4-T	4-T	4-T	4-T
85	3,80	3,60	4,00	3,40	3,75	85	4-T	4-T	4-T	4-T	4-T
86	4,00	4,00	3,60	3,60	3,75	86	4-T	4-T	4-T	4-T	4-T
87	3,60	3,60	3,60	3,60	3,75	87	4-T	4-T	4-T	4-T	4-T
88	3,60	3,60	3,60	3,40	3,50	88	4-T	4-T	4-T	4-T	4-T
89	3,80	4,00	4,00	3,80	4,00	89	4-T	4-T	4-T	4-T	4-T
90	3,60	3,80	3,60	3,80	3,75	90	4-T	4-T	4-T	4-T	4-T
91	4,00	3,80	4,00	3,80	4,00	91	4-T	4-T	4-T	4-T	4-T
92	3,40	4,00	3,60	3,40	3,75	92	4-T	4-T	4-T	4-T	4-T
93	3,80	3,40	3,60	3,80	3,75	93	4-T	4-T	4-T	4-T	4-T
94	3,60	3,60	3,60	3,40	3,50	94	4-T	4-T	4-T	4-T	4-T
95	3,80	3,60	4,00	3,60	3,75	95	4-T	4-T	4-T	4-T	4-T
96	3,40	3,80	3,60	3,80	3,75	96	4-T	4-T	4-T	4-T	4-T
97	3,80	3,60	3,80	3,60	3,75	97	4-T	4-T	4-T	4-T	4-T
98	4,00	3,80	3,40	3,60	3,75	98	4-T	4-T	4-T	4-T	4-T
99	3,60	3,60	3,40	3,60	3,75	99	4-T	4-T	4-T	4-T	4-T
100	3,60	3,60	3,80	3,40	3,75	100	4-T	4-T	4-T	4-T	4-T

APPENDICES C:

Sony Ericsson Respondents Data

SONY ERICSSON RESPONDENTS DATA

No	X1.1	X1.2	X1.3	X1.4	X1.5	Jml	Rata2	X2.1	X2.2	X2.3	X2.4	X2.5	Jml	Rata2
1	3	4	3	4	3	17	3,40	3	3	4	4	3	17	3,40
2	3	4	5	4	4	20	4,00	3	4	4	4	5	20	4,00
3	4	4	4	3	4	19	3,80	4	4	3	3	4	18	3,60
4	4	3	4	4	3	18	3,60	4	5	3	4	3	19	3,80
5	4	3	3	4	3	17	3,40	4	3	4	4	3	18	3,60
6	3	4	4	3	4	18	3,60	3	4	4	3	4	18	3,60
7	2	3	2	3	2	12	2,40	2	3	2	3	2	12	2,40
8	3	4	4	3	4	18	3,60	3	4	4	3	4	18	3,60
9	4	4	4	3	4	19	3,80	3	4	4	3	4	18	3,60
10	4	3	3	4	3	17	3,40	5	4	3	4	3	19	3,80
11	4	3	3	4	4	18	3,60	4	4	4	3	4	19	3,80
12	3	4	4	4	4	19	3,80	4	4	4	3	4	19	3,80
13	3	4	3	3	3	16	3,20	3	3	3	4	3	16	3,20
14	3	4	4	3	4	18	3,60	3	3	4	4	4	18	3,60
15	3	4	4	3	4	18	3,60	3	3	4	3	4	17	3,40
16	4	3	3	4	4	18	3,60	4	4	3	4	3	18	3,60
17	4	3	4	3	3	17	3,40	4	4	3	4	3	18	3,60
18	4	4	4	3	4	19	3,80	4	3	4	3	4	18	3,60
19	3	4	4	4	3	18	3,60	3	4	3	4	4	18	3,60
20	1	2	1	2	2	8	1,60	2	2	2	1	1	8	1,60
21	3	4	3	3	4	17	3,40	4	4	3	4	4	19	3,80
22	4	3	4	4	4	19	3,80	4	4	3	4	4	19	3,80
23	4	3	4	4	4	19	3,80	3	3	4	3	4	17	3,40
24	4	4	3	3	4	18	3,60	4	4	3	4	3	18	3,60
25	3	4	4	3	3	17	3,40	3	4	4	4	3	18	3,60
26	3	3	4	4	4	18	3,60	4	3	3	3	4	17	3,40
27	4	3	3	3	4	17	3,40	4	4	4	3	3	18	3,60
28	2	3	2	3	2	12	2,40	2	3	2	2	3	12	2,40
29	4	3	4	4	4	19	3,80	4	4	3	3	4	18	3,60
30	4	4	3	4	3	18	3,60	4	3	4	4	4	19	3,80
31	5	4	3	4	4	20	4,00	3	4	4	4	3	18	3,60
32	4	3	4	5	4	20	4,00	4	4	4	3	3	18	3,60
33	4	3	4	3	3	17	3,40	4	3	4	4	3	18	3,60
34	3	4	4	4	3	18	3,60	3	4	3	3	4	17	3,40
35	4	5	4	4	5	22	4,40	4	4	4	5	4	21	4,20
36	3	4	4	3	3	17	3,40	3	4	3	3	4	17	3,40
37	3	4	4	4	4	19	3,80	3	3	4	4	3	17	3,40
38	4	3	4	4	3	18	3,60	5	4	4	4	3	20	4,00
39	4	4	3	3	4	18	3,60	4	3	3	4	4	18	3,60
40	4	3	3	4	4	18	3,60	4	4	4	3	4	19	3,80
41	3	4	4	4	3	18	3,60	3	3	3	4	4	17	3,40
42	3	4	4	3	4	18	3,60	3	4	4	3	3	17	3,40
43	4	4	4	4	3	19	3,80	4	4	4	3	4	19	3,80
44	3	3	4	4	4	18	3,60	4	4	3	4	3	18	3,60
45	4	4	4	3	4	19	3,80	3	3	4	4	4	18	3,60
46	5	4	3	4	4	20	4,00	4	4	4	3	3	18	3,60
47	4	3	4	3	4	18	3,60	3	3	4	4	3	17	3,40
48	4	5	4	3	3	19	3,80	4	4	3	3	4	18	3,60
49	3	4	4	4	4	19	3,80	4	3	4	4	3	18	3,60
50	3	4	3	4	4	18	3,60	4	4	3	4	3	18	3,60

No	X1.1	X1.2	X1.3	X1.4	X1.5	Jml	Rata2	X2.1	X2.2	X2.3	X2.4	X2.5	Jml	Rata2
51	3	4	4	4	4	19	3,80	4	3	4	3	4	18	3,60
52	4	3	3	3	4	17	3,40	4	3	4	3	4	18	3,60
53	4	4	3	3	4	18	3,60	3	4	3	5	4	19	3,80
54	4	4	4	4	3	19	3,80	4	3	4	4	4	19	3,80
55	4	3	3	3	4	17	3,40	4	4	3	4	3	18	3,60
56	3	4	4	4	3	18	3,60	4	3	4	3	4	18	3,60
57	2	3	2	2	2	11	2,20	2	2	3	2	2	11	2,20
58	3	4	4	4	3	18	3,60	4	3	4	3	3	17	3,40
59	3	4	4	4	3	18	3,60	3	4	3	4	4	18	3,60
60	4	4	3	3	4	18	3,60	3	4	3	4	4	18	3,60
61	3	3	3	4	4	17	3,40	4	3	4	4	3	18	3,60
62	3	4	4	4	4	19	3,80	4	3	4	4	4	19	3,80
63	3	3	3	3	3	15	3,00	3	3	3	3	3	15	3,00
64	3	4	4	4	3	18	3,60	4	4	4	3	3	18	3,60
65	4	4	3	4	4	19	3,80	3	4	3	4	4	18	3,60
66	4	4	3	4	4	19	3,80	4	4	3	3	4	18	3,60
67	3	4	4	3	4	18	3,60	3	3	4	4	3	17	3,40
68	3	3	4	4	3	17	3,40	4	3	3	4	4	18	3,60
69	4	3	4	4	3	18	3,60	3	4	4	3	4	18	3,60
70	2	2	2	1	1	8	1,60	2	2	1	2	1	8	1,60
71	3	4	4	3	3	17	3,40	3	4	4	4	4	19	3,80
72	4	3	4	3	4	18	3,60	3	4	4	4	4	19	3,80
73	4	4	4	3	5	20	4,00	4	3	4	3	3	17	3,40
74	5	4	3	4	4	20	4,00	4	4	3	3	4	18	3,60
75	3	3	3	4	4	17	3,40	4	3	3	4	4	18	3,60
76	4	4	3	4	3	18	3,60	4	4	3	4	3	18	3,60
77	3	4	3	3	4	17	3,40	3	3	4	3	4	17	3,40
78	2	3	2	3	2	12	2,40	2	3	2	2	2	11	2,20
79	4	4	3	4	4	19	3,80	3	3	4	4	4	18	3,60
80	4	3	3	4	4	18	3,60	4	4	4	4	3	19	3,80
81	3	4	4	3	4	18	3,60	4	4	3	5	4	20	4,00
82	4	4	3	3	4	18	3,60	3	4	4	4	3	18	3,60
83	4	3	4	4	3	18	3,60	4	3	4	4	4	19	3,80
84	4	3	4	4	3	18	3,60	3	4	4	3	3	17	3,40
85	4	5	4	4	5	22	4,40	4	5	4	4	4	21	4,20
86	3	3	4	4	3	17	3,40	3	3	4	3	4	17	3,40
87	4	4	4	4	3	19	3,80	4	4	3	3	3	17	3,40
88	3	4	4	4	4	19	3,80	4	4	4	3	3	18	3,60
89	4	4	4	3	5	20	4,00	4	3	3	4	4	18	3,60
90	3	4	3	4	4	18	3,60	4	4	3	3	3	17	3,40
91	3	3	5	4	4	19	3,80	3	3	4	4	4	18	3,60
92	3	4	4	4	3	18	3,60	4	3	3	3	4	17	3,40
93	4	3	4	4	4	19	3,80	4	3	4	4	4	19	3,80
94	4	4	3	4	3	18	3,60	3	4	3	4	4	18	3,60
95	4	3	4	3	3	17	3,40	4	4	3	3	3	17	3,40
96	4	4	4	5	3	20	4,00	4	4	5	3	4	20	4,00
97	3	4	4	4	4	19	3,80	3	3	4	4	4	18	3,60
98	4	3	3	4	4	18	3,60	3	4	3	4	5	19	3,80
99	4	4	4	4	3	19	3,80	4	4	3	4	3	18	3,60
100	4	4	4	3	3	18	3,60	3	4	3	4	4	18	3,60

No	X3.1	X3.2	X3.3	X3.4	X3.5	Jml	Rata2	X4.1	X4.2	X4.3	X4.4	X4.5	Jml	Rata2
1	4	5	3	3	4	19	3,80	3	3	4	4	3	17	3,40
2	4	3	4	4	4	19	3,80	4	3	4	4	4	19	3,80
3	3	3	4	4	4	18	3,60	4	3	4	3	4	18	3,60
4	3	4	5	4	3	19	3,80	4	3	3	4	3	17	3,40
5	4	4	4	3	3	18	3,60	3	4	3	4	4	18	3,60
6	4	3	4	3	3	17	3,40	4	4	4	3	3	18	3,60
7	3	2	2	2	2	11	2,20	2	3	2	2	3	12	2,40
8	4	3	3	4	4	18	3,60	4	4	4	3	3	18	3,60
9	4	4	3	4	3	18	3,60	4	4	4	3	3	18	3,60
10	3	4	4	3	3	17	3,40	3	5	3	4	4	19	3,80
11	3	3	4	4	4	18	3,60	3	4	3	4	4	18	3,60
12	4	4	4	3	3	18	3,60	4	3	4	3	3	17	3,40
13	3	3	3	4	3	16	3,20	3	3	3	4	3	16	3,20
14	4	3	3	4	3	17	3,40	4	3	4	3	4	18	3,60
15	4	4	3	4	3	18	3,60	4	3	4	4	4	19	3,80
16	3	4	4	3	4	18	3,60	3	5	4	4	4	20	4,00
17	3	4	4	3	3	17	3,40	3	4	4	3	3	17	3,40
18	4	3	3	4	3	17	3,40	4	4	4	3	3	18	3,60
19	4	3	4	4	3	18	3,60	3	4	3	4	3	17	3,40
20	2	1	2	1	2	8	1,60	2	1	2	1	2	8	1,60
21	3	3	4	3	4	17	3,40	3	3	3	4	4	17	3,40
22	3	4	3	3	4	17	3,40	4	3	3	4	4	18	3,60
23	3	4	3	4	3	17	3,40	3	4	5	3	4	19	3,80
24	4	3	4	4	4	19	3,80	3	4	4	4	3	18	3,60
25	4	3	4	3	3	17	3,40	4	4	4	3	3	18	3,60
26	3	3	4	4	3	17	3,40	4	3	3	4	4	18	3,60
27	4	4	3	3	4	18	3,60	3	4	4	3	3	17	3,40
28	2	3	3	2	2	12	2,40	2	3	2	3	2	12	2,40
29	4	3	3	4	4	18	3,60	3	4	4	3	3	17	3,40
30	3	4	4	4	3	18	3,60	4	4	4	4	3	19	3,80
31	4	4	4	3	3	18	3,60	3	3	3	4	4	17	3,40
32	3	3	4	4	4	18	3,60	4	4	4	3	3	18	3,60
33	4	4	3	4	3	18	3,60	4	3	3	4	3	17	3,40
34	3	4	3	3	4	17	3,40	3	4	4	4	3	18	3,60
35	4	5	4	4	4	21	4,20	5	4	4	5	4	22	4,40
36	3	3	4	3	4	17	3,40	3	3	4	4	3	17	3,40
37	4	4	3	4	4	19	3,80	4	3	4	4	3	18	3,60
38	4	4	3	3	3	17	3,40	3	4	3	4	4	18	3,60
39	3	3	4	4	3	17	3,40	3	4	4	4	3	18	3,60
40	3	4	4	4	4	19	3,80	4	3	3	4	4	18	3,60
41	4	3	3	3	4	17	3,40	4	4	4	3	3	18	3,60
42	4	4	3	4	3	18	3,60	3	4	4	3	3	17	3,40
43	4	3	4	3	4	18	3,60	4	4	3	4	4	19	3,80
44	3	4	4	4	3	18	3,60	3	3	4	4	3	17	3,40
45	3	3	3	4	4	17	3,40	4	4	3	3	4	18	3,60
46	4	4	4	4	3	19	3,80	4	3	4	3	4	18	3,60
47	4	3	3	3	4	17	3,40	4	4	4	3	3	18	3,60
48	3	4	4	4	3	18	3,60	3	3	4	4	4	18	3,60
49	5	3	4	3	3	18	3,60	3	4	4	4	3	18	3,60
50	3	4	3	4	3	17	3,40	4	4	3	3	4	18	3,60

No	X3.1	X3.2	X3.3	X3.4	X3.5	Jml	Rata2	X4.1	X4.2	X4.3	X4.4	X4.5	Jml	Rata2
51	3	4	4	5	3	19	3,80	4	3	3	3	4	17	3,40
52	4	4	4	3	4	19	3,80	3	3	4	4	4	18	3,60
53	4	4	3	3	4	18	3,60	3	3	4	4	4	18	3,60
54	4	3	3	4	5	19	3,80	4	4	3	5	3	19	3,80
55	3	3	4	4	4	18	3,60	4	4	3	4	3	18	3,60
56	3	3	4	3	4	17	3,40	3	3	4	4	4	18	3,60
57	2	2	3	2	2	11	2,20	2	3	2	2	2	11	2,20
58	4	4	4	3	3	18	3,60	4	3	3	4	4	18	3,60
59	4	3	4	4	3	18	3,60	3	3	4	4	4	18	3,60
60	3	3	3	4	4	17	3,40	4	4	4	3	3	18	3,60
61	4	4	3	3	4	18	3,60	3	3	3	4	4	17	3,40
62	3	3	4	4	4	18	3,60	3	3	4	3	4	17	3,40
63	3	3	3	3	3	15	3,00	3	3	3	3	3	15	3,00
64	4	3	4	3	3	17	3,40	3	4	4	3	4	18	3,60
65	4	3	4	4	3	18	3,60	4	4	4	3	4	19	3,80
66	3	4	3	4	4	18	3,60	4	4	3	5	4	20	4,00
67	3	3	3	4	4	17	3,40	3	3	3	4	4	17	3,40
68	4	3	4	3	3	17	3,40	3	3	4	4	4	18	3,60
69	4	3	4	3	4	18	3,60	4	3	3	4	3	17	3,40
70	2	1	2	2	1	8	1,60	2	1	2	2	1	8	1,60
71	3	4	3	3	4	17	3,40	4	4	3	3	3	17	3,40
72	3	4	3	4	3	17	3,40	4	4	4	3	3	18	3,60
73	4	3	3	4	3	17	3,40	3	4	3	4	5	19	3,80
74	4	4	4	3	4	19	3,80	4	4	3	3	3	17	3,40
75	3	3	4	3	4	17	3,40	3	3	4	4	4	18	3,60
76	4	3	3	3	4	17	3,40	4	3	4	3	3	17	3,40
77	3	4	4	4	3	18	3,60	4	3	3	4	4	18	3,60
78	2	3	3	2	2	12	2,40	2	3	2	2	2	11	2,20
79	4	4	4	3	3	18	3,60	3	3	3	4	4	17	3,40
80	4	3	3	4	4	18	3,60	4	3	4	4	4	19	3,80
81	3	3	4	4	4	18	3,60	4	4	4	3	3	18	3,60
82	4	4	3	3	4	18	3,60	3	3	4	4	4	18	3,60
83	4	3	4	4	3	18	3,60	3	3	3	4	4	17	3,40
84	3	4	3	4	3	17	3,40	4	4	4	4	3	19	3,80
85	4	5	4	4	5	22	4,40	5	4	4	4	5	22	4,40
86	3	4	3	3	4	17	3,40	4	3	3	3	4	17	3,40
87	4	4	4	4	3	19	3,80	4	3	4	3	4	18	3,60
88	3	3	4	4	3	17	3,40	4	4	3	4	3	18	3,60
89	4	3	3	3	4	17	3,40	4	3	3	4	4	18	3,60
90	4	4	3	4	4	19	3,80	3	4	4	3	4	18	3,60
91	3	4	4	3	3	17	3,40	3	3	4	4	4	18	3,60
92	4	3	4	4	3	18	3,60	4	4	3	3	4	18	3,60
93	3	4	4	3	4	18	3,60	4	3	3	4	4	18	3,60
94	4	3	3	4	4	18	3,60	4	3	3	3	4	17	3,40
95	4	4	3	3	3	17	3,40	3	4	4	4	3	18	3,60
96	4	3	4	4	4	19	3,80	4	4	4	3	4	19	3,80
97	3	4	4	3	3	17	3,40	3	4	4	3	4	18	3,60
98	4	3	3	4	4	18	3,60	4	3	4	3	3	17	3,40
99	3	3	5	3	4	18	3,60	4	4	3	4	3	18	3,60
100	4	3	3	4	3	17	3,40	3	4	4	4	3	18	3,60

No	Y1.1	Y1.2	Y1.3	Y1.4	Jml	Rata2
1	4	3	4	3	14	3,50
2	4	4	4	4	16	4,00
3	3	4	4	4	15	3,75
4	4	4	3	4	15	3,75
5	4	3	4	3	14	3,50
6	3	4	3	4	14	3,50
7	2	3	2	3	10	2,50
8	4	3	4	4	15	3,75
9	4	4	4	3	15	3,75
10	4	4	3	4	15	3,75
11	3	4	4	4	15	3,75
12	4	3	4	4	15	3,75
13	3	4	3	3	13	3,25
14	4	3	4	4	15	3,75
15	4	4	4	3	15	3,75
16	4	3	4	4	15	3,75
17	3	4	3	4	14	3,50
18	4	4	4	4	16	4,00
19	3	4	4	4	15	3,75
20	2	2	2	1	7	1,75
21	3	4	3	4	14	3,50
22	4	3	4	4	15	3,75
23	4	4	4	3	15	3,75
24	4	3	4	4	15	3,75
25	3	4	3	4	14	3,50
26	3	4	4	3	14	3,50
27	4	3	4	3	14	3,50
28	2	3	3	2	10	2,50
29	4	3	4	4	15	3,75
30	4	4	3	4	15	3,75
31	4	4	4	3	15	3,75
32	3	4	4	4	15	3,75
33	3	4	3	4	14	3,50
34	4	3	4	3	14	3,50
35	4	5	4	5	18	4,50
36	3	4	3	4	14	3,50
37	4	3	4	4	15	3,75
38	4	4	3	4	15	3,75
39	4	3	4	4	15	3,75
40	4	4	4	3	15	3,75
41	3	4	3	4	14	3,50
42	4	3	4	4	15	3,75
43	4	4	4	3	15	3,75
44	4	3	4	4	15	3,75
45	3	4	4	4	15	3,75
46	4	4	3	4	15	3,75
47	4	3	4	3	14	3,50
48	4	4	3	4	15	3,75
49	3	4	4	4	15	3,75
50	4	3	4	4	15	3,75

No	Y1.1	Y1.2	Y1.3	Y1.4	Jml	Rata2
51	4	4	4	3	15	3,75
52	4	4	3	4	15	3,75
53	4	3	4	4	15	3,75
54	3	4	4	4	15	3,75
55	4	4	4	3	15	3,75
56	4	3	4	4	15	3,75
57	2	3	2	2	9	2,25
58	4	3	4	4	15	3,75
59	4	4	4	3	15	3,75
60	3	4	4	4	15	3,75
61	4	3	3	4	14	3,50
62	4	4	4	3	15	3,75
63	3	3	3	3	12	3,00
64	4	3	4	4	15	3,75
65	4	4	3	4	15	3,75
66	4	4	4	4	16	4,00
67	3	4	4	3	14	3,50
68	4	3	4	4	15	3,75
69	4	4	4	3	15	3,75
70	2	2	1	2	7	1,75
71	4	3	4	3	14	3,50
72	4	4	3	4	15	3,75
73	3	4	4	4	15	3,75
74	4	5	4	3	16	4,00
75	3	4	4	4	15	3,75
76	4	4	3	4	15	3,75
77	4	3	4	4	15	3,75
78	2	3	2	3	10	2,50
79	4	3	4	4	15	3,75
80	4	4	3	4	15	3,75
81	4	4	4	3	15	3,75
82	3	4	4	4	15	3,75
83	4	3	4	4	15	3,75
84	4	4	3	4	15	3,75
85	5	4	5	4	18	4,50
86	4	3	4	3	14	3,50
87	3	4	4	4	15	3,75
88	4	4	3	4	15	3,75
89	4	4	4	4	16	4,00
90	4	3	4	4	15	3,75
91	3	4	4	4	15	3,75
92	4	3	4	4	15	3,75
93	4	4	4	4	16	4,00
94	4	4	3	4	15	3,75
95	3	4	4	3	14	3,50
96	4	5	4	4	17	4,25
97	4	4	4	3	15	3,75
98	4	3	4	4	15	3,75
99	4	4	3	4	15	3,75
100	3	4	4	4	15	3,75

No	X1	X2	X3	X4	Y	No	X1	X2	X3	X4	Y
1	3,40	3,40	3,80	3,40	3,50	1	4-T	4-T	4-T	4-T	4-T
2	4,00	4,00	3,80	3,80	4,00	2	4-T	4-T	4-T	4-T	4-T
3	3,80	3,60	3,60	3,60	3,75	3	4-T	4-T	4-T	4-T	4-T
4	3,60	3,80	3,80	3,40	3,75	4	4-T	4-T	4-T	4-T	4-T
5	3,40	3,60	3,60	3,60	3,50	5	4-T	4-T	4-T	4-T	4-T
6	3,60	3,60	3,40	3,60	3,50	6	4-T	4-T	4-T	4-T	4-T
7	2,40	2,40	2,20	2,40	2,50	7	2-R	2-R	2-R	2-R	2-R
8	3,60	3,60	3,60	3,60	3,75	8	4-T	4-T	4-T	4-T	4-T
9	3,80	3,60	3,60	3,60	3,75	9	4-T	4-T	4-T	4-T	4-T
10	3,40	3,80	3,40	3,80	3,75	10	4-T	4-T	4-T	4-T	4-T
11	3,60	3,80	3,60	3,60	3,75	11	4-T	4-T	4-T	4-T	4-T
12	3,80	3,80	3,60	3,40	3,75	12	4-T	4-T	4-T	4-T	4-T
13	3,20	3,20	3,20	3,20	3,25	13	3-S	3-S	3-S	3-S	3-S
14	3,60	3,60	3,40	3,60	3,75	14	4-T	4-T	4-T	4-T	4-T
15	3,60	3,40	3,60	3,80	3,75	15	4-T	4-T	4-T	4-T	4-T
16	3,60	3,60	3,60	4,00	3,75	16	4-T	4-T	4-T	4-T	4-T
17	3,40	3,60	3,40	3,40	3,50	17	4-T	4-T	4-T	4-T	4-T
18	3,80	3,60	3,40	3,60	4,00	18	4-T	4-T	4-T	4-T	4-T
19	3,60	3,60	3,60	3,40	3,75	19	4-T	4-T	4-T	4-T	4-T
20	1,60	1,60	1,60	1,60	1,75	20	1-SR	1-SR	1-SR	1-SR	1-SR
21	3,40	3,80	3,40	3,40	3,50	21	4-T	4-T	4-T	4-T	4-T
22	3,80	3,80	3,40	3,60	3,75	22	4-T	4-T	4-T	4-T	4-T
23	3,80	3,40	3,40	3,80	3,75	23	4-T	4-T	4-T	4-T	4-T
24	3,60	3,60	3,80	3,60	3,75	24	4-T	4-T	4-T	4-T	4-T
25	3,40	3,60	3,40	3,60	3,50	25	4-T	4-T	4-T	4-T	4-T
26	3,60	3,40	3,40	3,60	3,50	26	4-T	4-T	4-T	4-T	4-T
27	3,40	3,60	3,60	3,40	3,50	27	4-T	4-T	4-T	4-T	4-T
28	2,40	2,40	2,40	2,40	2,50	28	2-R	2-R	2-R	2-R	2-R
29	3,80	3,60	3,60	3,40	3,75	29	4-T	4-T	4-T	4-T	4-T
30	3,60	3,80	3,60	3,80	3,75	30	4-T	4-T	4-T	4-T	4-T
31	4,00	3,60	3,60	3,40	3,75	31	4-T	4-T	4-T	4-T	4-T
32	4,00	3,60	3,60	3,60	3,75	32	4-T	4-T	4-T	4-T	4-T
33	3,40	3,60	3,60	3,40	3,50	33	4-T	4-T	4-T	4-T	4-T
34	3,60	3,40	3,40	3,60	3,50	34	4-T	4-T	4-T	4-T	4-T
35	4,40	4,20	4,20	4,40	4,50	35	5-ST	5-ST	5-ST	5-ST	5-ST
36	3,40	3,40	3,40	3,40	3,50	36	4-T	4-T	4-T	4-T	4-T
37	3,80	3,40	3,80	3,60	3,75	37	4-T	4-T	4-T	4-T	4-T
38	3,60	4,00	3,40	3,60	3,75	38	4-T	4-T	4-T	4-T	4-T
39	3,60	3,60	3,40	3,60	3,75	39	4-T	4-T	4-T	4-T	4-T
40	3,60	3,80	3,80	3,60	3,75	40	4-T	4-T	4-T	4-T	4-T
41	3,60	3,40	3,40	3,60	3,50	41	4-T	4-T	4-T	4-T	4-T
42	3,60	3,40	3,60	3,40	3,75	42	4-T	4-T	4-T	4-T	4-T
43	3,80	3,80	3,60	3,80	3,75	43	4-T	4-T	4-T	4-T	4-T
44	3,60	3,60	3,60	3,40	3,75	44	4-T	4-T	4-T	4-T	4-T
45	3,80	3,60	3,40	3,60	3,75	45	4-T	4-T	4-T	4-T	4-T
46	4,00	3,60	3,80	3,60	3,75	46	4-T	4-T	4-T	4-T	4-T
47	3,60	3,40	3,40	3,60	3,50	47	4-T	4-T	4-T	4-T	4-T
48	3,80	3,60	3,60	3,60	3,75	48	4-T	4-T	4-T	4-T	4-T
49	3,80	3,60	3,60	3,60	3,75	49	4-T	4-T	4-T	4-T	4-T
50	3,60	3,60	3,40	3,60	3,75	50	4-T	4-T	4-T	4-T	4-T

No	X1	X2	X3	X4	Y	No	X1	X2	X3	X4	Y
51	3,80	3,60	3,80	3,40	3,75	51	4-T	4-T	4-T	4-T	4-T
52	3,40	3,60	3,80	3,60	3,75	52	4-T	4-T	4-T	4-T	4-T
53	3,60	3,80	3,60	3,60	3,75	53	4-T	4-T	4-T	4-T	4-T
54	3,80	3,80	3,80	3,80	3,75	54	4-T	4-T	4-T	4-T	4-T
55	3,40	3,60	3,60	3,60	3,75	55	4-T	4-T	4-T	4-T	4-T
56	3,60	3,60	3,40	3,60	3,75	56	4-T	4-T	4-T	4-T	4-T
57	2,20	2,20	2,20	2,20	2,25	57	2-R	2-R	2-R	2-R	2-R
58	3,60	3,40	3,60	3,60	3,75	58	4-T	4-T	4-T	4-T	4-T
59	3,60	3,60	3,60	3,60	3,75	59	4-T	4-T	4-T	4-T	4-T
60	3,60	3,60	3,40	3,60	3,75	60	4-T	4-T	4-T	4-T	4-T
61	3,40	3,60	3,60	3,40	3,50	61	4-T	4-T	4-T	4-T	4-T
62	3,80	3,80	3,60	3,40	3,75	62	4-T	4-T	4-T	4-T	4-T
63	3,00	3,00	3,00	3,00	3,00	63	3-S	3-S	3-S	3-S	3-S
64	3,60	3,60	3,40	3,60	3,75	64	4-T	4-T	4-T	4-T	4-T
65	3,80	3,60	3,60	3,80	3,75	65	4-T	4-T	4-T	4-T	4-T
66	3,80	3,60	3,60	4,00	4,00	66	4-T	4-T	4-T	4-T	4-T
67	3,60	3,40	3,40	3,40	3,50	67	4-T	4-T	4-T	4-T	4-T
68	3,40	3,60	3,40	3,60	3,75	68	4-T	4-T	4-T	4-T	4-T
69	3,60	3,60	3,60	3,40	3,75	69	4-T	4-T	4-T	4-T	4-T
70	1,60	1,60	1,60	1,60	1,75	70	1-SR	1-SR	1-SR	1-SR	1-SR
71	3,40	3,80	3,40	3,40	3,50	71	4-T	4-T	4-T	4-T	4-T
72	3,60	3,80	3,40	3,60	3,75	72	4-T	4-T	4-T	4-T	4-T
73	4,00	3,40	3,40	3,80	3,75	73	4-T	4-T	4-T	4-T	4-T
74	4,00	3,60	3,80	3,40	4,00	74	4-T	4-T	4-T	4-T	4-T
75	3,40	3,60	3,40	3,60	3,75	75	4-T	4-T	4-T	4-T	4-T
76	3,60	3,60	3,40	3,40	3,75	76	4-T	4-T	4-T	4-T	4-T
77	3,40	3,40	3,60	3,60	3,75	77	4-T	4-T	4-T	4-T	4-T
78	2,40	2,20	2,40	2,20	2,50	78	2-R	2-R	2-R	2-R	2-R
79	3,80	3,60	3,60	3,40	3,75	79	4-T	4-T	4-T	4-T	4-T
80	3,60	3,80	3,60	3,80	3,75	80	4-T	4-T	4-T	4-T	4-T
81	3,60	4,00	3,60	3,60	3,75	81	4-T	4-T	4-T	4-T	4-T
82	3,60	3,60	3,60	3,60	3,75	82	4-T	4-T	4-T	4-T	4-T
83	3,60	3,80	3,60	3,40	3,75	83	4-T	4-T	4-T	4-T	4-T
84	3,60	3,40	3,40	3,80	3,75	84	4-T	4-T	4-T	4-T	4-T
85	4,40	4,20	4,40	4,40	4,50	85	5-ST	5-ST	5-ST	5-ST	5-ST
86	3,40	3,40	3,40	3,40	3,50	86	4-T	4-T	4-T	4-T	4-T
87	3,80	3,40	3,80	3,60	3,75	87	4-T	4-T	4-T	4-T	4-T
88	3,80	3,60	3,40	3,60	3,75	88	4-T	4-T	4-T	4-T	4-T
89	4,00	3,60	3,40	3,60	4,00	89	4-T	4-T	4-T	4-T	4-T
90	3,60	3,40	3,80	3,60	3,75	90	4-T	4-T	4-T	4-T	4-T
91	3,80	3,60	3,40	3,60	3,75	91	4-T	4-T	4-T	4-T	4-T
92	3,60	3,40	3,60	3,60	3,75	92	4-T	4-T	4-T	4-T	4-T
93	3,80	3,80	3,60	3,60	4,00	93	4-T	4-T	4-T	4-T	4-T
94	3,60	3,60	3,60	3,40	3,75	94	4-T	4-T	4-T	4-T	4-T
95	3,40	3,40	3,40	3,60	3,50	95	4-T	4-T	4-T	4-T	4-T
96	4,00	4,00	3,80	3,80	4,25	96	4-T	4-T	4-T	4-T	5-ST
97	3,80	3,60	3,40	3,60	3,75	97	4-T	4-T	4-T	4-T	4-T
98	3,60	3,80	3,60	3,40	3,75	98	4-T	4-T	4-T	4-T	4-T
99	3,80	3,60	3,60	3,60	3,75	99	4-T	4-T	4-T	4-T	4-T
100	3,60	3,60	3,40	3,60	3,75	100	4-T	4-T	4-T	4-T	4-T

APPENDICES D:

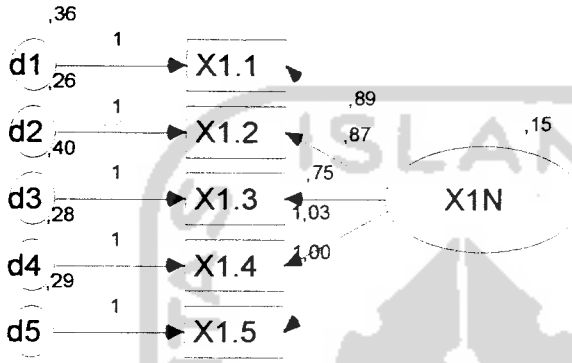
CFA (Confirmatory Factor Analysis)

Nokia

Confirmatory Factor Analysis

NOKIA

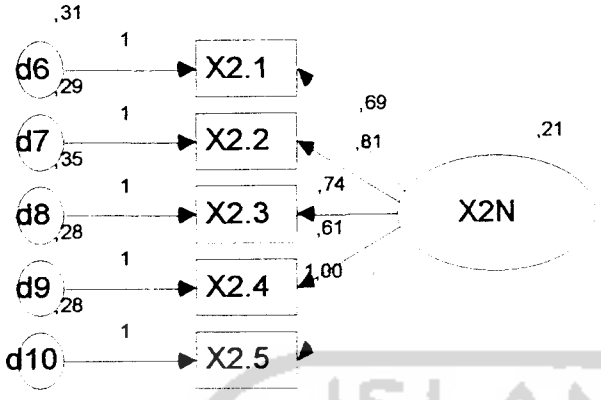
X1: Brand Association



Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
X1.5 <--- X1N	1,000				
X1.4 <--- X1N	1,030	,283	3,645	***	
X1.3 <--- X1N	,754	,254	2,965	,003	
X1.2 <--- X1N	,870	,247	3,514	***	
X1.1 <--- X1N	,891	,267	3,330	***	

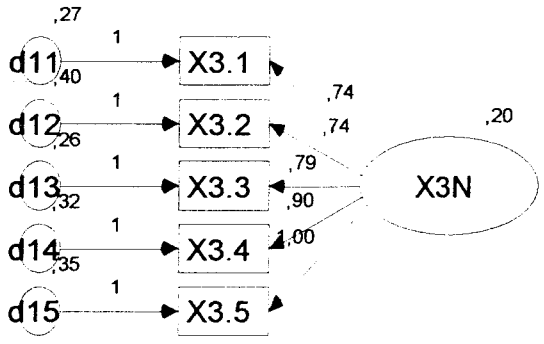
X2: Brand Awareness



Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
X2.5 <--- X2N	1,000				
X2.4 <--- X2N	,613	,189	3,248	,001	par_1
X2.3 <--- X2N	,742	,232	3,203	,001	par_2
X2.2 <--- X2N	,806	,241	3,341	***	par_3
X2.1 <--- X2N	,686	,179	3,271	,001	par_4

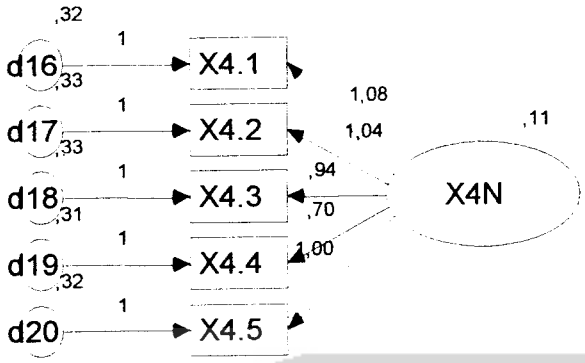
X3: Brand Loyalty



Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
X3.5 <--- X3N	1,000				
X3.4 <--- X3N	,896	,249	3,602	***	par_1
X3.3 <--- X3N	,785	,207	3,795	***	par_2
X3.2 <--- X3N	,737	,219	3,374	***	par_3
X3.1 <--- X3N	,740	,213	3,472	***	par_4

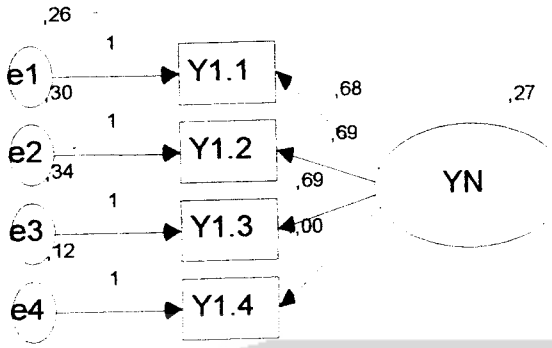
X4: Perceived Quality



Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
X4.5 <--- X4N	1,000				
X4.4 <--- X4N	,705	,294	2,395	,017	par_1
X4.3 <--- X4N	,943	,340	2,771	,006	par_2
X4.2 <--- X4N	1,043	,340	3,069	,002	par_3
X4.1 <--- X4N	1,078	,370	2,910	,004	par_4

Y: Purchase Decision Making



Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
Y1.4 <--- YN	1,000				
Y1.3 <--- YN	,689	,180	2,717	,007	par_1
Y1.2 <--- YN	,694	,197	3,516	***	par_2
Y1.1 <--- YN	,684	,149	3,244	,001	par_3

APPENDICES E:

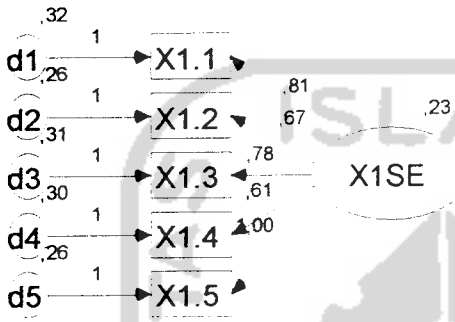
CFA (Confirmatory Factor Analysis)

Sony Ericsson

Confirmatory Factor Analysis

SONY ERICSSON

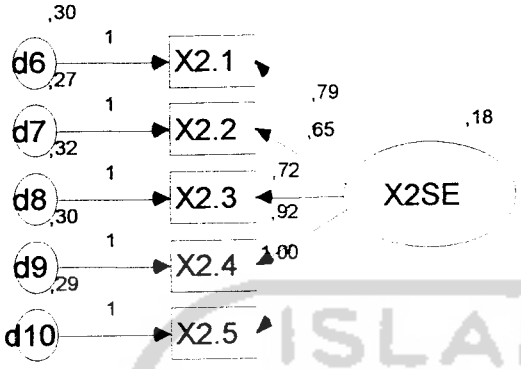
X1: Brand Association



Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
X1.5 <--- X1SE	1,000				
X1.4 <--- X1SE	,611	,174	3,516	***	
X1.3 <--- X1SE	,776	,197	3,935	***	
X1.2 <--- X1SE	,673	,163	3,528	***	
X1.1 <--- X1SE	,815	,204	3,987	***	

X2: Brand Awareness



Regression Weights: (Group number 1 - Default model)

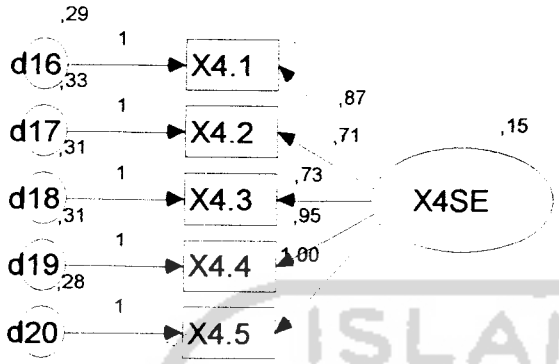
	Estimate	S.E.	C.R.	P	Label
X2.5 <--- X2SE	1,000				
X2.4 <--- X2SE	,917	,257	3,573	***	
X2.3 <--- X2SE	,721	,224	3,215	,001	
X2.2 <--- X2SE	,645	,204	3,158	,002	
X2.1 <--- X2SE	,792	,233	3,404	***	

X3: Brand Loyalty

Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
X3.5 <--- X3SE	1,000				
X3.4 <--- X3SE	,973	,295	3,300	***	
X3.3 <--- X3SE	,649	,221	2,484	,013	
X3.2 <--- X3SE	,960	,297	3,235	,001	
X3.1 <--- X3SE	,786	,253	3,102	,002	

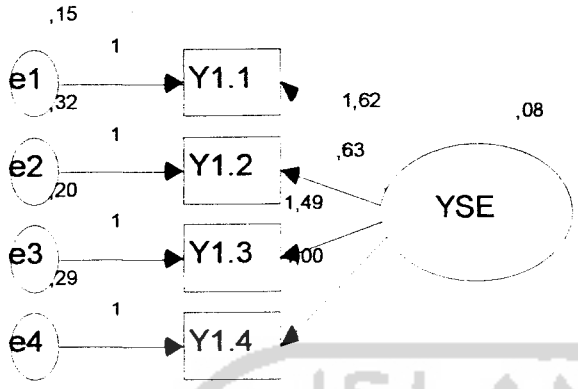
X4: Perceived Quality



Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
X4.5 <--- X4SE	1,000				
X4.4 <--- X4SE	,948	,278	3,414	***	
X4.3 <--- X4SE	,734	,238	3,089	,002	
X4.2 <--- X4SE	,710	,239	2,973	,003	
X4.1 <--- X4SE	,871	,259	3,356	***	

Y: Purchase Decision Making



Regression Weights: (Group number 1 - Default model)

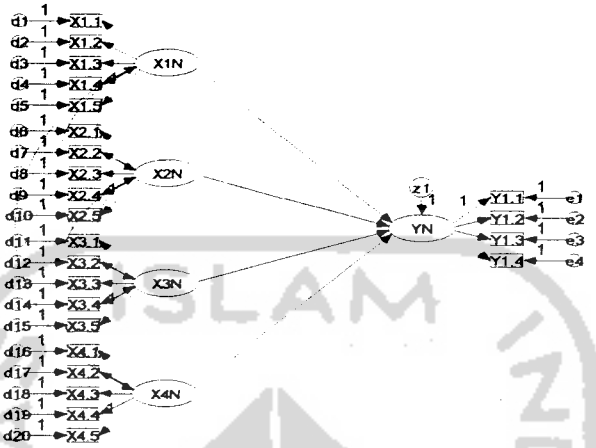
	Estimate	S.E.	C.R.	P	Label
Y1.4 <--- YSE	1,000				
Y1.3 <--- YSE	1,489	,409	3,638	***	
Y1.2 <--- YSE	,630	,250	5,721	,005	
Y1.1 <--- YSE	1,623	,467	3,475	***	

APPENDICES F:

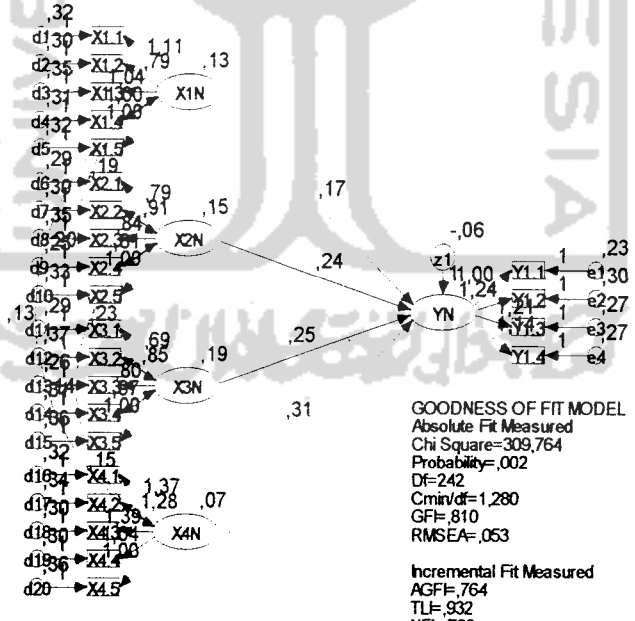
SEM Nokia before Modification Indices

SEM NOKIA BEFORE MODIFICATION INDICES

Structural Equation Modeling



RESULT
Structural Equation Modeling



Analysis Summary

Date and Time

Date: 28 Januari 2007
Time: 6:25:14

Title

Sem nokia wawan: 28 Januari 2007 06:25

Notes for Group (Group number 1)

The model is recursive.
Sample size = 100

Variable Summary (Group number 1)

Your model contains the following variables (Group number 1)

Observed, endogenous variables
X1.5
X1.4
X1.3
X1.2
X1.1
X2.5
X2.4
X2.3
X2.2
X2.1
X3.5
X3.4
X3.3
X3.2
X3.1
X4.5
X4.4
X4.3
X4.2
X4.1
Y1.1
Y1.2
Y1.3
Y1.4

Unobserved, endogenous variables
YN
Unobserved, exogenous variables
X1N
d5
d4
d3
d2
d1
X2N
d10
d9
d8
d7
d6
X3N
d15
d14
d13
d12
d11
X4N
d20
d19
d18
d17
d16
e1
e2
e3
e4
z1

Variable counts (Group number 1)

Number of variables in your model:	54
Number of observed variables:	24
Number of unobserved variables:	30
Number of exogenous variables:	29
Number of endogenous variables:	25

Parameter summary (Group number 1)

	Weights	Covariances	Variances	Means	Intercepts	Total
Fixed	30	0	0	0	0	30
Labeled	0	0	0	0	0	0
Unlabeled	23	6	29	0	0	58
Total	53	6	29	0	0	88

Assessment of normality (Group number 1)

Variable	min	max	skew	c.r.	kurtosis	c.r.
Y1.4	1,000	5,000	-1,576	-6,436	2,846	5,810
Y1.3	2,000	5,000	-,775	-3,166	,581	1,185
Y1.2	1,000	5,000	-1,328	-5,423	3,372	6,882
Y1.1	2,000	5,000	-1,188	-4,850	,908	1,854
X4.1	1,000	5,000	-,759	-3,098	,918	1,874
X4.2	1,000	5,000	-,546	-2,228	1,100	2,246
X4.3	1,000	5,000	-1,208	-4,930	2,443	4,986
X4.4	2,000	5,000	-,382	-1,561	-,278	-,568
X4.5	2,000	5,000	-,041	-,167	-,220	-,449
X3.1	2,000	5,000	-,472	-1,926	-,025	-,050
X3.2	1,000	5,000	-,498	-2,035	,872	1,779
X3.3	2,000	5,000	-,684	-2,794	,056	,115
X3.4	1,000	5,000	-1,001	-4,086	2,266	4,626
X3.5	1,000	5,000	-,875	-3,574	1,574	3,213
X2.1	2,000	5,000	-,684	-2,794	,056	,115
X2.2	1,000	5,000	-1,321	-5,395	3,193	6,517
X2.3	2,000	5,000	-,232	-,949	-,112	-,228
X2.4	1,000	5,000	-1,319	-5,386	2,582	5,270
X2.5	1,000	5,000	-,707	-2,888	,969	1,979
X1.1	1,000	5,000	-,580	-2,367	1,168	2,384
X1.2	2,000	5,000	-,595	-2,429	,158	,323
X1.3	1,000	5,000	-,783	-3,199	2,109	4,306
X1.4	2,000	5,000	-,576	-2,350	,116	,236
X1.5	1,000	5,000	-,863	-3,524	1,347	2,749
Multivariate					6,871	,972

Observations farthest from the centroid (Mahalanobis distance) (Group number 1)

Observation number	Mahalanobis d-squared	p1	p2
85	43,105	,010	,622
26	42,215	,012	,345
11	41,984	,013	,141
39	41,424	,015	,064
76	39,448	,024	,100
1	36,156	,053	,438
20	35,416	,062	,435
44	35,198	,066	,332
5	33,309	,098	,652
61	33,088	,102	,578
28	32,888	,106	,502
67	32,841	,107	,389
58	31,778	,133	,575
43	31,611	,137	,508
84	29,945	,187	,858
90	29,068	,218	,940
6	28,914	,223	,923
96	28,857	,226	,889
31	28,847	,226	,836
98	28,275	,249	,895
77	28,121	,255	,876
80	28,110	,255	,822
92	27,904	,264	,811
95	27,876	,265	,751
42	27,802	,268	,697
47	27,633	,276	,674
41	27,421	,285	,668
46	27,274	,292	,639
94	27,151	,297	,602
8	26,909	,309	,612
51	26,679	,320	,618
70	26,097	,348	,756
59	25,797	,364	,788
52	25,476	,380	,824
69	25,423	,383	,782
65	25,071	,402	,830
15	24,727	,421	,871
55	24,516	,432	,877
54	24,489	,434	,838

Observation number	Mahalanobis d-squared	p1	p2
9	24,320	,443	,835
89	24,294	,445	,788
86	23,990	,462	,828
53	23,967	,463	,780
4	23,828	,471	,767
17	23,655	,481	,767
38	23,420	,495	,789
100	23,294	,503	,773
83	23,189	,509	,750
30	22,860	,528	,806
13	22,720	,536	,797
24	22,699	,538	,744
14	22,662	,540	,691
35	22,570	,545	,659
79	22,562	,546	,586
93	22,431	,554	,570
33	22,132	,571	,631
3	22,106	,573	,566
63	22,042	,577	,516
34	21,637	,601	,630
78	21,446	,612	,641
56	21,431	,613	,569
21	21,386	,616	,510
66	21,344	,618	,449
74	21,198	,627	,438
81	21,070	,635	,418
27	20,206	,685	,743
82	19,969	,699	,770
73	19,957	,699	,705
60	19,908	,702	,650
36	19,873	,704	,583
18	19,664	,716	,600
50	19,483	,726	,602
87	19,462	,727	,524
64	19,410	,730	,460
99	19,036	,750	,554
12	18,929	,756	,515
88	18,921	,756	,426
71	18,753	,765	,415
40	18,696	,768	,350

Observation number	Mahalanobis d-squared	p1	p2
45	18,599	,773	,306
19	18,478	,779	,272
97	18,414	,782	,218
57	17,991	,803	,300
62	17,938	,806	,235
32	17,900	,808	,173
16	17,894	,808	,114
25	17,858	,810	,075
75	17,817	,812	,047
49	17,643	,820	,039
48	17,459	,828	,033
23	16,963	,850	,056
2	16,659	,863	,058
37	15,340	,910	,318
7	15,330	,911	,201
22	15,226	,914	,130
10	15,128	,917	,075
29	15,020	,920	,037
72	14,521	,934	,036
91	14,373	,938	,012
68	14,086	,945	,003

Computation of degrees of freedom (Default model)

Number of distinct sample moments:	300
Number of distinct parameters to be estimated:	58
Degrees of freedom (300 - 58):	242

Result (Default model)

Minimum was achieved
Chi-square = 309,764
Degrees of freedom = 242
Probability level = ,002

Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
YN <--- X1N	,172	,052	3,297	***	par_17
YN <--- X2N	,237	,046	5,187	***	par_18
YN <--- X3N	,250	,051	4,908	***	par_19
YN <--- X4N	,311	,072	4,339	***	par_20
X1.5 <--- X1N	1,000				
X1.4 <--- X1N	,996	,181	5,507	***	par_1
X1.3 <--- X1N	1,039	,186	5,592	***	par_2
X1.2 <--- X1N	,787	,159	4,963	***	par_3
X1.1 <--- X1N	1,106	,192	5,750	***	par_4
X2.5 <--- X2N	1,000				
X2.4 <--- X2N	,814	,142	5,716	***	par_5
X2.3 <--- X2N	,841	,157	5,342	***	par_6
X2.2 <--- X2N	,907	,157	5,770	***	par_7
X2.1 <--- X2N	,794	,147	5,411	***	par_8
X3.5 <--- X3N	1,000				
X3.4 <--- X3N	,968	,158	6,110	***	par_9
X3.3 <--- X3N	,803	,139	5,784	***	par_10
X3.2 <--- X3N	,851	,155	5,474	***	par_11
X3.1 <--- X3N	,687	,133	5,170	***	par_12
X4.5 <--- X4N	1,000				
X4.4 <--- X4N	1,043	,240	4,352	***	par_13
X4.3 <--- X4N	1,392	,298	4,672	***	par_14
X4.2 <--- X4N	1,284	,287	4,472	***	par_15
X4.1 <--- X4N	1,367	,296	4,620	***	par_16
Y1.1 <--- YN	1,000				
Y1.2 <--- YN	1,242	,194	6,395	***	par_21
Y1.3 <--- YN	1,206	,188	6,403	***	par_22
Y1.4 <--- YN	1,140	,183	6,219	***	par_23

Standardized Regression Weights: (Group number 1 - Default model)

	Estimate
YN <--- X1N	,205
YN <--- X2N	,310
YN <--- X3N	,361
YN <--- X4N	,271
X1.5 <--- X1N	,535
X1.4 <--- X1N	,536
X1.3 <--- X1N	,532
X1.2 <--- X1N	,458
X1.1 <--- X1N	,571
X2.5 <--- X2N	,560
X2.4 <--- X2N	,533
X2.3 <--- X2N	,484
X2.2 <--- X2N	,546
X2.1 <--- X2N	,501
X3.5 <--- X3N	,585
X3.4 <--- X3N	,602
X3.3 <--- X3N	,561
X3.2 <--- X3N	,518
X3.1 <--- X3N	,481
X4.5 <--- X4N	,398
X4.4 <--- X4N	,447
X4.3 <--- X4N	,553
X4.2 <--- X4N	,500
X4.1 <--- X4N	,531
Y1.1 <--- YN	,527
Y1.2 <--- YN	,564
Y1.3 <--- YN	,569
Y1.4 <--- YN	,547

Modification Indices1 (Group number 1 - Default model)

Covariances: (Group number 1 - Default model)

	M.I.	Par Change
d18 <--> e2	4,452	-,027
d12 <--> X1N	5,409	,022
d12 <--> d17	5,916	-,065
d14 <--> d18	5,418	,048
d8 <--> d12	4,987	-,062
d8 <--> d13	4,673	-,050
d2 <--> d16	7,471	-,062
d2 <--> d6	4,983	,049
d3 <--> d14	4,182	,048
d3 <--> d6	5,539	,053

Variances: (Group number 1 - Default model)

	M.I.	Par Change

Regression Weights: (Group number 1 - Default model)

	M.I.	Par Change
X4.1 <--- X1.2	5,135	-,173
X3.2 <--- X2.3	4,286	-,166
X3.4 <--- X4.3	5,264	,165
X1.2 <--- X2.1	4,214	,160

Modification Indices2 (Group number 1 - Default model)

Covariances: (Group number 1 - Default model)

	M.I.	Par Change
d8 <--> d20	5,696	-,063

Variances: (Group number 1 - Default model)

	M.I.	Par Change

Regression Weights: (Group number 1 - Default model)

	M.I.	Par Change
X2.3 <--- X4.5	4,732	-,162

Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	58	309,764	242	,002	1,280
Saturated model	300	,000	0		
Independence model	24	1408,481	276	,000	5,103

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	,029	,810	,764	,653
Saturated model	,000	1,000		
Independence model	,156	,234	,167	,215

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	,780	,749	,942	,932	,940
Saturated model	1,000		1,000		1,000
Independence model	,000	,000	,000	,000	,000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	,877	,684	,824
Saturated model	,000	,000	,000
Independence model	1,000	,000	,000

NCP

Model	NCP	LO 90	HI 90
Default model	67,764	26,596	117,067
Saturated model	,000	,000	,000
Independence model	1132,481	1018,931	1253,525

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	3,129	,684	,269	1,182
Saturated model	,000	,000	,000	,000
Independence model	14,227	11,439	10,292	12,662

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	,053	,033	,070	,375
Independence model	,204	,193	,214	,000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	425,764	464,954	576,864	634,864
Saturated model	600,000	802,703	1381,551	1681,551
Independence model	1456,481	1472,698	1519,005	1543,005

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	4,301	3,885	4,799	4,697
Saturated model	6,061	6,061	6,061	8,108
Independence model	14,712	13,565	15,935	14,876

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	90	95
Independence model	23	24

Execution time summary

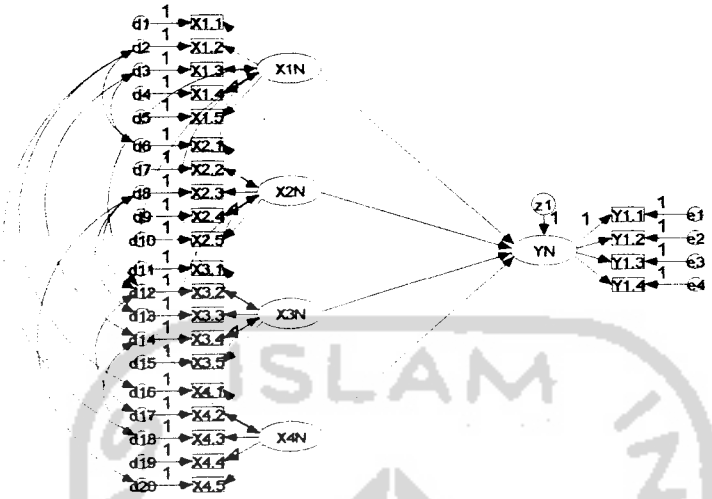
Minimization:	,110
Miscellaneous:	,901
Bootstrap:	,000
Total:	1,011

APPENDICES G:

SEM Nokia after Modification Indices

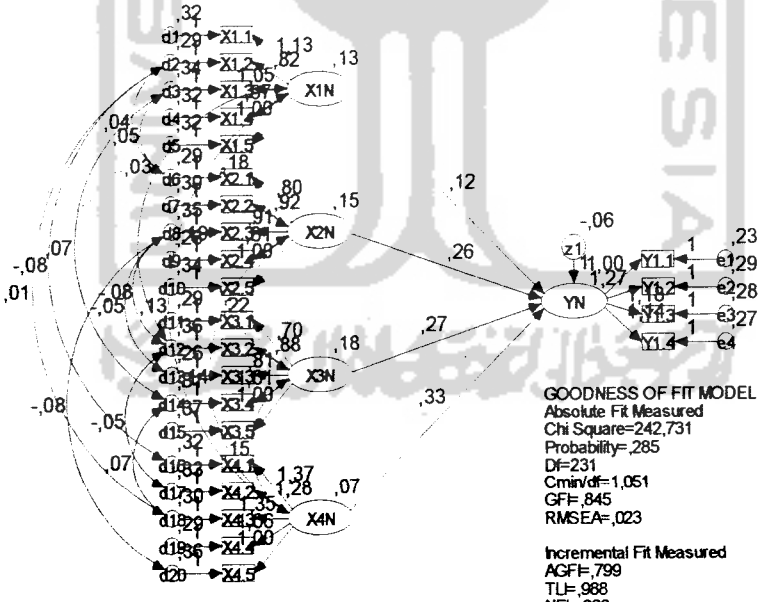
SEM NOKIA AFTER MODIFICATION INDICES

Structural Equation Modeling



RESULT

Structural Equation Modeling



GOODNESS OF FIT MODEL
Absolute Fit Measured
Chi Square=242,731
Probability=,285
Df=231
Cmin/df=1,051
GFI=,845
RMSEA=,023

Incremental Fit Measured
AGFI=,799
TLI=,988
NFI=,828

Parsimonious Fit Measured
PNFI=,693
PGFI=,651

Analysis Summary

Date and Time

Date: 29 Januari 2007
Time: 6:49:41

Title

Sem nokia wawan: 29 Januari 2007 06:49

Notes for Group (Group number 1)

The model is recursive.
Sample size = 100

Variable Summary (Group number 1)

Your model contains the following variables (Group number 1)

Observed, endogenous variables
X1.5
X1.4
X1.3
X1.2
X1.1
X2.5
X2.4
X2.3
X2.2
X2.1
X3.5
X3.4
X3.3
X3.2
X3.1
X4.5
X4.4
X4.3
X4.2
X4.1
Y1.1
Y1.2
Y1.3
Y1.4

Unobserved, endogenous variables
YN
Unobserved, exogenous variables
X1N
d5
d4
d3
d2
d1
X2N
d10
d9
d8
d7
d6
X3N
d15
d14
d13
d12
d11
X4N
d20
d19
d18
d17
d16
e1
e2
e3
e4
z1

Variable counts (Group number 1)

Number of variables in your model:	54
Number of observed variables:	24
Number of unobserved variables:	30
Number of exogenous variables:	29
Number of endogenous variables:	25

Parameter summary (Group number 1)

	Weights	Covariances	Variances	Means	Intercepts	Total
Fixed	30	0	0	0	0	30
Labeled	0	0	0	0	0	0
Unlabeled	23	17	29	0	0	69
Total	53	17	29	0	0	99

Assessment of normality (Group number 1)

Variable	min	max	skew	c.r.	kurtosis	c.r.
Y1.4	1,000	5,000	-1,576	-6,436	2,846	5,810
Y1.3	2,000	5,000	-,775	-3,166	,581	1,185
Y1.2	1,000	5,000	-1,328	-5,423	3,372	6,882
Y1.1	2,000	5,000	-1,188	-4,850	,908	1,854
X4.1	1,000	5,000	-,759	-3,098	,918	1,874
X4.2	1,000	5,000	-,546	-2,228	1,100	2,246
X4.3	1,000	5,000	-1,208	-4,930	2,443	4,986
X4.4	2,000	5,000	-,382	-1,561	-,278	-,568
X4.5	2,000	5,000	-,041	-,167	-,220	-,449
X3.1	2,000	5,000	-,472	-1,926	-,025	-,050
X3.2	1,000	5,000	-,498	-2,035	,872	1,779
X3.3	2,000	5,000	-,684	-2,794	,056	,115
X3.4	1,000	5,000	-1,001	-4,086	2,266	4,626
X3.5	1,000	5,000	-,875	-3,574	1,574	3,213
X2.1	2,000	5,000	-,684	-2,794	,056	,115
X2.2	1,000	5,000	-1,321	-5,395	3,193	6,517
X2.3	2,000	5,000	-,232	-,949	-,112	-,228
X2.4	1,000	5,000	-1,319	-5,386	2,582	5,270
X2.5	1,000	5,000	-,707	-2,888	,969	1,979
X1.1	1,000	5,000	-,580	-2,367	1,168	2,384
X1.2	2,000	5,000	-,595	-2,429	,158	,323
X1.3	1,000	5,000	-,783	-3,199	2,109	4,306
X1.4	2,000	5,000	-,576	-2,350	,116	,236
X1.5	1,000	5,000	-,863	-3,524	1,347	2,749
Multivariate					6,871	,972

Observations farthest from the centroid (Mahalanobis distance) (Group number 1)

Observation number	Mahalanobis d-squared	p1	p2
85	43,105	,010	,622
26	42,215	,012	,345
11	41,984	,013	,141
39	41,424	,015	,064
76	39,448	,024	,100
1	36,156	,053	,438
20	35,416	,062	,435
44	35,198	,066	,332
5	33,309	,098	,652
61	33,088	,102	,578
28	32,888	,106	,502
67	32,841	,107	,389
58	31,778	,133	,575
43	31,611	,137	,508
84	29,945	,187	,858
90	29,068	,218	,940
6	28,914	,223	,923
96	28,857	,226	,889
31	28,847	,226	,836
98	28,275	,249	,895
77	28,121	,255	,876
80	28,110	,255	,822
92	27,904	,264	,811
95	27,876	,265	,751
42	27,802	,268	,697
47	27,633	,276	,674
41	27,421	,285	,668
46	27,274	,292	,639
94	27,151	,297	,602
8	26,909	,309	,612
51	26,679	,320	,618
70	26,097	,348	,756
59	25,797	,364	,788
52	25,476	,380	,824
69	25,423	,383	,782
65	25,071	,402	,830
15	24,727	,421	,871
55	24,516	,432	,877
54	24,489	,434	,838

Observation number	Mahalanobis d-squared	p1	p2
9	24,320	,443	,835
89	24,294	,445	,788
86	23,990	,462	,828
53	23,967	,463	,780
4	23,828	,471	,767
17	23,655	,481	,767
38	23,420	,495	,789
100	23,294	,503	,773
83	23,189	,509	,750
30	22,860	,528	,806
13	22,720	,536	,797
24	22,699	,538	,744
14	22,662	,540	,691
35	22,570	,545	,659
79	22,562	,546	,586
93	22,431	,554	,570
33	22,132	,571	,631
3	22,106	,573	,566
63	22,042	,577	,516
34	21,637	,601	,630
78	21,446	,612	,641
56	21,431	,613	,569
21	21,386	,616	,510
66	21,344	,618	,449
74	21,198	,627	,438
81	21,070	,635	,418
27	20,206	,685	,743
82	19,969	,699	,770
73	19,957	,699	,705
60	19,908	,702	,650
36	19,873	,704	,583
18	19,664	,716	,600
50	19,483	,726	,602
87	19,462	,727	,524
64	19,410	,730	,460
99	19,036	,750	,554
12	18,929	,756	,515
88	18,921	,756	,426
71	18,753	,765	,415
40	18,696	,768	,350

Observation number	Mahalanobis d-squared	p1	p2
45	18,599	,773	,306
19	18,478	,779	,272
97	18,414	,782	,218
57	17,991	,803	,300
62	17,938	,806	,235
32	17,900	,808	,173
16	17,894	,808	,114
25	17,858	,810	,075
75	17,817	,812	,047
49	17,643	,820	,039
48	17,459	,828	,033
23	16,963	,850	,056
2	16,659	,863	,058
37	15,340	,910	,318
7	15,330	,911	,201
22	15,226	,914	,130
10	15,128	,917	,075
29	15,020	,920	,037
72	14,521	,934	,036
91	14,373	,938	,012
68	14,086	,945	,003

Computation of degrees of freedom (Default model)

Number of distinct sample moments:	300
Number of distinct parameters to be estimated:	69
Degrees of freedom (300 - 69):	231

Result (Default model)

Minimum was achieved
Chi-square = 242,731
Degrees of freedom = 231
Probability level = ,285

Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
YN <--- X1N	,119	,050	2,386	,017	par_17
YN <--- X2N	,261	,050	5,268	***	par_18
YN <--- X3N	,268	,057	4,730	***	par_19
YN <--- X4N	,326	,069	4,708	***	par_20
X1.5 <--- X1N	1,000				
X1.4 <--- X1N	,974	,178	5,472	***	par_1
X1.3 <--- X1N	1,055	,183	5,772	***	par_2
X1.2 <--- X1N	,819	,156	5,234	***	par_3
X1.1 <--- X1N	1,133	,194	5,854	***	par_4
X2.5 <--- X2N	1,000				
X2.4 <--- X2N	,815	,144	5,670	***	par_5
X2.3 <--- X2N	,910	,162	5,609	***	par_6
X2.2 <--- X2N	,921	,160	5,768	***	par_7
X2.1 <--- X2N	,801	,147	5,456	***	par_8
X3.5 <--- X3N	1,000				
X3.4 <--- X3N	1,011	,166	6,080	***	par_9
X3.3 <--- X3N	,815	,142	5,750	***	par_10
X3.2 <--- X3N	,878	,158	5,549	***	par_11
X3.1 <--- X3N	,698	,136	5,146	***	par_12
X4.5 <--- X4N	1,000				
X4.4 <--- X4N	1,060	,235	4,518	***	par_13
X4.3 <--- X4N	1,354	,281	4,816	***	par_14
X4.2 <--- X4N	1,277	,279	4,572	***	par_15
X4.1 <--- X4N	1,371	,289	4,745	***	par_16
Y1.1 <--- YN	1,000				
Y1.2 <--- YN	1,272	,197	6,463	***	par_21
Y1.3 <--- YN	1,180	,186	6,358	***	par_22
Y1.4 <--- YN	1,142	,183	6,238	***	par_23

Standardized Regression Weights: (Group number 1 - Default model)

	Estimate
YN <--- X1N	,142
YN <--- X2N	,336
YN <--- X3N	,380
YN <--- X4N	,288
X1.5 <--- X1N	,533
X1.4 <--- X1N	,522
X1.3 <--- X1N	,539
X1.2 <--- X1N	,474
X1.1 <--- X1N	,583
X2.5 <--- X2N	,550
X2.4 <--- X2N	,525
X2.3 <--- X2N	,510
X2.2 <--- X2N	,545
X2.1 <--- X2N	,496
X3.5 <--- X3N	,573
X3.4 <--- X3N	,609
X3.3 <--- X3N	,562
X3.2 <--- X3N	,528
X3.1 <--- X3N	,479
X4.5 <--- X4N	,404
X4.4 <--- X4N	,461
X4.3 <--- X4N	,549
X4.2 <--- X4N	,504
X4.1 <--- X4N	,537
Y1.1 <--- YN	,527
Y1.2 <--- YN	,578
Y1.3 <--- YN	,557
Y1.4 <--- YN	,548

Modification Indices (Group number 1 - Default model)

Covariances: (Group number 1 - Default model)

	M.I.	Par Change

Variances: (Group number 1 - Default model)

	M.I.	Par Change

Regression Weights: (Group number 1 - Default model)

	M.I.	Par Change

Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	69	242,731	231	,285	1,051
Saturated model	300	,000	0		
Independence model	24	1408,481	276	,000	5,103

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	,027	,845	,799	,651
Saturated model	,000	1,000		
Independence model	,156	,234	,167	,215

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	,828	,794	,990	,988	,990
Saturated model	1,000		1,000		1,000
Independence model	,000	,000	,000	,000	,000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	,837	,693	,828
Saturated model	,000	,000	,000
Independence model	1,000	,000	,000

NCP

Model	NCP	LO 90	HI 90
Default model	11,731	,000	53,089
Saturated model	,000	,000	,000
Independence model	1132,481	1018,931	1253,525

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	2,452	,118	,000	,536
Saturated model	,000	,000	,000	,000
Independence model	14,227	11,439	10,292	12,662

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	,023	,000	,048	,964
Independence model	,204	,193	,214	,000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	380,731	427,352	560,488	629,488
Saturated model	600,000	802,703	1381,551	1681,551
Independence model	1456,481	1472,698	1519,005	1543,005

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	3,846	3,727	4,264	4,317
Saturated model	6.061	6,061	6,061	8,108
Independence model	14,712	13,565	15,935	14,876

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	110	116
Independence model	23	24

Execution time summary

Minimization:	,130
Miscellaneous:	1,032
Bootstrap:	,000
Total:	1,162

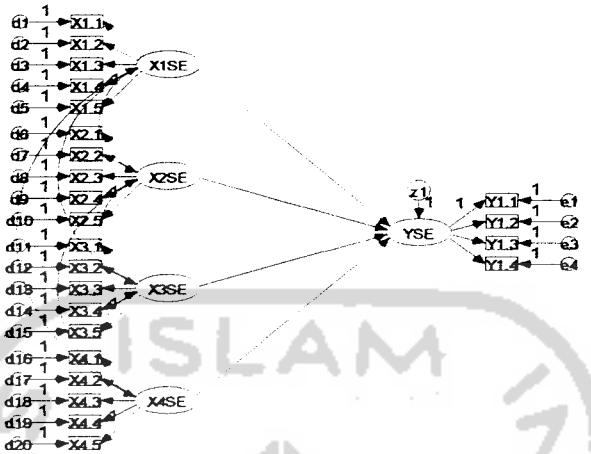
APPENDICES H:

SEM Sony Ericsson before Modification

Indices

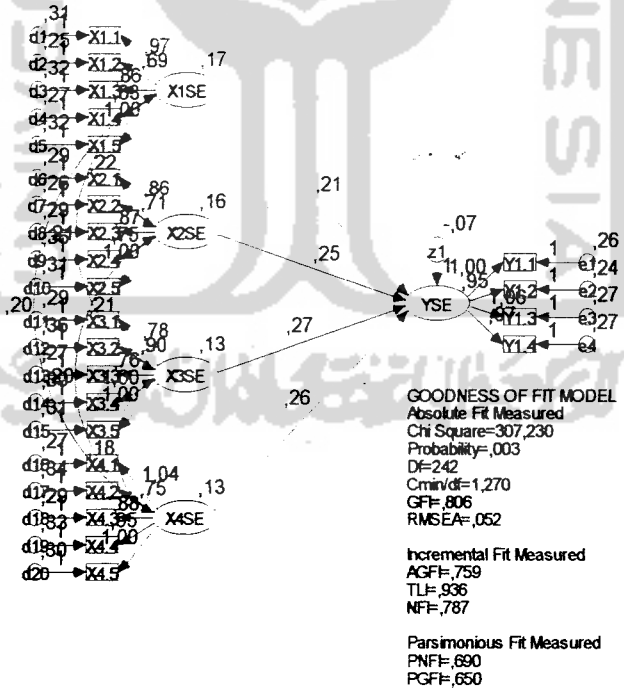
SEM SONY ERICSSON BEFORE MODIFICATION INDICES

Structural Equation Modeling



RESULT

Structural Equation Modeling



Analysis Summary

Date and Time

Date: 28 Januari 2007
Time: 7:08:22

Title

Sem sony erricson wawan: 28 Januari 2007 07:08

Notes for Group (Group number 1)

The model is recursive.
Sample size = 100

Variable Summary (Group number 1)

Your model contains the following variables (Group number 1)

Observed, endogenous variables
X1.5
X1.4
X1.3
X1.2
X1.1
X2.5
X2.4
X2.3
X2.2
X2.1
X3.5
X3.4
X3.3
X3.2
X3.1
X4.5
X4.4
X4.3
X4.2
X4.1
Y1.1
Y1.2
Y1.3
Y1.4

Unobserved, endogenous variables
YSE
Unobserved, exogenous variables
X1SE
d5
d4
d3
d2
d1
X2SE
d10
d9
d8
d7
d6
X3SE
d15
d14
d13
d12
d11
X4SE
d20
d19
d18
d17
d16
e1
e2
e3
e4
z1

Variable counts (Group number 1)

Number of variables in your model:	54
Number of observed variables:	24
Number of unobserved variables:	30
Number of exogenous variables:	29
Number of endogenous variables:	25

Parameter summary (Group number 1)

	Weights	Covariances	Variances	Means	Intercepts	Total
Fixed	30	0	0	0	0	30
Labeled	0	0	0	0	0	0
Unlabeled	23	6	29	0	0	58
Total	53	6	29	0	0	88

Assessment of normality (Group number 1)

Variable	min	max	skew	c.r.	kurtosis	c.r.
Y1.4	1,000	5,000	-1,479	-6,036	2,796	5,708
Y1.3	1,000	5,000	-1,524	-6,221	2,671	5,453
Y1.2	2,000	5,000	-,362	-1,478	-,164	-,335
Y1.1	2,000	5,000	-1,164	-4,751	,680	1,388
X4.1	2,000	5,000	-,383	-1,564	-,297	-,606
X4.2	1,000	5,000	-,805	-3,287	2,467	5,036
X4.3	2,000	5,000	-,654	-2,670	-,246	-,503
X4.4	1,000	5,000	-,708	-2,889	1,094	2,232
X4.5	1,000	5,000	-,672	-2,743	,990	2,020
X3.1	2,000	5,000	-,495	-2,022	-,385	-,786
X3.2	1,000	5,000	-,597	-2,439	1,742	3,556
X3.3	2,000	5,000	-,222	-,908	-,420	-,857
X3.4	1,000	5,000	-,850	-3,469	,919	1,875
X3.5	1,000	5,000	-,551	-2,250	,753	1,537
X2.1	2,000	5,000	-,532	-2,174	-,183	-,373
X2.2	2,000	5,000	-,380	-1,553	-,303	-,618
X2.3	1,000	5,000	-,877	-3,581	1,125	2,296
X2.4	1,000	5,000	-,670	-2,735	1,045	2,132
X2.5	1,000	5,000	-1,098	-4,481	2,077	4,240
X1.1	1,000	5,000	-,652	-2,661	,859	1,754
X1.2	2,000	5,000	-,322	-1,313	-,218	-,445
X1.3	1,000	5,000	-1,025	-4,183	1,347	2,749
X1.4	1,000	5,000	-,894	-3,651	1,727	3,525
X1.5	1,000	5,000	-,707	-2,888	,969	1,979
Multivariate					-5,357	-,758

Observations farthest from the centroid (Mahalanobis distance) (Group number 1)

Observation number	Mahalanobis d-squared	p1	p2
20	41,322	,015	,787
70	40,751	,018	,531
74	38,578	,030	,585
52	35,555	,061	,862
96	33,646	,091	,956
73	33,354	,097	,930
31	33,228	,099	,879
48	33,160	,101	,801
54	32,761	,109	,776
89	30,918	,156	,961
32	30,346	,174	,971
38	29,699	,195	,983
87	29,506	,202	,977
23	29,379	,206	,966
81	28,110	,255	,996
30	27,821	,268	,996
4	27,576	,278	,996
49	27,574	,278	,992
99	27,394	,286	,990
12	27,304	,290	,985
1	27,300	,291	,974
98	27,181	,296	,965
84	26,345	,336	,992
46	26,344	,336	,986
88	25,930	,357	,992
28	25,835	,362	,988
71	25,822	,362	,980
41	25,714	,368	,975
6	25,520	,378	,974
51	25,487	,380	,961
26	25,320	,389	,958
95	25,291	,390	,940
35	25,288	,390	,911
78	25,275	,391	,875
65	25,267	,391	,829
7	25,158	,397	,805
33	25,041	,404	,783
77	25,033	,404	,721
16	25,020	,405	,654

Observation number	Mahalanobis d-squared	p1	p2
55	24,842	,414	,651
39	24,832	,415	,578
34	24,829	,415	,499
47	24,793	,417	,434
10	24,721	,421	,387
91	24,551	,430	,383
92	24,473	,435	,341
85	24,378	,440	,307
66	24,332	,443	,258
29	24,139	,454	,264
62	24,135	,454	,204
50	23,721	,478	,292
75	23,574	,486	,282
22	23,536	,488	,232
59	23,343	,500	,240
80	23,324	,501	,188
61	23,223	,507	,167
76	23,148	,511	,140
90	23,098	,514	,111
18	23,057	,516	,085
21	22,795	,532	,103
69	22,748	,535	,079
56	22,663	,540	,065
94	22,583	,544	,052
82	22,375	,557	,057
67	22,333	,559	,041
11	22,084	,574	,050
45	21,995	,580	,041
79	21,844	,589	,038
19	21,730	,595	,033
44	21,390	,616	,050
3	21,206	,627	,051
57	21,200	,627	,032
42	21,172	,629	,021
5	20,957	,641	,023
25	20,699	,656	,029
37	20,495	,668	,030
72	20,400	,674	,023
97	20,330	,678	,017
17	20,328	,678	,009

Observation number	Mahalanobis d-squared	p1	p2
36	20,308	,679	,005
83	20,306	,679	,003
15	19,968	,699	,004
43	19,939	,700	,002
64	19,608	,719	,003
24	19,466	,727	,003
27	19,205	,741	,003
53	19,081	,748	,002
68	19,072	,748	,001
86	18,582	,774	,002
58	18,407	,783	,002
100	18,268	,790	,001
93	17,835	,811	,002
60	17,571	,823	,002
2	16,570	,866	,015
40	16,262	,878	,014
8	14,953	,922	,103
13	14,408	,937	,117
14	14,159	,943	,071
9	14,135	,944	,021
63	4,372	1,000	1,000

Computation of degrees of freedom (Default model)

Number of distinct sample moments:	300
Number of distinct parameters to be estimated:	58
Degrees of freedom (300 - 58):	242

Result (Default model)

Minimum was achieved
Chi-square = 307,230
Degrees of freedom = 242
Probability level = ,003

Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
YSE <--- X1SE	,212	,046	4,626	***	par_17
YSE <--- X2SE	,250	,050	5,033	***	par_18
YSE <--- X3SE	,267	,051	5,293	***	par_19
YSE <--- X4SE	,256	,051	4,974	***	par_20
X1.5 <--- X1SE	1,000				
X1.4 <--- X1SE	,827	,134	6,165	***	par_1
X1.3 <--- X1SE	,862	,145	5,937	***	par_2
X1.2 <--- X1SE	,689	,123	5,591	***	par_3
X1.1 <--- X1SE	,967	,156	6,213	***	par_4
X2.5 <--- X2SE	1,000				
X2.4 <--- X2SE	,754	,149	5,076	***	par_5
X2.3 <--- X2SE	,874	,150	5,842	***	par_6
X2.2 <--- X2SE	,712	,131	5,431	***	par_7
X2.1 <--- X2SE	,857	,145	5,914	***	par_8
X3.5 <--- X3SE	1,000				
X3.4 <--- X3SE	,998	,172	5,804	***	par_9
X3.3 <--- X3SE	,761	,143	5,320	***	par_10
X3.2 <--- X3SE	,901	,169	5,318	***	par_11
X3.1 <--- X3SE	,779	,150	5,191	***	par_12
X4.5 <--- X4SE	1,000				
X4.4 <--- X4SE	,947	,177	5,343	***	par_13
X4.3 <--- X4SE	,884	,160	5,535	***	par_14
X4.2 <--- X4SE	,753	,152	4,956	***	par_15
X4.1 <--- X4SE	1,045	,174	6,001	***	par_16
Y1.1 <--- YSE	1,000				
Y1.2 <--- YSE	,948	,149	6,344	***	par_21
Y1.3 <--- YSE	1,062	,171	6,230	***	par_22
Y1.4 <--- YSE	,969	,158	6,146	***	par_23

Standardized Regression Weights: (Group number 1 - Default model)

	Estimate
YSE <--- X1SE	,267
YSE <--- X2SE	,305
YSE <--- X3SE	,296
YSE <--- X4SE	,280
X1.5 <--- X1SE	,595
X1.4 <--- X1SE	,554
X1.3 <--- X1SE	,536
X1.2 <--- X1SE	,494
X1.1 <--- X1SE	,586
X2.5 <--- X2SE	,587
X2.4 <--- X2SE	,452
X2.3 <--- X2SE	,549
X2.2 <--- X2SE	,486
X2.1 <--- X2SE	,538
X3.5 <--- X3SE	,546
X3.4 <--- X3SE	,555
X3.3 <--- X3SE	,469
X3.2 <--- X3SE	,482
X3.1 <--- X3SE	,467
X4.5 <--- X4SE	,549
X4.4 <--- X4SE	,509
X4.3 <--- X4SE	,509
X4.2 <--- X4SE	,424
X4.1 <--- X4SE	,588
Y1.1 <--- YSE	,539
Y1.2 <--- YSE	,541
Y1.3 <--- YSE	,560
Y1.4 <--- YSE	,524

Modification Indices (Group number 1 - Default model)

Covariances: (Group number 1 - Default model)

	M.I.	Par Change
d6 <--> d13	6,060	,051
d7 <--> d20	4,268	-,042
d2 <--> d6	9,574	-,060
d3 <--> d8	6,427	,053

Variances: (Group number 1 - Default model)

	M.I.	Par Change

Regression Weights: (Group number 1 - Default model)

	M.I.	Par Change
X4.5 <--- X2.2	4,110	-,155
X2.1 <--- X3.3	5,929	,188
X2.1 <--- X1.2	8,569	-,231
X1.1 <--- Y1.2	4,047	,152
X1.2 <--- X2.1	5,817	-,162
X1.3 <--- X2.3	4,446	,153

Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	58	307,230	242	,003	1,270
Saturated model	300	,000	0		
Independence model	24	1441,349	276	,000	5,222

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	,029	,806	,759	,650
Saturated model	,000	1,000		
Independence model	,152	,229	,162	,210

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	,787	,757	,946	,936	,944
Saturated model	1,000		1,000		1,000
Independence model	,000	,000	,000	,000	,000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	,877	,690	,828
Saturated model	,000	,000	,000
Independence model	1,000	,000	,000

NCP

Model	NCP	LO 90	HI 90
Default model	65,230	24,371	114,233
Saturated model	,000	,000	,000
Independence model	1165,349	1050,291	1287,898

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	3,103	,659	,246	1,154
Saturated model	,000	,000	,000	,000
Independence model	14,559	11,771	10,609	13,009

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	,052	,032	,069	,411
Independence model	,207	,196	,217	,000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	423,230	462,419	574,330	632,330
Saturated model	600,000	802,703	1381,551	1681,551
Independence model	1489,349	1505,566	1551,873	1575,873

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	4,275	3,862	4,770	4,671
Saturated model	6,061	6,061	6,061	8,108
Independence model	15,044	13,882	16,282	15,208

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	90	96
Independence model	22	23

Execution time summary

Minimization:	,110
Miscellaneous:	,881
Bootstrap:	,000
Total:	,991

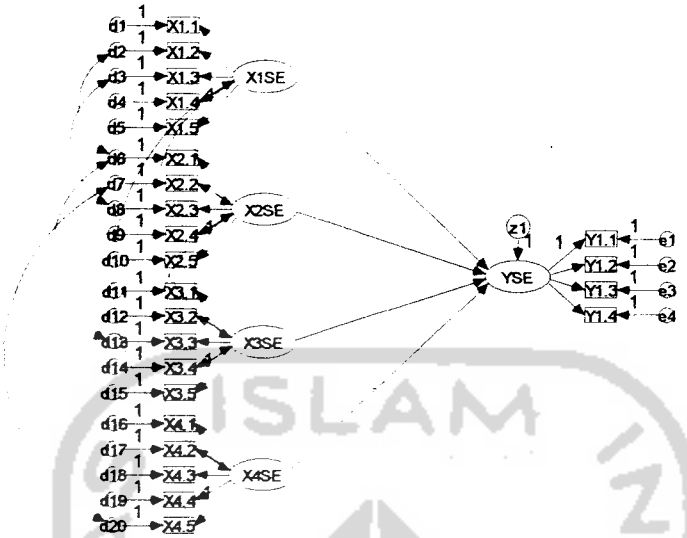
APPENDICES I:

SEM Sony Ericsson after Modification

Indices

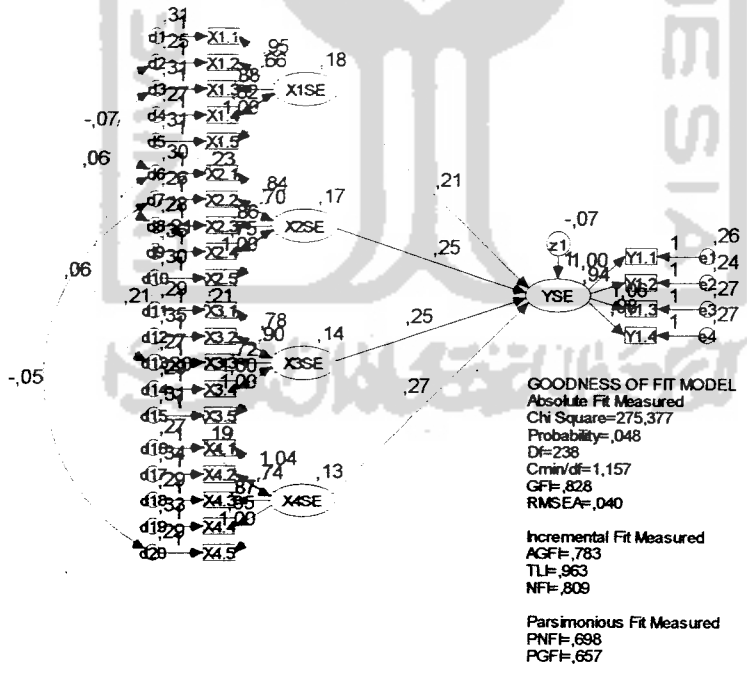
SEM SONY ERICSSON AFTER MODIFICATION INDICES

Structural Equation Modeling



RESULT

Structural Equation Modeling



Analysis Summary

Date and Time

Date: 29 Januari 2007
Time: 7:45:49

Title

Sem sony erricson wawan: 29 Januari 2007 07:45

Notes for Group (Group number 1)

The model is recursive.
Sample size = 100

Variable Summary (Group number 1)

Your model contains the following variables (Group number 1)

Observed, endogenous variables
X1.5
X1.4
X1.3
X1.2
X1.1
X2.5
X2.4
X2.3
X2.2
X2.1
X3.5
X3.4
X3.3
X3.2
X3.1
X4.5
X4.4
X4.3
X4.2
X4.1
Y1.1
Y1.2
Y1.3
Y1.4

Unobserved, endogenous variables
YSE
Unobserved, exogenous variables
X1SE
d5
d4
d3
d2
d1
X2SE
d10
d9
d8
d7
d6
X3SE
d15
d14
d13
d12
d11
X4SE
d20
d19
d18
d17
d16
e1
e2
e3
e4
z1

Variable counts (Group number 1)

Number of variables in your model:	54
Number of observed variables:	24
Number of unobserved variables:	30
Number of exogenous variables:	29
Number of endogenous variables:	25

Parameter summary (Group number 1)

	Weights	Covariances	Variances	Means	Intercepts	Total
Fixed	30	0	0	0	0	30
Labeled	0	0	0	0	0	0
Unlabeled	23	10	29	0	0	62
Total	53	10	29	0	0	92

Assessment of normality (Group number 1)

Variable	min	max	skew	c.r.	kurtosis	c.r.
Y1.4	1,000	5,000	-1,479	-6,036	2,796	5,708
Y1.3	1,000	5,000	-1,524	-6,221	2,671	5,453
Y1.2	2,000	5,000	-,362	-1,478	-,164	-,335
Y1.1	2,000	5,000	-1,164	-4,751	,680	1,388
X4.1	2,000	5,000	-,383	-1,564	-,297	-,606
X4.2	1,000	5,000	-,805	-3,287	2,467	5,036
X4.3	2,000	5,000	-,654	-2,670	-,246	-,503
X4.4	1,000	5,000	-,708	-2,889	1,094	2,232
X4.5	1,000	5,000	-,672	-2,743	,990	2,020
X3.1	2,000	5,000	-,495	-2,022	-,385	-,786
X3.2	1,000	5,000	-,597	-2,439	1,742	3,556
X3.3	2,000	5,000	-,222	-,908	-,420	-,857
X3.4	1,000	5,000	-,850	-3,469	,919	1,875
X3.5	1,000	5,000	-,551	-2,250	,753	1,537
X2.1	2,000	5,000	-,532	-2,174	-,183	-,373
X2.2	2,000	5,000	-,380	-1,553	-,303	-,618
X2.3	1,000	5,000	-,877	-3,581	1,125	2,296
X2.4	1,000	5,000	-,670	-2,735	1,045	2,132
X2.5	1,000	5,000	-1,098	-4,481	2,077	4,240
X1.1	1,000	5,000	-,652	-2,661	,859	1,754
X1.2	2,000	5,000	-,322	-1,313	-,218	-,445
X1.3	1,000	5,000	-1,025	-4,183	1,347	2,749
X1.4	1,000	5,000	-,894	-3,651	1,727	3,525
X1.5	1,000	5,000	-,707	-2,888	,969	1,979
Multivariate					-5,357	-,758

Observations farthest from the centroid (Mahalanobis distance) (Group number 1)

Observation number	Mahalanobis d-squared	p1	p2
20	41,322	,015	,787
70	40,751	,018	,531
74	38,578	,030	,585
52	35,555	,061	,862
96	33,646	,091	,956
73	33,354	,097	,930
31	33,228	,099	,879
48	33,160	,101	,801
54	32,761	,109	,776
89	30,918	,156	,961
32	30,346	,174	,971
38	29,699	,195	,983
87	29,506	,202	,977
23	29,379	,206	,966
81	28,110	,255	,996
30	27,821	,268	,996
4	27,576	,278	,996
49	27,574	,278	,992
99	27,394	,286	,990
12	27,304	,290	,985
1	27,300	,291	,974
98	27,181	,296	,965
84	26,345	,336	,992
46	26,344	,336	,986
88	25,930	,357	,992
28	25,835	,362	,988
71	25,822	,362	,980
41	25,714	,368	,975
6	25,520	,378	,974
51	25,487	,380	,961
26	25,320	,389	,958
95	25,291	,390	,940
35	25,288	,390	,911
78	25,275	,391	,875
65	25,267	,391	,829
7	25,158	,397	,805
33	25,041	,404	,783
77	25,033	,404	,721
16	25,020	,405	,654

Observation number	Mahalanobis d-squared	p1	p2
55	24,842	,414	,651
39	24,832	,415	,578
34	24,829	,415	,499
47	24,793	,417	,434
10	24,721	,421	,387
91	24,551	,430	,383
92	24,473	,435	,341
85	24,378	,440	,307
66	24,332	,443	,258
29	24,139	,454	,264
62	24,135	,454	,204
50	23,721	,478	,292
75	23,574	,486	,282
22	23,536	,488	,232
59	23,343	,500	,240
80	23,324	,501	,188
61	23,223	,507	,167
76	23,148	,511	,140
90	23,098	,514	,111
18	23,057	,516	,085
21	22,795	,532	,103
69	22,748	,535	,079
56	22,663	,540	,065
94	22,583	,544	,052
82	22,375	,557	,057
67	22,333	,559	,041
11	22,084	,574	,050
45	21,995	,580	,041
79	21,844	,589	,038
19	21,730	,595	,033
44	21,390	,616	,050
3	21,206	,627	,051
57	21,200	,627	,032
42	21,172	,629	,021
5	20,957	,641	,023
25	20,699	,656	,029
37	20,495	,668	,030
72	20,400	,674	,023
97	20,330	,678	,017
17	20,328	,678	,009

Observation number	Mahalanobis d-squared	p1	p2
36	20,308	,679	,005
83	20,306	,679	,003
15	19,968	,699	,004
43	19,939	,700	,002
64	19,608	,719	,003
24	19,466	,727	,003
27	19,205	,741	,003
53	19,081	,748	,002
68	19,072	,748	,001
86	18,582	,774	,002
58	18,407	,783	,002
100	18,268	,790	,001
93	17,835	,811	,002
60	17,571	,823	,002
2	16,570	,866	,015
40	16,262	,878	,014
8	14,953	,922	,103
13	14,408	,937	,117
14	14,159	,943	,071
9	14,135	,944	,021
63	4,372	1,000	1,000

Computation of degrees of freedom (Default model)

Number of distinct sample moments:	300
Number of distinct parameters to be estimated:	62
Degrees of freedom (300 - 62):	238

Result (Default model)

Minimum was achieved
Chi-square = 275,377
Degrees of freedom = 238
Probability level = ,048

Regression Weights: (Group number 1 - Default model)

	Estimate	S.E.	C.R.	P	Label
YSE <--- X1SE	,206	,046	4,492	***	par_17
YSE <--- X2SE	,249	,048	5,177	***	par_18
YSE <--- X3SE	,253	,050	5,105	***	par_19
YSE <--- X4SE	,267	,051	5,265	***	par_20
X1.5 <--- X1SE	1,000				
X1.4 <--- X1SE	,818	,131	6,232	***	par_1
X1.3 <--- X1SE	,878	,143	6,139	***	par_2
X1.2 <--- X1SE	,659	,118	5,581	***	par_3
X1.1 <--- X1SE	,948	,152	6,255	***	par_4
X2.5 <--- X2SE	1,000				
X2.4 <--- X2SE	,745	,145	5,124	***	par_5
X2.3 <--- X2SE	,864	,145	5,962	***	par_6
X2.2 <--- X2SE	,705	,127	5,559	***	par_7
X2.1 <--- X2SE	,843	,143	5,897	***	par_8
X3.5 <--- X3SE	1,000				
X3.4 <--- X3SE	,995	,170	5,853	***	par_9
X3.3 <--- X3SE	,719	,140	5,143	***	par_10
X3.2 <--- X3SE	,905	,168	5,380	***	par_11
X3.1 <--- X3SE	,778	,149	5,235	***	par_12
X4.5 <--- X4SE	1,000				
X4.4 <--- X4SE	,946	,173	5,460	***	par_13
X4.3 <--- X4SE	,874	,157	5,571	***	par_14
X4.2 <--- X4SE	,736	,150	4,921	***	par_15
X4.1 <--- X4SE	1,035	,171	6,071	***	par_16
Y1.1 <--- YSE	1,000				
Y1.2 <--- YSE	,943	,149	6,340	***	par_21
Y1.3 <--- YSE	1,058	,170	6,228	***	par_22
Y1.4 <--- YSE	,978	,158	6,180	***	par_23

Standardized Regression Weights: (Group number 1 - Default model)

		Estimate
YSE	<--- X1SE	,265
YSE	<--- X2SE	,308
YSE	<--- X3SE	,284
YSE	<--- X4SE	,293
X1.5	<--- X1SE	,606
X1.4	<--- X1SE	,557
X1.3	<--- X1SE	,554
X1.2	<--- X1SE	,485
X1.1	<--- X1SE	,585
X2.5	<--- X2SE	,594
X2.4	<--- X2SE	,453
X2.3	<--- X2SE	,551
X2.2	<--- X2SE	,491
X2.1	<--- X2SE	,532
X3.5	<--- X3SE	,555
X3.4	<--- X3SE	,562
X3.3	<--- X3SE	,454
X3.2	<--- X3SE	,491
X3.1	<--- X3SE	,473
X4.5	<--- X4SE	,556
X4.4	<--- X4SE	,512
X4.3	<--- X4SE	,508
X4.2	<--- X4SE	,418
X4.1	<--- X4SE	,587
Y1.1	<--- YSE	,540
Y1.2	<--- YSE	,539
Y1.3	<--- YSE	,558
Y1.4	<--- YSE	,530

Modification Indices (Group number 1 - Default model)

Covariances: (Group number 1 - Default model)

	M.I.	Par Change

Variances: (Group number 1 - Default model)

	M.I.	Par Change

Regression Weights: (Group number 1 - Default model)

	M.I.	Par Change

Model Fit Summary

CMIN

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	62	275,377	238	,048	1,157
Saturated model	300	,000	0		
Independence model	24	1441,349	276	,000	5,222

RMR, GFI

Model	RMR	GFI	AGFI	PGFI
Default model	,028	,828	,783	,657
Saturated model	,000	1,000		
Independence model	,152	,229	,162	,210

Baseline Comparisons

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	,809	,778	,969	,963	,968
Saturated model	1,000		1,000		1,000
Independence model	,000	,000	,000	,000	,000

Parsimony-Adjusted Measures

Model	PRATIO	PNFI	PCFI
Default model	,862	,698	,835
Saturated model	,000	,000	,000
Independence model	1,000	,000	,000

NCP

Model	NCP	LO 90	HI 90
Default model	37,377	,337	82,686
Saturated model	,000	,000	,000
Independence model	1165,349	1050,291	1287,898

FMIN

Model	FMIN	F0	LO 90	HI 90
Default model	2,782	,378	,003	,835
Saturated model	,000	,000	,000	,000
Independence model	14,559	11,771	10,609	13,009

RMSEA

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	,040	,004	,059	,787
Independence model	,207	,196	,217	,000

AIC

Model	AIC	BCC	BIC	CAIC
Default model	399,377	441,269	560,897	622,897
Saturated model	600,000	802,703	1381,551	1681,551
Independence model	1489,349	1505,566	1551,873	1575,873

ECVI

Model	ECVI	LO 90	HI 90	MECVI
Default model	4,034	3,660	4,492	4,457
Saturated model	6,061	6,061	6,061	8,108
Independence model	15,044	13,882	16,282	15,208

HOELTER

Model	HOELTER .05	HOELTER .01
Default model	99	105
Independence model	22	23

Execution time summary

Minimization:	,120
Miscellaneous:	,952
Bootstrap:	,000
Total:	1,072