

# Welcome to JARDCS

Journal of Advanced Research in Dynamical and Control Systems presents peer-reviewed survey and original research articles.

ISSN: 1943-023X

[Know More \(about.php\)](#)

## Journal of Advanced Research in Dynamical and Control Systems - JARDCS

**Journal of Advanced Research in Dynamical and Control Systems** examines the entire spectrum of issues related to dynamical systems, focusing on the theory of smooth dynamical systems with analyses of measure-theoretical, topological, and bifurcational aspects. It covers all essential branches of the theory--local, semi local, and global--including the theory of foliations.

The journal also features in-depth papers devoted to control systems research that spotlight the geometric control theory, which unifies Lie-algebraic and differential-geometric methods of investigation in control and optimization, and ultimately relates to the general theory of dynamical systems.

**Journal of Advanced Research in Dynamical and Control Systems** presents peer-reviewed survey and original research articles. Accessible to a broad range of scholars, each survey paper contains all necessary definitions and explanations, a complete over-view of the problem discussed, and a description of its importance and relationship to basic research on the subject.

This publication also features authoritative contributions describing ongoing investigations and innovative solutions to unsolved problems as well as detailed reviews of newly published books relevant to future studies in the field.

## Publisher

Institute of Advanced Scientific Research

## Acceptance Ratio

2008 - 10%

2009 - 15%

2010 - 18%

2011 - 20%

2012 - 46%

2013 - 30%

2014 - 40%

2015 - 50%

2016 - 20%

2017 - 55%

2018 - 58%

## ⌚ Key Dates

---

### **Paper Submission Open:**

10 Aug 2020

### **Final Date for Submission**

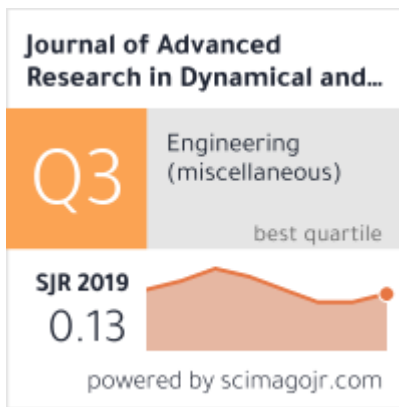
28 Sep 2020

### **Acceptance Notification**

12 Oct 2020

**Scopus coverage: from 2009 to 2015, from 2017 to August 2020**

## Scopus SJR



([https://www.scimagojr.com/journalsearch.php?](https://www.scimagojr.com/journalsearch.php?q=20500195215&tip=sid&exact=no)

[q=20500195215&tip=sid&exact=no](https://www.scimagojr.com/journalsearch.php?q=20500195215&tip=sid&exact=no))

## 💡 News & Events

---

**Scopus coverage : from 2009 to 2015, from 2017 to August 2020**

**submissions@jardc.com is not an official email of the journal and we are not responsible for any of the emails from the same**

**Acceptance will be provided only from the official mail of the journal, acceptance from other sources are not valid.**

**From 2019**, JARDCS will invite special issue papers only through conferences. There will not be any direct special issue submissions other than conference special issue.

### **Call for Research Articles**

JARDCS invites researchers, scholars and authors to submit their original and extended research

***\*Track your article in Article Tracking***

***Track your article*** (<http://jardcs.org/article-tracking.php>)

JARDCS

Journal of Advanced Research in Dynamical and Control Systems presents peer-reviewed survey and original research articles.

Quick Links

Scope of JARDCS (scope.php)

For Contributors (contributors.php)

Online Submission (submission.php)

Article Tracking (article-tracking.php)

Contact (contact.php)

Publication Ethics & Malpractice Statement (publication-ethics-malpractice-statement.php)

Archives

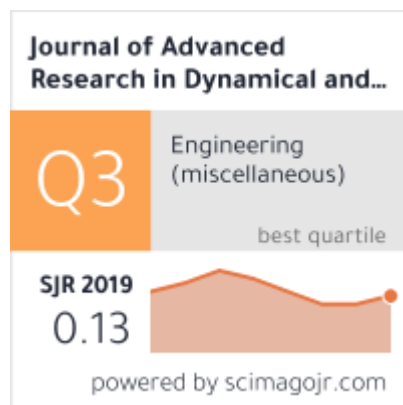
Current Issue (current-issue.php)

All Archives (archives.php)

Special Issues (special-issue.php)

Accepted Articles (accepted-articles.php)

Scopus SJR



([https://www.scimagojr.com/journalsearch.php?](https://www.scimagojr.com/journalsearch.php?q=20500195215&tip=sid&exact=no)


[q=20500195215&tip=sid&exact=no](https://www.scimagojr.com/journalsearch.php?q=20500195215&tip=sid&exact=no))


# ARCHIVES

## VOLUME 11, 08-SPECIAL ISSUE

---

The Influence of Service Quality, Distribution Performance and Customer Orientation to Customer Satisfaction and Its Impact on Corporate Image (Study on Water Supply Company Tirta Siak in Riau Province)

 Samsurijal Hasan, Popo Suryana

 Pages: 1258-1270


 Abstract (<abstract.php?id=2177>)

 Download PDF

---

Developing Project-Based Learning Tools For Science By Utilizing Used Materials

 Muslimin, Muhammad Amran, Abdul Hafid

 Pages: 1271-1280


 Abstract (<abstract.php?id=2178>)

 Download PDF

---

The Development of Marine Resource Conservation In Indonesia

 Lucky Zamzami, Akifumi Iwabuchi, Nursyirwan Effendi, Ermayanti, Hendrawati, Alfian Mik


 Pages: 1281-1288


 Abstract (<abstract.php?id=2179>)

 Download PDF

---

A Thematic Analysis of Employee Competencies in an Uncertain Business Environment: A Study on the Indian Infrastructure Sector

 Arun Aggarwal, Amit Mittal<sup>1</sup>, Mohammad Abdula Rasheed


 Pages: 1289-1301


 Abstract (abstract.php?id=2180)

 Download PDF

---

## An Exploratory Study of Teaching Learning Process in Schools of Delhi for Implementation of Inclusive Education

 Sakshi Ahuja, Dr. G N Tiwari


 Pages: 1302-1309


 Abstract (abstract.php?id=2181)

 Download PDF

---

## Brain Tumor Detection Using Particle Swarm Optimization and Texture Analysis of MRI Images with Minimum Feature Set

 Sakshi Bhandari, Dr. M.S. Choudhry


 Pages: 1310-1320


 Abstract (abstract.php?id=2182)

 Download PDF

---

## Bullying and its Effect on Psychological Health: Challenges and Prevention

 Aanshika Puri, Dr. Neelam Pandey, Dr. Navin Kumar, Dr. Sakshi Mehrotra

 Pages: 1321-1327


 Abstract (abstract.php?id=2183)

 Download PDF

---

## Conflict and Settlement of Paer's Customary Land Tenure in Central Lombok Indonesia

 Yulias Erwin, Khudzaifah Dimyati, Absori

 Pages: 1328-1333


 Abstract (abstract.php?id=2184)

 Download PDF

---

## Implementation of Balinese Typical Puppet Pictures on Ceramic Works as Effort to Preserve Cultural Traditions

 Wayan Mudra


 Pages: 1334-1340


 Abstract (abstract.php?id=2185)

 Download PDF

---

## Investigation of the distinguishing probability a selusoidal signal with different shape parameters depending on the time shift magnitude of the noise

 Leana Jabble Taklef Sarhan, Hayder Salah Abdulameer Alkarooshi, Aqeel Lateef Khudhair Attaby


 Pages: 1341-1347


 Abstract (abstract.php?id=2186)

 Download PDF

---

## Religious Tourism Area: Maintenance and Equity to Bali Mandara

 AnakAgungGde Alit Geria, Made Suarta, Nyoman Suwija

 Pages: 1348-1353


 Abstract (abstract.php?id=2187)

 Download PDF

---

## Micro-savings, Micro-finance and Selfempowerment – Analysis of Rural Women SHGs of Punjab

 Mona Prashar ,Dr Bhupinder Pal Singh Chahal

 Pages: 1354-1359


 Abstract (abstract.php?id=2188)

 Download PDF

---

## Strengthening Private Sector Participation in Public Infrastructure Projects through Concession Policies and Legislations in Nigeria: A Review

 Wilson Nwankwo, Anthony Kifordu


 Pages: 1360-1370


 Abstract (abstract.php?id=2189)

 Download PDF

---

## Stretch Fabrics for Sports Wear fitted to Women's Contours – An Indian Perspective

 Vijay Pal Singh, Dr. Divya Hiran


 Pages: 1371-1375


 Abstract (abstract.php?id=2190)

 Download PDF

---

## Study of Hydraulic Potentials in the Province of Manabí for Electricity Generation

 Jorge Lider Macias Ramos , Antonio Vázquez Pérez , Maria Shirlendy Guerrero Alcivar , Cesar Palma Villavicencio

 Pages: 1376-1385


 Abstract (abstract.php?id=2191)

 Download PDF

---

## The Role of Public-Private Partnership on the Implementation of National Cybersecurity Policies: A Case of Nigeria

 Anthony Kifordu, Wilson Nwankwo, Prof. Wilfred Ukpere


 Pages: 1386-1392


 Abstract (abstract.php?id=2192)

 Download PDF

---

## Uncovering Principal-Agent Behavior in the Village Fund Management Technique

 Subhan Purwadinata, Agus Suman, Susilo, Asfi Manzilati


 Pages: 1393-1401


 Abstract (abstract.php?id=2193)

 Download PDF

---

## Empirical Study on the Internet Service in Vietnam

 Ngo Cao Hoai Linh

 Pages: 1402-1409


 Abstract (abstract.php?id=2194)


 Download PDF

---



## Empirical Study on the University Choice in Vietnam

 Bui Huy Khoi and Dam Tri Cuong

 Pages: 1410-1417


 Abstract (abstract.php?id=2195)

 Download PDF

---

## The Research on Fashion Fake Purchase Intention in Vietnam

 Nguyen Thi Ngan and Bui Huy Khoi


 Pages: 1418-1426


 Abstract (abstract.php?id=2196)

 Download PDF

---

## The Relationship between University Reputation and Behavioural Intention towards Sustainable Development in Vietnam

 Bui Huy Khoi


 Pages: 1427-1445


 Abstract (abstract.php?id=2197)

 Download PDF

---

## The Effect of Brand Image and Perceived Value on Satisfaction and Loyalty at Convenience Stores in Vietnam

 Dam Tri Cuong and Bui Huy Khoi

 Pages: 1446-1454


 Abstract (abstract.php?id=2198)

 Download PDF

---

## Flexible K-Medoids Clustering Technique for Big Data Analytics

 C.K. Praseeda and Dr.B.L. Shivakumar


 Pages: 1455-1462


 Abstract (abstract.php?id=2199)


 Download PDF

---

## A Review on Plant Leaf Disease Identification and Classification

 M. Yogeshwari and R. Varalakshmi


 Pages: 1463-1475


 Abstract (abstract.php?id=2200)


 Download PDF

---

## Hybrid Optimization and Support Vector Machine (SVM) Based Network Selection for Seamless Vertical Handover in Vehicular Networks (VANET)

 S. Angelin Sophy and Dr.I. Laurence Aroquiaraj

 Pages: 1476-1491


 Abstract (abstract.php?id=2201)

 Download PDF

---

## Enhanced Nearest Neighbor-based Clustering Algorithm and Enhanced Artificial Bee Colony (EABC) For Community Detection in Large Networks

 C.S. Saradha and Dr.P. Arul


 Pages: 1492-1504


 Abstract (abstract.php?id=2202)

 Download PDF

---

## Conceptualizing Efficiency in Zimbabwe: A Literature Review

 David Damiyano and Nirmala Dorasamy


 Pages: 1505-1526


 Abstract (abstract.php?id=2203)

 Download PDF

---

## We are Poor in Africa, All Because of Corruption

 Dr. Damiyano David and Nirmala Dorasamy


 Pages: 1527-1537


 Abstract (abstract.php?id=2204)

 Download PDF

---

# A Study on Semantic Web Service Algorithms

 S. Anu Priya

 Pages: 1538-1545


 Abstract (abstract.php?id=2229)


 Download PDF

---

## Key Change and Data Check Happen by TPA in Cloud

 K. Mano Ranjani and S. Surya

 Pages: 1546-1556

 Abstract (abstract.php?id=2231)

 Download PDF

<a href="#">Prev (archivesview.php?volume=1&amp;issue=16&amp;page=5)</a>	<a href="#">1 (archivesview.php?volume=1&amp;issue=16&amp;page=1)</a>	<a href="#">2</a>
<a href="#">(archivesview.php?volume=1&amp;issue=16&amp;page=2)</a>	<a href="#">3 (archivesview.php?volume=1&amp;issue=16&amp;page=3)</a>	<a href="#">4</a>
<a href="#">(archivesview.php?volume=1&amp;issue=16&amp;page=4)</a>	<a href="#">5 (archivesview.php?volume=1&amp;issue=16&amp;page=5)</a>	<a href="#">6</a>
<a href="#">(archivesview.php?volume=1&amp;issue=16&amp;page=7)</a>	<a href="#">8 (archivesview.php?volume=1&amp;issue=16&amp;page=8)</a>	<a href="#">9</a>
<a href="#">(archivesview.php?volume=1&amp;issue=16&amp;page=9)</a>	<a href="#">10 (archivesview.php?volume=1&amp;issue=16&amp;page=10)</a>	<a href="#">11</a>
<a href="#">(archivesview.php?volume=1&amp;issue=16&amp;page=11)</a>	<a href="#">12 (archivesview.php?volume=1&amp;issue=16&amp;page=12)</a>	<a href="#">13</a>
<a href="#">(archivesview.php?volume=1&amp;issue=16&amp;page=13)</a>	<a href="#">14 (archivesview.php?volume=1&amp;issue=16&amp;page=14)</a>	<a href="#">15</a>
<a href="#">(archivesview.php?volume=1&amp;issue=16&amp;page=15)</a>	<a href="#">16 (archivesview.php?volume=1&amp;issue=16&amp;page=16)</a>	<a href="#">Next</a>
<a href="#">(archivesview.php?volume=1&amp;issue=16&amp;page=7)</a>		

 [Back to Archives \(archives.php\)](#)

[Login \(login.php\)](#)

JARDCS

Journal of Advanced Research in Dynamical and Control Systems presents peer-reviewed survey and original research articles.

Quick Links

[Scope of JARDCS \(scope.php\)](#)



For Contributors (contributors.php)

Online Submission (submission.php)

Article Tracking (article-tracking.php)

Contact (contact.php)

Publication Ethics & Malpractice Statement (publication-ethics-malpractice-statement.php)

Archives

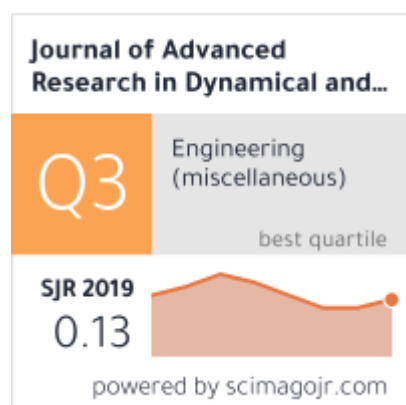
Current Issue (current-issue.php)

All Archives (archives.php)

Special Issues (special-issue.php)

Accepted Articles (accepted-articles.php)

Scopus SJR



([https://www.scimagojr.com/journalsearch.php?](https://www.scimagojr.com/journalsearch.php?q=20500195215&tip=sid&exact=no)

[q=20500195215&tip=sid&exact=no](https://www.scimagojr.com/journalsearch.php?q=20500195215&tip=sid&exact=no))

© JARDCS 2020 All right reserved.


# ARCHIVES


## The Influence of Service Quality, Distribution Performance and Customer Orientation to Customer Satisfaction and Its Impact on Corporate Image (Study on Water Supply Company Tirta Siak in Riau Province)

 Samsurijal Hasan, Popo Suryana

### Abstract

This paper investigates the service quality of Water Supply Company Tirta Siak in Riau Province from distribution performance and customer orientation to customer satisfaction and so the impact for company's image. Water Supply Company has a job to distribute clean water, but the fact that we found many of customers in Water Supply Company Tirta Siak complain about the service of administrative officers, the technical services or others and this can affect to the service quality which can defined by customer perception, expectation, satisfaction, and consumer attitude, these are the factors which can affect to company's image. Here, we need to analyze the quality of services provided by the company especially on Water Supply Company Tirta Siak. This aim to find out the right, clear and measurable empirical picture to analyze and assess the simultaneous effect of service quality, distribution performance, customer orientation on customer satisfaction and its impact to corporate image. The research method used is the survey method and the analysis used is the analysis of Structural Equation Model (SEM) which are able to measure constructs through indicators and analyze indicator variables, latent variables, minimize measurement errors, so that measurements will be more accurate. The study conclude that service quality at Water Supply Company Tirta Siak in good category is very good, but the quality of the water distributed is in a fairly good category. Measured from the dimensions of the problem solving ability and understanding the changes in the behavior of the customers of the Tirta Siak company, the orientation of Tirta Siak's customers is in the good category towards excellent.

 Volume 11 | 08-Special Issue

 Pages: 1258-1270

 [Download PDF](#)

 [Back to Archives \(archives.php\)](#)

[Login \(login.php\)](#)

## JARDCS

Journal of Advanced Research in Dynamical and Control Systems presents peer-reviewed survey and original research articles.

### Quick Links

Scope of JARDCS ([scope.php](#))

For Contributors ([contributors.php](#))

Online Submission ([submission.php](#))

Article Tracking ([article-tracking.php](#))

Contact ([contact.php](#))

Publication Ethics & Malpractice Statement ([publication-ethics-malpractice-statement.php](#))

### Archives

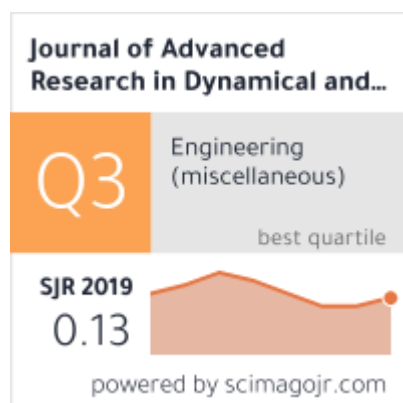
Current Issue ([current-issue.php](#))

All Archives ([archives.php](#))

Special Issues ([special-issue.php](#))

Accepted Articles ([accepted-articles.php](#))

### Scopus SJR



(<https://www.scimagojr.com/journalsearch.php?q=20500195215&tip=sid&exact=no>)

# The Influence of Service Quality, Distribution Performance and Customer Orientation to Customer Satisfaction and Its Impact on Corporate Image (Study on Water Supply Company Tirta Siak in Riau Province)

*Samsurijal Hasan*

*Stie bangkinang Kampar*

*Popo Suryana*

*University of Pasundan Bandung*

**Abstract-**This paper investigates the service quality of Water Supply Company Tirta Siak in Riau Province from distribution performance and customer orientation to customer satisfaction and so the impact for company's image. Water Supply Company has a job to distribute clean water, but the fact that we found many of customers in Water Supply Company Tirta Siak complain about the service of administrative officers, the technical services or others and this can affect to the service quality which can defined by customer perception, expectation, satisfaction, and consumer attitude, these are the factors which can affect to company's image. Here, we need to analyze the quality of services provided by the company especially on Water Supply Company Tirta Siak. This aim to find out the right, clear and measurable empirical picture to analyze and assess the simultaneous effect of service quality, distribution performance, customer orientation on customer satisfaction and its impact to corporate image. The research method used is the survey method and the analysis used is the analysis of Structural Equation Model (SEM) which are able to measure constructs through indicators and analyze indicator variables, latent variables, minimize measurement errors, so that measurements will be more accurate. The study conclude that service quality at Water Supply Company Tirta Siak in good category is very good, but the quality of the water distributed is in a fairly good category. Measured from the dimensions of the problem solving ability and understanding the changes in the behavior of the customers of the Tirta Siak company, the orientation of Tirta Siak's customers is in the good category towards excellent.

**Keywords:** Company, Customer, Quality, Service.

**JEL Classification:** L14, L52, L84.

## I. Introduction

In an effort to identify the problems faced by companies, especially in the field of marketing related to company image, customer satisfaction, distribution performance, customer orientation and service quality, it is illustrated that the Regional Drinking Water Company faces quite poor conditions. Image is one of the most important assets of a company or organization that should be continuously built and maintained. A good image is a powerful device, not only to attract consumers in choosing products or companies, but also can improve customer attitudes and satisfaction with the company. Furthermore, an important element in marketing so that the company has an advantage and delivered to the user/customer is market orientation. By knowing the needs and desires of consumers, the company will be able to provide products or services that are good for consumers.

Thus, the main contribution in this study is to build relationship constructs and the effect of service quality, distribution performance, customer orientation on customer satisfaction and its impact on Water Supply Company image and jointly to test the reciprocal relationships between the five variables in different contexts.

Most of the previous research was carried out in purely profit-oriented business companies, while Water Supply Company were companies that not only sought profit, but also had social responsibility Water Supply Company and adhered to the government bureaucratic system in the area where the Water Supply Company operates. In addition to the service quality mentioned above, actually the satisfaction and image of the company can be formed through performance distribution. The distribution performance referred to in this context is the performance of distribution of clean water or drinking water distribution from upstream to downstream or to customers.

Based on this, the purpose of this paper is to know the right, clear and measurable empirical picture to analyze and assess service quality, distribution performance, customer orientation towards customer satisfaction and the effect and impact on corporate image in Water Supply Company Tirta Siak in Riau Province.

## **II. Theoretical Review**

### **A. Relationship between service quality and distribution performance**

Quality of service is accumulated into distribution performance as measured by the quantity and quality of clean water availability and timeliness of customer complaints. Service quality is one indicator of the realization of the success of a company. The goal of service quality is customers, because customers are the heart of the company to achieve profitability in the long term and the company can survive in the competitive world today and in the future. Quality can be used as a strategic weapon (weapon strategic) in creating a competitive advantage (competitive advantages). In addition, the quality of the company can create corporate values that have a direct impact on a more positive corporate image.

### **B. Relationship between Service Quality and Customer Orientation**

Referring to Kotler (2012) states that what the customers want is more important than the products currently sold to customers. Marketing according to Supranto (2011), must use the concept of how companies know what customers/consumers want and fulfill it by putting customer satisfaction and values as the main things in the basis of analysis. The concept of marketing as a philosophy has a limited practical value. In order to be useful in practice, the marketing concept needs to be bridged by an operational understanding, associated with the quality of customers as researchers who need a relationship between the quality of service and service orientation.

### **C. Relationship of Distribution Performance with Customer Orientation**

Paying attention to customer orientation through salespeople is very important, but research and concepts related to customer orientation itself are still very limited. Referring to Cooper & Schindler (2014), customer orientation behavior that is shown by customer service sellers who are directly related to customers who have been conceptualized as the desire of salespeople to do several things, namely (1) helping customers make satisfying purchasing decisions; (2) help customers assess customer needs; (3) offering services that will satisfy customer needs; (4) provide appropriate services to customers; (5) avoid



fraudulent/manipulative and deceptive ways to influence customers; and does not emphasize/force the customer to influence the customer. The accumulation is a distribution performance.

#### **D. The Influence of Service Quality on Customer Satisfaction**

Customers are the company's top priority in order to maintain the survival of the company. The creation of good service quality to customers will create satisfaction with service. This service satisfaction can ultimately provide several benefits, including the establishment of a harmonious relationship between suppliers of goods and services with customers, providing a good basis for creating customer loyalty and forming a word of mouth that is beneficial for service providers. .

Understanding or meaning of the concept of quality has been given by many experts with a variety of different points of view, resulting in different definitions. Goesth and Davis, quoted by Tjiptono (2011), suggest that quality is defined as "a dynamic condition in which products, services, people, processes and environments that meet or exceed expectations.

Quality provides a special impetus for customers to establish a bond of mutual benefit in the long term with the company. This kind of emotional bond allows the company to understand carefully the expectations and specific needs of the customer. The level of service quality perceived by customers can be measured by comparing the expected service quality with the perception of the quality of real services received by the customer.

#### **E. The Effect of Distribution Performance on Customer Satisfaction**

Distribution performance is carried out in a marketing distribution strategic plan. Distribution strategy is the problem of determining the way in which companies try to sell their products to the market, whether to use X, Y or other suppliers. This is not a simple problem. For this reason, all management must try to distinguish all existing alternatives and use several analytical methods to assess each alternative (Suryanto, 2016).

Many companies use several combinations of distribution channels to reach different market segments. The distribution system is not only different between companies, but also often changes from time to time.

#### **G. Research Hypothesis**

Based on the study of theories and frameworks stated earlier, the hypothesis of this study are as follows:

Service quality, distribution performance and customer orientation simultaneously influence customer satisfaction.

1. Customer satisfaction affects the company's image.
2. Quality of service affects customer satisfaction.
3. Distribution performance influences customer satisfaction.
4. Customer orientation influences customer satisfaction.

### **III. Research Method**

The research is quantitative research, where research data in the form of numbers or qualitative data is quantified and the results of the research are in the form of analysis using a statistical approach (Rully

and Yuniawati, 2014). This type of research includes explanatory research, namely the type of research focused on explanations of theories and research findings previously.

The research method used is the survey method. The survey method is a method for collecting data through a sample of the population with the main instrument in the form of a questionnaire and supported by interviews and observations (Priadana & Saludin, 2009). The survey method is defined as explanatory survey, which describes population and samples to explain the relationship between variables examined (Priyatno, 2014).

The data used in this study is a cross section, namely research conducted at a certain time period. The type of research used is descriptive-verification, meaning that researchers try to test subordinates of problems whose truth is temporary (hypothesis) based on empirical data. Descriptive analysis describes the independent variables and dependent variables which will be the theoretical basis in the study. Verification analysis is carried out to test hypotheses using statistical tests (Hai et.al, 2010). The verification analysis used in this study is the analysis of the Structural Equation Model (SEM) which is able to measure constructs through indicators and analyze indicator variables, latent variables, minimize measurement errors, so that measurements will be more accurate.

Based on theoretical studies as outlined in theoretical studies, research variables, operational definitions of variables, dimensions or measurement parameters, and indicators of each dimension can be determined. Variables are everything in the form of what is determined by the researcher to be studied, so that information is obtained about it, and then conclusions are drawn (Sugiyono, 2012).

This study consists of 5 (five) variables, namely: (1) Service Quality (X1), (2) Distribution Performance (X2), (3) Customer Orientation (X3), as an independent variable; (4) Customer Satisfaction (Y), as a dependent variable (dependent variable) as well as an intermediate variable; and (5) Corporate Image (Z), as a dependent variable.

#### **A. Sampling Technique**

Riau Province has 6 Water Supply Companies in 6 Regencies/Cities, namely Pekanbaru City, Kampar Regency, Bengkalis Regency, Indragiri Hulu Regency, and Indragiri Hilir Regency, and Dumai City. while in the 6 other regencies namely Kepulauan Meranti Regency, Siak Regency, Pelalawan Regency, Rokan Hulu Regency, Rokan Hilir Regency and Kuansing Regency, clean water management in the form of the Clean Water Management Agency (BPAB) and became part of the Public Works and Settlement Service tasks.

The Tirta Kampar Regional Water Company (Water Supply Company) is located in Bangkinang City, the capital of Kampar Regency and Water Supply Company Tirta Siak located in Pekanbaru City and Water Supply Company Tirta Indragiri in Tembilahan City, the capital city of Indragiri Hilir Regency. Until the end of 2015, the number of customers of Water Supply Company Tirta Kampar reached 6,208 customers, Water Supply Company Tirta Siak as many as 12,688 customers and Water Supply Company Tirta Indragiri as many as 15,303 customers, with details as follows:

**Table 1.** Classification and Total Customer Water Supply Company Tirta Kampar, Tirta Siak and Tirta Indragiri 2016

No	Classification	Total Costumer (specimen)		
		Tirta Kampar	Tirta Siak	Tirta Indragiri
1	Government Agencies	89	119	513
2	Big Commercial	11	95	265
3	Small Commercial	409	3256	1471
4	Household 1	867	256	12948
5	Household 2	4.625	3.719	0
6	Household 3	89	4702	0
7	Household 4	0	446	3
8	General Social Affairs	51	33	104
9	Special Social	67	60	0
10	Small Industry	0	2	2
SUM		6.208	12.688	15.306
TOTAL		34.202		

Source : Annual Repor of Water Supply Company (Tirta Kampar, Tirta Siak, dan Tirta Indragiri 2016)

The population in this study were all customers of Water Supply Company Tirta Kampar, Water Supply Company Tirta Siak, and Water Supply Company Tirta Indragiri. Based on customer data document studies, it was found that the number of customers of Water Supply Company Tirta Kampar was 6,208 people, customers of Water Supply Company Tirta Siak were 12,688 customers, and Water Supply Company Tirta Indragiri were 15,309 customers with a total population of 34,205 customers.

In this study, the first researchers determined Water Supply Company customer clusters in Water Supply Company region, namely Water Supply Company Tirta Siak. The selection of this company is based on the characteristics of the region where Water Supply Company Tirta Siak represents the character of the area between land and coast. Second, determine the sample based on strata. Determination of the number of samples described from the assumption of sample returns without returns (without replacement/wor) which uses the population as one of the elements in the formulation. According to Kadir (2015), one formulation that can be used is as follows:

$$n = \frac{Nz^2pq}{(z^2pq + Ne)p}$$

- n :Minimum number of samples needed
- N :Population
- p :The proportion of events to population (0,5)
- q :1-p
- e : Relative precision (5%)
- Deff :Design effect = 2
- r :Anticipate a response rate of95%
- Z : Realibility coefficient (1,96)

In this study the population amounted to 34.205, then obtained the sample size as follows:

$$n = \left( \frac{34205 (1,96)^2(0,5) (0,5) 2}{((1,96)^2(0,5)(0,5) + 34205 (0,05)^2(0,5)^2)0,95} \right)$$

$$n = \left( \frac{65695,2016}{77,81886} \right)$$

$$n = 844,2$$

Because the results obtained from the above formula are as much as 844.2 respondents and taking into account the diversity of the population from various aspects, then the number of samples is set at 895 people with details of the following causes.

**Table 2.** Sample Size of Each Cluster

No	Water Supply Company	Number of Customers (Specimen)	Sample of Each cluster (Specimen)	Percentage (%)
1	Tirta Siak	12.688	300	32,40
2	Tirta Kampar	6.208	290	33,52
3	Tirta Indragiri	15.309	305	34,08
	Jumlah	34.205	895	100

Source : Processing Data 2017

This study uses data collected by questionnaire techniques, namely by giving written statements to respondents. Then the respondent gave a response to the statement given. Given the data collection is done using a questionnaire, the sincerity of respondents in answering questions and measuring instruments and instruments used is very important to get the results of research that is representative.

The validity of the collected data is determined by the validity test and reliability test. In order to examine the relationship and influence of service quality variables, distribution performance, customer orientation, customer satisfaction, and company image, the researcher used Structural Equation Model (SEM) analysis tools. SEM is a multiple equation model developed from the principle of econometrics and combined with the regulatory principle of psychology and sociology (Singgih, 2014).

#### IV. Results And Discussion

##### A. Instrument Testing

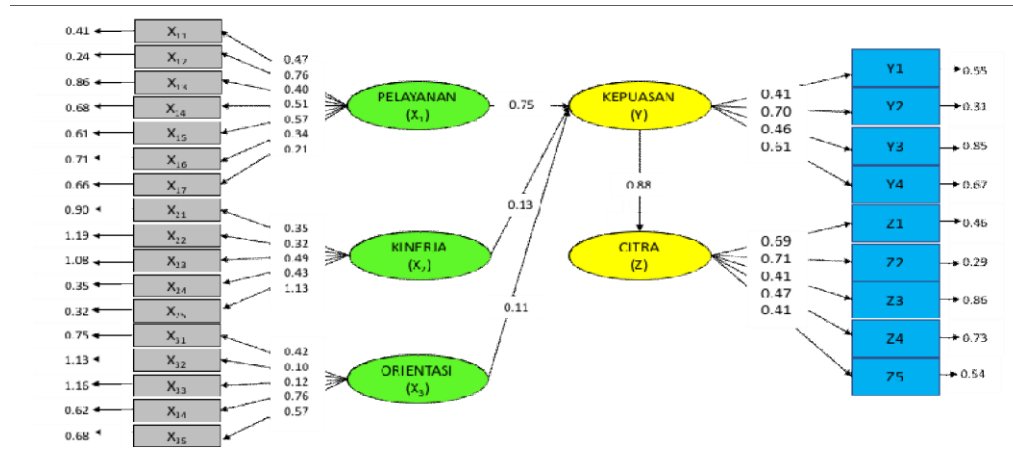
Based on the results of research that has been done and tabulation of data obtained from questionnaires to consumers who have been selected as respondents according to the criteria set. The research variables used are: Independent variables consisting of Service Quality Variables (X1), Distribution Performance Variables (X2), and Customer Orientation Variables (X3) while the Intervening Variables are Customer Satisfaction Variables (Y), and their impact on the dependent variable (Z) namely Corporate Image.

The discussion of this study was conducted by analyzing the Effect of Service Quality, Distribution Performance, and Customer Orientation on Customer Satisfaction and its impact on the Corporate Image. However, the unit only discussed with customers of Water Supply Company Tirta Siak in Riau Province.

##### B. Verification Analysis

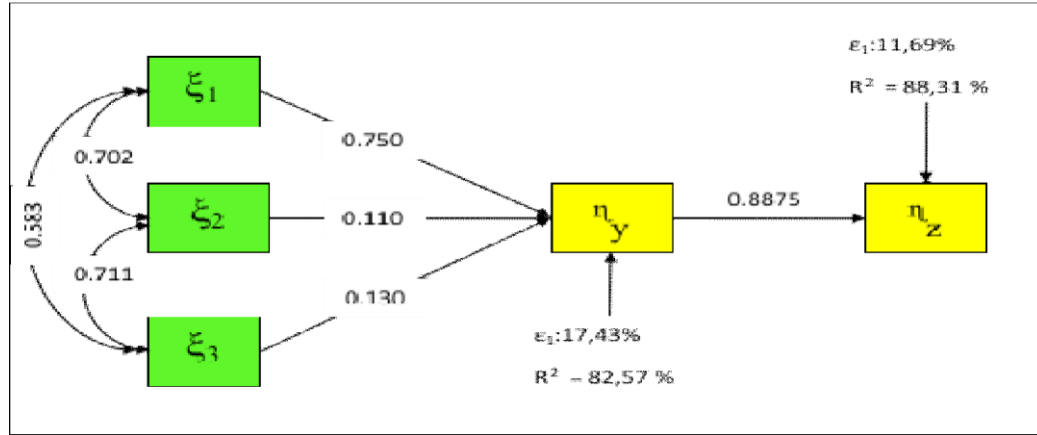
After analyzing the research instruments, scaling analysis and descriptive analysis, the verification analysis was then carried out by testing the hypothesis testing formula based on Structural Equation Modeling (SEM). The LISREL estimation results, each dimension of the study, needs to be explained further. This explanation is needed because each variable is measured indirectly, but is formed by a number of indicators that need to be examined for its role in forming these variables.

As a result of using Structural Equation Modeling using LISREL 8.8 for Water Supply Company Tirta Siak, the model as shown in Figure 1 is obtained and the structural influence and overall path coefficient of the variable are as follows:



Source : Processing Data 2017

**Figure 1.** Structure of the Relationship of All Research Variables at Water Supply Company Tirta Siak



Source : Processing Data 2017

Figure2

C. Effect of Service Quality, Distribution Performance and Customer Orientation on Customer Satisfaction

Substructural model 1 illustrates the relationship between the Effect of Service Quality, Distribution Performance, and Customer Orientation on Customer Satisfaction, which is stated in the hypothesis as follows: That Service Quality, Distribution Performance, and Customer Orientation influence Customer Satisfaction both partially and simultaneously. Based on the results of processing the Lisrel data program for the substructure 1 model, according to the hypothesis proposed for each Water Supply Company the following results are obtained:

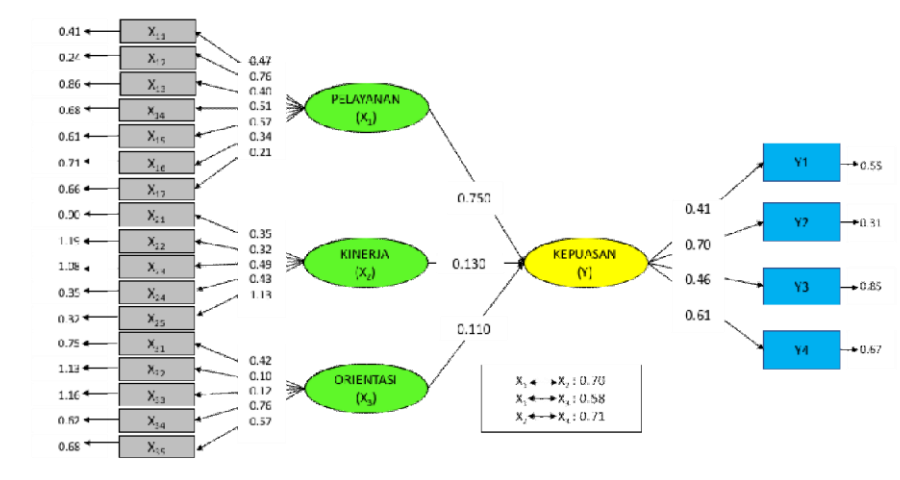
The results of the lisrel program data processing for the substructure 1 model for Water Supply Company Tirta Siak are:

$$\text{Kepuasan} = 0.75 \cdot \text{Pelayanan} + 0.13 \cdot \text{Kinerja} + 0.11 \cdot \text{Orientasi}, \text{ Errorvar.} = 0.43, R^2 = 0.8257$$

(0.082)	(0.057)	(0.063)	(0.090)
9.15	-0.50	-0.098	4.76

Based on the equation above, it can be explained that the Consumer Satisfaction variable is positively influenced by Service Quality with a path coefficient of 0.75, Distribution Performance with a path coefficient of 0.13 and a Customer Orientation with a path coefficient of 0.11. For the path coefficient X1 against Y of 0.75, it means that if Service Quality has increased, Customer Satisfaction will increase by 0.75 units or the Role of Service Quality contributes to the increase in Customer Satisfaction by 0.75 units.

While the path coefficient X2 to Y is 0.13 means that if the Distribution Performance has increased then Consumer Satisfaction will increase by 0.13 units or Distribution Performance will contribute to the increase in Customer Satisfaction of 0.13 units. For the path coefficient X3 against Y of 0.11, it means that if the Customer Orientation increases, Consumer Satisfaction will increase by 0.11 units or Customer Orientation will contribute to the increase in Customer Satisfaction by 0.11 units. Thus the proposed conceptual hypothesis has been tested and accepted. In complete structural models for substructure 1 can be described as follows:



Source : Processing Data 2017

**Figure 3.** Koefisien Jalur Kualitas Pelayanan, Kinerja Distribusi dan Orientasi Pelanggan Terhadap Kepuasan Pelanggan pada Water Supply Company Tirta Siak

The magnitude of the direct and indirect influence of Service Quality, Distribution Performance, and Customer Orientation on Consumer Satisfaction in Water Supply Company Tirta Siak as where Table 14. following:

**Table 14.** Variable Direct and Indirect Effects of Service Quality, Distribution Performance and Customer Orientation on Customer Satisfaction in Water Supply Company Tirta Siak

	Koefisien Jalur	Pengaruh Langsung	Pengaruh Melalui			Total
			Kualitas Pelayanan	Kinerja Distribusi	Orientasi Pelanggan	
Kualitas Pelayanan	0.75	56,25%		6,83%	4,79%	67.86%
Kinerja Distribusi	0.13	1,69%	6,83%		0,10%	8,62%
Orientasi Pelanggan	0.11	1,21%	4,79%	0,10%		6,10%
<b>Total</b>		<b>59.15%</b>	<b>11,61%</b>	<b>6,93%</b>	<b>4,89%</b>	<b>82.57%</b>

Source : Processing Data 2017

Based on the Table above it can be seen that the influence of Service Quality, Distribution Performance, and Customer Orientation on Customer Satisfaction is influenced by direct and indirect influences. The direct effect of the variable Service Quality on Customer Satisfaction is 56.25% while the indirect effects through Distribution Performance and Customer Orientation are respectively 6.83% and 4.79%. The direct effect of the Distribution Performance variable on Customer Satisfaction is 1.69% while the indirect effect through Service Quality is 6.83% and the Customer Orientation is 0.10%. The direct effect of the Customer Orientation variable on Customer Satisfaction is 1.21% while the indirect effects through Service Quality and Distribution Performance are respectively 4.79% and 0.10%.

Based on the results of the calculation of the partial effect the biggest part is the Service Quality variable with a total influence on Customer Satisfaction of 67.86%. Nevertheless the influence of other variables that influence the Consumer Satisfaction studied in this study is also relatively large, namely Distribution Performance of 8.62% and Customer Orientation of 6.10%.

$$F = \frac{(n - k - 1)R^2_{yxk}}{k(1 - R^2_{yxk})}$$

$$F = \frac{(300 - 3 - 1)0,57}{3(1 - 0,57)} = 130.79$$

Based on the calculation, the calculated F value is 130.79, where the criterion rejects H0 if Fcount is greater than Ftable or  $F_0 > F_{table}$ , with free degrees  $v_1 = 3$  and  $v_2 = 300 - 3 - 1 = 296$  and 95% confidence level, then from the distribution table F obtained Ftable value for  $F_{0.05, 3, 296} = 2.6351$ . Because 130.79 is greater than 2,6351, then H0 is rejected, meaning that there is a linear relationship or joint effect between Service Quality, Distribution Performance, and Customer Orientation on Customer Satisfaction in Water Supply Company Tirta Siak.

#### **D. Effect of Customer Satisfaction on Corporate Image**

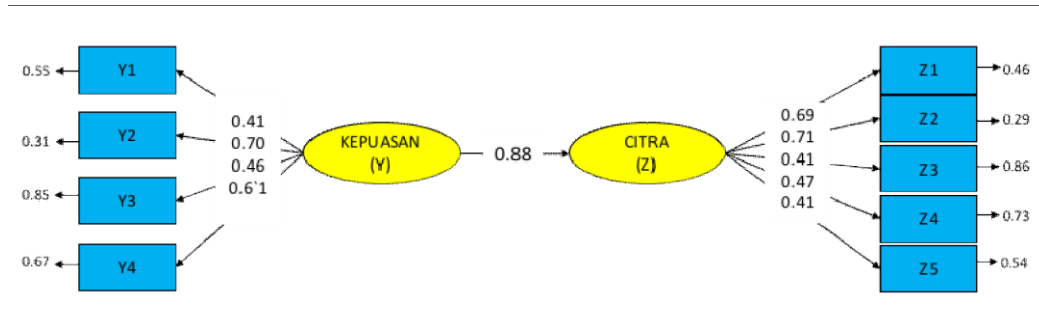
The next hypothesis testing is done on substructure 2 model which describes the relationship between the Customer Satisfaction variable on the Company Image variable, which is stated by the hypothesis as follows: "Customer Satisfaction Impacts the Company Image". After processing data using the Lisrel program for the substructure 2 model, according to the hypothesis proposed, the results for Water Supply Company Tirta Siak is as follows:

The results of processing the lisrel program for the substructure 2 model for Water Supply Company Tirta Siak are:

$$\begin{array}{l} \text{Citra} = 0.88 * \text{Kepuasan} + \text{Errorvar.} = 0.23, R^2 = 0.8831 \\ \quad \quad \quad (0.11) \quad \quad \quad (0.072) \\ 7.90 \quad \quad \quad 3.15 \end{array}$$

Based on the equation above, it can be explained that the Corporate Image variable is positively influenced by the Customer Satisfaction variable with a path coefficient of 0.88, meaning that if Customer Satisfaction increases, the Corporate Image will increase by 0.88 or have an impact on increasing the Company's Image by 0.88 units . Thus the proposed conceptual hypothesis is tested and acceptable. The structural model for substructure 2 is described as follows:





**Figure 3.**Koefisien Jalur Kepuasan Pelanggan Terhadap Citra Perusahaan Water Supply Company Tirta Siak

**F. Hypothesis Testing**

Hypothesis testing is statistically, in terms of the effect or impact of the Customer Satisfaction variable (Y) on the Corporate Image (Z) in Water Supply Company Tirta Siak.

Ho:  $\gamma = 0$ : There is no significant effect of Customer Satisfaction on Corporate Image

Ha:  $\gamma \neq 0$ : There is a significant effect of Customer Satisfaction on Corporate Image

**Tabel 18.**Customer Satisfaction Test Results on Company Image of Water Supply Company Tirta Siak

Structural	Path Coeff.	t-count	t-table	Evidence
$\beta_1$	0.88	14.760	1.967957	H0 is rejected, there is a significant effect of Customer Satisfaction on Corporate Image in Water Supply Company Tirta Siak
Test criteria : Reject H0, if thitung greater than ttabel or $t_0 > t_{tabel}$ , with $df = 300 - 3 - 1 = 296$				

Source : Processing Data 2017

For path coefficient Y against Z = 0.88, the value of tcount is 14.760 by taking the significance level of  $\alpha$  of 5%, then the value of ttable or  $t_{0.05.298} = 1.967957$ , so that tcount = 14.760 is greater than t table = 1.967957, then H0 is rejected. Thus the variable Customer Satisfaction has an effect on the Corporate Image variable of 0.88 so that any increase in the Customer Satisfaction variable will increase the variable Image of the Company by 0.88 units.

**F. Model Feasibility Testing**

The results of the model feasibility test show that the research model meets the criteria of the goodness of an econometric model or characteristics that can be expected and described as follows.

**G. Theoretical Plausibility**

This research model shows that the test results are in accordance with their expectations and marketing management theory which is the rationale with the study of the effect of Service Quality,

Distribution Performance and Customer Orientation on Customer Satisfaction and its impact on the Corporate Image, the same results for all Water Supply Company.

**Tabel 19.** Model Suitability Test Results

Inter-Variable Relationships	Pra-estimation	Pasca estimation	Suitability
Effect of Service Quality on Customer Satisfaction	+	+	Suitable
Effect of Distribution Performance on Customer Satisfaction	+	+	Suitable
Effect of Customer Orientation on Customer Satisfaction	+	+	Suitable
Effect of Customer Satisfaction on Corporate Image	+	+	Suitable

Source : Processing Data 2017

## V. Conclusion

Based on the results of the analysis of the variables studied, namely service quality, distribution performance, customer orientation and customer satisfaction and company image using descriptive analysis, verification analysis and hypothesis testing, the conclusions of this study are as follows:

1. Service Quality in Water Supply Company Tirta Siak in the good category is very good. In Tirta Siak and Tirta Indragiri is the dimension of competence with the lowest indicator is the employee skills with a fairly good category.
2. The distribution performance of Water Supply Company Tirta Siak in the good category is very good. The dimension of forming the biggest variable is the dimension of quantity of water distribution, then the dimension of community with good categories is very good.  
The lowest dimension is the quality of water with the lowest indicator is the quality of water channeled in a fairly good category.
3. The customer orientation in Water Supply Company Tirta Siak categories is good to very good. The dimension of the biggest variable is the dimension of ability to solve customer problems in Water Supply Company Tirta Siak followed by dimensions of understanding customer behavior changes in a good category towards very well. Whereas the biggest dimension in Tirta Indragiri is understanding changes in customer behavior and the dimensions of the ability to solve customer problems with a good category towards excellent.
4. The lowest dimension is to provide information with the lowest indicator is clarity about the tariff with a fairly good category.

5. Customer satisfaction in Water Supply Company Tirta Siak in the good category is very good. The biggest variable forming dimension in Water Supply Company Tirta Siak is dimensions of price or drinking water tariffs as well as costs and ease of new connections with good categories to very good.  
The lowest dimension is product quality with the lowest indicator is the quality of water distributed to customers is quite good category.
6. The image of the company in Water Supply Company Tirta Siak in the good category is very good. The dimension of the biggest variable is the dimension of perceptions and real experiences of customers in the category of good to very good.  
The lowest dimension is the ad with the lowest indicator is the ad that is installed by the Water Supply Company with a fairly good category.

## References

- [1] Cooper & Schindler, 2014. Service Marketing. New York. The McGraw-Hill Companies. Inc
- [2] Hair, et.al., 2010, Multivariate Data Analysis, Seventh Edition. Pearson Prentice Hall.
- [3] Kadir. 2015. Statistika Terapan (konsep, contoh dan Analisis data dengan Program SPSS.Lisrel dalam Penelitian. Raja Grafindo Persada. Bogor.
- [4] Kotler, 2012, Manajemen Pemasaran Perspektif Asia, Buku Dua, Edisi Pertama Andy, Yogyakarta.
- [5] J., Yakubu H., Aboiyar T., and Zirra P. B.. "An improved RSA image encryption algorithm using 1-D logistic map." International Journal of Communication and Computer Technologies 6.1 (2018), 1-6.
- [6] Pb Agus Ristono\*, "Design Of Reliable And Efficient Manchester Carry Chain Adder Based 8-Bit Alu For High Speed Applications", Journal Of VLSI Circuits And Systems, 1 (01), 1-4, 2019
- [7] Singih Santoso. 2014. Konsep Dasar dan Aplikasi dengan SEM dan AMOS. Elex Media Compuindo. Jakarta
- [8] Suryanto Mikael Hang. 2016. Sistem Operasional Manajemen Distribusi. Grasindo. Jakarta
- [9] Supranto. 2011. Pengukuran Tingkat Kepuasan Pelanggan. Rineka Cipta. Jakarta
- [10] Tjiptono Fandy. 2011, Pemasaran Strategik. Andi Offset. Yogyakarta